

DRAFT

# ENVIRONMENTAL IMPACT REPORT

## Design Level Geotechnical Investigations for the Pacheco Reservoir Expansion Project

State Clearing House # 2024060688

MARCH 2025



Valley Water







# **Design Level Geotechnical Investigations for the Pacheco Reservoir Expansion Project**

## **Public Draft Environmental Impact Report**

State Clearinghouse Number: 2024060688

Santa Clara Valley Water District  
5750 Almaden Expressway  
San Jose, California 95118-3614

Project Number 91954002

March 2025

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## Acronyms and Abbreviations

°C	degrees Celsius
°F	degrees Fahrenheit
µg/m <sup>3</sup>	micrograms per cubic meter
AADT	annual average daily traffic
AB	Assembly Bill
ABAG	Association of Bay Area Governments
ADL	aerially deposited lead
AIS	aquatic invasive species
AMM	avoidance and minimization measure
AMTB	Amah Mutsun Tribal Band
APE	area of potential effects
AR	Agricultural Ranchlands
ATCM	Airborne Toxic Control Measure
ATV	all-terrain vehicle
BAAQMD	Bay Area Air Quality Management District
Bay Area	San Francisco Bay Area
BMP	best management practice
Board	Valley Water Board of Directors
CAA	Clean Air Act
CAAQS	California ambient air quality standard
CAL FIRE	California Department of Forestry and Fire Protection
Cal OES	California Governor's Office of Emergency Services
Cal/OSHA	California Occupational Safety and Health Administration
CalEPA	California Environmental Protection Agency
Caltrans	California Department of Transportation
CARB	California Air Resources Board





CC Basin Plan	Water Quality Control Plan for the Central Coast Basin
CCAA	California Clean Air Act
CCAP	Climate Change Action Plan
CCR	California Code of Regulations
CCRWQCB	Central Coast Regional Water Quality Control Board
CDC	Centers of Disease Control
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFC	California Fire Code
CFR	Code of Federal Regulations
cfs	cubic feet per second
CH <sub>4</sub>	methane
CHP	California Highway Patrol
CWA	Clean Water Act
CMP	Congestion Management Program
CNDDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CO	carbon monoxide
CO <sub>2</sub>	carbon dioxide
CO <sub>2</sub> e	carbon dioxide equivalent
County Code	Santa Clara County Code of Ordinances
County Parks and Recreation Department	Santa Clara County Parks and Recreation Department
COZEPP	construction and maintenance zone enhanced enforcement
CPUC	California Public Utilities Commission
CRHR	California Register of Historical Resources
CUPA	Certified Unified Program Agency



CWA	Clean Water Act
CWPP	2023 Santa Clara County Community Wildfire Protection Plan
dB	decibel
dBA	A-weighted decibel
diesel PM	particulate matter exhaust from diesel engine
DLRP	Division of Land Resource Protection
DSOD	California Division of Safety of Dams
DTSC	California Department of Toxic Substances Control
DWR	California Department of Water Resources
EIR	Environmental Impact Report
EOP	Emergency Operations Plan
EPA	U.S. Environmental Protection Agency
ERIS	Environmental Risk Information Services
ESA	Endangered Species Act
ESL	environmental screening level
FEMA	Federal Emergency Management Agency
FGC	California Fish and Game Code
FHSZ	Fire Hazard Severity Zone
FIRM	Flood Insurance Rate Map
FMMP	Farmland Mapping and Monitoring Program
FR	Federal Register
FRAP	Fire and Resource Assessment Program
FTA	Federal Transit Administration
General Plan	Santa Clara County General Plan
GHG	greenhouse gas
GHGRP	Valley Water's GHG Reduction Plan
GIS	geographic information system



GPS	global positioning system
GSA	Groundwater Sustainability Agency
GSP	Groundwater Sustainability Plan
I-5	Interstate 5
in/sec	inches per second
IPI	in-place inclinometer
ips	inches per second
IS/MND	Initial Study/Mitigated Negative Declaration
ISA	initial site assessment
lb/day	pounds per day
L <sub>dn</sub>	day-night level
L <sub>eq</sub>	equivalent continuous sound level
L <sub>max</sub>	maximum sound level
LOS	level-of-service
LS	lake sediment
LT	long-term
MARC	Monterey Area Research Consortium
MBTA	Migratory Bird Treaty Act
mg/kg	milligrams per kilogram
mg/L	milligrams per liter
mph	miles per hour
MRZ	Mineral Resource Zone
msl	mean sea level
MTC	Metropolitan Transportation Commission
MTCO <sub>2e</sub>	metric tons of carbon dioxide equivalent
MUTCD	California Manual on Uniform Traffic Control Devices
N <sub>2</sub> O	nitrous oxide



NAAQS	national ambient air quality standard
NESHAP	National Emissions Standards for Hazardous Air Pollutants
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
NNIP	nonnative invasive plant
NO	nitric oxide
NO <sub>2</sub>	nitrogen dioxide
NOA	naturally occurring asbestos
NOP	Notice of Preparation
NO <sub>x</sub>	oxides of nitrogen
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
NTU	Nephelometric Turbidity Unit
NWIC	Northwest Information Center
OEHHA	Office of Environmental Health Hazard Assessment
OES	Office of Emergency Services
OHV	off-highway vehicle
OPR	Office of Planning and Research
OSHA	Occupational Safety and Health Administration
PAMM	Project Avoidance and Minimization Measure
PG&E	Pacific Gas and Electric Company
PM	particulate matter
PM <sub>10</sub>	respirable particulate matter with an aerodynamic diameter of 10 microns or less
PM <sub>2.5</sub>	fine particulate matter with an aerodynamic diameter of 2.5 microns or less
ppm	parts per million
PPV	peak particle velocity





PPWD	Pacheco Pass Water District
PRC	California Public Resources Code
PREP	Pacheco Reservoir Expansion Project
Proposed Project	Design Level Geotechnical Investigations for the Pacheco Reservoir Expansion Project
RCRA	Resources Conservation and Recovery Act
REC	recognized environmental condition
Reclamation	U.S. Department of the Interior, Bureau of Reclamation
RMS	root-mean-square
ROG	reactive organic gas
ROW	right-of-way
RSL	risk-based screening level
RWQCB	Regional Water Quality Control Board
SB	Senate Bill
SBCWD	San Benito County Water District
SCCC	South-Central California Coast
SCCDEH	Santa Clara County Department of Environmental Health
SCS	Sustainable Communities Strategy
SCU	Santa Clara Unit
SCVHA	Santa Clara Valley Habitat Agency
SFBAAB	San Francisco Bay Area Air Basin
SFBRWQCB	San Francisco Bay Regional Water Quality Control Board
SMAQMD	Sacramento Metropolitan Air Quality Management District
SMARA	Surface Mining and Reclamation Act of 1975
SO <sub>2</sub>	sulfur dioxide
SR-152	State Route 152
SR-156	State Route 156
SRA	State Responsibility Area



SSC	CDFW Species of Special Concern
ST	short-term
State Parks	California Department of Parks and Recreation
STLC	Soluble Limit Threshold Concentration
SWRCB	State Water Resources Control Board
TAC	toxic air contaminant
TCP	Traffic Control Plan
TCR	tribal cultural resource
TMDL	total maximum daily load
TP	test pit
TTLc	Total Threshold Limit Concentrations
US-101	U.S. Route 101
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
Valley Water	Santa Clara Valley Water District
VdB	vibration decibel
VHP or Valley Habitat Plan	Santa Clara Valley Habitat Plan
VHP AMM	Valley Habitat Plan Avoidance and Minimization Measure
VMt	vehicle miles traveled
VOC	volatile organic compound
VTa	Santa Clara Valley Transportation Authority
VWP	vibrating wire piezometer
WEAT	Worker Environmental Awareness Training
Williamson Act	California Land Conservation Act of 1965



# Executive Summary

The Santa Clara Valley Water District (Valley Water) is the lead agency under the California Environmental Quality Act (CEQA) and has prepared a Draft Environmental Impact Report (EIR) for the proposed Design Level Geotechnical Investigations for the Pacheco Reservoir Expansion Project (Proposed Project) described below. 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.

## ES.1 Purpose and Contents of this Environmental Impact Report

Valley Water is the lead agency responsible for compliance with CEQA for environmental review of the Proposed Project. CEQA requires the preparation of an EIR when a project could significantly affect the physical environment. Valley Water released a Draft Initial Study/Mitigated Negative Declaration (IS/MND) for public review and comment on June 17, 2024, that evaluated the Proposed Project. In consideration of comments received from agencies, organizations and the general public on the Draft IS/MND, Valley Water has decided to prepare an EIR for the Proposed Project to comply with CEQA.

Valley Water has prepared this Draft EIR to provide the Valley Water Board of Directors, the general public, and responsible and trustee agencies with information about the physical effects on the environment associated with implementation of the Proposed Project. This Draft EIR was prepared in compliance with CEQA (California Public Resources Code Section 21000 et seq.) and the CEQA Guidelines (14 California Code of Regulations Sections 15000 et seq.). This Draft EIR describes the Project proposed by Valley Water (i.e., Proposed Project). The document then characterizes the Project's environmental setting, discloses the environmental impacts of the Project, and identifies feasible mitigation measures to avoid and/or reduce significant environmental impacts. Also, as required under CEQA, the Draft EIR describes and evaluates potentially feasible alternatives to the Project that could avoid or reduce significant impacts while still meeting most, if not all, of the Project's basic objectives. The Draft EIR also addresses adverse cumulative impacts and determines whether the Proposed Project would make a considerable contribution to any significant cumulative impact identified in the EIR.

## ES.2 Background

The Proposed Project would provide geotechnical and geologic data required by the California Department of Water Resources, Division of Safety of Dams (DSOD) for the safe design of the proposed upstream dam site for the separately proposed Pacheco Reservoir Expansion Project (PREP). Geotechnical information will also be required by California Department of Transportation (Caltrans) for planning and design associated with a temporary interchange at State Route 152 (SR-152) to facilitate truck traffic of the PREP. The Proposed Project would provide Valley Water's



engineers with design information necessary to ensure the safe design of the PREP and reduce the likelihood of hazards if it is constructed, and refine design of the PREP to reflect the improved understanding of geotechnical conditions.

Importantly, Valley Water has not yet decided whether to approve or construct the PREP. Before Valley Water could or would do so, it would need to recirculate the Draft EIR prepared for the PREP, initially circulated in 2021, to account for new information, prepare and certify a Final EIR, make certain required findings, and then, in consideration of environmental impacts and other relevant factors, make an ultimate decision whether to approve, disapprove, or modify the PREP. The PREP would also require approval from DSOD, which oversees the design, construction, and maintenance of non-federal dams and reservoirs in California. As such, the Proposed Project does not legally or practically compel approval or construction of the PREP. The data gathered as part of the Proposed Project would simply result in a more detailed, safer dam design and more meaningful environmental review of the PREP in the ongoing PREP EIR process. In addition, the Proposed Project would support the development and application of sediment transport models<sup>1</sup> necessary to characterize existing sediment mobilization, storage and transport conditions in the Pacheco Creek watershed. These models would also be used to identify and evaluate potential PREP-specific mitigation measures that may be necessary to minimize or avoid significant impacts of PREP to water quality and associated beneficial uses and subsequent monitoring efforts.

### **ES.3 Project Objectives**

The specific objectives of the Proposed Project are to:

- Provide a more complete understanding of the depth to, and properties of, the underlying bedrock within and close to the footprint of the proposed PREP upstream dam location, including exploration for possible bedrock faults within the dam foundation.
- Provide additional data within potential borrow sites necessary to quantify the volume and material characterization (via sample collection for laboratory testing) of materials adequate for use in construction of an earthfill dam.
- Provide additional data on the thickness, gradation and other properties of alluvial materials currently deposited in the existing Pacheco Reservoir upstream of North Fork Dam in support of sediment management during construction and ongoing design of the North Fork Pacheco Creek channel restoration reach.
- Identify the location and depths of existing landslide deposits at the proposed upstream dam site, spillway location and at selected locations within the inundation area of the proposed reservoir.

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<sup>1</sup> Sediment transport models refer to numerical models that describe mobilization, migration, and settling of sediment in fluids (e.g., water).





- Evaluate geotechnical conditions along the alignment of the proposed conveyance pipeline and pump station that would connect the expanded reservoir with the existing Pacheco Conduit.
- Investigate foundation conditions for an improved access road and a new bridge planned to be constructed several hundred feet south of the existing North Fork Dam.
- Investigate foundation and embankment conditions associated with a temporary overpass over SR-152 near the existing Kaiser-Aetna Road intersection.
- Provide additional data on the quantity, location, and character (e.g., gradation and chemical constituents) of alluvial sediments stored behind North Fork Dam necessary to refine the design of the North Fork Pacheco Creek restoration reach included in the description of PREP in the 2021 Draft Environmental Impact Report.
- Provide additional data on the character of alluvial sediments stored in Pacheco Reservoir that would inform the development and use of modeling tools (e.g., sediment transport model, water quality model) necessary to refine channel restoration design, analyze PREP-related impacts, and support development of PREP-specific mitigation and monitoring elements.

## **ES.4 Project Location**

The Proposed Project is located within, adjacent to, and in the vicinity of the existing Pacheco Reservoir, and along the SR-152 corridor from Kaiser-Aetna Road to the site entrance located approximately one mile east of Kaiser-Aetna Road on the north side of SR-152. Pacheco Reservoir is located along North Fork Pacheco Creek and behind North Fork Dam (near 37.05022, -121.291754), roughly equidistant between the cities of Gilroy and Los Banos. The existing reservoir is located approximately one-half mile north of SR-152 in southeastern Santa Clara County, California. The Proposed Project study area is shown in Figure ES-1.



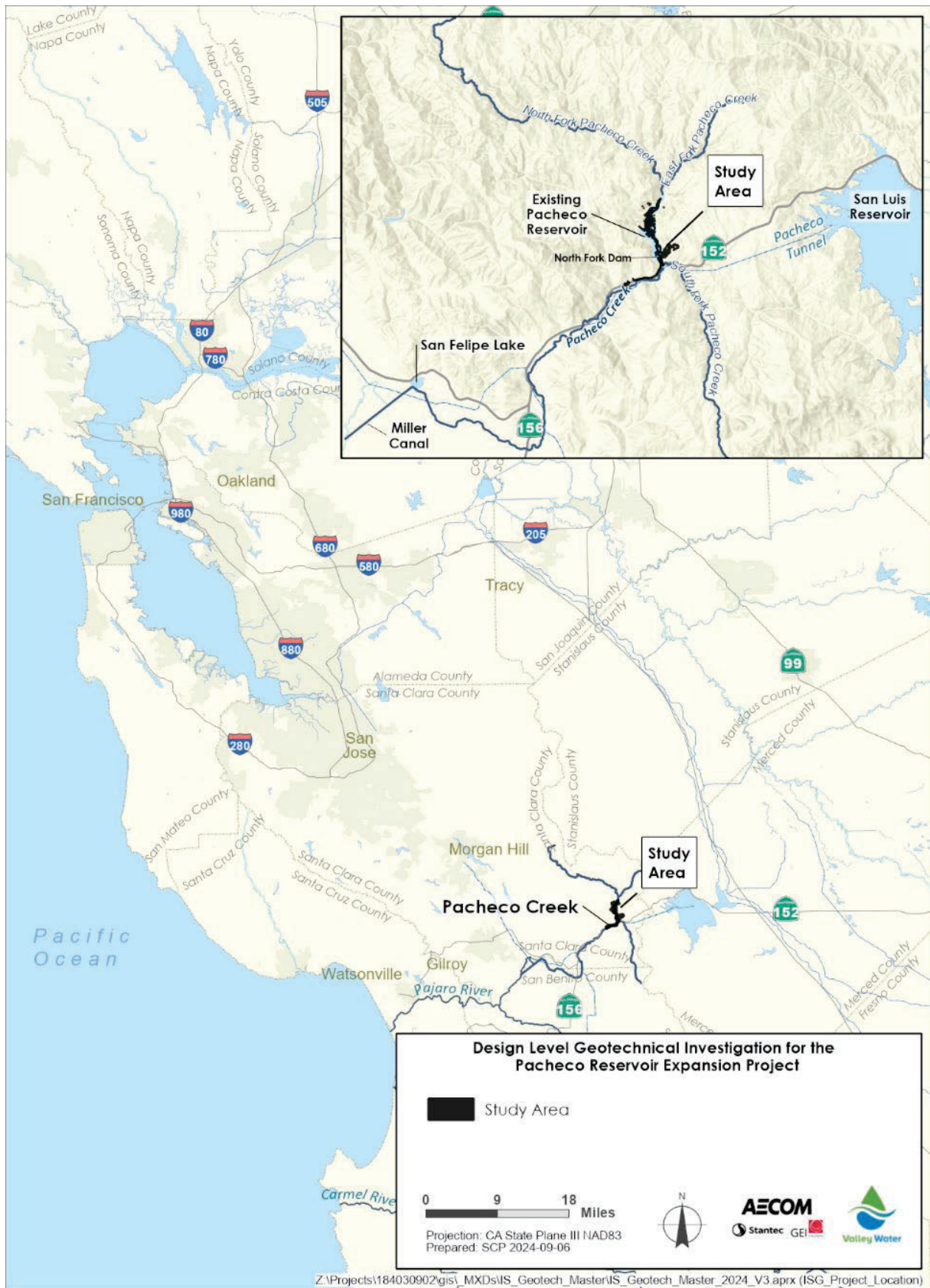


Figure ES-1. Project Location



## ES.5 Alternatives

### ES.5.1 Summary of Project Description and Alternatives to the Proposed Project

This Draft EIR evaluates the Proposed Project, No Project Alternative (Alternative 1), and the Reduced Subsurface Investigations and Tree Removal Alternative (Alternative 2). Table ES-1 summarizes the key distinctions between the Proposed Project and Alternative 2.

**Table ES-1. Summary of Key Distinctions Between Proposed Project and Alternative 2**

Activity Areas <sup>1,2</sup>	Proposed Project	Alternative 2
Surface Geophysical Investigations – Electrical Resistivity Imaging	1 Line 1,520 linear feet	1 Line 1,520 linear feet
Surface Geophysical Investigations – Seismic Refraction Lines	19 Lines 16,890 linear feet	19 Lines 16,890 linear feet
Subsurface Geotechnical Investigation – Exploratory Borings (Total Number of Borings/Number of Helicopter Borings <sup>3</sup> )	149/64	144/59
Subsurface Geotechnical Investigation – Test Pits (Number of test pits)	321	272
Access Routes Number of Existing Road Segments (Total Length/Number of Proposed Access Routes (Length)	6 (8.40 Miles) 113 (4.52 Miles)	6 (8.40 Miles) 109 (4.49 Miles)

Notes:

<sup>1</sup> Four access routes would be excluded associated with reduction of four lake sediment borings.

<sup>2</sup> There would be an overall reduction of nine activity areas; five helicopter and four lakebed. Five of the test pit activity areas would be converted to boring activity areas.

<sup>3</sup> The removal of five helicopter borings equates to an overall reduction of about 50 trips for the helicopter.

### ES.5.2 Proposed Project

#### ES.5.2.1 Description of Proposed Project

The Proposed Project includes two types of surface investigations: electrical resistivity imaging, and seismic refraction investigations. In addition, it includes two types of subsurface investigations: exploratory borings and test pits. Both surface and subsurface investigations are necessary to meet the Project objectives (see Section ES.3). The boundary of each activity area within the Proposed Project study area (see Figure ES-2) was initially established using existing resource data in Valley Water's geographic information system to define boundaries intended to minimize or avoid known sensitive resources (e.g., biological, cultural) based on comprehensive, site-specific efforts. Subsequently, engineering designs and detailed topographical data were used by a team that included engineers, geologists, biologists and archaeologists to ensure that all activity areas associated with both surface and subsurface geotechnical investigations avoided all known sensitive resources. In the case of activity areas associated with existing access routes and staging areas, these activity areas were reduced in width or area to the extent possible to allow for critical vehicles (e.g., drill rig, excavator) based on site-specific field review by a biologist and geologist of each existing or proposed access route, staging area and helicopter landing area.



Where an activity area boundary intersected with a known sensitive resource, the work activity area was relocated to buffer biological resources, sensitive natural communities, and aquatic/wetland resources. A brief description of each type of proposed investigation is provided in the following sections.

### ***Surface Geophysical Surveys***

Two types of linear surface geophysical investigations would be performed within the Proposed Project study area: 1) seismic refraction and 2) electrical resistivity. These surface geophysical surveys are considered minimally invasive as discussed below.

#### Electrical Resistivity Imaging

One electrical resistivity investigation extending approximately 1,520 feet would be performed to provide geophysical information on the continuity or possible disruption of near surface alluvium and other soil deposits in an area where potentially active but previously unmapped bedrock faults could exist.

Electrical resistivity is a geophysical method used to measure the electrical properties of subsurface materials. It involves connection of 1/2-inch-diameter steel electrodes to 1/2-inch cable every 25 feet. This cable would be unrolled by hand and placed on the ground for varying distances. No vegetation associated with sensitive vegetation communities or populations of special; status plants would be disturbed during this activity. Using a hand-held nonmetallic sledgehammer to prevent sparking, these electrodes would be driven into the ground to better distribute the electrical current. An electrical current would be induced at various locations using a battery-powered current generator. The current generator is typically connected at both the end points and mid points along the line for approximately 5 to 10 minutes at each induction point location, and the current detected by each electrode is compared to the induced current. The induced electrical current varies between 10 milliamps to about 500 milliamps at approximately 400 volts of direct current. Once acceptable data is recorded, all equipment would be removed by hand.

#### Seismic Refraction Lines

Nineteen seismic refraction lines totaling approximately 16,890 linear feet are proposed at various locations throughout the Proposed Project study area. Investigations focus on areas associated with borrow areas, foundation and bedrock confirmation, landslide features and lakebed sediments.





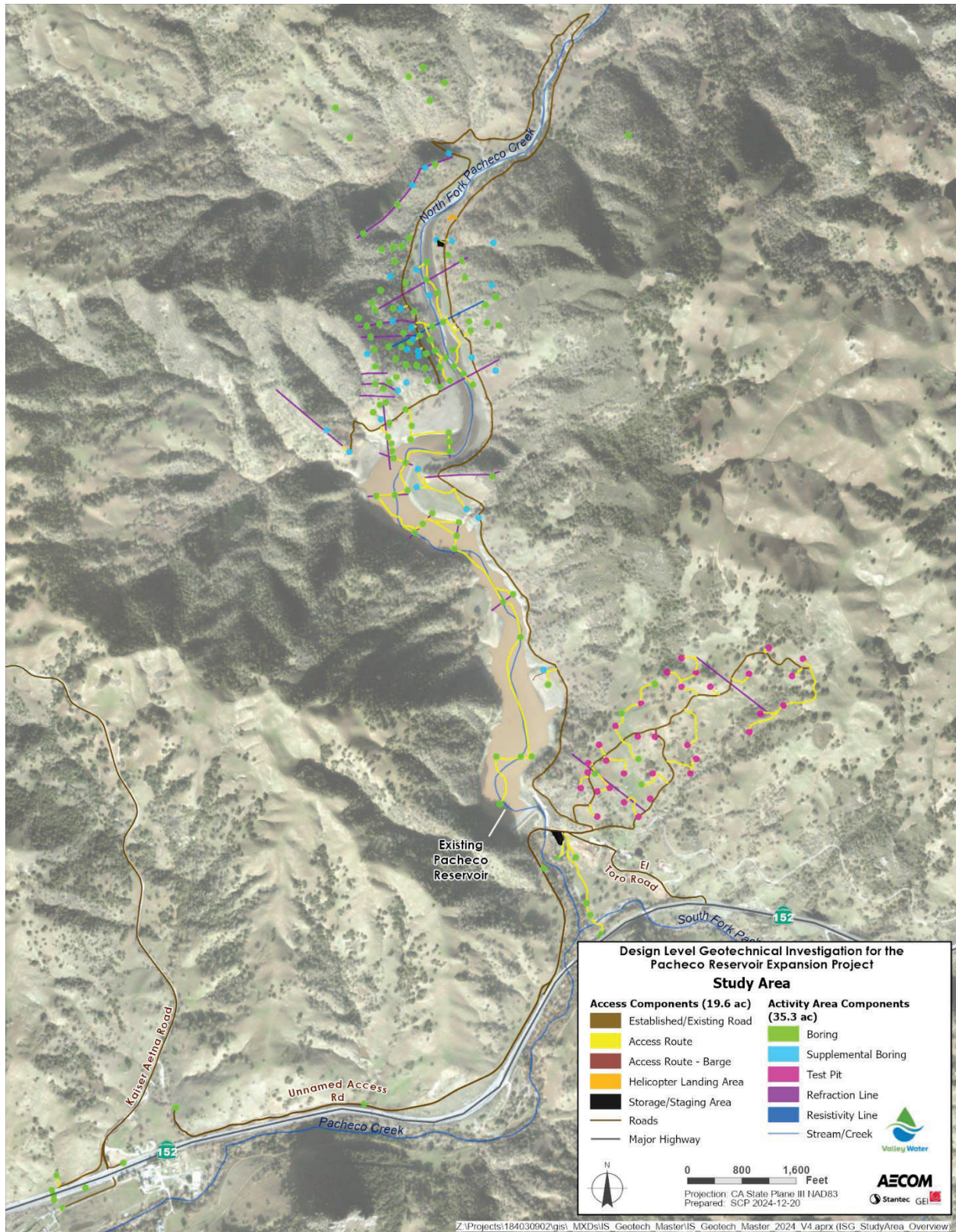


Figure ES-2. Proposed Project Study Area





Seismic refraction is a geophysical method used to characterize geologic and geophysical properties of soil and underlying rocks. For each survey line at the site, an approximately 1/2-inch diameter cable would be placed on the ground with minimal disturbance to existing vegetation. At established distances (e.g., every 25 feet), 1/2-inch-diameter x 6-inch-long metal stakes with seismic receivers (geophones) attached would be driven into the ground with a hand-held nonmetallic sledgehammer (to prevent sparking) and then connected to the cable to receive the seismic energy signal. The cable would then be attached to a portable receiver/data recorder. A nonmetallic sledgehammer<sup>2</sup> or all-terrain vehicle (ATV)-mounted nonmetallic hammer would be used to strike an aluminum plate on the ground surface at each end and the midpoint of the survey line one or more times to send an energy pulse out to the geophones. The ground around the strike plate would be wetted down prior to initiation of hammer striking. A handheld sledgehammer would be used in place of an ATV-mounted hammer in areas containing sensitive resources. An ATV-mounted hammer would only be used when working in areas accessible using existing established access routes. The ATV-mounted hammer is a self-contained hammering device that provides more energy into the ground than a hand-held sledgehammer can produce and therefore, produces clearer seismic refraction records. Seismic refraction surveys provide data related to thickness of soil and deeply weathered rock beneath the geophone locations. No vegetation associated with sensitive vegetation communities or populations of special-status plants would be disturbed during this activity. Once acceptable data is recorded, all equipment would be removed by hand.

### ***Subsurface Geotechnical Investigations***

Two types of subsurface geotechnical investigation methods are proposed within the Proposed Project study area: 1) exploratory test pits and 2) exploratory borings. All exploration locations have a defined "activity area" that has been established to include a 100-foot-diameter work activity area, which is intended to provide adequate workspace in a manner that would avoid and protect sensitive resources. All work associated with the subsurface exploration would be contained within the work activity areas, though overall ground disturbance would be significantly less (up to approximately 4 square feet for exploratory borings and an approximate average of 400 square feet for exploratory test pits<sup>3</sup>).

All subsurface geotechnical investigations would require heavy equipment (e.g., excavators, drill rigs). At a number of boring activity areas on steep hillsides or ridges, a helicopter would be used to avoid creating new roads for drill rig access. To minimize greenhouse gas emissions, the following Project features will be implemented as part of the Proposed Project:

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<sup>2</sup> A nonmetallic hammer and aluminum plate would be used so no sparks would occur in an effort to reduce the risk of project-caused fire.

<sup>3</sup> Ground disturbance equates to physical disturbance associated with exploration equipment; pedestrian and vehicle traffic within an authorized activity area is not included in this calculation of ground disturbance.



- All vehicles and heavy equipment (e.g., excavators, drill rigs) will meet all federal and state requirements for emissions.
- As applicable, idling time for vehicles and heavy equipment will be minimized and Project tailgate meetings will be used to inform Project personnel of this requirement.
- Diesel-powered vehicles and equipment will use California Air Resources Board approved renewable diesel fuel, as available.
- Field personnel will be encouraged by Valley Water and/or its contractor(s) to use carpools and/or shuttles to minimize the number of vehicles necessary to transport personnel and equipment to the Proposed Project study area.
- Transportation of fuels necessary to power and maintain equipment (e.g., diesel, Avgas, hydraulic fluids) would likely occur on a daily basis; there would be no permanent storage of fuels or other fluids within the Proposed Project study area. These products are considered to be hazardous materials. Operators of diesel-powered vehicles and equipment will use California Air Resources Board-approved renewable diesel fuel as and when it is locally available and cost-effective.
- If conditions below the full pool elevation of Pacheco Reservoir preclude conventional track-based drilling operations, borings would be conducted using a portable drill rig from a barge. A small (e.g. 18-foot with outboard motor) support boat would also be launched from the same location and used to move the barge into place. After all barge-based drilling is complete, the barge and support boat would be recovered and moved out of the Proposed Project study area.

At select boring locations, permanent subsurface monitoring equipment called piezometers would be installed to better understand changes in subsurface groundwater depth. In addition, inclinometers would be installed at four boring locations at suspected landslides to detect subsurface movement in soil and/or rock over time. Erodibility testing (i.e., jet testing) would also occur at up to 11 of the proposed 21 lake sediment) boring sites to assist in the determination of sediment resistance to scour. All personnel and equipment would stay within the truncated workspace during activities associated with the Proposed Project activities (including while entering and exiting) and would not encroach into any known sensitive resource areas.

The rural and largely undeveloped nature of the Proposed Project study area suggests that subsurface utilities at the proposed activity areas outside the SR-152 corridor are unlikely. Regardless, prior to implementation Valley Water would clear the test pit and boring activity areas by contacting the Underground Services Alert. In addition, activity areas would be reviewed with the property owners and Caltrans prior to implementation. Any exploratory boring anticipated to have a depth of 45 feet or more into native material would require a Valley Water well ordinance drilling permit.



### Exploratory Test Pits

A total of 32 test pits are included as part of the Proposed Project to explore a potential borrow area for soil (i.e., clay) that may be considered as dam core material. The activity areas, including access routes were selected in the field by a geologist, in conjunction with a qualified botanist to avoid or minimize potential impacts to vegetation to the extent possible. This also included avoidance of drip lines and root zones of all trees and any sensitive vegetation communities or special-status plants. Prior to mobilizing equipment, the geologist or engineer would use handheld Global Positioning System equipment to locate each test pit within the boundary of each activity area, including access routes. Proposed excavator access routes to test pit locations would be limited to the width necessary to move vehicles and equipment (e.g., 10-12 feet wide). These routes would be inspected by qualified botanists to confirm a lack of sensitive natural communities or special-status plants along the proposed route. No grading would be necessary to use these access routes. Each test pit would be excavated to a depth and length determined by field conditions but would generally be about 10 to 20 feet long, 3 feet wide (i.e., test pit excavations would be rectangular in shape), and ranging between 5 and 20 feet deep. To retain topsoil and associated seedbed, the operator will remove and stockpile this material for use in final backfill efforts under the direction of the field engineer or geologist. Where deeper than 4.5 feet, the test pit would be logged from the surface and not entered, consistent with federal and state safety requirements. Each test pit would be excavated, logged, sampled, and backfilled over the course of several hours.

### Exploratory Boring

To assist with the design and construction of PREP, 149 exploratory borings (to include 119 initial borings and up to 30 supplemental borings<sup>4</sup>) are proposed to obtain essential information on subsurface geologic and geotechnical conditions. The location of each of these borings is illustrated on Figure ES-2. Each boring activity is estimated to disturb about 4 square feet of ground, within a designated activity area for a total of 0.01 acre within the Proposed Project study area. Proposed drilling equipment access routes to non-helicopter-accessed boring locations would be inspected by qualified biologists to confirm a lack of protected or threatened species along the proposed route. The required access routes for borings located off existing roads, and that are not planned for helicopter mobilization, are shown on Figure ES-2. The drill rig would access the drill site by driving in on the access route and would remain at the drill site until the hole is completed; the drill rig would either return along the same route or continue along the designated route to the next activity area.

The borings would be drilled to obtain geological and geotechnical information on soil and rock characteristics at a number of activity areas related to the footprint of the proposed dam, spillway, and outlet tunnel, at core zone material and shell zone material borrow areas, on landslides

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<sup>4</sup> Supplemental borings are identified to supplement, and/or replace proposed borings that may be excluded for resource, safety or drilling conditions.



upstream of the proposed dam site, along the conveyance pipeline alignment and pump station footprint, along the proposed access/frontage road alignment, in lake sediments occurring within the bottom of the existing Pacheco Reservoir, at the proposed bridge crossing adjacent to North Fork Pacheco Creek, and at the proposed overpass structure location within the SR-152 right-of-way (ROW).

As many as four types of drilling methods would be used to advance the borings at any single activity area to include: HQ-3 rock core drilling, hollow stem auger drilling, auger/rotary wash drilling, and possibly vibracore barge borings if the reservoir is not drawn down. Multiple methods may be used to advance a single boring (e.g., hollow stem auger in dry portion of soil, rotary wash in inundated areas, and HQ-3 rock coring in rock). Land-based drilling would not occur at any location within Pacheco Reservoir while an activity area is inundated.

Each boring would be no larger than 6 inches in diameter. Samples removed during drilling would be saved and stored temporarily onsite for review and laboratory testing. Samples would be transported to an offsite storage facility for long-term storage. To the extent possible, boring activity areas have been preferentially located on existing dirt access roads or where ranching activities have resulted in previous surface disturbance.

An additional 30 supplemental borings activity areas are also illustrated on Figure ES-2. Supplemental borings would only be implemented if the results of the non-supplemental borings and geophysical surveys indicate the need for additional data at these locations, or identification of an environmentally sensitive resources within an activity area requires exclusion in order to avoid a resource. If supplemental borings are implemented, the location of these borings may be shifted within the work activity area depending upon the results of initial boring efforts, the need to address subsurface data gaps (e.g., evidence of geological discontinuities in material type, depth to bedrock, etc.), and to address comments from regulatory agencies. If one or more supplemental borings would require adjustments extending beyond the 100-foot-diameter work activity area boundary, a reevaluation of each of those sites and approval by Valley Water prior to implementing any activity beyond the specific activity area boundary would be required.

#### *Exploratory Boring Access and Ground Disturbance*

Most borings would be drilled using portable drill rigs that would either be towed into place on trailers or would be flown into place via helicopter in steeper terrain. Some borings would be drilled with a track-mounted all-terrain or truck mounted drill rig with an average width of about 10 feet. The borings located on the existing access roads with widths varying between 12 and 18 feet, temporary access routes and along the proposed water conveyance pipeline would be drilled with a truck-mounted or all-terrain track-mounted drill rig. Borings drilled downstream of North Fork Dam for the conveyance pipeline, and within the inundation area of the existing reservoir rim to sample the lake sediments and install piezometers, would be drilled with an all-terrain track-mounted drill rig. Borings within the reservoir (if inundated) would be drilled with a barge-based drill rig. Borings that are located away from existing roads and not on steep hillsides or ridges would require the use of pre-approved temporary overland access routes. For these borings the



drill rig would access the drill site by driving in on the access route and would remain at the drill site until the hole is completed; the drill rig would either return along the same route or continue along the designated route to the next activity area. Borings drilled on steep hillsides or ridges would be drilled with helicopter-portable drill rigs.

A total of 64 (46 initial and 18 supplemental) helicopter-mobilized borings would require limited hand contouring with picks and shovels and clearing of brush and trimming or cutting of trees to allow the placement of the temporary drilling platforms, approximately 15 feet by 15 feet in plan dimension. The area subject to initial surface disturbance associated with helicopter borings totals 0.33 acre. The hand contouring at each drilling platform location would result in minor temporary ground disturbance of approximately 1/2 cubic yard of soil and would be completed with picks, shovels and/or rakes. At select locations, up to five percent of the activity area may be subject to shrub trimming to provide a safe working area. Shrub trimming and/or removal would occur using hand-held tools. All efforts would be made to cut or trim shrubs in a manner that would not compromise the vitality of the shrub or result in removal of the entire plant. Approximately eight trees would require trimming, approximately 11 trees and one dead tree snag would require removal for access at seven of the initial boring locations. In the event that five of the supplemental borings are required, six trees would be trimmed and 14 trees would be removed to provide access to these activity areas. In addition, up to three additional trees may be identified for trimming and up to five additional trees may be identified for removal in response to unforeseen circumstances requiring their trimming or removal for access. All trimming of limbs 6 inches and greater in diameter would be performed by an arborist certified by the International Society of Arboriculture to ensure overall tree health would not be compromised. All slash from tree trimming and removal would be scattered within the activity area in a manner that minimizes fuel concentrations while providing effective ground cover consistent with landowner requirements.

Disturbed areas would be returned to their original condition (e.g., backfill test pits and regrade drill platform footing excavations) shortly after exploration is completed at each site and reseeded with an approved locally appropriate native seed mix just prior to the start of the rainy season for maximum likelihood of germination and growth.

#### *Helicopter-Access Borings*

A helicopter using a Kevlar line would transport materials necessary for constructing the temporary drilling platforms, drilling equipment, supplies, and drilling water. Typically, it would take nine to 12 helicopter trips to transport platform materials and equipment back and forth initially from the northern staging area to an activity site. A similar number of helicopter trips would be needed for removal and transport from one activity area to a subsequent activity area (i.e., equipment and supplies are flown from one activity site to the next activity site without returning them to the staging area).

All drilling equipment would be delivered to and removed from the specified activity areas using a helicopter with the range and payload necessary to accommodate the specified loads (i.e.,





medium lift). All helicopter payload operations (sling loads) would be staged from the proposed northern staging/storage area located northeast of Pacheco Reservoir adjacent to an existing unpaved access road (see Figure ES-2); a helicopter landing zone is also located just north of the staging area. The northern staging/storage areas would be used to stage materials and equipment for helicopter pickup and delivery in support of the 64 proposed boring activity areas relying on helicopter access.

Helicopter fueling and minor maintenance activities would take place several times a day at the helicopter landing area north of the northern staging area (SS-02) between flights to maximize load carrying capacity. These two areas were specifically located to be near the proposed helicopter boring locations. The helicopter maintenance truck would also carry tools and equipment that may be necessary for on-site maintenance and safety inspections. The helicopter would return to a commercial airfield within Santa Clara, San Benito or Merced counties at the end of each workday.

### ***Investigation Equipment, Required Personnel and Site Access***

The Proposed Project would require approximately one to five crews working at any one time, resulting in approximately five to 20 workers and/or monitoring staff being at the Proposed Project study area at any one time. Access to the proposed activity areas would include use of vehicles via existing public and private roadways, ranch roads and in some instances temporary overland access routes through grasslands and woodlands. Overland routes would be as direct as possible, while avoiding sensitive resources identified during pre-construction surveys. Except for activity areas associated with existing paved/surfaced roads within the existing SR-152 ROW, all activity areas associated with access roads, temporary access routes and staging areas elsewhere within the Proposed Project study area are unpaved. With the exception of the proposed activities with the SR-152 ROW, all temporary access routes and staging areas are not paved or surfaced with rock and wet-weather access would be restricted consistent with landowner requirements.

Fuels, solvents, drilling additives, petroleum products, or sacks of cement/grout would be temporarily stored within the established storage areas (SS-01, SS-02). In addition, pipe, drill bits and other tools, equipment, and materials used to operate and maintain drilling operations would be temporarily staged and stored at the northern staging/storage area (SS-02). These would include fuel for daily drilling operations (i.e., gasoline, diesel) sacks of cement, inert drilling additives, lumber, and containers for water. Five-gallon steel, double-walled fuel containers approved for helicopter transport would be filled from service trucks parked on the existing unpaved access road or the northern staging/storage area, transported a short distance and placed in a large, galvanized steel tank and packed for transport to a drill site. All activities related to fuel loading and transport would be restricted to the northern staging/storage area or on existing access roads located above the full pool line of the existing reservoir. No fuel would be left at the northern staging/storage area unattended, and all fuel containers would be removed from this area on a daily basis.



Equipment, vehicles and materials would be temporarily staged at designated staging/storage locations. Equipment use would be planned to optimize onsite staging and reduce offsite traffic and travel. Workers in remote areas would be provided necessary onsite amenities (e.g., waste and sanitary facilities). Carpooling would be encouraged. Crew vehicles would access the Proposed Project study area six days a week over the duration of the Proposed Project. Flaggers, cones and other measures would be used to control the flow of traffic associated with public roadways and existing access roads where necessary. Landowners would be notified consistent with their respective access agreements.

### ***Project Schedule***

The Proposed Project is expected to take approximately eight working months (i.e., months working at the site) with an overall expected duration of eleven months (i.e., expected start date of August 2025), depending upon drill rig, crew and helicopter availability. Proposed field activities are expected to begin in the summer of 2025 (e.g., August depending on timing of Proposed Project approval, access, field conditions and availability of field investigation crews) and be completed by July 2026. Three drill rigs are anticipated to be working for most of the schedule. Up to two additional drill rigs and crews may be added if they are available.

With the exception of four exploratory borings drilled within Caltrans ROW, work would be conducted between the hours of 7 a.m. and 6 p.m., Monday through Friday and 9 a.m. to 4 p.m. on Saturday. Landowner access may restrict these timeframes at certain locations. For the borings north of the west-bound lane of SR-152 within the Caltrans ROW, work would occur during nighttime hours. This would require a closure of one west-bound lane from approximately 8 p.m. to 4 a.m. for up to four nights. For the borings associated with the east-bound lane of SR-152 associated with the Caltrans ROW work, a lane closure would be required between 10 p.m. and 7 a.m. for up to four nights. Additional nighttime lighting would be required at these locations for the safety of drill crews and motorists consistent with Caltrans requirements.

### ***Conservation Measures***

Valley Water routinely incorporates a wide range of Conservation Measures intended to avoid or minimize impacts to resources. In addition to incorporating applicable best management practices (BMP) into project design and implementation, as described in detail in its Best Management Practices Handbook (Valley Water 2014, Revision G), Valley Water has also developed project avoidance and minimization measures specific to the Proposed Project. Further, to avoid impacts to monarch butterfly and Crotch's bumble bee, avoidance protocols have been incorporated into the Proposed Project. Additionally, Santa Clara Valley Habitat Plan (Valley Habitat Plan) includes Conditions and avoidance and minimization measures specific to species covered under the Valley Habitat Plan that are applicable to the Proposed Project. Similarly, Valley Water routinely incorporates BMPs recommended by the Bay Area Air Quality Management District for projects that require use of vehicles and heavy equipment to avoid or reduce greenhouse gas emissions.



As applicable, these measures would be incorporated into the Proposed Project. Many of these Conservation Measures have been successfully implemented for similar Valley Water projects.

All applicable Conservation Measures would be incorporated into the geotechnical investigation work plans, and all geotechnical contractors employed on the Proposed Project would be required to adhere to them. Consistent with Valley Water's procurement and contracting practices, Valley Water's on-site contract manager would document the implementation and, as applicable the effectiveness of these practices, plans, conditions and measures on a daily basis, including efforts related to site restoration (e.g. seeding) that may be required after specific investigation activities have been completed.

Additional environmental measures developed to mitigate specific impacts (Mitigation Measures) associated with Proposed Project implementation and not avoidable through standard practices, plans, conditions and measures are identified in Chapter 3 of this Draft EIR.

### **ES.5.2.2 Proposed Project Ability to Meet Project Objectives**

The Proposed Project would address all nine project objectives by collecting surface and subsurface geological and geotechnical information necessary to support future, design, planning and permitting of Valley Water's proposed PREP.

## **ES.5.3 Alternative 1 – No Project Alternative**

### **ES.5.3.1 Description of Alternative 1 – No Project Alternative**

Under the No Project Alternative (Alternative 1), Valley Water would not conduct geotechnical investigations within, adjacent to, and in the vicinity of the existing Pacheco Reservoir and along SR-152.

### **ES.5.3.2 Alternative 1 Ability to Meet Project Objectives**

Under Alternative 1, no design-level geotechnical investigations would be conducted in or near the existing Pacheco Reservoir or along SR-152. This means that no essential design-level geotechnical data would be collected as part of this Project.

## **ES.5.4 Alternative 2 – Reduced Subsurface Investigations and Tree Removal**

### **ES.5.4.1 Description of Alternative 2 – Reduced Subsurface Investigations and Tree Removal**

Alternative 2 would include the primary surface and subsurface geotechnical investigations necessary to meet the Project objectives. Alternative 2 would be the same as the Proposed Project with respect to surface investigations (i.e., electrical resistivity imaging and seismic refraction investigations). Under Alternative 2, nine activity areas associated with exploratory borings would be excluded. Five proposed supplemental borings requiring the use of a helicopter would be excluded and four lake sediment borings would be excluded. In addition, five of the activity areas



proposed for test pits would be replaced with exploratory borings. Overall, this would result in six fewer trees being trimmed and 14 fewer trees being removed as compared to the Proposed Project.

### ***Conservation Measures***

Under Alternative 2, all Conservation Measures discussed in Section ES.5.2.1 for the Proposed Project would be considered and applied as necessary. These measures would be incorporated into the geotechnical investigation work plans, and all geotechnical contractors employed by Valley Water will be required to adhere to them. Consistent with Valley Water's procurement and contracting practices, Valley Water's on-site contract manager would document the implementation and, as applicable the effectiveness of these Conservation Measures on a daily basis, including efforts related to site restoration (e.g. seeding) that may be required after specific investigation activities have been completed.

### **ES.5.4.2 Alternative 2 Ability to Meet Project Objectives**

The surface and subsurface investigations that would be conducted under Alternative 2 would provide the necessary data needed to meet all of the objectives of the Proposed Project, as described in Section ES.5.2.2.

## **ES.6 Comparison of Proposed Project and Alternative Impacts**

Table ES-2 provides a summary of potential impacts that may occur with implementation of the Proposed Project, Alternative 1 or Alternative 2 (see Section ES.13). The main categories of impacts that could occur under CEQA include:

- no impact
- less than significant impact
- less than significant impact with mitigation
- significant and unavoidable impact; no feasible mitigation measures are available to reduce impacts to less than significant level

Table ES-2 also provides a summary comparison of impacts of the Proposed Project to Alternative 1 and Alternative 2, indicating whether the impacts of the other alternatives are similar to or the same as, more severe, or less severe than those of the Proposed Project. In cases where there are multiple impacts discussed for a resource (e.g., Biological Resources), the most severe impact is presented.

The Proposed Project and Alternative 2 would result in either no impacts or less than significant impacts for the following: Aesthetics, Agriculture, Air Quality, Energy, Greenhouse Gas, Hydrology and Water Quality, Land Use, Mineral Resources, Population and Housing, Public Services, Recreation, and Utilities and Service Systems.



As shown in Table ES-2, significant but mitigable impacts (i.e., impacts that would be less than significant with mitigation) would result from implementation of the Proposed Project and Alternative 2 for the following: Biological Resources; Geology, Soils, and Paleontological Resources; Noise, Transportation and Wildfire.

## **ES.7 Comparison of the Environmental Impacts of the Proposed Project and Alternatives**

This section includes Table ES-2 which provides a comparison of the environmental impacts of the Proposed Project, Alternative 1 and Alternative 2. For readability of this Executive Summary, Table ES-2 is included at the end of this Executive Summary.

## **ES.8 Significant and Unavoidable Impacts**

There are no significant and unavoidable impacts that would occur as a result of implementing the Proposed Project, Alternative 1 or Alternative 2.

## **ES.9 Cumulative Impacts**

As required by CEQA Guidelines Section 15130, the EIR analyzes cumulative impacts from the Proposed Project and past, present and reasonably foreseeable probable future projects for each resource topic and significance threshold. A conclusion of cumulative impact significance was made pre-mitigation, where applicable. If a significant cumulative impact was identified the incremental contribution of the Proposed Project or alternative was then evaluated for whether it was cumulatively considerable or not cumulatively considerable.

No resources were determined to have cumulatively considerable impacts. Resources that are discussed regarding potential cumulative impacts include (see Chapter 5):

- Aesthetics
- Air Quality
- Biological Resources
- Cultural Resources and Tribal Cultural Resources
- Soils
- Greenhouse Gases
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Noise
- Transportation
- Wildfire



## **ES.10 Environmentally Superior Alternative**

CEQA Guidelines Section 15126.6(e)(2) requires an EIR to identify an environmentally superior alternative to the proposed project. In this case, Alternative 1 (No Project) would be the environmentally superior alternative because it would involve the least amount of impact on the existing physical environment. However, it would not meet any of the project objectives.

Therefore, Alternative 2 (Reduced Subsurface Investigations and Tree Removal) is considered the environmentally superior alternative and would meet all nine of the specified project objectives. As illustrated in Table ES-2, Alternative 2 would have reduced impacts from those of the Proposed Project. Under Alternative 2, seven resource areas would have significant impacts, but overall these impacts would be reduced from those of the Proposed Project. Similar to the Proposed Project, mitigation incorporated into Alternative 2 would also reduce impacts to the seven resource areas to less than significant.

## **ES.11 Areas of Known Controversy**

CEQA Guidelines Section 15123 states that an EIR must identify areas of known controversy that have been raised by other agencies, the public, and/or other stakeholders. Areas of communicated controversy related to the EIR identified in the EIR scoping process include, but are not limited to, the following:

- Potential impacts to sensitive natural communities, special-status plants and wildlife and their habitats, soil, water supply, hydrology and water quality, hazards and hazardous materials, wildfires, agricultural resources, transportation, and appropriate mitigation measures
- Potential impacts to cultural resources and tribal cultural resources
- Relationship of Proposed Project to PREP and funding considerations

## **ES.12 Stakeholder Coordination and Public Involvement Process**

### **ES.12.1 Notice of Preparation, Initial Study, and Public Scoping**

Valley Water prepared a Notice of Preparation (NOP) for this Draft EIR. The NOP contained a description of the Proposed Project and a summary of the environmental effects of the Proposed Project to be addressed in the Draft EIR. On September 30, 2024, the NOP was submitted to the County of Santa Clara, the State Clearinghouse and was subsequently posted to CEQAnet. The initial scoping period for the Project remained open through October 30, 2024—a period of 30 days. Valley Water hosted a virtual scoping meeting on October 17, 2024 to provide information on the Proposed Project and solicit input on the scope and content to be included in the Draft EIR.





Valley Water received a total of seven comment letters or e-mails from state agencies organizations, and individuals during the scoping period. This Draft EIR has been prepared to consider both the comments received on the Draft IS/MND initially prepared for the Project as well as the comments received through the scoping process.

## **ES.12.2 Draft EIR Public Comment Period**

This Draft EIR is available to local, state, and federal agencies and to interested organizations and individuals who may want to comment. Comments are due on April 25, 2025, providing a review period of 45 days. Notice of this Draft EIR has also been sent directly to the State Clearinghouse; responsible and trustee agencies; and every agency, person, or organization that commented on the NOP. During the public comment period, written comments on the adequacy of the Draft EIR may be submitted to:

Todd Sexauer, Senior Environmental Planner  
Santa Clara Valley Water District  
5750 Almaden Expressway  
San Jose, CA 95118

Comments may also be submitted electronically via email with the subject Line, "DLGI Draft EIR Comments" to [DLGI@valleywater.org](mailto:DLGI@valleywater.org)

During this review period, electronic or printed copies of the Draft EIR will be available for public review at the following locations:

- Valley Water Office, located at 5750 Almaden Expressway, San Jose, CA 95118
- Public libraries
  - Dr. Martin Luther King, Jr. Library, 150 East San Fernando Street, San Jose, CA 95112
  - Gilroy Library, 350 W 6th Street, Gilroy, CA 95020

An electronic copy of the Draft EIR can also be viewed and downloaded at:

<https://www.valleywater.org/public-review-documents>



**Table ES-2. Comparison of the Environmental Impacts of the Proposed Project and Alternatives**

Impact	Proposed Project and Alternatives	Level of Significance Before Mitigation <sup>1</sup>	Mitigation Measures	Level of Significance with Mitigation <sup>1</sup>
<b>Aesthetics</b>				
<b>Impact AES-1:</b> Would the project have a substantial adverse effect on a scenic vista?	Proposed Project	LTS	--	LTS
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	LTS (-)	--	LTS (-)
<b>Impact AES-2:</b> Would the project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	Proposed Project	LTS	--	LTS
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	LTS (-)	--	LTS (-)
<b>Impact AES-3:</b> Would the project substantially degrade the existing visual character or quality of public views of the site and its surroundings?	Proposed Project	LTS	--	LTS
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	LTS (-)	--	LTS (-)
<b>Impact AES-4:</b> Would the project create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	Proposed Project	LTS	--	LTS
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	LTS (-)	--	LTS (-)
<b>Agricultural and Forestry Resources</b>				
<b>Impact AG-1:</b> Would the project convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	Proposed Project	NI	--	NI
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	NI (-)	--	NI (-)
<b>Impact AG-2:</b> Would the project conflict with existing zoning for agricultural use, or a Williamson Act contract?	Proposed Project	NI	--	NI
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	NI (-)	--	NI (-)
<b>Impact AG-3:</b> Would the project conflict with existing zoning for, or cause rezoning of, forest land (as defined in PRC § 12220(g)), timberland (as defined by PRC § 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))?	Proposed Project	NI	--	NI
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	NI (-)	--	NI (-)



**Table ES-2. Comparison of the Environmental Impacts of the Proposed Project and Alternatives (cont.)**

Impact	Proposed Project and Alternatives	Level of Significance Before Mitigation <sup>1</sup>	Mitigation Measures	Level of Significance with Mitigation <sup>1</sup>
<b>Impact AG-4:</b> Would the project result in the loss of forest land or conversion of forest land to non-forest use?	Proposed Project	NI	--	NI
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	NI (-)	--	NI (-)
<b>Impact AG-5:</b> Would the project involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use?	Proposed Project	NI	--	NI
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	NI (-)	--	NI (-)
<b>Air Quality</b>				
<b>Impact AQ-1:</b> Would the project conflict with or obstruct implementation of the applicable air quality plan?	Proposed Project	NI	--	NI
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	NI (-)	--	NI (-)
<b>Impact AQ-2:</b> Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?	Proposed Project	LTS	--	LTS
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	LTS (-)	--	LTS (-)
<b>Impact AQ-3:</b> Would the project expose sensitive receptors to substantial pollutant concentrations?	Proposed Project	LTS	--	LTS
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	LTS (-)	--	LTS (-)
<b>Impact AQ-4:</b> Would the project result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	Proposed Project	LTS	--	LTS
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	LTS (-)	--	LTS (-)
<b>Biological Resources (Botanical/Wildlife)</b>				
<b>Impact BIO-1:</b> Would the project result in adverse effects on sensitive natural communities and riparian habitat?	Proposed Project	LTS	--	LTS
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	LTS (-)	--	LTS (-)



**Table ES-2. Comparison of the Environmental Impacts of the Proposed Project and Alternatives (cont.)**

Impact	Proposed Project and Alternatives	Level of Significance Before Mitigation <sup>1</sup>	Mitigation Measures	Level of Significance with Mitigation <sup>1</sup>
<b>Impact BIO-2:</b> Would the project result in adverse effects on waters of the United States and waters of the State?	Proposed Project	LTS	--	LTS
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	LTS (-)		LTS (-)
<b>Impact BIO-3:</b> Would the project result in adverse effects on special-status plants?	Proposed Project	SI	MM BIO-1,	LSM
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	SI (-)	MM BIO-1	LSM (-)
<b>Impact BIO-4:</b> Would the project result in adverse effects on monarch butterfly and Crotch's bumble bee?	Proposed Project	LTS	--	LTS
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	LTS (-)	--	LTS (-)
<b>Impact BIO-5:</b> Would the project result in adverse effects and loss of habitat for California tiger salamander and California red-legged frog?	Proposed Project	LTS	--	LTS
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	LTS (-)	--	LTS (-)
<b>Impact BIO-6:</b> Would the project result in adverse effects and loss of habitat for foothill yellow-legged frog?	Proposed Project	LTS	--	LTS
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	LTS (-)	--	LTS (-)
<b>Impact BIO-7:</b> Would the project result in adverse effects and loss of habitat for northwestern pond turtle?	Proposed Project	LTS	--	LTS
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	LTS (-)	--	LTS (-)
<b>Impact BIO-8:</b> Would the project result in adverse effects on California floater mussel?	Proposed Project	LTS	--	LTS
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	LTS (-)	--	LTS (-)
<b>Impact Bio-9:</b> Would the project result in adverse effects and loss of habitat for silvery legless lizard, San Joaquin coachwhip, and coast horned lizard?	Proposed Project	SI	MM BIO-2	LSM
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	SI (-)	MM BIO-2,	LSM (-)



**Table ES-2. Comparison of the Environmental Impacts of the Proposed Project and Alternatives (cont.)**

Impact	Proposed Project and Alternatives	Level of Significance Before Mitigation <sup>1</sup>	Mitigation Measures	Level of Significance with Mitigation <sup>1</sup>
<b>Impact BIO-10:</b> Would the project result in adverse effects on special-status fish species or their habitat?	Proposed Project	LTS	--	LTS
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	LTS (-)	--	LTS (-)
<b>Impact BIO-11:</b> Would the project result in adverse effects and loss of habitat for special-status avian species, nesting migratory birds, and raptors (excluding bald and golden eagles)?	Proposed Project	LTS	--	LTS
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	LTS (-)	--	LTS (-)
<b>Impact BIO-12:</b> Would the project result in adverse effects and loss of habitat for nesting bald eagles and golden eagles?	Proposed Project	SI	MM BIO-3	LSM
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	SI (=)	MM BIO-3	LSM (-)
<b>Impact BIO-13:</b> Would the project result in adverse effects and loss of habitat for mountain lion and tule elk?	Proposed Project	LTS		LTS
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	LTS (-)	--	LTS (-)
<b>Impact BIO-14:</b> Would the project result in adverse effects and loss of habitat American badger?	Proposed Project	SI	MM BIO-4--	LSM
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	SI (-)	MM BIO-4--	LSM (-)
<b>Impact BIO-15:</b> Would the project result in adverse effects and loss of habitat for San Joaquin kit fox?	Proposed Project	LTS	--	LTS
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	LTS (-)	--	LTS (-)
<b>Impact BIO-16:</b> Would the project result in adverse effects on dusky-footed woodrat?	Proposed Project	SI	MM BIO-5	LSM
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	SI (-)	MM BIO-5	LSM (-)
<b>Impact BIO-17:</b> Would the project result in adverse effects and loss of habitat for special-status bats (pallid bat, western red bat, western mastiff bat, Townsend's big-eared bat, hoary bat) and ringtail?	Proposed Project	SI	MM BIO-6	LSM
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	SI (-)	MM BIO-6	LSM (-)



**Table ES-2. Comparison of the Environmental Impacts of the Proposed Project and Alternatives (cont.)**

Impact	Proposed Project and Alternatives	Level of Significance Before Mitigation <sup>1</sup>	Mitigation Measures	Level of Significance with Mitigation <sup>1</sup>
<b>Impact BIO-18:</b> Would the project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	Proposed Project	SI	MM BIO-6	LSM
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	SI (-)	MM BIO-6	LSM
<b>Impact BIO-19:</b> Would the project conflict with the Santa Clara Valley Habitat Plan and Santa Clara County General Plan?	Proposed Project	NI	--	NI
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	NI (=)	--	NI (=)
<b>Cultural Resources</b>				
<b>Impact CUL-1:</b> Would the project cause a substantial adverse change in the significance of a historical resource pursuant to CCR Section 15064.5 ?	Proposed Project	SI	MM CUL-1. MM CUL-2	LSM
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	SI (-)	MM CUL-1. MM CUL-2	LSM (-)
<b>Impact CUL-2:</b> Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to CCR Section 15064.5	Proposed Project	SI	MM CUL-1. MM CUL-2	LSM
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	SI (-)	MM CUL-1. MM CUL-2	LSM (-)
<b>Impact CUL-3:</b> Would the project disturb any human remains, including those interred outside of formal cemeteries?	Proposed Project	SI	MM CUL-1. MM CUL-2	LSM
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	SI (-)	MM CUL-1. MM CUL-2	LSM (-)
<b>Energy</b>				
<b>Impact ENG-1:</b> Would the project result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	Proposed Project	NI	--	NI
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	NI (-)	--	NI (-)





**Table ES-2. Comparison of the Environmental Impacts of the Proposed Project and Alternatives (cont.)**

Impact	Proposed Project and Alternatives	Level of Significance Before Mitigation <sup>1</sup>	Mitigation Measures	Level of Significance with Mitigation <sup>1</sup>
<b>Impact ENG-2:</b> Would the project conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	Proposed Project	NI	--	NI
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	NI (-)	--	NI (-)
<b>Geology, Soils, and Paleontological Resources</b>				
<b>Impact GEO-1:</b> Would the project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving: i. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? ii. Strong seismic ground shaking? iii. Seismic-related ground failure, including liquefaction? ii. Landslides?	Proposed Project	NI	--	NI
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	NI (-)	--	NI (-)
<b>Impact GEO-2:</b> Would the project result in substantial soil erosion or loss of topsoil?	Proposed Project	LTS	--	LTS
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	LTS (-)	--	LTS (-)
<b>Impact GEO-3:</b> Would the project be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	Proposed Project	NI	--	NI
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	NI (-)	--	NI (-)
<b>Impact GEO-4:</b> Would the project be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?	Proposed Project	NI	--	NI
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	NI (-)	--	NI (-)
<b>Impact GEO-5:</b> Would the project have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	Proposed Project	NI	--	NI
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	NI (-)	--	NI (-)
<b>Impact GEO-6:</b> Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	Proposed Project	LTS	--	LTS
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	LTS (-)	--	LTS (-)



**Table ES-2. Comparison of the Environmental Impacts of the Proposed Project and Alternatives (cont.)**

Impact	Proposed Project and Alternatives	Level of Significance Before Mitigation <sup>1</sup>	Mitigation Measures	Level of Significance with Mitigation <sup>1</sup>
<b>Greenhouse Gas Emissions</b>				
<b>Impact GHG-1:</b> Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	Proposed Project	LTS	--	LTS
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	LTS (-)	--	LTS (-)
<b>Impact GHG-2:</b> Would the project conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	Proposed Project	LTS	--	LTS
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	LTS (-)	--	LTS (-)
<b>Hazards and Hazardous Materials</b>				
<b>Impact HAZ-1:</b> Would the project create a significant hazard to the public or the environment through the routine transport, use, storage or disposal of hazardous materials?	Proposed Project	LTS	--	LTS
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	LTS (-)	--	LTS (-)
<b>Impact HAZ-2:</b> Would the project create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	Proposed Project	LTS	--	LTS
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	LTS (-)	--	LTS (-)
<b>Impact HAZ-3:</b> Would the project be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	Proposed Project	LTS	--	LTS
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	LTS (-)	--	LTS (-)
<b>Impact HAZ-4:</b> Would the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	Proposed Project	SI	MM TR-1	LSM
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	SI (-)	MM TR-1	LSM (-)
<b>Impact HAZ-5:</b> Would the project expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires?	Proposed Project	LTS	--	LTS
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	LTS (-)	--	LTS (-)



**Table ES-2. Comparison of the Environmental Impacts of the Proposed Project and Alternatives (cont.)**

Impact	Proposed Project and Alternatives	Level of Significance Before Mitigation <sup>1</sup>	Mitigation Measures	Level of Significance with Mitigation <sup>1</sup>
<b>Impact HAZ-6:</b> Would the project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within ¼ mile of an existing or proposed school?	Proposed Project	NI	--	NI
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	NI (-)	--	NI (-)
<b>Impact HAZ-7:</b> For a project located within an airport land use plan, or where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?	Proposed Project	NI	--	NI
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	NI (-)	--	NI (-)
<b>Hydrology and Water Management</b>				
<b>Impact HYD-1:</b> Would the project violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?	Proposed Project	LTS	--	LTS
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	LTS (-)	--	LTS (-)
<b>Impact HYD-2:</b> Would the project substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	Proposed Project	NI	--	NI
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	NI (-)	--	NI (-)
<b>Impact HYD-3:</b> Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would: <b>a.</b> result in substantial erosion or siltation on- or off-site? <b>b.</b> substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite? <b>c.</b> create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff? <b>d.</b> impede or redirect flood flows?	Proposed Project	LTS	--	LTS
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	LTS (-)	--	LTS (-)
<b>Impact HYD-4:</b> Would the project in flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	Proposed Project	LTS	--	LTS
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	LTS (-)	--	LTS (-)



**Table ES-2. Comparison of the Environmental Impacts of the Proposed Project and Alternatives (cont.)**

Impact	Proposed Project and Alternatives	Level of Significance Before Mitigation <sup>1</sup>	Mitigation Measures	Level of Significance with Mitigation <sup>1</sup>
<b>Impact HYD-5:</b> Would the project conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	Proposed Project	LTS	--	LTS
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	LTS (-)	--	LTS (-)
<b>Land Use and Planning</b>				
<b>Impact LU-1:</b> Would the project physically divide an established community?	Proposed Project	NI	--	NI
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	NI (-)	--	NI (-)
<b>Impact LU-2:</b> Would the project cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	Proposed Project	NI	--	NI
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	NI (-)	--	NI (-)
<b>Mineral Resources</b>				
<b>Impact MIN-1:</b> Would the project result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	Proposed Project	NI	--	NI
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	NI (-)	--	NI (-)
<b>Impact MIN-2:</b> Would the project result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?	Proposed Project	NI	--	NI
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	NI (-)	--	NI (-)
<b>Noise</b>				
<b>Impact NOI-1:</b> Would the project result in generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	Proposed Project	SI	MM NOI-1, MM NOI-2	LSM
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	SI (-)	MM NOI-1, MM NOI-2	LSM (-)
<b>Impact NOI-2:</b> Would the project result in generation of excessive groundborne vibration or groundborne noise levels?	Proposed Project	LTS	--	LTS
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	LTS (-)	--	LTS (-)



**Table ES-2. Comparison of the Environmental Impacts of the Proposed Project and Alternatives (cont.)**

Impact	Proposed Project and Alternatives	Level of Significance Before Mitigation <sup>1</sup>	Mitigation Measures	Level of Significance with Mitigation <sup>1</sup>
<b>Impact NOI-3:</b> For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would expose people residing or working in the Project study area to excessive noise levels	Proposed Project	NI	--	NI
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	NI (-)	--	NI (-)
<b>Population and Housing</b>				
<b>Impact PH-1:</b> Would the project induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	Proposed Project	NI	--	NI
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	NI (-)	--	NI (-)
<b>Impact PH-2:</b> Would the project displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	Proposed Project	NI		NI
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	NI (-)	--	NI (-)
<b>Public Services</b>				
<b>Impact PS-1:</b> Would the Project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities or need for new or physical altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services?	Proposed Project	NI	--	NI
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	NI (-)	--	NI (-)
<b>Recreation</b>				
<b>Impact REC-1:</b> Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	Proposed Project	NI	--	NI
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	NI (-)	--	NI (-)
<b>Impact REC-2:</b> Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	Proposed Project	NI	--	NI
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	NI (-)	--	NI (-)
<b>Transportation</b>				



**Table ES-2. Comparison of the Environmental Impacts of the Proposed Project and Alternatives (cont.)**

Impact	Proposed Project and Alternatives	Level of Significance Before Mitigation <sup>1</sup>	Mitigation Measures	Level of Significance with Mitigation <sup>1</sup>
<b>Impact TRA-1:</b> Would the project conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?	Proposed Project	NI	--	NI
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	NI (-)	--	NI (-)
<b>Impact TRA-2:</b> Would the project conflict or be inconsistent with CEQA Guidelines §15064.3, subdivision (b)?	Proposed Project	LTS	--	LTS
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	LTS (-)	--	LTS (-)
<b>Impact TRA-3:</b> Would the project substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	Proposed Project	LTS	--	LTS
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	LTS (-)	--	LTS (-)
<b>Impact TRA-4:</b> Result in inadequate emergency access	Proposed Project	SI	MM TR-1	LSM
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	SI (-)	MM TR-1	LSM (-)
<b>Tribal Cultural Resources</b>				
<b>Impact TCR-1:</b> Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code Section 5020.1(k)?	Proposed Project	SI	MM CUL-1, MM CUL-2	LSM
	Alt 1 (No Project)	NI (-)		NI (-)
	Alt 2	SI	MM CUL-1, MM CUL-2	LSM (-)





**Table ES-2. Comparison of the Environmental Impacts of the Proposed Project and Alternatives (cont.)**

Impact	Proposed Project and Alternatives	Level of Significance Before Mitigation <sup>1</sup>	Mitigation Measures	Level of Significance with Mitigation <sup>1</sup>
<b>Impact TCR 2:</b> Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is a resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in Subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe?	Proposed Project	LTS	--	LTS
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	LTS (-)	--	LTS (-)
<b>Utilities and Service Systems</b>				
<b>Impact USS-1:</b> Would the project require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	Proposed Project	NI	--	NI
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	NI (-))	--	NI (-)
<b>Impact USS-2:</b> Would the project have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?	Proposed Project	NI	--	NI
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	NI (-))	--	NI (-)
<b>Impact USS-3:</b> Would the project result in determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	Proposed Project	NI	--	NI
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	NI (-))	--	NI (-)
<b>Impact USS-4:</b> Would the project generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	Proposed Project	NI	--	NI
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	NI (-))	--	NI (-)
<b>Impact USS-5:</b> Would the project comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	Proposed Project	NI	--	NI
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	NI (-))	--	NI (-)



**Table ES-2. Comparison of the Environmental Impacts of the Proposed Project and Alternatives (cont.)**

Impact	Proposed Project and Alternatives	Level of Significance Before Mitigation <sup>1</sup>	Mitigation Measures	Level of Significance with Mitigation <sup>1</sup>
<b>Wildfire</b>				
<b>Impact WF-1:</b> Would the project substantially impair an adopted emergency response plan or emergency evacuation plan?	Proposed Project	SI	MM TR-1	LSM
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	SI (-)	MM TR-1	LSM (-)
<b>Impact WF-2:</b> Would the project, due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	Proposed Project	LTS	--	LTS
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	LTS (-)	--	LTS (-)
<b>Impact WF-3:</b> Would the project require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	Proposed Project	LTS	--	LTS
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	LTS (-)	--	LTS (-)
<b>Impact WF-4:</b> Would the project expose people or structures to significant risks, including downslope, or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	Proposed Project	LTS	--	LTS
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	LTS (-)	--	LTS (-)

Notes:

<sup>1</sup> Symbols within parentheses provide a relative comparison of impacts of the Proposed Project to other alternatives (i.e., No Project Alternative and Alternatives 2, indicating whether the impacts of the other alternatives are similar to, more severe, or less severe than those of the Proposed Project. It should be noted that these comparisons present the most severe impact determination.

Key:

- = Lesser impact than that of the Proposed Project  
+ = Greater impact than that of the Proposed Project  
= = Same or similar impact as that of the Proposed Project

-- = No mitigation required  
Alt = Alternative  
B = beneficial  
LSM = less than significant with mitigation

LTS = less than significant  
MM = mitigation measure  
NI = no impact  
PRC = California Public Resources Code  
SI = Significant



# Chapter 1. Introduction

The Santa Clara Valley Water District (Valley Water), acting as the California Environmental Quality Act (CEQA) Lead Agency, has prepared this Draft Environmental Impact Report (EIR) to provide the public, responsible agencies and trustee agencies with information about the potential environmental effects of conducting the proposed Design Level Geotechnical Investigations for the Pacheco Reservoir Expansion Project (Proposed Project).

## 1.1 Purpose and Content of this Environmental Impact Report

Valley Water is the lead agency responsible for compliance with CEQA for environmental review of the Project proposed by Valley Water. CEQA requires the preparation of an EIR whenever substantial evidence demonstrates a project may significantly affect the physical environment. In June 2024, Valley Water issued a draft Initial Study/Mitigated Negative Declaration (IS/MND) for the Project that evaluated potentially significant impacts and described mitigation measures intended to reduce impacts to less than significant. In consideration of comments received from agencies, organizations and the general public on the IS/MND, Valley Water has decided to prepare an EIR for the Proposed Project to comply with CEQA. Section 1.2 below describes Valley Water's environmental review process under CEQA.

Valley Water has prepared this Draft EIR to provide its Board of Directors (Board), the general public, and responsible and trustee agencies reviewing this Project, with information about the physical effects on the local and regional environment associated with implementation of the Project. This Draft EIR was prepared in compliance with CEQA (California Public Resources Code (PRC) Section 21000 et seq.), and the CEQA Guidelines (14 California Code of Regulations [CCR] Sections 15000 et seq.).

This Draft EIR describes the Project proposed by Valley Water. The document then characterizes the Project's environmental setting, discloses the range of adverse environmental impacts of the Project, and identifies mitigation measures to avoid and/or reduce any significant environmental impacts. The Draft EIR also addresses adverse cumulative impacts and determines whether the Project would cause a cumulatively considerable contribution to any significant cumulative impacts. Also, as required under CEQA, the Draft EIR describes and evaluates potentially feasible alternatives to the Project that could avoid or reduce significant impacts while still meeting most, if not all, of the Project's objectives. The information contained in the Draft EIR will be reviewed and considered by the Board prior to the ultimate decision to approve, disapprove, or modify the Project. Multiple responsible and trustee agencies are expected to use this Draft EIR in their decision making for permits and approvals required for implementation of the Project. This Draft



EIR presents environmental reviews that will support these agencies' permitting and approval processes.

## **1.2 California Environmental Quality Act Review Process**

### **1.2.1 Notice of Preparation, Initial Study, and Public Scoping**

In accordance with CEQA Guidelines Section 15082, Valley Water, as the CEQA lead agency, prepared a Notice of Preparation (NOP) for this Draft EIR. The NOP contained a description of the Project and a summary of the environmental effects of the Project to be addressed in the Draft EIR. The NOP is included in Appendix A, Public and Agency Scoping Process Summary. On September 30, 2024, the NOP was submitted to the County of Santa Clara, the State Clearinghouse and was subsequently posted to CEQAnet. The NOP was distributed through the State Clearinghouse to all applicable state responsible and trustee agencies as required under CEQA. The initial scoping period for the Project remained open through October 30, 2024—a period of 30 days. Valley Water hosted a virtual scoping meeting on October 17, 2024, to provide information on the Proposed Project and solicit input on the scope and content to be included in the Draft EIR.

Valley Water received a total of seven comment letters or e-mails from state agencies, tribal groups, organizations, and individuals during the scoping period. Appendix A summarizes comments received from agencies, organizations, and the public and includes the NOP and copies of the comment letters. This Draft EIR has been prepared to consider both the comments received on the draft IS/MND initially prepared for the Project as well as the comments received through the scoping process.

### **1.2.2 Draft Environmental Impact Report and Public Comment**

This Draft EIR is available to local, state, and federal agencies and to interested organizations and individuals who may want to comment. Comments are due on April 25, 2025, providing a review period of 45-days (e.g., this Draft EIR released for public comment on March 11, 2025). Notice of this Draft EIR has also been sent directly to the State Clearinghouse; responsible and trustee agencies; and every agency, person, or organization that commented on the NOP. During the public comment period, written comments on the adequacy of the Draft EIR may be submitted to:

Todd Sexauer, Senior Environmental Planner  
Santa Clara Valley Water District  
5750 Almaden Expressway  
San Jose, CA 95118



Comments may also be submitted electronically via email with the subject Line, "DLGI Draft EIR Comments" to [DLGI@valleywater.org](mailto:DLGI@valleywater.org)

During this review period, electronic or printed copies of the Draft EIR will be available for public review at the following locations:

- Valley Water Office, located at 5750 Almaden Expressway, San Jose, CA 95118
- Public libraries
  - Dr. Martin Luther King, Jr. Library, 150 East San Fernando Street, San Jose, CA 95112
  - Gilroy Library, 350 W 6th Street, Gilroy, CA 95020

An electronic copy of the Draft EIR can also be viewed and downloaded at: <https://www.valleywater.org/public-review-documents>

### **1.2.3 Response to Public Comment and Final EIR**

All written comments received on the adequacy of this Draft EIR during the public review period will be addressed in a "response-to-comments" chapter in the Final EIR, which, together with this Draft EIR, will constitute the Final EIR. The responses-to comments and Final EIR will also present any changes to the Draft EIR resulting from public and agency comments, and Valley Water staff-initiated changes.

Prior to any decision on the Project, the Board will review the Final EIR and consider certifying the document at a regularly scheduled board meeting. Upon EIR certification, Valley Water may proceed with Project approval actions. Approval of the Project would be preceded by written findings for any significant adverse environmental effect identified in the EIR (CEQA Guidelines Section 15091), and if necessary, a statement of overriding considerations (CEQA Guidelines Section 15093). At the time that CEQA findings are adopted, Valley Water would also adopt a mitigation monitoring and reporting program for mitigation measures necessary to reduce significant adverse impacts to less than significant.

## **1.3 Summary of Agency and Stakeholder Engagement**

Throughout the overall planning process for the Proposed Project, Valley Water has coordinated with federal, state, and local agencies. Agencies included, but were not limited to, the U.S. Fish and Wildlife Service (USFWS); U.S. Army Corps of Engineers (USACE); State Water Resources Control Board (SWRCB); Central Coast Regional Water Quality Control Board (CCRWQCB); California Department of Fish and Wildlife (CDFW); California Department of Transportation (Caltrans); California Highway Patrol (CHP); Pacheco Pass Water District (PPWD); and Santa Clara Valley Habitat Agency (SCVHA). In addition, Valley Water has communicated extensively with representatives of the Amah Mutsun Tribal Band (in compliance with AB 52) and private landowners.





## 1.4 Organization of the Draft Environmental Impact Report

This Draft EIR has been organized as follows:

- **Executive Summary.** The Executive Summary provides a concise overview of the document. The Executive Summary allows the reader to review a summary of the analysis of significant impacts, proposed mitigation measures, residual environmental impacts after mitigation, and alternatives to the Project.
- **Chapter 1, Introduction.** This chapter describes the purpose and content of the Draft EIR and provides a description of the CEQA review process, summary of stakeholder and agency engagement, and organization of the Draft EIR.
- **Chapter 2, Project Description.** This chapter provides a discussion of the Project objectives that were used to formulate the Proposed Project. A detailed description of the Proposed Project, including a description of the Project background and location, existing and proposed facilities, and applicable design and implementation measures.
- **Chapter 3, Environmental Setting, Impacts, and Mitigation.** In addition to the introductory section of this chapter which discusses the general approach to assessing direct and indirect impacts, each environmental resource is discussed in a separate section within this chapter. Each section contains a discussion of the setting (existing environmental and regulatory setting), and the environmental impacts that could result from the Proposed Project. This analysis includes specific design and implementation measures incorporated into the Proposed Project that would serve to avoid or reduce impacts. As applicable, each section also presents feasible mitigation measures for significant adverse impacts. The criteria used to assess the significance of adverse environmental effects are identified, and the significance of the impact both prior to and following mitigation is reported.
- **Chapter 4, Alternatives.** This chapter provides a detailed description of the No Project Alternative, and other alternatives. It also includes a discussion of the scope and purpose, analysis and feasibility of alternatives, rationale for the selection of alternatives, and those alternatives considered but rejected for further analysis. This section also discusses environmental impacts that could result from the No Project Alternative, and other action alternatives and identifies the environmentally superior alternative.
- **Chapter 5, Cumulative Impacts.** This chapter provides a discussion of the approach used to assess the cumulative impacts of the Proposed Project in combination with impacts of past, current, and reasonably foreseeable probable future projects that could result in impacts similar to those resulting from implementation of the Proposed Project. It provides a list of projects of past, present and probable future projects considered that may have impacts similar to the Proposed Project. It provides an analysis of cumulative impacts of



the Proposed Project on each of the resources addressed in Chapter 3, including potential cumulative impacts of mitigation.

- **Chapter 6, Other CEQA Considerations.** This chapter describes the Proposed Project's growth inducement potential and summarizes any significant and unavoidable effects of the Proposed Project, the significant and irreversible environmental changes of the Proposed Project and identifies the environmentally superior alternative.
- **Chapter 7, References.** This chapter includes a consolidated list of all references used during preparation of this Draft EIR.
- **Chapter 8, List of Preparers.** This chapter lists persons and affiliations of those persons who prepared this Draft EIR.



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## **Chapter 2. Project Description**

### **2.1 Location and Background**

#### **2.1.1 Project Location**

The Proposed Project is located within, adjacent to, and in the vicinity of the existing Pacheco Reservoir, and along State Route 152 (SR-152) from Kaiser-Aetna Road to the site entrance located approximately one mile east of Kaiser-Aetna Road on the north side of SR-152. Pacheco Reservoir is located along North Fork Pacheco Creek and behind North Fork Dam (near 37.05022, -121.291754), roughly equidistant between the cities of Gilroy and Los Banos. The existing reservoir is located approximately one-half mile north of SR-152 in southeastern Santa Clara County, California. The Proposed Project location is shown in Figure 2-1.

#### **2.1.2 Project Background**

Valley Water's proposed Pacheco Reservoir Expansion Project (PREP) would be a multi-agency effort to provide water supply reliability, improve habitat for South-Central California Coast (SCCC) steelhead, and other benefits. Valley Water is currently evaluating PREP as part of a separate CEQA analysis. The Recirculated Draft Environmental Impact Report for PREP will evaluate an upstream location for the potential dam site on North Fork Pacheco Creek. PREP would include expanding the storage capacity of the existing Pacheco Reservoir from 5,500 acre-feet to approximately 140,000 acre-feet through construction of a new dam, conveyance facilities, and appurtenant infrastructure, and the long-term operations of the expanded reservoir and appurtenant facilities. As a multi-purpose project, PREP would increase emergency storage/emergency water supply, improve water supply reliability, increase SCCC steelhead habitat suitability, increase Incremental Level 4 refuge water supplies, and reduce impaired water quality deliveries from San Luis Reservoir.



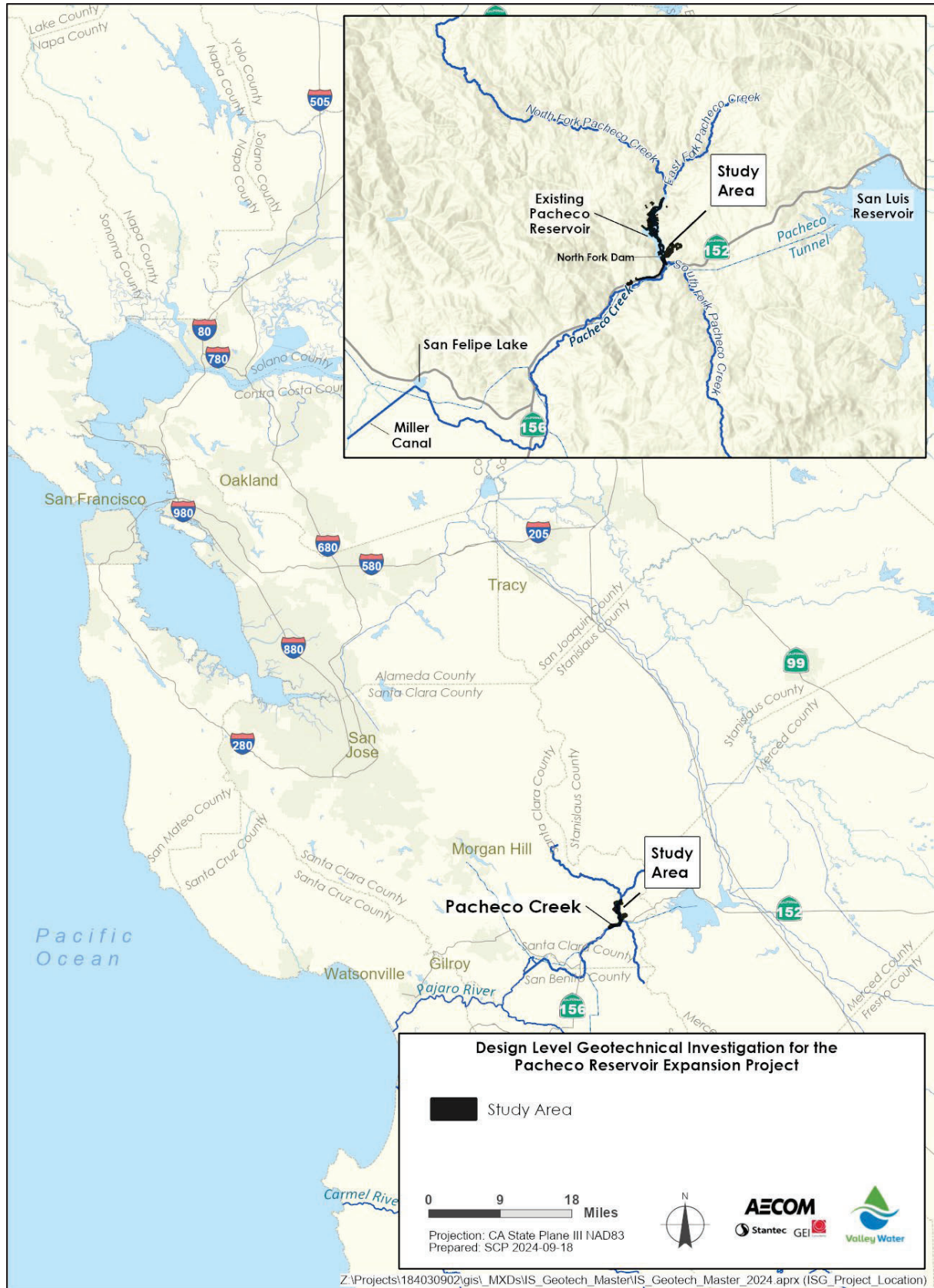


Figure 2-1. Project Location Map



To inform the future PREP design and planning processes, Valley Water is planning to undertake the Proposed Project to provide geotechnical and geologic data required in part by California Division of Safety of Dams (DSOD) for the design of the upstream dam site for PREP. In its 2022 letter to Valley Water (DSOD 2022), DSOD provided specific information requests on the Valley Water's proposed geotechnical workplan that have been incorporated into the project objectives presented below. The proposed objectives also reflect requests from Caltrans specific to the proposed temporary interchange at SR-152 and Kaiser-Aetna Road to facilitate truck traffic during construction. If, and when implemented, the Proposed Project would then provide engineers with design information necessary to address comments submitted on the 2021 PREP Draft EIR as well as refine designs to reflect the improved understanding of geotechnical conditions. In addition, it would support the development and analysis of physical process models necessary to assess impacts associated with PREP, refine designs in a manner to avoid or minimize impacts, and support the development of mitigation measures and subsequent monitoring efforts.

## 2.2 Project Objectives

The specific objectives of the Proposed Project are to:

- Provide a more complete understanding of the depth to, and properties of, the underlying bedrock within and close to the footprint of the proposed PREP upstream dam location, including exploration for possible bedrock faults within the dam foundation.
- Provide additional data within potential borrow sites necessary to quantify the volume and material characterization (via sample collection for laboratory testing) of materials adequate for use in construction of an earthfill dam.
- Provide additional data on the thickness, gradation and other properties of alluvial materials currently deposited in the existing Pacheco Reservoir upstream of North Fork Dam in support of sediment management during construction and ongoing design of the North Fork Pacheco Creek channel restoration reach.
- Identify the location and depths of existing landslide deposits at the proposed upstream dam site, spillway location and at selected locations within the inundation area of the proposed reservoir.
- Evaluate geotechnical conditions along the alignment of the proposed conveyance pipeline and pump station that would connect the expanded reservoir with the existing Pacheco Conduit.
- Investigate foundation conditions for an improved access road and a new bridge planned to be constructed several hundred feet south of the existing North Fork Dam.
- Investigate foundation and embankment conditions associated with a temporary overpass over SR-152 near the existing Kaiser-Aetna Road intersection.





- Provide additional data on the quantity, location, and character (e.g., gradation and chemical constituents) of alluvial sediments stored behind North Fork Dam necessary to refine the design of the North Fork Pacheco Creek restoration reach included in the description of PREP in the 2021 Draft Environmental Impact Report.
- Provide additional data on the character of alluvial sediments stored in Pacheco Reservoir that would inform the development and use of modeling tools (e.g., sediment transport model, water quality model) necessary to refine channel restoration design, analyze PREP-related impacts, and support development of PREP-specific mitigation and monitoring elements.

## 2.3 Proposed Project

The Proposed Project includes various types of surface and subsurface geotechnical investigations intended to meet the objectives described in Section 2.2. The locations of the proposed work activity areas are illustrated on Figure 2-2a through Figure 2-2e. Valley Water used a wide array of data available from existing field surveys and investigations to overlay resource data (e.g., biological, aquatic resources, cultural/tribal cultural) with geotechnical data to establish the initial work activity areas. Subsequently, engineering designs and detailed topographical data were used by a team of engineers and scientists to ensure that all activity areas associated with both surface and subsurface geotechnical investigations avoided all known sensitive resources. In the case of activity areas associated with existing access routes and staging areas, these activity areas were reduced in width or area to the extent possible to allow for critical vehicles (e.g., drill rig, excavator) based on site-specific field review by a biologist and geologist of each existing or proposed access route and staging area. This was done by using the comprehensive geographic information system (GIS) developed for PREP including site-specific, field verified geological, biological, aquatic resources and cultural resource spatial data to overlay proposed activity areas to assess proximity of these activity areas to sensitive resources (e.g., cultural resources/tribal cultural resources, sensitive natural communities). Where an activity area boundary intersected with a known sensitive resource, the activity area was relocated to buffer biological resources, sensitive natural communities, and aquatic/wetland resources by at least 50 feet<sup>5</sup> and archaeological resources by at least 150 feet, with the exception of existing access road. A brief description of each type of proposed investigation is provided in the following sections.

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<sup>5</sup> Due to specific field conditions, the boundaries of four activity areas (A-20-104, BA-23, TP 33, TP-47) were revised to completely avoid season wetlands, but a 50-foot buffer was not feasible at these locations.



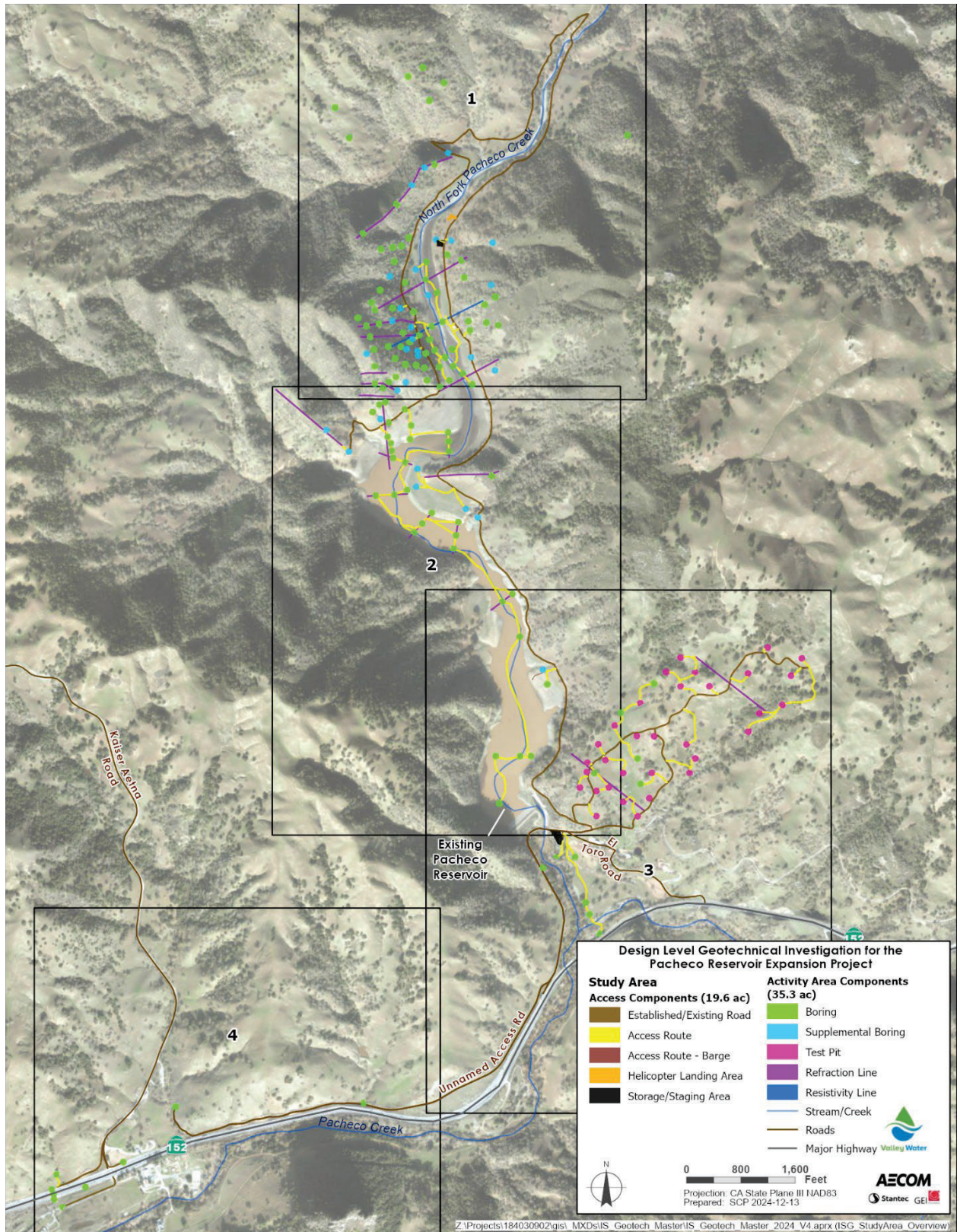


Figure 2-2a. Project Study Area Map (Index)





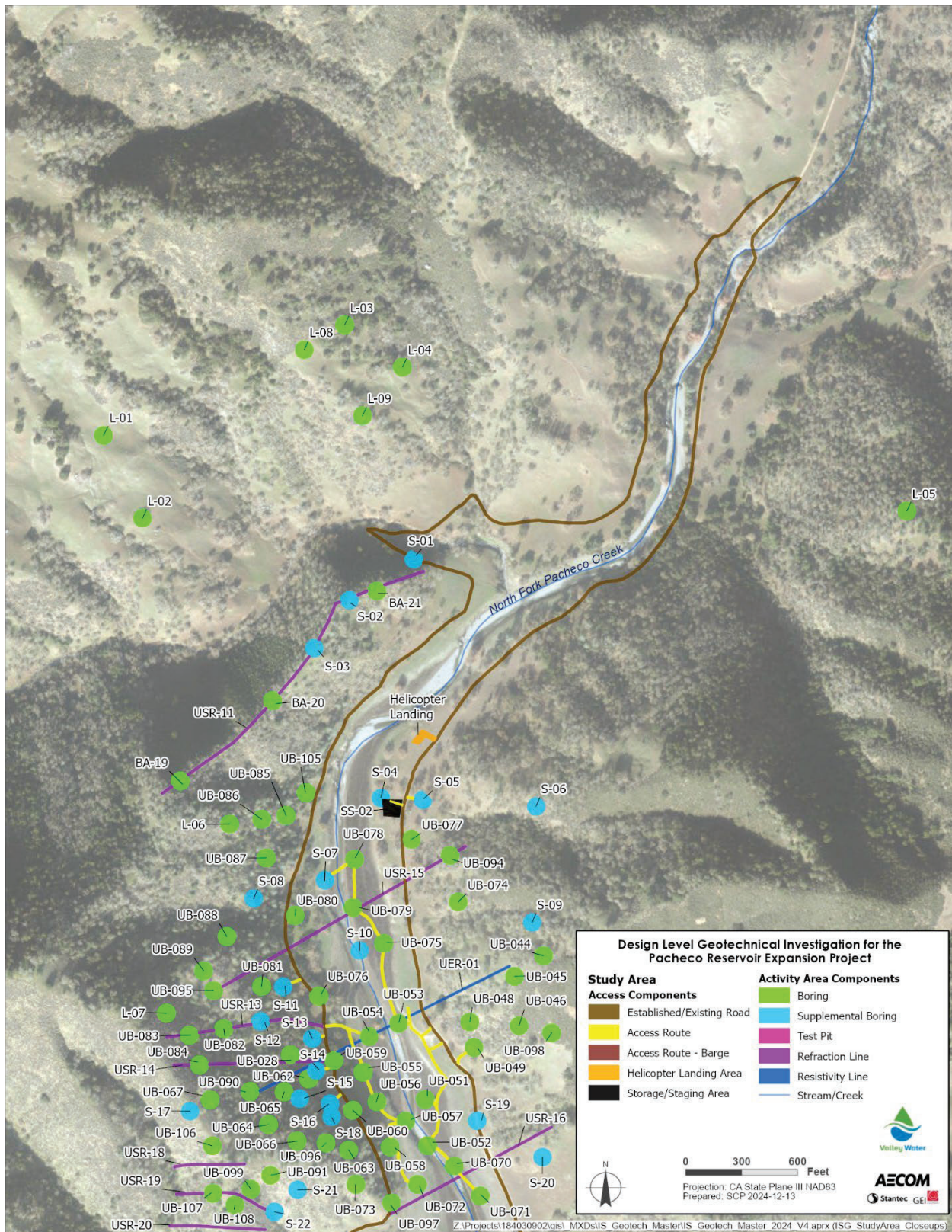


Figure 2-2b. Project Study Area Map (Plate 1)





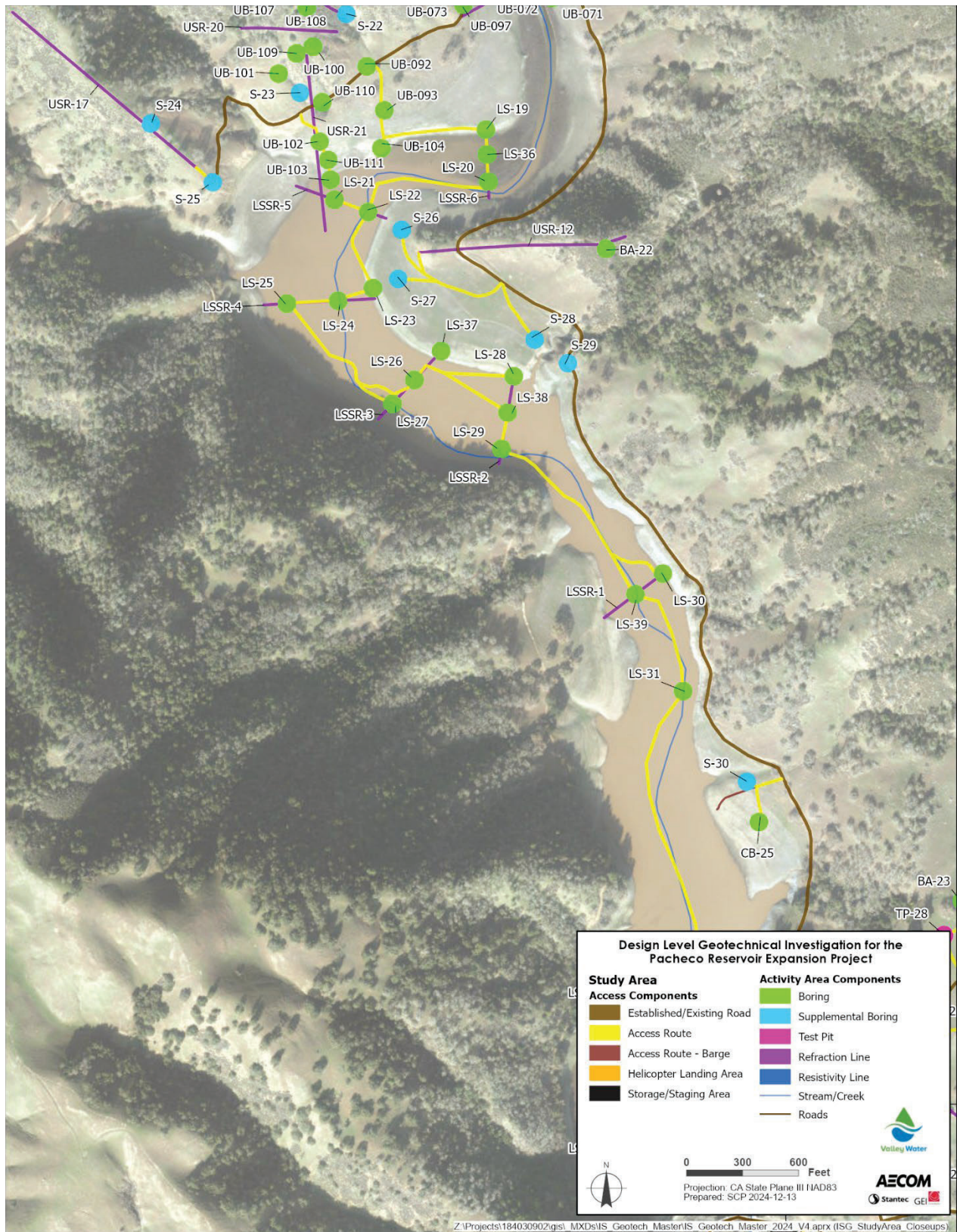


Figure 2-2c. Project Study Area Map (Plate 2)





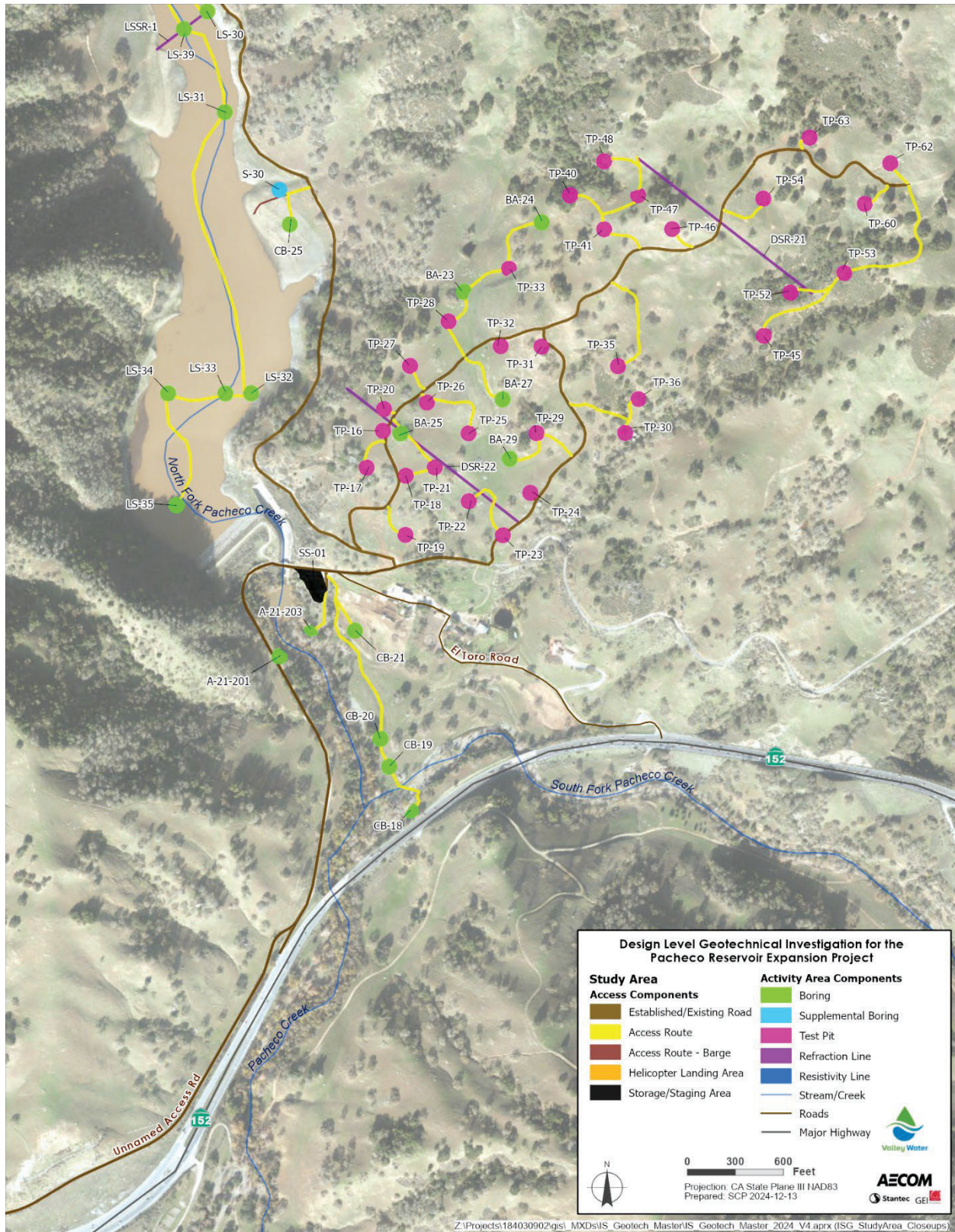


Figure 2-2d. Project Study Area Map (Plate 3)





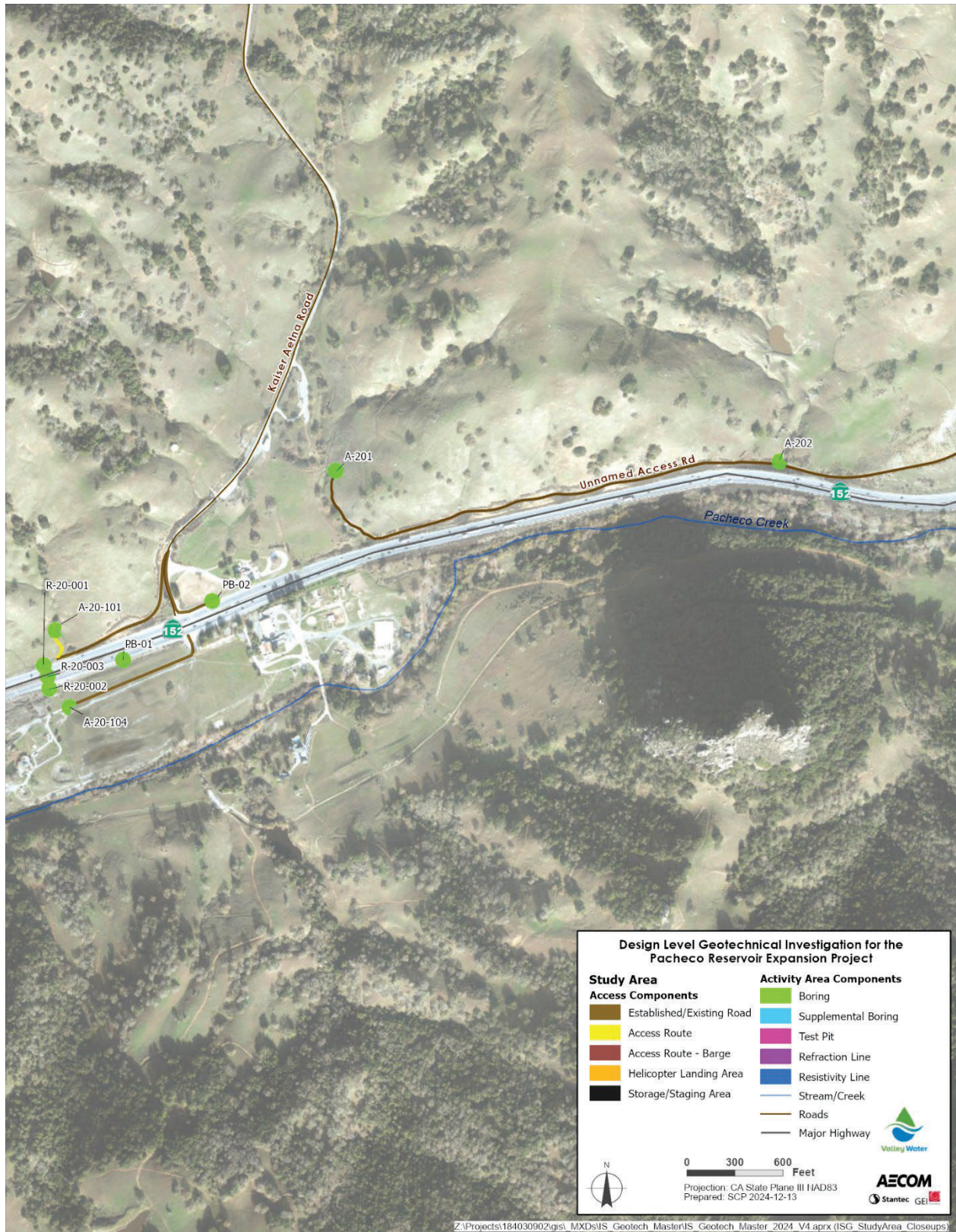


Figure 2-2e. Project Study Area Map (Plate 4)





### 2.3.1 Surface Geophysical Surveys

Two types of linear surface geophysical investigations would be performed within the Proposed Project study area: 1) electrical resistivity and 2) seismic refraction. The locations of these two types of surveys are illustrated on Figure 2-2a through Figure 2-2e. Additional information on each of these investigations is provided in Table 2-1 and the discussions that follow. These surface geophysical surveys are considered noninvasive or minimally invasive.

#### Electrical Resistivity Imaging

One electrical resistivity pedestrian survey would be performed across the valley within the upstream portion of the proposed dam foundation. This line (UER-01 on Figure 2-2b and Table 2-1) would be approximately 1,520 feet long and would provide data on the continuity or possible disruption of near surface alluvium and other soil deposits in an area where potentially active but previously unmapped bedrock faults could exist. Site-specific floristic surveys conducted in support of PREP did not identify any special-status plants within, or adjacent to the activity area established for electrical resistivity survey line UER-01. No vegetation would be cleared during these investigations, although some minor trimming of poison oak or other nonsensitive low growing shrubs may be necessary to allow placement of the survey cable in a relatively straight line by hand.

Electrical resistivity is a geophysical method used to measure the electrical properties of subsurface materials. At the site, multi-channel cables (approximately 1/2-inch diameter cable that is typically 300 feet long and connected as needed to maximum length) would be placed on the ground with minimal disturbance to existing vegetation. At established distances (e.g., every 25 feet), 1/2-inch-diameter stainless-steel electrodes would be connected to the cables and driven approximately 4 to 6 inches into the ground with a hand-held nonmetallic sledgehammer (to prevent sparking) in order to receive the electrical current. An electrical current would be induced at various locations using a portable, battery-powered current generator. The current generator is typically connected at both the end points and mid points) along the line for approximately five to 10 minutes at each induction point location, and the current detected by each electrode is compared to the induced current. The induced electrical current varies between 10 milliamps to about 500 milliamps at approximately 400 volts of direct current. Once acceptable data is recorded, all equipment would be removed by hand.



**Table 2-1. Surface Geophysical Survey Summary**

Survey Name	Location	Survey Type	Property Owner	Latitude Start <sup>1</sup> (WGS84)	Longitude Start <sup>1</sup> (WGS84)	Latitude End <sup>1</sup> (WGS84)	Longitude End <sup>1</sup> (WGS84)	Survey Length <sup>1</sup> (feet) Project Feature	Goal
USR-11	Shell borrow area	Seismic refraction	Jin and PPWD	37.077439	-121.294285	37.073860	-121.300032	2,207 shell borrow area	Borrow material properties/ thickness of overburden
USR-12	Shell borrow area	Seismic refraction	Jin and PPWD	37.064470	-121.292754	37.064218	-121.296537	1,113 shell borrow area	Borrow material properties/ thickness of overburden
USR-13	Dam Site, right abutment	Seismic refraction	Jin	37.070452	-121.297052	37.070269	-121.299915	848 right abutment dam foundation	Depth/thickness of landslide
USR-14	Dam Site, right abutment	Seismic refraction	Jin	37.069946	-121.296841	37.069859	-121.299769	855 right abutment dam foundation	Depth/thickness of landslide
USR-15	Dam Site, upstream toe	Seismic refraction	Jin and PPWD	37.073114	-121.294459	37.071003	-121.298937	1,516 dam foundation, upstream shell	Dam foundation depth/ thickness of overburden
USR-16	Dam Site, downstream toe	Seismic refraction	Jin and PPWD	37.068991	-121.292836	37.067680	-121.295816	992 dam foundation, downstream shell	Dam foundation depth/ thickness of overburden
USR-17	Shell borrow area	Seismic refraction	Jin	37.065433	-121.300639	37.067695	-121.304031	1,288 shell borrow area	Borrow material properties/ thickness of overburden
USR-18	Spillway	Seismic refraction	Jin	37.068412	-121.298469	37.068364	-121.299749	375 spillway	Spillway foundation depth
USR-19	Spillway	Seismic refraction	Jin	37.067707	-121.297957	37.067960	-121.299709	535 spillway	Spillway foundation depth
USR-20	Spillway	Seismic refraction	Jin	37.067449	-121.298079	37.067491	-121.299829	511 spillway	Spillway foundation depth



**Table 2-1. Surface Geophysical Survey Summary (cont.)**

Survey Name	Location	Survey Type	Property Owner	Latitude Start <sup>1</sup> (WGS84)	Longitude Start <sup>1</sup> (WGS84)	Latitude End <sup>1</sup> (WGS84)	Longitude End <sup>1</sup> (WGS84)	Survey Length <sup>1</sup> (feet) Project Feature	Goal
USR-21	Spillway	Seismic refraction	Jin and PPWD	37.067098	-121.298632	37.064521	-121.298258	945 spillway	Spillway foundation depth
UER-01	Dam foundation, core	Electrical resistivity	Jin and PPWD	37.071358	-121.293630	37.069462	-121.298273	1,521 dam foundation, near axis	Identify possible faults within dam foundation
DSR-21	Core borrow area	Seismic refraction	Jin	37.054772	-121.279041	37.057073	-121.282801	1,380 core borrow area	Borrow material properties/ thickness of overburden
DSR-22	Core borrow area	Seismic refraction	Jin	37.050815	-121.285289	37.053065	-121.288953	1,347 core borrow area	Borrow material properties/ thickness of overburden
LSSR-1	Existing reservoir bottom	Seismic Refraction	PPWD	37.059535	-121.291984	37.058860	-121.293081	404 Restoration channel	Thickness of lake sediment and alluvium
LSSR-2	Existing reservoir bottom	Seismic Refraction	PPWD	37.062422	-121.294774	37.061118	-121.295036	481 Restoration channel	Thickness of lake sediment and alluvium
LSSR-3	Existing reservoir bottom	Seismic Refraction	PPWD	37.062784	-121.296094	37.061759	-121.297256	504 Restoration channel	Thickness of lake sediment and alluvium
LSSR-4	Existing reservoir bottom	Seismic Refraction	PPWD	37.063528	-121.297335	37.063422	-121.299375	596 Restoration channel	Thickness of lake sediment and alluvium
LSSR-5	Existing reservoir bottom	Seismic Refraction	PPWD	37.064710	-121.297147	37.065176	-121.298802	601 Restoration channel	Thickness of lake sediment and alluvium
LSSR-6	Existing reservoir bottom	Seismic Refraction	PPWD	37.065021	-121.295262	37.066082	-121.295332	387 Restoration channel	Thickness of lake sediment and alluvium

Notes:

<sup>1</sup> All coordinates and lengths are approximate until the surveys have been completed.

Key:

PPWD = Pacheco Pass Water District

WGS84 = World Geodetic System 1984



## Seismic Refraction Investigations

Nineteen seismic-refraction lines totaling approximately 16,890 linear feet are proposed at multiple locations: within the dam foundation, along the ridgelines of the upstream and downstream borrow areas, across the landslides on the right abutment at the proposed dam site, and across lake sediments occurring within the bottom of the existing Pacheco Reservoir (labeled USR-11 through USR-21, DSR-21 and DSR-22, and LSSR-1 through LSSR-6, respectively in Table 2-1 and presented on Figure 2-2a through Figure 2-2d). Seismic Refraction survey lines are not located in areas known to provide habitat for special-status plants or sensitive communities. No vegetation would be removed during these surface investigations, although some minor trimming of poison oak or other nonthreatened and nonsensitive low growing bushes may be necessary to allow placement of the survey cable.

For each survey line at the site, an approximately 1/2-inch diameter cable would be placed on the ground with minimal disturbance to existing vegetation. At established distances (e.g., every 25 feet), 1/2-inch diameter by 6-inch-long metal stakes with seismic receivers (geophones) attached would be driven into the ground with a hand-held nonmetallic sledgehammer (to prevent sparking) and then connected to the cable in order to receive the seismic energy signal. The cable would then be attached to a portable receiver/data recorder. A nonmetallic sledgehammer or all-terrain vehicle (ATV)-mounted hammer (see Figure 2-3) would be used to strike an aluminum plate on the ground surface at each end and the midpoint of each survey line one or more times to send an energy pulse out to the geophones. The ground around the strike plate would be wetted down prior to initiation of hammer striking using a hand-held water container. A handheld sledgehammer would be used in place of an ATV-mounted hammer in areas containing sensitive resources. An ATV-mounted non-metallic hammer would only be used when working in areas accessible using existing established access routes. The ATV-mounted hammer is a self-contained hammering device that provides more energy into the ground than a hand-held sledgehammer can produce and therefore, produces clearer seismic refraction records. Seismic refraction surveys provide data related to thickness of soil and deeply weathered rock beneath the geophone locations. Once acceptable data is recorded, all equipment would be removed from the activity areas. Any vegetation trimmed within these activity areas would be scattered within the activity area to reduce fuel accumulations.





**Figure 2-3. ATV-Mounted Geophysical Hammer Specified for Use for the Proposed Design Level Geotechnical Investigations**

### 2.3.2 Subsurface Geotechnical Investigations

Two types of subsurface geotechnical investigation methods are proposed within the Proposed Project study area: 1) exploratory test pits and 2) exploratory borings. All exploration locations have a defined “activity area” that has been established to include a 100-foot diameter work activity area, which is intended to provide adequate workspace in a manner that would avoid and protect sensitive resources. All work associated with the subsurface exploration would be contained within the designated activity areas, though overall ground disturbance would be significantly less (up to approximately 4 square feet for exploratory borings and an approximate average of 400 square feet for exploratory test pits).<sup>6</sup> In the event that conditions below the full pool elevation of Pacheco Reservoir preclude conventional track-based drilling operations, borings would be conducted using a portable drill rig placed on a barge and launched from an identified activity area (i.e., access route) onto Pacheco Reservoir. A small (e.g. 18-foot with outboard motor) support boat would also be launched from the same location and used to move the barge into place. After all barge-based drilling is complete, the barge and support boat would be recovered and moved out of the Proposed Project study area.

At select boring locations, permanent subsurface monitoring equipment called piezometers would be installed to better understand changes in subsurface groundwater depth. In addition, inclinometers would be installed at four boring locations at suspected landslides to detect subsurface movement in soil and/or rock over time. Erodibility testing would also occur at up to 11 of the proposed 21 lake sediment (LS) boring sites to assist in the determination of sediment resistance to scour.<sup>7</sup> The piezometer and inclinometer equipment is discussed in the subsequent

<sup>6</sup> Ground disturbance equates to physical disturbance associated with exploration equipment; pedestrian and vehicle traffic within an authorized activity area is not included in this calculation of ground disturbance.

<sup>7</sup> In the event barge-based drilling occurs, some of these sites would not include installations of piezometers.



section. All personnel and equipment would stay within the truncated workspace during activities associated with the Proposed Project activities (including while entering and exiting) and would not encroach into any known sensitive resource areas.

All subsurface geotechnical investigations would require heavy equipment (e.g., excavators, drill rigs) and, at a number of boring activity areas on steep hillsides or ridges, a helicopter would be used to avoid creating new roads for drill rig access. In order to minimize greenhouse gas emissions, the following Project measures will be implemented as part of the Proposed Project:

- All vehicles and heavy equipment (e.g., excavators, drill rigs) will meet all federal and state requirements for emissions.
- As applicable, idling time for vehicles and heavy equipment will be minimized and Project tailgate meetings will be used to inform Project personnel of this requirement.
- Diesel-powered vehicles and equipment will use California Air Resources Board approved renewable diesel fuel, as available.
- Field personnel will be encouraged by Valley Water and/or its contractor(s) to use carpools and/or shuttles to minimize the number of vehicles necessary to transport personnel and equipment to the Proposed Project study area.
- Transportation of fuels necessary to power and maintain equipment (e.g., diesel, Avgas, hydraulic fluids) would likely occur on a daily basis; there would be no permanent storage of fuels or other fluids within the Proposed Project study area. These products are considered to be hazardous materials. Operators of diesel-powered vehicles and equipment will use California Air Resources Board-approved renewable diesel fuel as and when it is locally available and cost-effective.

The rural and largely undeveloped nature of the Proposed Project study area suggests that subsurface utilities at the proposed activity areas are unlikely. Regardless, prior to implementation Valley Water would clear the test pit and boring activity areas by contacting the Underground Services Alert. In addition, activity areas would be reviewed with the property owners (e.g., Edmund Jin and PPWD) and Caltrans prior to implementation. Any exploratory boring anticipated to have a depth of 45 feet or more into native material would require a Valley Water well ordinance drilling permit.

## **Exploratory Test Pits**

A total of 32 test pits (TP) (i.e., 0.29 acres total disturbed area) are proposed as part of the Proposed Project to explore a potential borrow area for dam core zone material for the design and construction of PREP. The proposed location of each test pit (including access routes) was selected in the field by a geologist, in conjunction with a biologist to avoid or minimize impacts to vegetation. This also included avoidance of drip lines and root zones of all trees and other vegetation associated with sensitive natural communities or special-status plants. Prior to





mobilizing equipment, the geologist or engineer would use handheld global positioning system (GPS) equipment to locate each test pit within the boundary of each activity area, including access routes. Proposed excavator access routes to test pit locations would be limited to the width necessary to move vehicles and equipment (e.g., 10-12 feet wide). These routes would be inspected by qualified botanists to confirm absence of special-status plants and sensitive natural communities along the proposed route. No grading would be necessary to use these access routes. Each test pit would be excavated to a depth and length determined by field conditions but would generally be about 10 to 20 feet long, 3 feet wide (i.e., test pit excavations would be rectangular in shape), and ranging between 5 and 20 feet deep. To retain topsoil and associated seedbed, the operator will remove and stockpile this material for use in final backfill efforts under the direction of the field engineer or geologist, where deeper than 4.5 feet, the test pit would be logged from the surface and not entered, consistent with federal and state safety requirements. Each test pit would be excavated, logged, sampled, and backfilled over the course of several hours.

The locations of all the proposed test pits and associated access routes are shown on Figure 2-2d. Exploratory test pit information is summarized in Table 2-2. The general excavation and logging procedures proposed for test pits are outlined below and would include at a minimum:

- Delineate boundary of activity area in the field in manner adequate to ensure all field activities are confined to the activity area.
- An experienced geologist or geotechnical engineer would direct the operator to carefully excavate and stockpile topsoil separately from the remaining subsoils for surface placement following the backfilling of each test pit.
- Carefully excavate the test pit and deposit the excavated materials in an appropriate location away from the excavation wall within the specific activity area established for each test pit.
- Watch as the excavation proceeds for any buried materials, especially materials that may pose a safety hazard.
- An experienced geologist or geotechnical engineer would record/log one wall of the test pit excavation and observe the excavated materials as the excavation progresses.
- Although unlikely, based on previous experience on the site, if a test pit wall caves in, bench or lay back the pit wall sufficiently to prevent additional caving.
- Collect bulk samples from the excavated spoils of test pits.
- Photograph the test pit wall that was described/logged.
- Backfill test pits in compacting replaced materials with the excavator's bucket or excavator-mounted sheep's foot roller to ensure that all excavated materials are replaced in the hole. Properly replace the stockpiled topsoil once all subsurface soils have been replaced and properly compacted to meet the pre-existing grade/conditions.



**Table 2-2. Exploratory Test Pit Summary**

Test Pit Name	Location	Property Owner	Latitude <sup>1</sup> (WGS84)	Longitude <sup>1</sup> (WGS84)	Surface Elevation <sup>1</sup> (feet)	Test Pit Depth <sup>1</sup> (feet)	Tree Trimming or Removal	Excavation <sup>2</sup>	Goal
TP-16	Core borrow area	Jin	37.052349	-121.288181	657	5 – 20	No	Yes	Core material borrow study
TP-17	Core borrow area	Jin	37.051717	-121.288522	619	5 – 20	No	Yes	Core material borrow study
TP-18	Core borrow area	Jin	37.051583	-121.287683	618	5 – 20	No	Yes	Core material borrow study
TP-19	Core borrow area	Jin	37.050567	-121.287683	517	5 – 20	No	Yes	Core material borrow study
TP-20	Core borrow area	Jin	37.052721	-121.288162	661	5 – 20	No	Yes	Core material borrow study
TP-21	Core borrow area	Jin	37.051729	-121.287069	598	5 – 20	No	Yes	Core material borrow study
TP-22	Core borrow area	Jin	37.051153	-121.286334	562	5 – 20	No	Yes	Core material borrow study
TP-23	Core borrow area	Jin	37.050576	-121.285600	556	5 – 20	No	Yes	Core material borrow study
TP-24	Core borrow area	Jin	37.051307	-121.285019	618	5 – 20	No	Yes	Core material borrow study
TP-25	Core borrow area	Jin	37.052318	-121.286349	602	5 – 20	No	Yes	Core material borrow study
TP-26	Core borrow area	Jin	37.052839	-121.287247	671	5 – 20	No	Yes	Core material borrow study
TP-27	Core borrow area	Jin	37.053466	-121.287614	685	5 – 20	No	Yes	Core material borrow study
TP-28	Core borrow area	Jin	37.054235	-121.286797	721	5 – 20	No	Yes	Core material borrow study
TP-29	Core borrow area	Jin	37.052330	-121.284896	662	5 – 20	No	Yes	Core material borrow study
TP-30	Core borrow area	Jin	37.052350	-121.283002	731	5 – 20	No	Yes	Core material borrow study
TP-31	Core borrow area	Jin	37.053815	-121.284805	777	5 – 20	No	Yes	Core material borrow study
TP-32	Core borrow area	Jin	37.053818	-121.285679	720	5 – 20	No	Yes	Core material borrow study
TP-33	Core borrow area	Jin	37.055149	-121.285515	775	5 – 20	No	Yes	Core material borrow study



**Table 2-2. Exploratory Test Pit Summary (cont.)**

Test Pit Name	Location	Property Owner	Latitude <sup>1</sup> (WGS84)	Longitude <sup>1</sup> (WGS84)	Surface Elevation <sup>1</sup> (feet)	Test Pit Depth <sup>1</sup> (feet)	Tree Trimming or Removal	Excavation <sup>2</sup>	Goal
TP-35	Core borrow area	Jin	37.053491	-121.283167	830	5 – 20	No	Yes	Core material borrow study
TP-36	Core borrow area	Jin	37.052931	-121.282722	785	5 – 20	No	Yes	Core material borrow study
TP-40	Core borrow area	Jin	37.056414	-121.284221	877	5 – 20	No	Yes	Core material borrow study
TP-41	Core borrow area	Jin	37.055837	-121.283487	953	5 – 20	No	Yes	Core material borrow study
TP-45	Core borrow area	Jin	37.054035	-121.280052	967	5 – 20	No	Yes	Core material borrow study
TP-46	Core borrow area	Jin	37.055849	-121.282033	1022	5 – 20	No	Yes	Core material borrow study
TP-47	Core borrow area	Jin	37.056426	-121.282768	978	5 – 20	No	Yes	Core material borrow study
TP-48	Core borrow area	Jin	37.057003	-121.283502	959	5 – 20	No	Yes	Core material borrow study
TP-52	Core borrow area	Jin	37.054777	-121.279491	1033	5 – 20	No	Yes	Core material borrow study
TP-53	Core borrow area	Jin	37.055122	-121.278345	1241	5 – 20	No	Yes	Core material borrow study
TP-54	Core borrow area	Jin	37.056386	-121.280089	1071	5 – 20	No	Yes	Core material borrow study
TP-60	Core borrow area	Jin	37.056309	-121.277920	1260	5 – 20	No	Yes	Core material borrow study
TP-62	Core borrow area	Jin	37.057011	-121.277381	1340	5 – 20	No	Yes	Core material borrow study
TP-63	Core borrow area	Jin	37.057440	-121.279112	1222	5 – 20	No	Yes	Core material borrow study

Notes:

<sup>1</sup> All elevations, coordinates, and depths are approximate until the test pits have been completed.

<sup>2</sup> Each test pit requires excavation with hydraulic excavator.

Key:

TP = Test Pit

WGS84 = World Geodetic System 1984



## Exploratory Borings

To assist with the design and construction of PREP, 149 exploratory borings (to include 119 initial borings and up to 30 supplemental borings<sup>8</sup>) are proposed to obtain essential information on subsurface geologic and geotechnical conditions (see Figure 2-2a through Figure 2-2e). Each boring activity is estimated to disturb about 4 square feet of ground within a designated activity area, for a total of 0.01 acre within the Proposed Project study area. The geologist or engineer would use handheld GPS equipment to locate each activity area and the actual boring location. Proposed access routes to non-helicopter-accessed boring locations would be inspected by qualified biologists to confirm a lack of protected or threatened species along the proposed route. The required access routes for borings located off existing roads and that are not planned for helicopter mobilization are shown on Figure 2-2a through Figure 2-2e. The drill rig would access the drill site by driving in on the access route and would remain at the drill site until the hole is completed; the drill rig would either return along the same route or continue along the designated route to the next activity area.

The borings would be drilled within and close to the footprint of the proposed dam, spillway, and outlet tunnel, at core zone material and shell zone material borrow areas, on landslides upstream of the proposed dam site, along the conveyance pipeline alignment and pump station footprint, along the proposed access/frontage road alignment, in lake sediments occurring within the bottom of the existing Pacheco Reservoir, at the proposed bridge crossing adjacent to North Fork Pacheco Creek, and at the proposed overpass structure location within the SR-152 right-of-way (ROW).

As many as four types of drilling methods would be used to advance the borings to include: HQ-3 rock core drilling, hollow stem auger drilling, auger/rotary wash drilling, and possibly vibracore barge borings if the reservoir is not drawn down. Multiple methods may be used to advance a single boring (e.g., hollow stem auger in dry portion of soil, rotary wash in inundated areas, and HQ-3 rock coring in rock). Land-based drilling would not occur at any location within Pacheco Reservoir while an activity area is inundated.

The proposed borings would be no larger than 6 inches in diameter. Samples removed during drilling would be saved and stored temporarily onsite for review and laboratory testing. Samples would be transported to an offsite storage facility for long-term storage. Proposed boring locations have been preferentially located on existing dirt access roads or where ranching activities have resulted in previous surface disturbance to the extent possible. Additional information on the proposed boring activity areas is provided in Table 2-3 and illustrated on Figure 2-2a through Figure 2-2e.

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<sup>8</sup> Supplemental borings are identified to supplement, and/or replace proposed borings that may be excluded for resource, safety or drilling conditions.



An additional 30 supplemental borings have been designated at specific locations within the Proposed Project study area, as illustrated on Figure 2-2a through Figure 2-2e. Supplemental borings would only be implemented if the results of the non-supplemental borings and geophysical surveys indicate the need for additional data at these locations, or identification of an environmentally sensitive resource within an activity area requires exclusion in order to avoid a resource. If supplemental borings are implemented, the location of these borings may be shifted within the activity area depending upon the results of initial boring efforts, the need to address subsurface data gaps (e.g., evidence of geological discontinuities in material type, depth to bedrock, etc.), and to address comments from regulatory agencies. In the event that one or more supplemental borings would require adjustments extending beyond the 100-foot-diameter work activity area boundary, a reevaluation of each of those sites and approval by Valley Water prior to implementing any activity beyond the specific activity area boundary would be required.



**Table 2-3. Exploratory Boring Summary**

Boring Name	Location <sup>1</sup>	Boring Type	Property Owner	Latitude <sup>2</sup> (WGS84)	Longitude <sup>2</sup> (WGS84)	Surface Elevation <sup>2</sup> (feet)	Boring Depth <sup>2</sup> (feet)	Boring Inclination (degrees)	Piezometer <sup>7</sup> / Inclinometer	In Situ Testing <sup>3</sup>	Equipment <sup>6</sup> Access	Tree Trimming and/or Removal <sup>5</sup>	Hand Contouring <sup>4</sup>	Goal
UB-28	US dam site	Core	Jin	37.070027	-121.297641	558	150	90	-	H, T	Helicopter	No	Yes	Landslide/ foundation
UB-44	US dam site	Core	Jin	37.071518	-121.293003	805	60	90	-	H, T	Helicopter	No	Yes	Landslide/ foundation
UB-45	US dam site	Core	Jin	37.071209	-121.293534	731	300	90	-	H, T	Helicopter	No	Yes	Foundation
UB-46	US dam site	Core	Jin	37.070482	-121.293444	674	100	90	-	-	Helicopter	No	Yes	Foundation
UB-48	US dam site	Core	Jin	37.070533	-121.294348	566	150	90	-	H	Helicopter	No	Yes	Foundation
UB-49	US dam site	Core	Jin	37.070158	-121.294268	515	150	90	-	H	Trailer/ Track/Truck	No	No	Foundation
UB-51	US dam site	Core	PPWD	37.069389	-121.295157	453	100	90	-	-	Trailer/ Track/Truck	No	No	Foundation
UB-52	US dam site	Core	PPWD	37.068710	-121.295101	445	75	90	-	-	Trailer/ Track/Truck	No	No	Foundation
UB-53	US dam site	Core	PPWD	37.070502	-121.295657	454	270	45°@ S63°W	-	H, T	Trailer/ Track/Truck	No	No	Foundation
UB-54	US dam site	Core	PPWD	37.070309	-121.296199	454	200	45°@ S63°W	-	H, T	Trailer/ Track/Truck	No	No	Foundation
UB-55	US dam site	Core	PPWD	37.069778	-121.296301	469	200	45°@ S63°W	-	H, T	Trailer/ Track/Truck	No	No	Foundation
UB-56	US dam site	Core	PPWD	37.069347	-121.296042	469	100	90	-	H	Trailer/ Track/Truck	No	No	Foundation
UB-57	US dam site	Core	PPWD	37.069063	-121.295512	445	100	90	-	-	Trailer/ Track/Truck	No	No	Foundation
UB-58	US dam site	Core	PPWD	37.068684	-121.295793	468	75	90	-	-	Trailer/ Track/Truck	No	No	Foundation
UB-59	US dam site	Core	PPWD	37.069946	-121.296841	490	150	90	-	H	Trailer/ Track/Truck	No	No	Landslide/ foundation





**Table 2-3. Exploratory Boring Summary (cont.)**

Boring Name	Location <sup>1</sup>	Boring Type	Property Owner	Latitude <sup>2</sup> (WGS84)	Longitude <sup>2</sup> (WGS84)	Surface Elevation <sup>2</sup> (feet)	Boring Depth <sup>2</sup> (feet)	Boring Inclination (degrees)	Piezometer <sup>7</sup> / Inclinometer	In Situ Testing <sup>3</sup>	Equipment <sup>6</sup> Access	Tree Trimming and/or Removal <sup>5</sup>	Hand Contouring <sup>4</sup>	Goal
UB-60	US dam site	Core	Jin	37.069218	-121.296487	495	130	90	-	H	Trailer/ Track/Truck	No	No	Landslide/ foundation
UB-62	US dam site	Core	Jin	37.069675	-121.297303	551	150	90	-	H, T	Helicopter	Remove	Yes	Landslide/ foundation
UB-63	US dam site	Core	Jin	37.068631	-121.296554	595	75	90	-	-	Helicopter	No	Yes	Foundation
UB-64	US dam site	Core	Jin	37.068998	-121.298030	713	300	90	-	H, T	Helicopter	No	Yes	Tunnel/ foundation
UB-65	US dam site	Core	Jin	37.069481	-121.297749	627	100	45°@ S63°W	-	T	Helicopter	Remove Trim	Yes	Landslide/ foundation
UB-66	US dam site	Core	Jin	37.068758	-121.297504	716	70	90	-	T	Helicopter	No	Yes	Foundation
UB-67	US dam site	Core	Jin	37.069354	-121.299107	785	50	90	-	T	Helicopter	No	Yes	Landslide/ foundation
UB-70	US dam site	Core	PPWD	37.068412	-121.294615	443	75	90	-	-	Trailer/ Track/Truck	No	No	Foundation
UB-71	US dam site	Core	PPWD	37.067976	-121.294128	453	75	90	-	-	Trailer/ Track/Truck	No	No	Foundation
UB-72	US dam site	Core	PPWD	37.068134	-121.295287	465	75	90	-	-	Trailer/ Track/Truck	No	No	Foundation
UB-73	US dam site	Core	Jin	37.068126	-121.296418	611	75	90	-	-	Helicopter	No	Yes	Foundation
UB-74	US dam site	Core	Jin	37.072297	-121.294581	586	125	90	-	H, T	Helicopter	No	Yes	Landslide/ foundation
UB-75	US dam site	Core	PPWD	37.071677	-121.295943	454	150	90	-	H	Trailer/ Track/Truck	No	No	Foundation
UB-76	US dam site	Core	Jin	37.070893	-121.297125	487	150	90	-	H	Trailer/ Track/Truck	No	No	Landslide/ foundation
UB-77	US dam site	Core	PPWD	37.073213	-121.295449	489	100	90	-	-	Trailer/ Track/Truck	No	No	Foundation



**Table 2-3. Exploratory Boring Summary (cont.)**

Boring Name	Location <sup>1</sup>	Boring Type	Property Owner	Latitude <sup>2</sup> (WGS84)	Longitude <sup>2</sup> (WGS84)	Surface Elevation <sup>2</sup> (feet)	Boring Depth <sup>2</sup> (feet)	Boring Inclination (degrees)	Piezometer <sup>7</sup> / Inclinometer	In Situ Testing <sup>3</sup>	Equipment <sup>6</sup> Access	Tree Trimming and/or Removal <sup>5</sup>	Hand Contouring <sup>4</sup>	Goal
UB-78	US dam site	Core	PPWD	37.072913	-121.296492	460	100	90	-	H	Trailer/ Track/Truck	No	No	Foundation
UB-79	US dam site	Core	PPWD	37.072203	-121.296514	454	125	90	-	H	Trailer/ Track/Truck	No	No	Foundation
UB-80	US dam site	Core	Jin	37.072076	-121.297578	489	125	90	-	-	Trailer/ Track/Truck	No	No	Foundation
UB-81	US dam site	Core	Jin	37.071031	-121.298179	566	125	90	-	-	Helicopter	Remove	Yes	Foundation
UB-82	US dam site	Core	Jin	37.070402	-121.298870	666	230	90	-	H, T	Helicopter	Remove, Trim	Yes	Tunnel
UB-83	US dam site	Core	Jin	37.070304	-121.299499	795	50	90	-	-	Helicopter	No	Yes	Landslide/ foundation
UB-84	US dam site	Core	Jin	37.069866	-121.299310	786	50	90	-	-	Helicopter	No	Yes	Landslide/ foundation
UB-85	US dam site	Core	Jin	37.073546	-121.297757	522	50	90	-	H	Trailer/ Track/Truck	Remove, Trim	No	Tunnel
UB-86	US dam site	Core	Jin	37.073491	-121.298204	613	175	90	-	H, T	Helicopter	No	Yes	Tunnel
UB-87	US dam site	Core	Jin	37.072922	-121.298114	551	230	90	-	H, T	Helicopter	No	Yes	Tunnel
UB-88	US dam site	Core	Jin	37.071760	-121.298827	621	100	90	-	H, T	Helicopter	Remove, Trim	Yes	Tunnel
UB-89	US dam site	Core	Jin	37.071252	-121.299246	748	315	90	-	H, T	Helicopter	No	Yes	Outlet control shaft
UB-90	US dam site	Core	Jin	37.069481	-121.298376	673	250	90	-	H, T	Helicopter	Remove	Yes	Tunnel
UB-91	US dam site	Core	Jin	37.068249	-121.297986	749	200	90	-	T	Helicopter	No	Yes	Tunnel
UB-92	US dam site	Core	Jin	37.066944	-121.297524	508	105	90	-	H, T	Trailer/ Track/Truck	No	No	Tunnel
UB-93	US dam site	Core	PPWD	37.066300	-121.297195	472	60	90	-	H	Trailer/ Track/Truck	No	No	Tunnel



**Table 2-3. Exploratory Boring Summary (cont.)**

Boring Name	Location <sup>1</sup>	Boring Type	Property Owner	Latitude <sup>2</sup> (WGS84)	Longitude <sup>2</sup> (WGS84)	Surface Elevation <sup>2</sup> (feet)	Boring Depth <sup>2</sup> (feet)	Boring Inclination (degrees)	Piezometer <sup>7</sup> / Inclinometer	In Situ Testing <sup>3</sup>	Equipment <sup>6</sup> Access	Tree Trimming and/or Removal <sup>5</sup>	Hand Contouring <sup>4</sup>	Goal
UB-94	US dam site	Core	PPWD	37.072983	-121.294738	573	50	90	-	H	Trailer/ Track/Truck	No	No	Tunnel
UB-95	US dam site	Core	Jin	37.070963	-121.299061	713	50	90	-	H	Trailer/ Track/Truck	No	No	Tunnel
UB-96	US dam site	Core	Jin	37.068734	-121.296970	655	100	90	-	T	Helicopter	No	Yes	Possible outlet control shaft
UB-97	US dam site	Core	Jin	37.067858	-121.295754	498	375	90	-	H, T	Helicopter	No	Yes	Possible tunnel
UB-98	US dam site	Core	Jin	37.070382	-121.292843	703	80	90	-	H, T	Helicopter	No	Yes	Possible tunnel
UB-99	US dam site	Core	Jin	37.068043	-121.298343	723	100	90	-	T	Helicopter	No	Yes	Spillway
UB-100	US dam site	Core	Jin	37.067227	-121.298515	660	120	90	-	T	Helicopter	No	Yes	Spillway
UB-101	US dam site	Core	Jin	37.066826	-121.299143	631	100	90	-	T	Helicopter	No	Yes	Spillway
UB-102	US dam site	Core	PPWD	37.065831	-121.298380	463	100	90	-	T	Trailer/ Track/Truck	No	No	Spillway
UB-103	US dam site	Core	PPWD	37.065273	-121.298172	442	100	90	-	-	Trailer/ Track/Truck	No	No	Spillway
UB-104	US dam site	Core	PPWD	37.065742	-121.297244	450	100	90	-	T	Trailer/ Track/Truck	No	No	Bifurcation structure
UB-105	US dam site	Core	Jin	37.073886	-121.297391	493	100	90	-	T	Trailer/ Track/Truck	No	No	Tunnel approach
UB-106	US dam site	Core	Jin	37.068677	-121.299060	797	100	90	-	T	Helicopter	No	Yes	Spillway
UB-107	US dam site	Core	Jin	37.067978	-121.299041	749	100	90	-	T	Helicopter	No	Yes	Spillway
UB-108	US dam site	Core	Jin	37.067809	-121.298634	737	100	90	-	T	Helicopter	No	Yes	Spillway
UB-109	US dam site	Core	Jin	37.067126	-121.298817	676	100	90	-	T	Helicopter	No	Yes	Spillway
UB-110	US dam site	Core	Jin	37.066409	-121.298337	502	100	90	-	T	Truck	No	No	Spillway



**Table 2-3. Exploratory Boring Summary (cont.)**

Boring Name	Location <sup>1</sup>	Boring Type	Property Owner	Latitude <sup>2</sup> (WGS84)	Longitude <sup>2</sup> (WGS84)	Surface Elevation <sup>2</sup> (feet)	Boring Depth <sup>2</sup> (feet)	Boring Inclination (degrees)	Piezometer <sup>7</sup> / Inclinometer	In Situ Testing <sup>3</sup>	Equipment <sup>6</sup> Access	Tree Trimming and/or Removal <sup>5</sup>	Hand Contouring <sup>4</sup>	Goal
UB-111	US dam site	Core	PPWD	37.065565	-121.298220	443	100	90	Piezo	T	Trailer/ Track/Truck	No	No	Spillway
BA-19	US borrow	Core	Jin	37.074045	-121.299708	851	200	90	-	T, P	Helicopter	No	Yes	Shell borrow
BA-20	US borrow	Core	Jin	37.075238	-121.298023	714	200	90	Piezo	T, P	Helicopter	No	Yes	Shell borrow
BA-21	US borrow	Core	Jin	37.076862	-121.296124	633	175	90	-	T, P	Helicopter	No	Yes	Shell borrow
BA-22	DS borrow	Core	Jin	37.064291	-121.293103	683	275	55°@ S90°W	Piezo	T, P	Helicopter	No	Yes	Shell borrow
BA-23	Core borrow	Core	Jin	37.054743	-121.286469	740	50	90	Piezo	P	Trailer/ Track/Truck	No	No	Core borrow
BA-24	Core borrow	Core	Jin	37.055947	-121.284825	830	50	90	-	P	Trailer/ Track/Truck	No	No	Core borrow
BA-25	Core borrow	Core	Jin	37.052306	-121.287803	670	50	90	Piezo	P	Trailer/ Track/Truck	No	No	Core borrow
BA-27	Core borrow	Core	Jin	37.052906	-121.285630	651	50	90	-	P	Trailer/ Track/Truck	No	No	Core borrow
BA-29	Core borrow	Core	Jin	37.051886	-121.285466	603	50	90	-	P	Trailer/ Track/Truck	No	No	Core borrow
L-01	US reservoir rim	Core	Jin	37.079121	-121.301172	901	105	90	Piezo	T	Helicopter	No	Yes	Reservoir rim landslide
L-02	US reservoir rim	Core	Jin	37.077906	-121.300443	761	110	90	Piezo, Inclino	T	Helicopter	No	Yes	Reservoir rim landslide
L-03	US reservoir rim	Core	Jin	37.080777	-121.296757	889	90	90	Piezo	T	Helicopter	No	Yes	Reservoir rim landslide
L-04	US reservoir rim	Core	Jin	37.080162	-121.295687	760	125	90	Piezo, Inclino	T	Helicopter	No	Yes	Reservoir rim landslide
L-05	US reservoir rim	Core	Jin	37.078109	-121.286396	948	210	90	Piezo	T	Helicopter	No	Yes	Reservoir rim landslide
L-06	US reservoir rim	Core	Jin	37.073417	-121.298795	741	80	90	Piezo	T	Helicopter	No	Yes	Reservoir rim landslide



**Table 2-3. Exploratory Boring Summary (cont.)**

Boring Name	Location <sup>1</sup>	Boring Type	Property Owner	Latitude <sup>2</sup> (WGS84)	Longitude <sup>2</sup> (WGS84)	Surface Elevation <sup>2</sup> (feet)	Boring Depth <sup>2</sup> (feet)	Boring Inclination (degrees)	Piezometer <sup>7</sup> / Inclinometer	In Situ Testing <sup>3</sup>	Equipment <sup>6</sup> Access	Tree Trimming and/or Removal <sup>5</sup>	Hand Contouring <sup>4</sup>	Goal
L-07	US reservoir rim	Core	Jin	37.070624	-121.299924	880	80	90	Piezo	T	Helicopter	No	Yes	Reservoir rim landslide
L-08	US reservoir rim	Core	Jin	37.080409	-121.297496	923	90	90	Piezo, Inclino	T	Helicopter	No	Yes	Reservoir rim landslide
L-09	Us reservoir rim	Core	Jin	37.079443	-121.296415	774	125	90	Piezo, Inclino	T	Helicopter	No	Yes	Reservoir rim landslide
CB-18	Tunnel boring, midpoint	RW/ Core	Jin	37.045844	-121.287518	388	55	90	-	-	Trailer/ Track/Truck	No	No	Microtunnel
CB-19	Tunnel boring, north end	RW/ Core	Jin	37.046588	-121.287988	387	45	90	-	-	Trailer/ Track/Truck	No	No	Microtunnel
CB-20	Trenchless shaft	RW/ Core	Jin	37.047066	-121.288176	388	55	90	-	-	Trailer/ Track/Truck	No	No	Shaft foundation
CB-21	Pipeline	RW/ Core	PPWD	37.048915	-121.288744	404	50	90	-	-	Trailer/ Track/Truck	No	No	Pipeline foundation
CB-25	Pump station	RW/ Core	PPWD	37.055876	-121.290211	456	45	90	-	-	Trailer/ Track/Truck	No	No	Pump station foundation
A-201	Access/ frontage road	HSA	Jin	37.038659	-121.308785	385	30	90	-	-	Truck	No	No	Deep culvert crossing/ foundation
A-202	Access/ frontage road	HSA	Jin	37.038885	-121.299295	371	30	90	-	-	Truck	No	No	Deep culvert crossing/ foundation



**Table 2-3. Exploratory Boring Summary (cont.)**

Boring Name	Location <sup>1</sup>	Boring Type	Property Owner	Latitude <sup>2</sup> (WGS84)	Longitude <sup>2</sup> (WGS84)	Surface Elevation <sup>2</sup> (feet)	Boring Depth <sup>2</sup> (feet)	Boring Inclination (degrees)	Piezometer <sup>7</sup> / Inclinometer	In Situ Testing <sup>3</sup>	Equipment <sup>6</sup> Access	Tree Trimming and/or Removal <sup>5</sup>	Hand Contouring <sup>4</sup>	Goal
A-20-101	Access/ frontage road	HSA	Jin	37.035883	-121.314750	375	50	90	-	-	Trailer/ Track	No	No	Evaluate access/front age road subgrade, cut wall
A-20-104	Interchange	HSA	Zhou	37.034569	-121.314432	348	40	90	-	-	Truck	No	No	Interchange approach
A-21-201	Access road bridge, west abutment	RW/ Core	Jin	37.048464	-121.290356	417	80	90	-	-	Truck	No	No	Access road bridge foundation
A-21-203	Access road bridge, east abutment	RW/ Core	Jin	37.048859	-121.289712	414	80	90	-	-	Truck	No	No	Access road bridge foundation
PB-01	SR-152 pavement	HSA	Caltrans	37.035389	-121.313299	356	5	90	-	-	Truck	No	No	Pavement subgrade
PB-02	SR-152 pavement	HSA	Caltrans	37.036409	-121.311406	350	5	90	-	-	Truck	No	No	Pavement subgrade
R-20-001	SR-152 overpass	RW/ Core	Caltrans	37.035279	-121.314995	356	80	90	-	-	Truck	No	No	Interchange foundation
R-20-002	SR-152 overpass	RW/ Core	Caltrans	37.034884	-121.314873	355	80	90	-	-	Truck	No	No	Interchange foundation
R-20-003	SR-152 overpass	RW/ Core	Caltrans	37.035091	-121.314910	355	80	90	-	-	Truck	No	No	Interchange foundation
LS-19	Channel restoration area	HSA	PPWD	37.066029	-121.295329	452	44*	90	Piezo	J	Track/ Truck/Barge **	No	No	Evaluate site conditions for channel restoration





**Table 2-3. Exploratory Boring Summary (cont.)**

Boring Name	Location <sup>1</sup>	Boring Type	Property Owner	Latitude <sup>2</sup> (WGS84)	Longitude <sup>2</sup> (WGS84)	Surface Elevation <sup>2</sup> (feet)	Boring Depth <sup>2</sup> (feet)	Boring Inclination (degrees)	Piezometer <sup>7</sup> / Inclinometer	In Situ Testing <sup>3</sup>	Equipment <sup>6</sup> Access	Tree Trimming and/or Removal <sup>5</sup>	Hand Contouring <sup>4</sup>	Goal
LS-20	Channel restoration area	HSA	PPWD	37.065262	-121.295278	443	44*	90	-	J	Track/ Truck/Barge **	No	No	Evaluate site conditions for channel restoration
LS-21	Channel restoration area	HSA	PPWD	37.064977	-121.298096	437	44*	90	-	J	Track/ Truck/Barge **	No	No	Evaluate site conditions for channel restoration
LS-22	Channel restoration area	HSA	PPWD	37.064803	-121.297477	434	44*	90	-	J	Track/ Truck/Barge **	No	No	Evaluate site conditions for channel restoration
LS-23	Channel restoration area	HSA	PPWD	37.063682	-121.297377	450	44*	90	Piezo	J	Track/ Truck/Barge **	No	No	Evaluate site conditions for channel restoration
LS-24	Channel restoration area	HSA	PPWD	37.063492	-121.298012	431	44*	90	Piezo	J	Track/ Truck/Barge **	No	No	Evaluate site conditions for channel restoration
LS-25	Channel restoration area	HSA	PPWD	37.063444	-121.298953	441	44*	90	Piezo	J	Track/ Truck/Barge **	No	No	Evaluate site conditions for channel restoration
LS-26	Channel restoration area	HSA	PPWD	37.062337	-121.296600	429	44*	90	-	J	Track/ Truck/Barge **	No	No	Evaluate site conditions for channel restoration
LS-27	Channel restoration area	HSA	PPWD	37.061985	-121.297000	427	44*	90	-	J	Track/ Truck/Barge **	No	No	Evaluate site condition for channel restoration



**Table 2-3. Exploratory Boring Summary (cont.)**

Boring Name	Location <sup>1</sup>	Boring Type	Property Owner	Latitude <sup>2</sup> (WGS84)	Longitude <sup>2</sup> (WGS84)	Surface Elevation <sup>2</sup> (feet)	Boring Depth <sup>2</sup> (feet)	Boring Inclination (degrees)	Piezometer <sup>7</sup> / Inclinometer	In Situ Testing <sup>3</sup>	Equipment <sup>6</sup> Access	Tree Trimming and/or Removal <sup>5</sup>	Hand Contouring <sup>4</sup>	Goal
LS-28	Channel restoration area	HSA	PPWD	37.062403	-121.294778	446	44*	90	Piezo	J	Track/Truck/Barge**	No	No	Evaluate site conditions for channel restoration
LS-29	Channel restoration area	HSA	PPWD	37.061333	-121.294993	425	44*	90	-	J	Track/Truck/Barge**	No	No	Evaluate site conditions for channel restoration
LS-30	Channel restoration area	HSA	PPWD	37.059520	-121.292012	445	44*	90	Piezo	J	Track/Truck / Barge**	No	No	Evaluate site conditions for channel restoration
LS-31	Channel restoration area	HSA	PPWD	37.057792	-121.291622	416	44*	90	Piezo	J	Track/Truck / Barge**	No	No	Evaluate site conditions for channel restoration
LS-32	Channel restoration area	HSA	PPWD	37.052974	-121.291009	417	44*	90	Piezo	J	Track/Truck / Barge**	No	No	Evaluate site conditions for channel restoration
LS-33	Channel restoration area	HSA	PPWD	37.052966	-121.291557	406	44*	90	Piezo	J	Track/Truck / Barge**	No	No	Evaluate site conditions for channel restoration
LS-34	Channel restoration area	HSA	PPWD	37.052957	-121.292781	406	44*	90	Piezo	J	Track/Truck / Barge**	No	No	Evaluate site conditions for channel restoration
LS-35	Channel restoration area	HSA	PPWD	37.051042	-121.292584	401	44*	90	Piezo	J	Track/Truck / Barge**	No	No	Evaluate site conditions for channel restoration



**Table 2-3. Exploratory Boring Summary (cont.)**

Boring Name	Location <sup>1</sup>	Boring Type	Property Owner	Latitude <sup>2</sup> (WGS84)	Longitude <sup>2</sup> (WGS84)	Surface Elevation <sup>2</sup> (feet)	Boring Depth <sup>2</sup> (feet)	Boring Inclination (degrees)	Piezometer <sup>7</sup> / Inclinometer	In Situ Testing <sup>3</sup>	Equipment <sup>6</sup> Access	Tree Trimming and/or Removal <sup>5</sup>	Hand Contouring <sup>4</sup>	Goal
LS-36	Channel restoration area	HSA	PPWD	37.065663	-121.295305	440	44*	90	-	J	Track/Truck/ Barge**	No	No	Evaluate site conditions for channel restoration
LS-37	Channel restoration area	HSA	PPWD	37.062765	-121.296116	453	44*	90	-	J	Track/Truck/ Barge**	No	No	Evaluate site conditions for channel restoration
LS-38	Channel restoration area	HSA	PPWD	37.061869	-121.294885	428	44*	90	-	J	Track/Truck/ Barge**	No	No	Evaluate site conditions for channel restoration
LS-39	Channel restoration area	HSA	PPWD	37.059211	-121.292511	418	44*	90	-	J	Track/ Truck/Barge*	No	No	Evaluate site conditions for channel restoration
S-01	Borrow area	Core	Jin	37.077332	-121.295450	505	40	90	-	-	Trailer/ Track/Truck	No	No	Shell borrow
S-02	Borrow area	Core	Jin	37.076727	-121.296625	660	180	90	-	-	Helicopter	No	Yes	Shell borrow
S-03	Borrow area	Core	Jin	37.076016	-121.297265	708	190	90	-	-	Helicopter	No	Yes	Shell borrow
S-04	US dam site	Core	PPWD	37.073821	-121.296014	476	40	90	-	H	Trailer/ Track/Truck	No	No	Alternative Tunnel
S-05	US dam site	Core	Jin	37.073798	-121.295244	493	60	90	-	H	Trailer/ Track/Truck	No	No	Alternative Tunnel
S-06	US dam site	Core	Jin	37.073713	-121.293163	674	240	90	-	H	Helicopter	No	Yes	Alternative Tunnel
S-07	US dam site	Core	PPWD	37.072601	-121.297032	459	110	90	-	-	Trailer/ Track/Truck	No	No	Dam foundation
S-08	US dam site	Core	Jin	37.072323	-121.298337	605	135	90	-	H	Helicopter	No	Yes	Tunnel



**Table 2-3. Exploratory Boring Summary (cont.)**

Boring Name	Location <sup>1</sup>	Boring Type	Property Owner	Latitude <sup>2</sup> (WGS84)	Longitude <sup>2</sup> (WGS84)	Surface Elevation <sup>2</sup> (feet)	Boring Depth <sup>2</sup> (feet)	Boring Inclination (degrees)	Piezometer <sup>7</sup> / Inclinometer	In Situ Testing <sup>3</sup>	Equipment <sup>6</sup> Access	Tree Trimming and/or Removal <sup>5</sup>	Hand Contouring <sup>4</sup>	Goal
S-09	US dam site	Core	Jin	37.072006	-121.293217	752	315	90	-	H	Helicopter	No	Yes	Alternative Tunnel
S-10	US dam site	Core	PPWD	37.071571	-121.296384	451	130	90	-	-	Trailer/ Track/Truck	No	No	Dam foundation
S-11	US dam site	Core	Jin	37.071028	-121.297781	510	125	90	-	-	Helicopter	No	Yes	Dam foundation
S-12	US dam site	Core	Jin	37.070517	-121.298195	620	125	90	-	-	Helicopter	Trim	Yes	Dam foundation
S-13	US dam site	Core	Jin	37.070269	-121.297239	520	125	90	-	T	Helicopter	No	Yes	Dam foundation
S-14	US dam site	Core	Jin	37.069797	-121.297164	509	150	90	-	H, T	Helicopter	Remove	Yes	Dam foundation
S-15	US dam site	Core	Jin	37.069384	-121.297462	615	140	90	-	H, T	Helicopter	Remove, Trim	Yes	Dam foundation
S-16	US dam site	Core	Jin	37.069312	-121.296902	552	140	90	-	T	Helicopter	Remove	Yes	Dam foundation
S-17	US dam site	Core	Jin	37.069184	-121.299474	848	60	90	-	-	Helicopter	No	Yes	Spillway
S-18	US dam site	Core	Jin	37.069122	-121.296871	575	120	90	-	T	Helicopter	Remove, Trim	Yes	Shell borrow
S-19	Pipeline	RW/ Core	PPWD	37.069077	-121.294198	483	75	90	-	-	Trailer/ Track/Truck	No	No	Pipeline
S-20	US dam site	RW/ Core	Jin	37.068552	-121.292990	559	120	90	-	H	Helicopter	No	Yes	Alternative Tunnel
S-21	US dam site	Core	Jin	37.068040	-121.297486	690	110	90	-	H	Helicopter	No	Yes	Alternative Tunnel
S-22	US dam site	Core	Jin	37.067714	-121.297908	594	110	90	-	H, T	Helicopter	No	Yes	Tunnel
S-23	US dam site	Core	Jin	37.066548	-121.298747	533	60	90	-	-	Helicopter	No	Yes	Spillway
S-24	Borrow area	Core	Jin	37.066076	-121.301479	666	140	90	-	-	Helicopter	No	Yes	Shell borrow
S-25	Borrow area	Core	Jin	37.065220	-121.300333	533	50	90	-	-	Trailer/ Track/Truck	No	No	Shell borrow



**Table 2-3. Exploratory Boring Summary (cont.)**

Boring Name	Location <sup>1</sup>	Boring Type	Property Owner	Latitude <sup>2</sup> (WGS84)	Longitude <sup>2</sup> (WGS84)	Surface Elevation <sup>2</sup> (feet)	Boring Depth <sup>2</sup> (feet)	Boring Inclination (degrees)	Piezometer <sup>7</sup> / Inclinometer	In Situ Testing <sup>3</sup>	Equipment <sup>6</sup> Access	Tree Trimming and/or Removal <sup>5</sup>	Hand Contouring <sup>4</sup>	Goal
S-26	Pipeline	RW/ Core	PPWD	37.064543	-121.296859	458	80	90	-	-	Trailer/ Track/Truck	No	No	Pipeline foundation
S-27	Pipeline	RW/ Core	PPWD	37.063820	-121.296913	459	80	90	-	-	Trailer/ Track/Truck	No	No	Pipeline foundation
S-28	Pipeline	RW/ Core	PPWD	37.062944	-121.294400	467	70	90	-	-	Trailer/ Track/Truck	No	No	Pipeline foundation
S-29	Pipeline	RW/ Core	PPWD	37.062602	-121.293787	484	70	90	-	-	Trailer/ Track/Truck	No	No	Pipeline foundation
S-30	Pump station	RW/ Core	PPWD	37.056466	-121.290438	465	45	90	-	-	Trailer/ Track/Truck	No	No	Pump station foundation

Notes:

<sup>1</sup> DS = downstream, US = upstream

<sup>2</sup> All elevations, coordinates, and depths are approximate until the borings have been completed.

<sup>3</sup> H = hydraulic conductivity, T = televiewer, P = P-wave seismic velocity survey, J = jet testing would occur at 11 out of the 21 SL sites based on field conditions at the time of testing (e.g., water table, sediment size)

<sup>4</sup> Only minimal hand contouring would be required to create level drill platform or to create level footing for drill outrigger.

<sup>5</sup> See Appendix B which includes tree impacts summaries.

<sup>6</sup> While up to five drill rigs may be operating concurrently, there would only be one drill rig active at each activity area.

<sup>7</sup> Should a barge-based drill rig be needed for in-reservoir LS borings with proposed piezometers, then some (such as those proposed at borings LS-24 through LS-25, LS-28 and LS-30 through LS-35) or all of the 11 piezometers would not be installed.

\* or auger refusal on bedrock

\*\*Truck/truck access is the preferred access method for LS borings. Small barge with vibracore rig would be utilized if surface conditions and/or water levels require.

Key:

HSA = hollow stem auger

PPWD = Pacheco Pass Water District

RW = rotary wash

WGS84 = World Geodetic System 1984



### ***Exploratory Boring Access and Ground Disturbance***

Most borings would be drilled using portable drill rigs that would either be towed into place on trailers or would be flown into place via helicopter in steeper terrain. Some borings would be drilled with a track-mounted all-terrain or truck mounted drill rig with an average width of about 10 feet. The six existing access road segments listed in Table 2-3 (A-201, A-202, A-20-101, A-20-104, A-21-201, A-21-103) vary in width from about 12 feet to 18 feet. These would be used through the duration of the Proposed Project to access the various activity areas throughout the Proposed Project study area. As illustrated on Figure 2-2a through Figure 2-2e, there are more than one hundred un-labeled access routes that would be necessary to get vehicles, personnel and equipment to the various boring activity areas. These are consolidated to support investigations associated with proposed borrow locations, SR-152 corridor (e.g., temporary overpass) and lakebed sediments associated with Pacheco Reservoir (if the reservoir is drawn down at the time). Each of these proposed access routes were assumed to be 12 feet wide to provide for safe access for vehicles and equipment,

There are 37 temporary access routes associated with proposed borrow locations that have lengths ranging from 47 feet to 1,833 feet. The average length of these routes would be 450 feet. Based on the assumed maximum width of 12 feet, four of these access routes would intersect with seasonal wetlands (totaling 0.05 acres); ten of these access routes would intersect with sensitive vegetation communities (totaling 0.20 acres).

Six of these temporary access routes associated with the SR-152 corridor would have lengths ranging from 198 feet to 2,548 feet, the average length of these routes is 435 feet. One of these routes would intersect an ephemeral creek, and another would intersect an intermittent creek (totaling 0.01 acres). One of these routes would intersect a sensitive vegetation community (totaling 0.006 acres).

There are 70 access routes that would be used to temporarily access boring activity areas. These have lengths ranging between 37 feet and 3,607 feet with an average length of 435 feet, 57 of these routes have some portion of the route with the shoreline of Pacheco Reservoir (totaling 3.38 acres). Some portion of eight of these routes would intersect sensitive vegetation communities (totaling 0.1 acre).

Along the proposed water conveyance pipeline alignment, an existing access route would be used by either a truck-mounted or all-terrain track-mounted drill rig for these boring activity areas. Borings drilled downstream of North Fork Dam for the conveyance pipeline, and below the full-pool elevation of Pacheco Reservoir to sample the lake sediments and install piezometers, would be drilled with an all-terrain track-mounted drill rig. Borings within the reservoir (if inundated) would be drilled with a barge-based drill rig. Borings that are located away from existing roads and not on steep hillsides or ridges would require the use of pre-approved temporary overland access routes. For these borings the drill rig and in some instances a four-wheel drive pickup truck or ATV would access the activity area by driving in on the access route and would remain at the activity area until the boring is completed. The drill rig would then either return along the same route that was used to





access the drill site or continue to the next activity area. As illustrated on Figures 2-2b and 2-c, borings drilled on steep hillsides or ridges would be drilled with helicopter-portable drill rigs.

Figure 2-4 illustrates examples of a truck-mounted drill rig, all-terrain track-mounted drill rig, helicopter-portable drill rigs, and barge-based drill rigs specified for use in the proposed geotechnical investigations.

A total of 64 (46 initial and 18 supplemental) helicopter-mobilized borings would require limited hand contouring with picks and shovels and clearing of brush and trimming or cutting of trees to allow the placement of the temporary drilling platforms, approximately 15 feet by 15 feet in plan dimension. The area subject to initial surface disturbance associated with helicopter borings totals 0.33 acre.<sup>9</sup> The hand contouring at each drilling platform location would result in minor temporary ground disturbance of approximately 1/2 cubic yard of soil and would be completed with picks, shovels and/or rakes. No special-status plants would be removed. At select locations, up to five percent of the activity area may be subject to shrub trimming to provide a safe working area. Shrub trimming and/or removal would occur using hand-held tools. All efforts would be made to cut or trim shrubs in a manner that would not compromise the vitality of the shrub or result in removal of the entire plant. Approximately eight trees would require trimming, approximately 11 trees and one dead tree snag would require removal for access at seven of the initial boring locations. Approximately six trees would require trimming, and 14 trees would require removal for access if the following five of 30 supplemental boring locations are drilled (S-12, S-14, S-15, S-16, and S-18). Tree species proposed for removal include blue oaks, foothill pines, California bay laurels, California buckeyes, and coast live oaks (see Appendix B, Tree Impacts Summary). In addition, up to three additional trees may be identified for trimming and up to five additional trees may be identified for removal in response to unforeseen circumstances requiring their trimming or removal for access. These additional trees would be located at work activity areas identified within Appendix B, where required trimming and removal is identified. In total up to 30 trees would be removed and up to 17 trees would be trimmed to accommodate geotechnical investigation activities. Prior to tree removal, all trees or limbs identified by the team of qualified biologists and engineer/geologist would be located and visibly marked prior to any work performed by the certified arborist. Limbs would be removed to the extent possible to provide the opportunity for bats or other species that may reside in or on these limbs to relocate prior to cutting down the tree the following day. All trimming of limbs 6 inches and greater in diameter would be performed by an arborist certified by the International Society of Arboriculture to ensure overall tree health would not be compromised. All slash from tree trimming and removal would be scattered within the activity area in a manner that minimized fuel concentrations while providing effective ground cover consistent with landowner requirements.

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<sup>9</sup> This is in addition to the four-square feet of surface disturbance calculated for each of the 149 boring activity areas described previously.





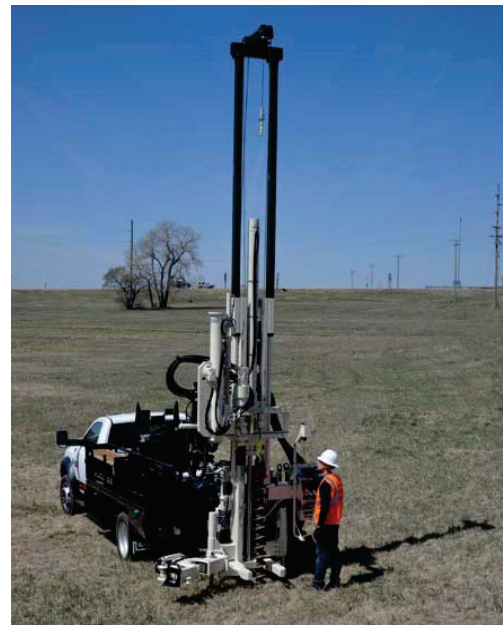
**Helicopter-portable Drill Rig on Temporary Platform**



**All-terrain Track Mounted Drill Rig**



**Barge-based Vibracore Drill Set Up**



**Truck Mounted Drill Rig**

**Figure 2-4. Drill Rigs Specified for Use for the Proposed Design Level Geotechnical Investigations**

Disturbed areas would be returned to their original condition (e.g., backfill test pits and recontour drill platform footing excavations) shortly after exploration is completed at each site and reseeded with a landowner-approved native seed mix just prior to the start of the rainy season for maximum likelihood of germination and growth.



### ***Helicopter-Access Borings***

A single helicopter using a Kevlar line would transport materials necessary for constructing the temporary drilling platforms, drilling equipment, supplies, and drilling water.<sup>10</sup> Typically, it would take nine to 12 helicopter trips to transport platform materials and equipment back and forth initially from the northern staging area (SS-02) to an activity site. A similar number of helicopter trips would be needed for removal and transport from one activity site to a subsequent activity site (i.e., equipment and supplies are flown from one activity site to the next activity site without returning them to the staging area).

All drilling equipment would be delivered to and removed from the specified activity areas using a helicopter with the range and payload necessary to accommodate the specified loads (i.e., medium lift). All helicopter payload operations (sling loads) would be staged from the proposed northern staging/storage area located northeast of Pacheco Reservoir adjacent to an existing unpaved access road (see Figure 2-2b). The northern staging/storage area would be used to stage materials and equipment for helicopter pickup and delivery in support of the 64 proposed boring activity areas relying on helicopter access (see Table 2-3).

Helicopter fueling and minor maintenance activities would take place several times a day at the designated helicopter landing area (see Figure 2-2b) between flights to maximize load carrying capacity. Both the northern staging area and the helicopter landing area were specifically located to be in close proximity to the proposed helicopter boring locations and beyond the visibility of travelers on SR-152. Helicopter fueling would be performed by a qualified helicopter service technician who would be on site during helicopter operations. In addition, helicopter fuel would be transported off site on a daily basis using a large pickup truck specially designed for transport and delivery of approximately 300 gallons of aviation fuel. The helicopter maintenance truck would also carry tools and equipment that may be necessary for on-site maintenance and safety inspections. The helicopter would return to a commercial airfield within Santa Clara, San Benito or Merced counties at the end of each workday.

### ***In-Reservoir Borings***

When water levels are low and field conditions allow, the in-reservoir borings (e.g., lake sediment [LS]) would be drilled with a track-mounted drill rig. Dependent on field conditions (i.e., water levels, surface moisture) of activity areas below the full pool line of the existing Pacheco Reservoir (472 feet above mean sea level (msl)), a vibracore drill rig on an appropriately sized pontoon barge may be used to acquire subsurface samples for some or all of the LS borings. This vessel would be launched and hauled out at an acceptable location along the east shoreline of Pacheco Reservoir (see Figure 2-2b). Vibracore drilling involves vibrating a six-inch hollow pipe down into the lake sediments and recovering a sample of the penetrated sediments from within the pipe. No drill fluid or additives

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<sup>10</sup> While only one helicopter would be supporting all helicopter-related borings, there may be times when the specific helicopter type or model varies based on schedule and availability issues.





would be used and the disturbance to lake sediments would be temporary (1-2 days) at each LS activity area.

In the event that barge-based drilling operations are required, additional measures necessary to contain accidental discharges (e.g., containment booms on board to be deployed by trained crews if needed) will be implemented to avoid and minimize potential for contamination of water bodies, including both Pacheco Reservoir and Pacheco Creek downstream.

## Drilling Methods

All drilling equipment, supplies, and materials would be transported to the existing southern staging/storage area located southwest of the North Fork Dam on Pacheco Pass Water District property or to the northern staging/storage area upslope from Pacheco Reservoir adjacent to the existing access road. The general geotechnical drilling procedures are outlined below:

- Boring locations would be confirmed using a handheld GPS device capable of sub-meter accuracy.
- Delineate boundary of the activity area in the field in a manner adequate to ensure all field activities are confined to the activity area.
- Steel pipe casing would be extended down from the ground surface to contain all circulated drill fluid (primarily water<sup>11</sup> and ground up rock with very small amount of environmentally safe polymer to aid in clearing drill cuttings). Drill mud would not be used. Drilling fluids would be pumped into a closed system settling tank to prevent spills. Spill kits would be available for use by field personnel if a spill occurs.
- HQ-3 core drilling equipment with a diamond bit would be used to advance the borings in the dam and spillway foundations, outlet tunnel and tunnel portals, shell zone borrow areas, landslides, and possibly the rock portions of the conveyance pipeline, pump station, and bridge foundation, and the SR-152 overpass structure foundation.
- Rock coring would be continuous using a 5-foot-long core barrel. Each rock core run would be photographed and placed in a labelled wooden core box. A photo information sheet would be included in the photo to indicate the boring number, date, and sample depth. Sufficiently weak or saturated cores would be wrapped in plastic to help preserve moisture content.
- Hollow stem auger soil drilling methods would be used at boring locations associated with the proposed conveyance pipeline, pump station, access road and bridge, pavement borings, and restoration investigation (lake sediment) areas. Soil samples would be collected from the bottom of the auger borings with drive samplers. These borings may

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<sup>11</sup> Water for drilling, dust control and fire prevention needs would typically average several hundred gallons a day. This would be supplied from water trucks that would fill up periodically from the approved water hydrant available at the Casa De Fruta commercial development several miles west of the Proposed Project study area.



be converted to core borings below the depth penetrated with hollow stem augers. Drive samples collected using a 2.5-inch-diameter (inside diameter) modified California sampler would be stored in brass tubes with plastic caps. Drive samples collected with the Standard Penetration Test sampler would be stored in sealed plastic bags.

- All borings would be logged by an experienced geologist or geotechnical engineer as the boring progresses. Information on boring logs would include material characteristics (i.e., rock type, strength, degree of weathering, fracturing, color, grain size, etc.), locations of geologic contacts, run times, groundwater level, drill rig behavior, drill fluid loss into the borehole, and any other relevant data. Boring logs and cores would be reviewed by a California Professional Geologist or California licensed Geotechnical Engineer.
- Rock core samples would be carefully placed sequentially in core boxes that would be labeled with drilling date, the boring number, core run numbers, sample depths, and zones of no recovery. Core boxes would be stored temporarily on site in locked shipping containers at the southern staging/storage area and later would be moved to Valley Water's off-site storage facility. Selected portions of the core samples would be wrapped with plastic to help preserve for future laboratory testing.
- At completion of operations, all borings would be backfilled consistent with Valley Water requirements. The remaining inert drill fluids (drill water and soil/rock cuttings) would be pumped into a storage tank or 55-gallon drums, temporarily stored at the southern staging area and disposed of at an approved off-site landfill facility.

## In Situ Jet Testing

Prior to conducting lake sediment borings within the existing reservoir once the reservoir is drained, in situ jet testing of sediment erodibility and critical shear stress would be performed using a Mini-Jet Test Device at 11 of the 21 LS activity areas. Prior to initiating a boring at these sites, the test team would hand dig (post-hole digger and shovel) a hole immediately adjacent to the hole the drill bit would later occupy. This hole would be 2 feet square to a maximum depth of 2 feet. Water from water trucks available on-site would be transferred to five-gallon containers and carried to each jet testing site. At that point, water would then be pumped from a pair of jets; one on either side of the hole. The pump would be run by a portable gas-powered generator. Water in the hole would be contained with no surface runoff. While attempts would be made to pump test water from the hole after the test is complete, the nature of the alluvial sediments subject to in situ jet testing would result in some amount of percolation of water from the bottom of the hole. Any water pumped from the hole would be placed in a hand-held container and carried to a project vehicle for later disposal off site. Approximately 5 gallons of water would be used at each test location. Testing would occur at three depths as the hole is dug: at or near the surface, at a depth of one foot, and a depth of two feet. Each hole would be backfilled with excavated material prior to starting the adjacent boring. In the event that these sites are drilled using a barge due to inundation, in situ jet testing would not occur. Sediments collected from



boring operations would be sent to a laboratory off site for similar testing in a controlled environment.

## **Piezometer Installation and Monitoring**

Two types of instrumentation would be installed in select borings including piezometers and slope inclinometers. Slope inclinometers are discussed in the following section. In order to observe stable, long-term groundwater levels, 14 to 25 vibrating wire piezometers (VWP) are proposed for a subset of boreholes. One VWP would be installed in a borehole at a depth associated with the proposed spillway foundation (Boring UB-111), nine would be installed in boreholes drilled within mapped landslide features (Borings L-1 through L-9), four would be installed in boreholes associated with proposed borrow areas (Borings BA-20, BA-22, BA-23, and BA-25), and up to 11 would be installed in boreholes associated with lake sediments and/or the proposed channel restoration reaches (Borings LS-19, LS-23 through LS-25, LS-28, LS-30 through LS-35). These 11 lake sediment VWPs would be installed when water levels are low and field conditions allow with an all-terrain track-mounted drill rig. VWPs would not be installed in LS borings where a barge-based drill rig is used. The above-mentioned borehole locations are identified in Table 2-3.

The VWPs would typically be installed near the bottom of the borehole in a sand-filled canvas bag or directly within the grout backfill and would be grouted in place in accordance with Valley Water permitting requirements. VWPs installed in lake sediment/restoration borings (LS borings) would be affixed to a sacrificial primary inner polyvinyl chloride (PVC) pipe. A secondary inner PVC pipe would encircle the primary inner PVC pipe and extend two to three feet below the depth of historic alluvium as interpreted from cores by an on-site geologist. The VWP readout wires would be routed through a plug in the bottom of the primary inner PVC pipe and up above the current ground elevation. The secondary inner PVC pipe would also be plugged on bottom to prevent grout entrance. The readout wires would be connected to a watertight data logger, which would be encased within a watertight case. The case would be enclosed within a wellhead with a sealable, watertight cap. An outer protective casing would be placed on the outside boundary of the borehole extending from the residual sediment down to two to three feet above the historic alluvium. This casing would provide additional protection for the borehole, space in the wellhead to hold the datalogger case, and an additional protective covering of the piezometer so the contractor can more easily identify it during residual reservoir sediment removal. Bollards or rocks would be placed on the upstream side of the wellhead to protect it from debris and material that may be mobilized when the reservoir is inundated.

The VWPs installed within borings drilled above the existing reservoir high water line (spillway, landslide (L), and borrow areas; UB, L, and BA borings, respectively) would be connected to electronic data loggers attached to steel above-ground protective covers; the dataloggers would be programmed to record data once per day. VWPs installed in lake sediment/restoration borings (LS borings) would be measured at least quarterly and possibly more often during the rainy season to evaluate seasonal fluctuation.



## **Inclinometer Installation and Monitoring**

Following completion of the borings at four specific locations associated with two large landslide features upstream of the proposed dam foundation, slope inclinometers would be installed with the VWP's attached to the outside of the inclinometer casing and encased in cement grout, as described above (L-2, L-4, L-8, and L-9) as depicted in Table 2-3.

Plastic inclinometer casing would be installed in the bore hole using multiple sections of casing placed to preferred depth with a stick up above the surface (~3 feet) that allows for installation of a protective cover. To counter buoyancy of the casing, water would be added to casing during installation. A permanent electronic in-place inclinometer (IPI) connected to an external data logger would be placed inside the casing. The inclinometers would extend to the bottom of each bore hole and placed to provide data at a minimum of 10 feet below the depth of the landslide feature as interpreted by a California Professional Engineer or Certified Engineering Geologist.

The inclinometers are intended to accurately define the base of possible landslide movement and record future slope movements. IPI readings would be recorded daily on the data loggers and would be downloaded for analysis and interpretation on a reoccurring basis.

## **Subsurface Utility Identification**

Underground Services Alert would be contacted at least three workdays prior to starting excavation at each drill or test pit activity area to identify any subsurface utilities located at, or adjacent to a designated subsurface investigation activity area. These subsurface activity areas would be reviewed with the landowners prior to the start of subsurface investigations. For borings anticipated to be in excess of 45-feet deep (see Table 2-3), a Valley Water well ordinance drilling permit would be obtained prior to conducting investigations at select activity areas.

### **2.3.3 Site Documentation**

Both pre-activity and post activity photographs would be taken to document conditions before and after completion of both surface and subsurface investigations. Photographs would generally be taken from the same location and direction within each activity area.

### **2.3.4 Investigation Equipment, Required Personnel and Site Access**

The Proposed Project would require approximately one to five crews working at any one time, resulting in approximately five to 20 workers and/or monitoring staff being at the Proposed Project study area at any one time. Access to the proposed activity areas would include use of vehicles via existing public and private roadways, ranch roads and in some instances temporary overland access routes through grasslands and woodlands. Overland routes would be as direct as





possible, while avoiding sensitive resources. Table 2-4 provides additional details on proposed existing access roads, temporary access routes and temporary staging areas with respect to length, area, mean slope (percent slope) within activity area type. With the exception of paved/surfaced activity areas within the existing SR-152 easement, all activity areas associated with access roads, temporary access routes and staging are unpaved. With the exception of the proposed activities with the SR-152 ROW, all temporary access routes and staging areas are native surface and wet-weather access would be restricted consistent with landowner requirements.

**Table 2-4. Proposed Existing Access Roads and Temporary Access Routes and Staging Areas**

Activity Areas	Estimated Length (miles)	Estimated Area (acres)	Mean Slope <sup>1</sup>
Established/Existing Roads	9.7	12.2	11%
Access Routes	6.1	6.5	13%
Northern Helicopter Landing Area	Not Applicable	0.1	2%
Access Route-Barge	0.1	0.1	3%
Storage/Staging Areas	Not Applicable	0.8	11%

Notes:

<sup>1</sup> Mean slope is provided as a means to suggest slope steepness associated with listed activity areas.

Key:

% = percent

Where vegetation disturbance is required and cannot be avoided, vegetation within an activity area may be trimmed or removed using handheld power equipment. Excavation or grubbing of vegetation would not occur outside of an activity area.

Fuels, solvents, drilling additives, petroleum products, or sacks of cement/grout would be temporarily stored within the established storage areas. In addition, pipe, drill bits and other tools, equipment, and materials used to operate and maintain drilling operations would be temporarily staged and stored at the northern staging/storage area. These would include fuel for daily drilling operations (i.e., gasoline, diesel) sacks of cement, inert drilling additives, lumber, and containers for water. Five-gallon steel, double-walled fuel containers approved for helicopter transport would be filled from service trucks parked on the existing unpaved access road or the northern staging/storage area, transported a short distance and placed in a large, galvanized steel tank and packed for transport to a drill site. All activities related to fuel loading and transport would be restricted to the northern staging/storage area or on existing access roads located above the full pool line of the existing reservoir. No fuel would be left at the northern staging/storage area unattended, and all fuel containers would be removed from this area on a daily basis.

Equipment, vehicles and materials would be temporarily staged at designated staging/storage locations to include SS-1 (southern storage area on PPWD property), SS-2 (northern



staging/storage area), and the temporary helicopter landing area<sup>12</sup> (see Figures 2-2b and 2-2d). Equipment use would be planned to optimize onsite staging and reduce offsite traffic and travel. Workers in remote areas would be provided necessary onsite amenities (e.g., waste and sanitary facilities). Temporary portable sanitation stations would be provided and maintained for workers at appropriate locations throughout the Proposed Project study area for the duration of the Proposed Project. During seasonal shutdowns, these portable sanitation stations would be stored on-site at the southern staging/storage area. Carpooling would be encouraged. Crew vehicles would access the Proposed Project study area six days a week over the duration of the Proposed Project. Flaggers, cones and other measures would be used to control the flow of traffic associated with public roadways and existing access roads where necessary. Landowners would be notified consistent with their respective access agreements. Table 2-5 provides the estimated type of equipment, the number of each type of equipment and the hours per day of anticipated use.

### 2.3.5 Project Schedule

The surface and subsurface geotechnical investigations previously described are expected to take approximately eight working months with an overall expected duration of eleven months (i.e., expected start date of August 2025), depending upon drill rig, crew and helicopter availability. Proposed field activities are expected to begin in the summer of 2025 (e.g., August depending on timing of Proposed Project approval, access, field conditions and availability of field investigation crews) and be completed by July 2026. Three drill rigs are anticipated to be working for most of the schedule. Up to two additional drill rigs and crews may be added if they are available.

With the exception of four exploratory borings (PB-01, PB-02, R-20-001, and R-20-003) drilled within Caltrans ROW, all investigations would be conducted between the hours of 7 a.m. and 6 p.m., Monday through Friday and 9 a.m. to 4 p.m. on Saturday and no other activity areas would be subject to nighttime lighting. Landowner access may restrict these timeframes at certain locations. For the borings north of the west-bound lane of SR-152, borings PB-02 and R-20-001, work would occur during nighttime hours. This would require a closure of one west-bound lane from approximately 8 p.m. to 4 a.m. for up to three to four nights. For the borings associated with the east-bound lane of SR-152, borings PB-01 and R-20-003, a lane closure would be required between 10 p.m. and 7 a.m. for up to four nights. A total of up to eight nights of work is anticipated for these four borings. Additional nighttime lighting would be required at these locations for the safety of drill crews and motorists. Nighttime lighting would be used to light up the work area within the ROW of SR-152 and would be installed in accordance with Caltrans Standard Specifications Section 87-20.02I, Temporary Lighting Systems.

All nighttime lighting would use light systems that are designed to minimize up-glare and located to reduce lighting of wildland areas. Caltrans standard lane closure signage and traffic guidance

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<sup>12</sup> The designated helicopter landing area will be the only location authorized for helicopter landing and takeoff, other than under emergency circumstances (e.g., health and safety purposes).



equipment (e.g., cones, pylons, arrow boards) would also be used during the drilling within Caltrans ROW. Night lighting is only proposed during nighttime drilling within SR-152. Anticipated timeframe and estimated number of field days for the geotechnical investigation are outlined in Table 2-5 and Table 2-6.

The surface and subsurface geotechnical investigations described would take place only during dry weather conditions with dry site conditions during the dry season. The dry season is generally described as April 1 to November 15 but may be compressed due to wet weather, work delays to avoid sensitive biological resources, and persisting wet site conditions. All field activities would be compliant with California Occupational Safety and Health Administration (Cal/OSHA) heat illness prevention standards for outdoor worksites as well as Cal/OSHA requirements related to worker protection from wildfire smoke. Valley Water would review weather conditions, weather forecasting, biological observations, and site conditions on at least a weekly basis using the applicable 10-day forecast published by the National Weather Service for the Proposed Project study area (e.g., Hollister, CA) to determine when geotechnical field work on site would be allowed to occur; restrictions may be imposed for both wet and fire conditions by Valley Water on a daily basis if necessary. If it is determined by Valley Water that Pacheco Reservoir would not be drawn down by PPWD and dry during the dry season when work is scheduled to occur, a decision may be made to implement barge borings in order to complete the borings during the scheduled work period. In addition, regulatory agency permit conditions would also apply within areas subject to federal and/or state jurisdiction.



**Table 2-5. Proposed Project Equipment and Estimated Duration of Use**

Equipment	Estimated Maximum Pieces	Estimated # Of Days	Estimated Hours of Use Per Day (# Daily Roundtrips)	Estimated Number of Daily Roundtrips <sup>5</sup>
Drill rig mobilization and demobilization from Spokane Washington (950 miles)	2 Truck/Trailer	6 days round trip	8 per day	
Drill rig mobilization and demobilization from West Sacramento, California (135 miles)	2 Truck/Trailer	1 day round trip	4 per day	
Drill rig (drill rigs may be mounted on trucks or large utility trailers) <sup>1</sup> .	3-5	Base 366 rig days Supplemental 120 rig days	8 for weekdays, 6 for Saturdays (includes hours for truck mounted drill or truck pulling drill rig on trailer)	1 daily round trip
Excavator	1	16 days	8 for weekdays, 6 for Saturdays	
Pump	2	260 pump days	4 for weekdays, 3 for Saturdays	
Water truck (2000 gallon) <sup>2</sup>	1	140 truck days	6 for weekdays, 2 for Saturdays (60 miles/day)	1 daily round trip
Barge and support boat <sup>3</sup>	1 of Each	15 days each	8 for weekdays, 6 for Saturdays	1 daily round trip
Chainsaw(s)	1-3	3 saw days	6	
Helicopter (Bell Jet Ranger or equivalent)	1	Base 92 days Supplemental 36 days	4 onsite plus 50 miles round trip to Hollister airport	
Helicopter fuel truck (f650)	1	Base 92 days Supplemental 36 days	50 miles round trip to Hollister airport	1 daily round trip
Crew transport/maintenance vehicles <sup>4</sup>	12	2,000 vehicle days	2 (50 miles round trip/day)	12 daily round trips
All-terrain vehicle (Polaris 500 4 stroke)	2	100 vehicle days	1	
Estimated Maximum Total Daily Roundtrips				16 daily round trips

Notes:

<sup>1</sup> While up to five drill rigs may be operating concurrently, there would only be one drill rig active at each activity area.

<sup>2</sup> All water used for investigations would be provided from off-site commercial or municipal sources. Estimated an average of several hundred gallons of water use on a daily basis for dust control and investigations.

<sup>3</sup> If necessary, based on water levels; this would reduce the amount of track-based drilling days by 15 days.

<sup>4</sup> All gas/diesel fuels would be transported to site from commercial sources on a daily basis. No petroleum products would be stored overnight within the Proposed Project study area.

<sup>5</sup> Each daily roundtrip equates to 2 individual trips: for a total of 32 individual trips each way.



**Table 2-6. Anticipated Timeframe and Estimated Number of Field Days for the Geotechnical Investigations**

Investigation Type <sup>1</sup>	Anticipated Timeframe <sup>2,4</sup>	Estimated Number of Field Days <sup>3</sup>
<b>Investigation Within Pacheco Pass Water District Property</b>		
Rock core drilling: Trailer/truck rig (22 borings)	August – November 2025, May – August 2026	~116 rig days
Auger/rotary wash drilling: All terrain rig or barge based vibracore rig, within existing reservoir area if accessible, barge mounted drill rig if not (23 borings)	August – November 2025, May – August 2026	~20 days
Supplemental borings: Trailer/truck rig (9 borings)	October – November 2025, May – July 2026	~30 days
Surface Geophysical Surveys (included with Jin Property)	August – November 2025	~20 days
<b>Investigation Within Jin Property</b>		
Rock Core Drilling: Trailer/All Terrain/Truck rig (16 borings) Helicopter portable rig (46 borings)	August – November 2025, May – July 2026	~215 rig days
Auger/Rotary Wash Drilling: Truck rig (6 borings)	August – November 2025	~6 days
Supplemental borings: Trailer/all-terrain/truck rig (3 borings). Helicopter portable rig (18 borings)	August – November 2025, May – November 2026	~90 days
Test Pits (32 test pits)	August – October 2025	~16 days
Surface Geophysical Surveys (included with PPWD Property)	August – November 2025	~20 days
<b>Investigation Within Caltrans and Zhou Property</b>		
Auger/Rotary Wash Drilling: truck rig: (6 Borings)	August – September 2025	~ 10 days
<b>Reseeding of Disturbed Areas</b>		
Hand broadcasting of approved native seed mix	October – November 2025, October – November 2026	~ 5 days

Notes:

<sup>1</sup> In situ testing and piezometer and inclinometer testing are included where performed.

<sup>2</sup> The anticipated timeframes listed are approximate estimates for scheduling purposes and are not fixed. It is possible that conditions beyond Valley Water's control such as weather, wildfires, equipment breakdown, delay, and availability could lead to completion dates outside of those listed.

<sup>3</sup> Assumptions: Two helicopter rigs and one trailer/track/truck rig would be concurrently used. If fewer rigs are available, then the duration of affected tasks would be longer. One truck or all terrain rig would be used for the conveyance pipeline, access road, bridge, and highway overpass and pavement borings.

<sup>4</sup> Work could be extended into 2026 resulting from circumstances occurring beyond the control of Valley Water.



## 2.4 Conservation Measures

Valley Water routinely incorporates a wide range of best management practices, avoidance and minimization measures, and other standard protocols into project design and implementation. This EIR identifies and refers to these collectively as “Conservation Measures.” The following subsections discuss the Conservation Measures that are incorporated into the description of the Proposed Project. These are:

- Best Management Practices (BMP),
- Project Avoidance and Minimization Measures (PAMM),
- Monarch butterfly and Crotch’s bumble bee Avoidance Protocols,
- Valley Habitat Plan (VHP) Conditions,
- Valley Habitat Plan Avoidance and Minimization Measures (VHP AMM), and
- Applicable Bay Area Air Quality Management District (BAAQMD) Greenhouse Gas Reduction Measures.

All Conservation Measures will be incorporated by reference from this Draft EIR into the geotechnical investigation work plan that would be submitted to DSOD, and all geotechnical contractors involved with implementation of the Proposed Project will be required to adhere to them. Consistent with Valley Water’s procurement and contracting practices, Valley Water’s on-site contract manager will document the implementation of these BMPs, PAMMs, protocols, VHP Conditions and avoidance and minimization measure (AMM) and BAAQMD GHG reduction measures on a daily basis, including efforts related to site restoration (e.g. seeding) that may be required after specific subsurface investigation activities have been completed.

Additional measures developed to mitigate significant impacts associated with implementation of the Proposed Project that are not avoidable are identified in Chapter 3 of this Draft EIR.

### 2.4.1 Best Management Practices

Valley Water’s BMPs are practices that prevent, avoid, or minimize potentially adverse effects associated with construction and other similar activities. Valley Water routinely incorporates a wide range of BMPs into project design, as described in detail in its Best Management Practices Handbook (Valley Water 2014, Revision G). The Proposed Project incorporates many of Valley Water’s standard BMPs, as summarized in Table 2-7. Table 2-7 is intended to give an overview, focusing on the BMPs most applicable to the Proposed Project; additional measures from the BMP Handbook may also apply.



**Table 2-7. Best Management Practices Incorporated into the Proposed Project**

BMP Number/Name	Description
<b>Air Quality</b>	
<b>AQ-1:</b> Use Dust Control Measures	<p>The following dust control measures based on BAAQMD BMPs will be implemented:</p> <ul style="list-style-type: none"> <li>• All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas,<sup>1</sup> and unpaved access roads) shall be watered as needed;</li> <li>• All haul trucks transporting soil, sand, or other loose material off-site shall be covered;</li> <li>• 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;</li> <li>• 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;</li> <li>• All vehicle speeds on unpaved roads shall be limited to 15 miles per hour;</li> <li>• 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;</li> <li>• Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to five<sup>2</sup> minutes (as required by the California Airborne Toxic Control Measure Title 13, Section 2485 of California Code of Regulations), and this requirement shall be clearly communicated to workers (such as verbiage in contracts and clear signage at all access points);</li> <li>• All 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;</li> <li>• Correct tire inflation shall be maintained in accordance with manufacturer's specifications on wheeled equipment and vehicles to prevent excessive rolling resistance; and</li> <li>• 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.</li> </ul>
<b>Biological Resources</b>	
<b>BI-5:</b> Avoid Impacts to Nesting Migratory Birds	<p>Nesting birds are protected by state and federal laws. Valley water 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.</p>
<b>BI-6:</b> Avoid Impacts to Nesting Migratory Birds from Pending Construction	<p>Nesting exclusion devices may be installed to prevent potential establishment or occurrence of nests in areas where 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.</p>





**Table 2-7. Best Management Practices Incorporated into the Proposed Project (cont.)**

BMP Number/Name	Description
<b>BI-8:</b> Choose Local Ecotypes of Native Plants and Appropriate Erosion-Control Seed Mixes	<p>Whenever native species are prescribed for installation, the following steps will be taken by a qualified biologist or vegetation specialist:</p> <ul style="list-style-type: none"> <li>• Evaluate whether the plant species currently grows wild in Santa Clara County; and,</li> <li>• 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, as close to the project site as feasible.</li> <li>• Also, consult a qualified biologist or vegetation specialist to determine which seeding option is ecologically appropriate and effective,</li> <li>• 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.'</li> <li>• 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.</li> <li>• Temporary earthen access roads may be seeded when site and horticultural conditions are suitable.</li> <li>• If gravel or wood mulch has been used to prevent soil compaction, this material may be left in place [if ecologically appropriate] instead of seeding.</li> <li>• 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.</li> </ul>
<b>BI-10:</b> Avoid Animal Entry and Entrapment	<p>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.</p> <p>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:</p> <ul style="list-style-type: none"> <li>• 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</li> <li>• 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 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.</li> </ul>
<b>BI-11:</b> Minimize Predator-Attraction	<p>Remove trash daily from the worksite to avoid attracting potential predators to the site.</p>
<b>Hazards and Hazardous Materials</b>	
<b>HM-7:</b> Restrict Vehicle and Equipment Cleaning to Appropriate Locations	<p>Vehicles and equipment may be washed only at approved areas. No washing of vehicles or equipment will occur at job sites.</p>



**Table 2-7. Best Management Practices Incorporated into the Proposed Project (cont.)**

BMP Number/Name	Description
<b>HM-8:</b> Ensure Proper Vehicle and Equipment Fueling and Maintenance	<ul style="list-style-type: none"> <li>• 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).</li> <li>• 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.</li> <li>• 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.</li> <li>• All vehicles and equipment will be kept clean. Excessive build-up of oil and grease will be prevented.</li> <li>• 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.</li> <li>• 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.</li> </ul>
<b>HM-9:</b> Ensure Proper Hazardous Materials Management	<ul style="list-style-type: none"> <li>• Measures will be implemented to ensure that hazardous materials are properly handled, and the quality of water resources is protected by all reasonable means.</li> <li>• Prior to entering the work site, all field personnel will know how to respond when toxic materials are discovered.</li> <li>• Contact of chemicals with precipitation will be minimized by storing chemicals in watertight containers with appropriate secondary containment to prevent any spillage or leakage.</li> <li>• 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.</li> <li>• 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.</li> <li>• 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).</li> <li>• 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.</li> <li>• In the event of any hazardous material emergencies or spills, personnel will call the chemical emergencies/spills hotline at 1-800-510-5151.</li> </ul>
<b>HM-10:</b> Utilize Spill Prevention Measures	<p>Prevent the accidental release of chemicals, fuels, lubricants, and non-storm drainage water following these measures:</p> <ul style="list-style-type: none"> <li>• Field personnel will be appropriately trained in spill prevention, hazardous material control, and clean-up of accidental spills;</li> <li>• 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.</li> <li>• Field personnel will ensure that hazardous materials are properly handled, and natural resources are protected by all reasonable means;</li> <li>• 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,</li> <li>• The work site will be routinely inspected to verify that spill prevention and response measures are properly implemented and maintained.</li> </ul>



**Table 2-7. Best Management Practices Incorporated into the Proposed Project (cont.)**

BMP Number/Name	Description
<b>HM-12:</b> Incorporate Fire Prevention Measures	<ul style="list-style-type: none"> <li>• All earthmoving and portable equipment with internal combustion engines will be equipped with spark arrestors.</li> <li>• During the high fire danger period (April 1–December 1), work crews will have appropriate fire suppression equipment available at the work site.<sup>3</sup></li> <li>• 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.</li> <li>• Smoking shall be prohibited except in designated staging areas and at least 20 feet from any combustible chemicals or vegetation.</li> </ul>
<b>Hydrology and Water Quality</b>	
<b>WQ-4:</b> Limit Impacts from Staging and Stockpiling Materials	<ul style="list-style-type: none"> <li>• 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.</li> <li>• 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.</li> <li>• 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).</li> <li>• The discharge of decant water to water ways from any on-site temporary sediment stockpile or storage areas is prohibited.</li> <li>• 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.</li> </ul>
<b>WQ-9:</b> Use Seeding for Erosion Control, Weed Suppression, and Site Improvement	<ul style="list-style-type: none"> <li>• 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.</li> <li>• The seed mix should consist of California native grasses, (for example <i>Hordeum brachyantherum</i>; <i>Elymus glaucus</i>; and annual <i>Vulpia microstachys</i>) or annual, sterile hybrid seed mix (e.g., <i>Regreen</i>™, a wheat x wheatgrass hybrid).</li> <li>• Temporary earthen access roads may be seeded when site and horticultural conditions are suitable, or have other appropriate erosion control measures in place.</li> </ul>
<b>WQ-11:</b> Maintain Clean Conditions at Work Sites	<ul style="list-style-type: none"> <li>• 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.</li> <li>• 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.</li> <li>• Upon completion of work, all building materials, debris, unused materials, concrete forms, and other construction-related materials will be removed from the work site.</li> </ul>
<b>WQ-12:</b> Manage Well or Exploratory Boring Materials	<p>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.</p>



**Table 2-7. Best Management Practices Incorporated into the Proposed Project (cont.)**

BMP Number/Name	Description
<b>WQ-13:</b> Protect Groundwater from Contaminates Via Wells or Exploratory Borings	<p>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. Well openings or entrances will be sealed or secured in such a way as to prevent the introduction of contaminants.</p>
<b>WQ-14:</b> Backfill Completed Exploratory Borings	<p>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. All borings must be properly destroyed by backfilling with acceptable sealing materials. Acceptable sealing materials are:</p> <ul style="list-style-type: none"> <li>• 27 sack neat cement (four 94-pound bags/55-gallon drum),</li> <li>• 10 sack cement sand grout, or</li> <li>• Hydrated high solids 20 percent bentonite slurry.</li> <li>• No soil cuttings may be used for backfilling boreholes. No bentonite chips or pellets may be used to backfill borings.</li> </ul> <p>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.</p>
<b>WQ-15:</b> Prevent Water Pollution	<p>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.</p> <p>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:</p> <ul style="list-style-type: none"> <li>• Where natural turbidity is between 0 and 50 NTUs, increases will not exceed 5 percent;</li> <li>• Where natural turbidity is greater than 50 NTU, increases will not exceed 10 percent;</li> <li>• 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.</li> </ul> <p>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.</p>



**Table 2-7. Best Management Practices Incorporated into the Proposed Project (cont.)**

BMP Number/Name	Description
<b>WQ-16:</b> Prevent Stormwater Pollution	<p>To prevent stormwater pollution, the applicable measures from the following list will be implemented:</p> <ul style="list-style-type: none"> <li>• 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.</li> <li>• 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.</li> <li>• Erosion control measures will be installed according to manufacturer's specifications.</li> <li>• To prevent stormwater pollution, the appropriate measures from, but not limited to, the following list will be implemented: <ul style="list-style-type: none"> <li>▪ Silt fences</li> <li>▪ Straw bale barriers</li> <li>▪ Brush or rock filters</li> <li>▪ Storm drain inlet protection</li> <li>▪ Sediment traps or sediment basins</li> <li>▪ Erosion control blankets and/or mats</li> <li>▪ Soil stabilization (i.e., tackified straw with seed, jute or geotextile blankets, etc.)</li> <li>▪ Straw mulch</li> </ul> </li> <li>• All temporary construction-related erosion control methods shall be removed at the completion of the project (e.g., silt fences).</li> <li>• 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.</li> </ul>
<b>WQ-17:</b> Manage Sanitary and Septic Waste	Temporary sanitary facilities will be located on jobs that last multiple days, in compliance with 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).
<b>Traffic And Transportation</b>	
<b>TR-1:</b> 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.

Source: Valley Water 2014

Notes:

<sup>1</sup> Dust control measures will also apply to excavation and restoration of test pits.

<sup>2</sup> Consistent with the applicable measures listed in Section 2.4.4, maximum Idling times for equipment will be limited to two minutes.

<sup>3</sup> At a minimum, each vehicle or piece of equipment operating within the Proposed Project study area will be equipped with a portable 5-gallon water pump, a shovel and a Pulaski. The Pulaski is a specialty hand tool used in fighting fires, particularly wildfires, which combines an axe and an adze in one head.

Key: BAAQMD = Bay Area Air Quality Management District

BMP = best management practice

CAL/OSHA = California Occupational Safety and Health Administration

NTU = Nephelometric Turbidity Unit

SCVWD = Santa Clara Valley Water District





## **2.4.2 Project Avoidance and Minimization Measures**

Valley Water will implement the following PAMMs related to biological resources and fire protection as described below.

### **PAMM BIO-1. Worker Environmental Awareness Training**

Similar to other Valley Water projects, Worker Environmental Awareness Training (WEAT) will be incorporated into all efforts associated with Conservation Measures and mitigation measures as applicable to avoid or minimize impacts to biological resources. WEAT will include training on the roles and responsibilities of project personnel, including notification and documentation requirements intended to avoid or minimize impacts to nesting birds, special-status species sensitive habitats and other sensitive biological resources. WEAT will require that prior to their initial entry to the Proposed Project study area, all project personnel (e.g., drillers, equipment operators) will receive WEAT. Training will be provided by a qualified biologist regarding the identification of nesting birds, special-status species with potential to occur in the Proposed Project study area, and sensitive plants or sensitive natural communities as identified by pre-activity surveys. The WEAT will include discussion of plant pathogens and aquatic invasive species (AIS) and measures to prevent introduction and spread. The biologist providing WEAT will also review applicable State and federal environmental laws and the potential fines and penalties for non-compliance.

### **PAMM BIO-2. Biological Site Inspections and Summary Report (Compliance Program)**

Qualified biologists will conduct daily inspections of activities associated with the Proposed Project. These inspections will document that BMPs, PAMMs, VHP Conditions, VHP AMMs, and mitigation measures are being implemented appropriately and to ensure compliance. This compliance program will also provide information necessary to demonstrate compliance with CEQA mitigation monitoring and reporting requirements

Monitoring reports summarizing the daily inspections will be provided to Valley Water on a bi-weekly basis. Following the completion of Project activities, a monitoring report will be prepared that summarizes all the worker environmental awareness trainings provided, biological site visits conducted, observations and direction given by the biologists during excavation and other work activities regarding avoidance of sensitive biological resources, rehabilitation efforts performed at each site, and the pre- and post-activity photographs taken.



### **PAMM BIO-3. Sensitive Natural Community and Aquatic Resource Avoidance**

A qualified botanist or vegetation ecologist familiar with the plant communities known to occur in the Proposed Project study area and who is experienced in delineating aquatic resources (e.g., wetlands) will conduct pre-activity botanical and aquatic resource surveys within the work activity areas (to be marked by the project engineer or geologist) between 14 and 21 days prior to the movement of heavy equipment. During these surveys, all riparian habitats, sensitive natural communities, and aquatic resources to be avoided during Project activities will be identified and mapped and marked by a qualified botanist or vegetation ecologist in the field for avoidance. Qualified botanists or vegetation ecologists will verify previously mapped vegetation and aquatic resources within the defined activity area. The qualified botanist or vegetation ecologist will verify previous vegetation and aquatic resource mapping prior to the commencement of Project activities in each discrete area. Sensitive natural communities, riparian habitats, and aquatic resources identified during the surveys will be assessed for avoidance feasibility, which will be determined by Valley Water in coordination with the qualified botanist or vegetation ecologist. Determining avoidance may include minor design modifications (e.g., re-routing access roads) or establishment of avoidance buffers in areas proposed for temporary disturbances (e.g., staging areas).

Any access through purple needlegrass grassland will be restricted during critical life history stages (flowering, seed set) and during wet weather. Access (without ground disturbance) will be allowed during the dormant season for the plants (typically late summer).

### **PAMM BIO-4. Biological Monitoring for Special-Status Species and Environmentally Sensitive Areas**

A qualified biologist will be present during initial mobilization of equipment during setup and start of geotechnical boring at each work activity area, and during any ground disturbance and/or vegetation removal activities. The biologist will document pre-disturbance conditions and verify BMPS, PAMMs, VHP Conditions, VHP AMMs, BAAQMD GHG Reduction Measures, and Mitigation Measures are appropriately implemented. If any avoidance markings for environmentally sensitive areas or special-status species are damaged, removed, or obscured, the biologist will remark them for avoidance and inform work crews if equipment or vehicles are too close to avoidance areas.

### **PAMM BIO-5. Plant Pathogen, Non-Native Invasive Species, and Aquatic Invasive Species Prevention**

Vehicles, equipment, tools, and boots will be cleaned and decontaminated to remove any soil and/or plant material prior to entering the site to prevent introduction or spread of plant pathogens such as *Phytophthora* and non-native invasive weed species. The most current



guidance from CA Dept of Fish and Wildlife on equipment decontamination and sanitization to prevent the spread of AIS into sensitive waterways (including ponds, creeks, rivers, wetlands, and reservoir) will be adhered to.

To prevent the introduction and spread of non-native invasive plant species, plant pathogens causing sudden oak death syndrome (*Phytophthora ramorum*), other soil-borne *Phytophthora* species, and chytrid fungus or other AIS, the following decontamination procedures will be implemented:

- The number of vehicles and equipment will be minimized to the extent feasible.
- Vehicular travel will be limited to established access roads and trails (i.e., off-road travel will only occur on foot).
- Heavy equipment (e.g., excavators, drill rigs, track mounted rigs), vehicles, and large tools will be cleaned (i.e., thoroughly washed) off site at a commercial wash facility and will be free of soil and debris prior to entering the project area from outside locations (i.e., arriving from other projects or areas outside of the PREP region). Vehicles that only travel and park on paved roads do not require external cleaning.
- The interior of vehicles and heavy equipment will be free of dirt/debris and other potentially contaminated materials. Interiors should be vacuumed, washed, and/or treated with sanitizing agents to minimize the introduction of invasive plants and pathogens. The exterior of large equipment such as bucket loaders, tracks or wheels, undercarriage, and anything that accumulates soil and debris should be thoroughly cleaned.
- Spray bottles containing either 70 to 90 percent ethyl/isopropyl alcohol or a solution containing a 1:20 bleach-to-water ratio and boot brushes or hoof picks will be present at all entry points for personnel to decontaminate their shoes, small tools, and other equipment prior to entering the project area when arriving from outside locations (i.e., arriving from other projects or areas outside of the PREP region). The spray will be liberally applied (i.e., until thoroughly soaked) to all small equipment and tools (e.g., shovels, screens, boots) and allowed to air dry prior to entry.
- All heavy equipment will be inspected by an approved biological monitor prior to entering the project site. Decontamination stations (spray bottle of alcohol, boot brush, or water buffalo used appropriately for this task) will be set up at the project site entrance for daily decontamination of shoes, small tools and other equipment, and such stations will be actively monitored by an approved biological monitor for compliance.

## **PAMM WF-1. Emergency Vehicle Access and Evacuation Routes**

On private lands within the Proposed Project study area, Valley Water will implement PAMM WF-1 requiring that vehicles and equipment associated with the Proposed Project will be parked or



stored such that they do not block private roads during the duration of the Proposed Project to allow for emergency vehicle access and provide open evacuation routes.

### **2.4.3 Valley Water Monarch Butterfly and Crotch's Bumble Bee Avoidance Protocols**

In 2020 and 2024, respectively, Valley Water prepared plans for the Federal Energy Regulatory Commission Order Compliance Project to specifically avoid impacts on two special-status species: monarch butterfly and Crotch's bumble bee. As part of the Proposed Project, Valley Water will implement its avoidance protocol for monarch butterfly established in the United States Fish and Wildlife Service-approved *Milkweed Survey Plan* (Valley Water, 2020), and its avoidance protocol for Crotch's bumble bee established in the California Department of Fish and Wildlife-approved *Crotch's Bumble Bee Avoidance Plan*. Although these plans were originally developed for other projects, Valley Water will implement the avoidance protocols described in these two plans as part of the Proposed Project. These two plans are provided as Attachments 1 and 2 respectively in Appendix C, Valley Water Avoidance Protocols and Applicable Valley Habitat Plan Conditions, and summarized below. Valley Water has routinely implemented the avoidance protocols established in these plans for other Valley Water projects.

#### **Monarch Butterfly**

Although monarch butterfly occur in the Proposed Project study area primarily as a migrant, it could potentially breed where its larval host plant milkweed (*Asclepias* spp.) is present. Milkweed plants and associated populations are known to be present at scattered locations throughout the Proposed Project study area, typically associated with annual grassland communities. Therefore, Valley Water will implement its monarch butterfly avoidance protocol established in the *Milkweed Survey Plan* by conducting surveys for milkweed prior to the start of any ground disturbance or vegetation removal activities. A qualified biologist will survey the footprint of all potential impact areas, plus a 25-foot buffer around each impact area, for milkweed plants. If any milkweed is found, Valley Water will install flagging, fencing, or other means of physically marking the milkweed so that it will be avoided, if feasible. If avoidance is infeasible and the plants do not support monarch eggs, larvae, or pupae, the qualified biologist will remove those plants immediately (during the survey) to prevent monarchs from laying eggs between the time of the survey and initiation of impacts. If avoidance is infeasible within the designated activity area and monarch eggs, larvae, or pupae are found, Valley Water will consult with USFWS to discuss recommendations and approaches to minimize impacts. If and when the monarch butterfly is added to the VHP as a covered species, as proposed in an amendment to the Valley Habitat Plan currently being prepared, Valley Water's compliance with any future monarch-related Valley Habitat Plan Conditions will supersede continued implementation of the *Milkweed Survey Plan* (see Appendix C, Attachment 1).



## Crotch's Bumble Bee

Suitable habitat for Crotch's bumble bee, such as grassland and scrub communities, are present throughout the Proposed Project study area. Pursuant to the *Crotch's Bumble Bee Avoidance Plan*, Valley Water's qualified biologists will provide training and perform habitat assessments, and biological surveys for Crotch's bumble bee as prescribed in the avoidance plan. If a Crotch's bumble bee nest is present, a no-disturbance buffer will be implemented around the nest and a biological monitor will be onsite until it is determined the buffer is sufficient to protect the nest. If an individual(s) Crotch's bumble bee is present, a biological monitor will be onsite until the individual(s) is no longer present.

A proposed amendment to the Valley Habitat Plan is currently being prepared to add Crotch's bumble bee as a covered species. If and when that amendment is approved, Valley Water's compliance with any future Valley Habitat Plan Conditions related to this species will supersede continued implementation of the *Crotch's Bumble Bee Avoidance Plan* (see Appendix C, Attachment 2).

### 2.4.4 Santa Clara Valley Habitat Plan – Applicable Conditions and Measures

The Valley Habitat Plan is a multi-species, joint Habitat Conservation Plan and Natural Communities Conservation Plan that covers much of Santa Clara County (SCVHA 2012). The Valley Habitat Plan accounts for the amount of impacts or "take" a project may have on a covered animal species by determining the amount of impacts on habitats that have potential to support the covered species (animals) or by protecting an equivalent population within the Habitat Agency's Reserve System (plants).

The Proposed Project study area is within the boundaries of the Valley Habitat Plan (SCVHA 2012). Although the proposed PREP is not covered by the Valley Habitat Plan, the Santa Clara Valley Habitat Agency has confirmed that, the Proposed Project, which consists of preliminary site investigations (i.e., geotechnical investigations) and is a separate project from the PREP with independent utility, is a covered activity in the Valley Habitat Plan (SCVHA. 2024). Therefore, the Proposed Project is covered under Section 10 of the Endangered Species Act (ESA) through the Valley Habitat Plan and includes implementation of all applicable Conditions and AMMs from the Valley Habitat Plan.

The Valley Habitat Plan Conditions on covered activities presented in this section are applicable to the Proposed Project<sup>13</sup> with respect to the following resource sections; Biological Resources, Geology and Soils, Hazards and Hazardous Materials, and Hydrology and Water Quality. The full

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<sup>13</sup> All 20 Conditions presented in Chapter 6 of the Valley Habitat Plan were reviewed. Those discussed below were deemed applicable for the scope, scale and geographical aspects of the Proposed Project.



text of applicable Conditions<sup>14</sup> is provided as Attachment 3 to Appendix C. In addition to these conditions, Table 2-8 provides a list of VHP AMMs incorporated into the Proposed Project necessary to comply with the Valley Habitat Plan.

The following Valley Habitat Plan Conditions summarized below, will be incorporated into the Proposed Project:

**Condition 1. Avoid Direct Impacts on Legally Protected Plant and Wildlife Species.** This condition applies to all projects covered under the Valley Habitat Plan and helps to protect species for which environmental permits (e.g., take of legally protected species) cannot be granted.<sup>15</sup>

**Condition 3. Maintain Hydrologic Conditions and Protect Water Quality.**<sup>16</sup> This condition applies to all projects covered by the Valley Habitat Plan and helps protect watershed health, primarily through reducing stormwater discharge and pollutant runoff from project sites. Work with the Valley Habitat Plan lead to determine if National Pollutant Discharge Elimination System (NPDES) compliance is sufficient for the project or if additional measures are required.

**Condition 4. Avoidance and Minimization for In-Stream Projects.** This condition applies to projects that involve instream work (e.g., flood protection, bridge rehabilitation, dam repair) and helps to minimize sediment/pollutant discharge into waterways, disturbance of earth and riparian vegetation, and alteration of the hydrologic and hydraulic characteristics of water bodies.

**Condition 5. Avoidance and Minimization Measures for In Stream Operations and Maintenance.** This condition applies to projects that involve operations and maintenance work within and immediately adjacent to the stream channel (e.g., sediment removal, bank stabilization, vegetation management) and helps minimize sediment/pollutant discharge into waterways and disturbance of riparian vegetation.

**Condition 12. Wetland and Pond Avoidance and Minimization.** This condition applies to projects that are covered under the Valley Habitat Plan and helps to minimize impacts on wetlands and ponds and avoid impacts on high quality wetlands and ponds by prescribing vegetated stormwater filtration features, proper disposal of cleaning materials, and other requirements.

**Condition 14. Valley Oak and Blue Oak Woodland Avoidance and Minimization.** This condition applies to projects that are covered under the Valley Habitat Plan and helps to minimize and avoid valley and blue oak woodland by specifying buffer zones, pruning regulations, and other requirements.

**Condition 15. Western Burrowing Owl.** This condition applies to projects that are located within any grassland, oak woodland, or agricultural land cover type and within Wildlife Survey Area as

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<sup>14</sup> Many of the conditions and measures are similar to the BMPs presented in Section 2.4.1. The most conservative of the conditions presented in Section 2.4.4 will take precedence.

<sup>15</sup> At the time the Valley Habitat Plan was finalized (2013), environmental permits could not be granted for those species. Since that time, Senate Bill 147, passed in 2023, allows for permitting for take of Fully Protected Species

<sup>16</sup> Conditions 3, 4, and 5 of the Valley Habitat Plan have a direct relationship to the applicable VHP AMMs listed in Table 2-8.





defined by the Valley Habitat Plan, or if a migrant or overwintering Western burrowing owl was encountered in the course of other field surveys or investigations. The Proposed Project study area is not within the Wildlife Survey Area for this species. In the event that a non-breeding/wintering Western burrowing owl is observed, Condition 15, Non-Breeding Season 250-foot non-disturbance buffer will be implemented.

**Condition 16. Least Bell's Vireo.** This condition applies to projects that are located within any riparian forest and scrub land cover type and within Wildlife Survey Area as defined by the Valley Habitat Plan and helps protect least Bell's vireos by prescribing preconstruction surveys, construction buffer zones, biological monitoring, and other requirements.

**Condition 17. Tricolored Blackbird.** This condition applies to projects that are located within 250 feet of any riparian, coastal and valley freshwater marsh and helps to protect tricolored blackbirds by prescribing preconstruction surveys, construction buffer zones, biological monitoring, and other requirements.

**Condition 18. San Joaquin Kit Fox.** This condition applies to projects that are located within any grassland, oak woodland, or agricultural land cover type and within Wildlife Survey Area as defined by the Valley Habitat Plan and helps protect San Joaquin kit foxes by prescribing preconstruction surveys, construction buffer zones, biological monitoring, and other requirements.

**Condition 19. Plant Salvage when Impacts are Unavoidable.** This condition would only apply to projects in the event that a covered species is present, and cannot be avoided.

**Condition 20. Avoid and Minimize Impacts to Covered Plant Occurrences.** This condition applies to projects that are located in areas where covered plant species are likely to occur and within a covered plant survey area; this condition helps protect covered plant species by requiring plant surveys, specific avoidance and minimization practices (e.g., using seclusion fencing<sup>17</sup>), and monitoring.

Following a review of the VHP AMMs described in the Valley Habitat Plan, those applicable VHP AMMs associated with VHP Conditions 3, 4, and 5 listed below in Table 2-8 will be implemented by Valley Water and its designated contractor(s).

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<sup>17</sup> On private lands throughout the Proposed Project study area, fencing and flagging is not allowed due to the presence of livestock. Demarcation of activity areas (excluding access roads) will be established using bio-degradable paint prior to commencement of an investigation activity.



**Table 2-8. Santa Clara Valley Habitat Plan – Avoidance and Minimization Measures Incorporated into the Proposed Project**

AMM Number/Name	Description
VHP AMM-1	Minimize the potential impacts on covered species most likely to be affected by changes in hydrology and water quality.
VHP AMM-2	Reduce stream pollution by removing pollutants from surface runoff before the polluted surface runoff reaches local streams.
VHP AMM-3	Maintain the current hydrograph and, to the extent possible, restore the hydrograph to more closely resemble predevelopment conditions.
VHP AMM-6	Activities in the active (i.e., flowing) channel will be avoided. If activities must be conducted in the active channel, avoidance and minimization measures identified in this table will be applied.
VHP AMM-7	Personnel shall prevent the accidental release of chemicals, fuels, lubricants, and non-storm drainage water into channels.
VHP AMM-8	Spill prevention kits shall always be in close proximity when using hazardous materials (e.g., crew trucks and other logical locations).
VHP AMM-9	Personnel shall implement measures to ensure that hazardous materials are properly handled, and the quality of water resources is protected by all reasonable means when removing sediments from the streams.
VHP AMM-11	Vehicles shall be washed only at approved areas. No washing of vehicles shall occur at job sites.
VHP AMM-12	No equipment servicing shall be done in the stream channel or immediate flood plain, unless equipment stationed in these locations cannot be readily relocated (i.e., pumps, generators).
VHP AMM-13	Personnel shall use the appropriate equipment for the job that minimizes disturbance to the stream bottom. Appropriately tired vehicles, either tracked or wheeled, shall be used depending on the situation.
VHP AMM-14	If high levels of groundwater in a work area are encountered, the water is pumped out of the work site. If necessary to protect water quality, the water shall be directed into specifically constructed infiltration basins, into holding ponds, or onto areas with vegetation to remove sediment prior to the water re-entering a creek.
VHP AMM-16	When work in a flowing stream is unavoidable, the entire streamflow shall be diverted around the work area by a barrier, except where it has been determined by a qualified biologist that the least environmentally disruptive approach is to work in a flowing stream. Where feasible, water diversion techniques shall allow stream flows to gravity flow around or through the work site.
VHP AMM-21	To the extent that stream bed design changes are not part of the project, the stream bed will be returned to as close to pre-project condition as appropriate.
VHP AMM-26	Any sediment removed from a project site shall be stored and transported in a manner that minimizes water quality impacts.
VHP AMM-29	Existing native vegetation shall be retained by removing only as much vegetation as necessary to accommodate the trail clearing width. Maintenance roads should be used to avoid effects on riparian corridors.
VHP AMM-39	Minimize alterations to existing contours and slopes, including grading the minimum area necessary.
VHP AMM-40	Maintain native shrubs, trees and groundcover whenever possible and revegetate disturbed areas with local native or non-invasive plants.



**Table 2-8. Santa Clara Valley Habitat Plan – Avoidance and Minimization Measures Incorporated into the Proposed Project (cont.)**

AMM Number/Name	Description
VHP AMM-49	The project or activity must be designed to avoid the removal of riparian vegetation, if feasible. If the removal of riparian vegetation is necessary, the amount shall be minimized to the amount necessary to accomplish the required activity and comply with public health and safety directives.
VHP AMM-58	Existing access routes and levee roads shall be used if available to minimize impacts of new construction in special-status species habitats and riparian zones.
VHP AMM-61	Minimize ground disturbance to the smallest area feasible.
VHP AMM-62	Use existing roads for access and disturbed area for staging as site constraints allow. Off-road travel will avoid sensitive communities such as wetlands and known occurrences of covered plants.
VHP AMM-63	Prepare and implement sediment erosion control plans.
VHP AMM-65	Control exposed soil by stabilizing slopes (e.g., with erosion control blankets) and protecting channels (e.g., using silt fences or straw wattles).
VHP AMM-66	Control sediment runoff using sandbag barriers or straw wattles.
VHP AMM-67	No stockpiling or placement of erodible materials in waterways or along areas of natural stormwater flow where materials could be washed into waterways.
VHP AMM-68	Stabilize stockpiled soil with geotextile or plastic covers.
VHP AMM-69	Maintain construction activities within a defined project area to reduce the amount of disturbed area.
VHP AMM-71	Preserve existing vegetation to the extent possible.
VHP AMM-72	Equipment storage, fueling and staging areas will be sited on disturbed areas or non-sensitive habitat outside of a stream channel.
VHP AMM-73	Avoid wet season construction.
VHP AMM-74	Stabilize site ingress/egress locations.
VHP AMM-75	Dispose of all construction waste in designated areas and prevent stormwater from flowing onto or off of these areas.
VHP AMM-76	Prevent spills and clean up spilled materials.
VHP AMM-78	In-stream projects occurring while the stream is flowing must use appropriate measures to protect water quality, native fish and covered wildlife species at the project site and downstream of the project site.
VHP AMM-83	Sediments will be stored and transported in a manner that minimizes water quality impacts. If soil is stockpiled, no runoff will be allowed to flow back to the channel.
VHP AMM-84	Appropriate erosion control measures (e.g., fiber rolls, filter fences, vegetative buffer strips) will be used on site to reduce siltation and runoff of contaminants into wetlands, ponds, streams, or riparian vegetation. Fiber rolls used for erosion control will be certified as free of noxious weed seed. Filter fences and mesh will be of material that will not entrap reptiles and amphibians. Erosion control measures will be placed between the outer edge of the buffer and the project site.
VHP AMM-85	Seed mixtures applied for erosion control will not contain invasive nonnative species and will be composed of native species or sterile nonnative species. If sterile nonnative species are used for temporary erosion control, native seed mixtures must be used in subsequent treatments to provide long-term erosion control and slow colonization by invasive nonnatives.



**Table 2-8. Santa Clara Valley Habitat Plan – Avoidance and Minimization Measures Incorporated into the Proposed Project (cont.)**

AMM Number/Name	Description
VHP AMM-86	Topsoil removed during soil excavation will be preserved and used as topsoil during revegetation when it is necessary to conserve the natural seed bank and aid in revegetation of the site.
VHP AAM-87	Vehicles operated within and adjacent to streams will be checked and maintained daily to prevent leaks of materials that, if introduced to the water, could be deleterious to aquatic life.
VHP AMM-88	Vehicles and equipment will be parked on pavement, existing roads, and previously disturbed areas.
VHP AMM-89	The potential for traffic impacts on terrestrial animal species will be minimized by adopting traffic speed limits.
VHP AMM-90	All trash will be removed from the site daily to avoid attracting potential predators to the site. Personnel will clean the work site before leaving each day by removing all litter and construction-related materials.
VHP AMM-92	To minimize the spread of pathogens all staff working in aquatic systems (i.e., streams, ponds, and wetlands)—including site monitors, construction crews, and surveyors—will adhere to the most current guidance for equipment decontamination provided by the Wildlife Agencies at the time of activity implementation. Guidance may require that all materials that come in contact with water or potentially contaminated sediments, including boot and tire treads, be cleaned of all organic matter and scrubbed with an appropriate cleansing solution, and that disposable gloves be worn and changed between handling equipment or animals. Care should be taken so that all traces of the disinfectant are removed before entering the next aquatic habitat.
VHP AMM-93	When accessing upland areas adjacent to riparian areas or streams, access routes on slopes of greater than 20% should generally be avoided. Subsequent to access, any sloped area should be examined for evidence of instability and either revegetated or filled as necessary to prevent future landslide or erosion.
VHP AMM-94	Personnel shall use existing access ramps and roads if available. If temporary access points are necessary, they shall be constructed in a manner that minimizes impacts to streams.
VHP AMM-95	To prevent inadvertent entrapment of animals during excavation, all excavated, steep-walled holes or trenches more than 2-feet deep will be covered at the close of each working day by plywood or similar materials or provided with one or more escape ramps constructed of earth fill or wooden planks.
VHP AMM-96	Isolate the construction area from flowing water until project materials are installed and erosion protection is in place.
VHP AMM-97	Erosion control measures shall be in place at all times during construction. Do not start construction until all temporary control devices (straw bales, silt fences, etc.) are in place downstream of project site.
VHP AMM-98	When needed, utilize in-stream grade control structures to control channel scour, sediment routing, and headwall cutting.
VHP AMM-100	Potential contaminating materials must be stored in covered storage areas or secondary containment that is impervious to leaks and spills.
VHP AMM-101	Runoff pathways shall be free of trash containers or trash storage areas. Trash storage areas shall be screened or walled.



**Table 2-8. Santa Clara Valley Habitat Plan – Avoidance and Minimization Measures Incorporated into the Proposed Project (cont.)**

AMM Number/Name	Description
VHP AMM-102	Immediately after project completion and before close of seasonal work window, stabilize all exposed soil with mulch, seeding, and/or placement of erosion control blankets.

Notes:

AMM = Avoidance and Minimization Measures

VHP = Valley Habitat Plan

## **2.4.5 Applicable Bay Area Air Quality Management District Greenhouse Gas Reduction Measures**

Valley Water has incorporated the following BAAQMD BMPs into the Proposed Project to avoid or reduce greenhouse gas (GHG) emissions generated during Proposed Project implementation. The following list of applicable BMPs were developed from the list of standard BMPs contained in Table 6-1 (Best Management Practices for Construction-Related GHG Emissions) of the BAAQMD CEQA Guidelines (BAAQMD 2022), which BAAQMD recommends for reducing emissions from construction-related activities. Valley Water has refined these recommended BMPs, as presented below, to avoid and/or reduce greenhouse gas emissions generated by the Proposed Project. Specifically, the following measures will be incorporated into the Proposed Project:

- Use zero-emission and hybrid-powered equipment to the extent such equipment is available at the time of project commencement, particularly if emissions are occurring near sensitive receptors.
- Require diesel-fueled off-road equipment to be equipped with U.S. Environmental Protection Agency (EPA) Tier 4 Final compliant engines or better, where such equipment is readily available at the time of project commencement.
- Minimize idling time either by shutting equipment off when not in use or reducing the time of idling to no more than 2 minutes. Provide clear signage that posts this requirement for crewmembers at the entrances to the site to encourage compliance.
- Prohibit offroad diesel-powered equipment from being in the “on” position for more than 10 hours per day
- Use California Air Resources Board–approved renewable diesel fuel in offroad equipment, including generators, and onroad diesel trucks, to the extent that the necessary amount of fuel is readily available at gasoline dispensing stations (or through previously delivery orders) conveniently located within the vicinity of the project area such that acquiring renewable diesel fuel does not result in increased vehicular miles traveled compared to not using it.



- Require all equipment to be maintained and properly tuned in accordance with manufacturer's specifications. Equipment should be checked by a certified mechanic and determined to be running in proper condition prior to operation.
- Encourage and provide carpools, shuttle vans, transit passes, and/or secure bicycle parking to construction workers and offer meal options onsite or shuttles to nearby meal destinations for daily crewmembers.
- Develop a plan to efficiently use water for adequate dust control since substantial amounts of energy can be consumed during the pumping of water.

## 2.5 Anticipated Approvals and Agencies Involved

The CEQA review process is intended to provide both trustee and responsible agencies with an opportunity to provide input into the Proposed Project. Trustee agencies are state agencies that have authority by law for the protection of natural resources held in trust for the public. Responsible agencies are those that have some responsibility or authority for carrying out or approving a project; in many instances, these public agencies must make a discretionary decision to issue a local permit or provide ROW, funding, or resources that are critical to the project's proceeding. In this instance, CDFW, CCRWQCB, USACE, SCVHA, Valley Water, and Caltrans are considered responsible agencies. Valley Water will work with the CEQA responsible agencies to ensure that the Project meets applicable policies and requirements. Valley Water will acquire applicable environmental permits and adhere to all general and specific conditions of applicable environmental permits (Section 404 Nationwide Permit, Section 401 Water Quality Certification, Section 1602 Lake and Streambed Alteration Agreement, Well Ordinance Permits, and compliance with the Santa Clara Valley Habitat Plan (Valley Habitat Plan)).

This Draft EIR is intended to assist permitting agencies to carry out their responsibilities for permit review or approval authority over various aspects of the Project. The Project would require Project-specific permitting and/or approval, as summarized in Table 2-9.





**Table 2-9. Summary of Applicable Regulatory Requirements**

Agency	Permit/Approval Required
California Department of Fish and Wildlife - Region 3	Fish and Game Code Section 1602 Lake and Streambed Alteration Agreement
Regional Water Quality Control Board – Central Coast	Clean Water Act Section 401 Water Quality Certification
U.S. Army Corps of Engineers - San Francisco District	Clean Water Act Section 404 Nationwide Permit 6 Survey Activities (Non-reporting)
California Department of Transportation - District 4	Caltrans Encroachment Permit
Santa Clara Valley Habitat Agency	Santa Clara Valley Habitat Plan Compliance
Santa Clara Valley Water District	Well Ordinance Drilling Permits



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## **Chapter 3. Environmental Setting, Impacts and Mitigation**

### **3.1 Considerations for Describing Environmental Setting and Environmental Impacts**

Chapter 3 presents the environmental setting, regulatory framework, impacts, and mitigation measures applicable to the Proposed Project. The No Project Alternative, and other alternatives are evaluated in Chapter 4. Sections 3.2 through 3.21 discuss the following resource areas:

- 3.2 Aesthetics
- 3.3 Agriculture and Forest Resources
- 3.4 Air Quality
- 3.5 Biological Resources
- 3.6 Cultural Resources
- 3.7 Energy
- 3.8 Geology and Soils
- 3.9 Greenhouse Gas Emissions
- 3.10 Hazards and Hazardous Materials
- 3.11 Hydrology and Water Quality
- 3.12 Land Use and Planning
- 3.13 Mineral Resources
- 3.14 Noise
- 3.15 Population and Housing
- 3.16 Public Services
- 3.17 Recreation
- 3.18 Transportation
- 3.19 Tribal Cultural Resources
- 3.20 Utilities and Service Systems
- 3.21 Wildfire



### 3.1.1 Resource Section Contents and Definitions of Terms

Each resource section contains, as relevant: (1) identification of the technical issues and geographical areas being evaluated in the section; (2) environmental setting and regulatory framework; (3) significance thresholds used to evaluate impacts; (4) method of analysis; (5) applicable design and implementation features; (6) assessment of Proposed Project impacts; and (7) if applicable, recommended mitigation measures to reduce or avoid significant impacts.

An EIR must include a description of the physical conditions in the Project's vicinity, often referred to as the "baseline." Lead agencies refer to the baseline when defining a project impact to determine whether it is significant. Pursuant to Section 15125(a) of the CEQA Guidelines, for this Draft EIR, the baseline (i.e., existing) conditions are those that exist at the time the NOP was published. The purpose of this requirement is to give the public and decision makers the most accurate and understandable picture practically possible of the project's impacts.

The environmental setting and regulatory framework discussions presented in each of the resource area sections summarize the conditions that exist prior to implementation of the Proposed Project and provides a point of reference (or baseline) for assessing the environmental impacts of the Proposed Project.

Each impact and mitigation measure discussion includes an alpha-numeric impact number (e.g., AES-1), an impact statement (in italicized text), an explanation of the impact on the physical environment, an analysis of the significance of the impact with consideration of Conservation Measures and identification of applicable mitigation measures, and an evaluation of whether the identified mitigation measures would reduce the magnitude of identified impacts. Each impact statement is assigned a number based on the resource and the order they first appear (for example, Impact BIO-1, Impact BIO-2). Mitigation measures for each impact are numbered in order (for example, Mitigation Measure BIO-1, Mitigation Measure BIO-2).

### Significance Thresholds

Significance thresholds for each resource area are provided in Sections 3.2 through 3.21 of this Chapter. These thresholds are generally based on the questions in Appendix G of the CEQA Guidelines; factual or scientific information and data concerning resources potentially affected by the Proposed Project; regulatory standards of local, state, and federal agencies; and thresholds of significance previously adopted by public agencies or recommended by experts (see CEQA Guidelines Section 15064.7); and other substantial evidence.<sup>18</sup>

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<sup>18</sup> Although some public agencies elect to establish agency-wide thresholds of significance, Valley Water has not adopted such thresholds of significance.



## Impact Definitions

Impacts identified and analyzed in Sections 3.2 through 3.21 listed below may be applicable in describing the intensity or duration of the impact:

- A **temporary** impact typically would occur only during implementation of the Proposed Project.
- A **short-term** impact could occur during implementation of the Proposed Project and could last from when the investigation (including restoration activities) ceases within three to five years after implementation.

A **permanent** impact is a long-term impact that does not change over time.

- A **long-term** impact would last longer than five years after implementation of the Proposed Project.
- A **direct** impact is an impact that would be caused by an action and would occur at the same time and place as the action.
- An **indirect** impact is a reasonably foreseeable impact that would be caused by an action but would occur later in time or at another location.
- A **cumulative** impact is a project's impact combined with impacts from other past, present, and reasonably foreseeable future projects.<sup>19</sup>

## Impact Levels

The terminology listed below is used to denote the significance of environmental impacts of the Proposed Project (evaluated in Chapter 3), alternatives (evaluated in Chapter 4), and cumulative impacts (evaluated in Chapter 5).

- **No impact.** No impact would occur if the construction, operation, and maintenance of the Project or alternative would not have any direct or indirect impacts on the physical environment. "No impact" means no change from baseline conditions.
- **Less than Significant Impact.** Less than significant impacts are those which do not exceed the applicable impact significance threshold, and that would not result in a substantial and adverse change in the physical environment.
- **Significant Impact.** A significant impact is defined by California PRC § 21068 as "a substantial, or potentially substantial, adverse change in the physical environment." Significant impacts are those which exceed the applicable impact significance threshold.

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<sup>19</sup> Cumulative impacts are presented in Chapter 4.



- **Less than Significant with Mitigation.** The less than significant with mitigation determination applies to impacts to the physical environment that are significant, but for which feasible mitigation is available to reduce the impacts to a less-than-significant level.
- **Significant and Unavoidable.** A significant and unavoidable impact is a significant impact that cannot be reduced to a less-than-significant level, even with feasible mitigation.
- **Significant Cumulative.** A significant cumulative impact would occur when a project's impact combined with impacts from other past, present, and probable future projects exceed the applicable significance threshold, and when the project's incremental impacts are cumulatively considerable. "Cumulatively considerable" means that the incremental impacts of a project are considerable when viewed in connection with the impacts of past, current, and probable future projects.
- **Beneficial Impact.** A beneficial impact is a positive change or improvement in the physical environment compared to baseline conditions.

## Mitigation Measures

The Draft EIR identifies feasible mitigation measures to minimize each significant impact. Under CEQA Guidelines Section 15370, "mitigation" is defined to include:

- Avoiding the impact altogether by not taking a certain action or parts of an action;
- Minimizing the impact by limiting the degree or magnitude of the action and its implementation;
- Rectifying the impact by repairing, rehabilitating, or restoring the impacted environment;
- Reducing or eliminating the impact over time by preservation or maintenance actions; or
- Compensating for the impact by providing replacement or substitute resources or environments, including through permanent protection of such resources in the form of conservation easements.

CEQA requires that significant impacts of mitigation measures be evaluated in the environmental document but can be "in less detail than the significant effects of the project as proposed" (CEQA Guidelines Section 15126.4[a][1][D]). Consistent with CEQA requirements, each of the mitigation measures identified in Sections 3.2 through 3.21 was reviewed for its potential to cause additional significant impacts.

## Significance After Mitigation

For every significant impact, Valley Water will implement mitigation measures, as appropriate, to avoid or reduce the impact to a less-than-significant level, and one of two conclusions is reached:

- The mitigation would reduce the impact to a less-than-significant level; or





- No feasible mitigation has been identified to reduce the impact to a less-than significant level, and thus the impact would be significant and unavoidable.

### **3.1.2 Approach to the Environmental Analyses**

Sections 3.2 through 3.21 of this Chapter analyze the direct, and indirect impacts of the Proposed Project for each environmental resource area. The impacts of the Proposed Project were determined by comparing reasonable estimates of resulting conditions against baseline conditions. As discussed in Chapter 4, existing conditions are the baseline to which alternatives are compared. Additionally, this EIR evaluates the potential environmental impacts associated with the collection of geotechnical and geological data for PREP. Given the temporary nature of the Proposed Project, it would have no operational element. Therefore, the impact analyses will only address the specific temporary activities described in Section 2.3.

All environmental factors as included in the 2025 CEQA Guidelines Appendix G, as well as all recommended thresholds of significance are addressed in each resource section. No topics were eliminated from consideration.

## **3.2 Aesthetics**

This section describes the aesthetic setting within the vicinity of the Proposed Project study area and assesses impacts to scenic resources based on proposed conditions as viewed from a set of representative, publicly accessible viewpoints. Applicable regulations, laws, and policies related to aesthetics and visual resources are discussed, as well as “scenic resources” which include areas designated as such in policy documents and scenic roadways, vistas, and other resources as applicable under CEQA.

### **3.2.1 Environmental Setting**

#### **Regional Setting**

The Proposed Project study area for aesthetics is located within the central portion of California’s Diablo Range, primarily in the upper Pacheco Creek watershed between the cities of Gilroy and Santa Nella in southern Santa Clara County. The cities of Gilroy and Santa Nella are known for their agricultural industries and commercial industries which are visible along major California highways (SR-152 between Santa Nella and Gilroy). North of SR-152, with the exception of Bell Station and lands owned by PPWD associated with Pacheco Reservoir, the remainder of the Proposed Project study area is owned by one individual and primarily managed as ranchland.

Pacheco Creek is a stream that flows west by southwest. It originates in the Diablo Range in southeastern Santa Clara County and flows into San Felipe Lake in San Benito County, California, which marks the start of the Pajaro River mainstem. North Fork Dam, constructed in 1939,



impounds North Fork Pacheco Creek upstream from its confluence with South Fork Pacheco Creek near the southern boundary of the Proposed Project study area.

The region's landscape is characterized visually by a vast network of rugged ridgelines separated by sharp slopes angling downward into ravines, where some intermittent streams drain into the existing Pacheco Reservoir.

## **Project Setting**

The Proposed Project study area is visible from one public viewshed; the viewshed along the SR-152 corridor. The remainder of the Proposed Project study area is not visible to the general public. It is associated with private lands within the North Fork Pacheco Creek watershed upstream from North Fork Dam as illustrated on Figures 2-2a and 2-2b. SR-152 is a heavily traveled highway and while traffic levels vary throughout the day glare from windshields may be visible during the day and vehicle headlights are visible at night throughout the SR-152 corridor viewshed.

The Proposed Project study area is located in a nonurbanized area and is rural in character and largely composed of undeveloped ranch lands. Beyond the SR-152 corridor, landscapes appear largely intact and human developments or other interventions are generally minimal, if visible at all. Within the Proposed Project study area, there is a concentration of built features, including the Bell Station Farmers Market building and a farming operation, near the intersection of SR-152 and Kaiser-Aetna Road. Where visible, these features appear at a consistent scale and are subordinate to the broader natural landscape. Aside from a fleeting view of the existing North Fork Dam and other structures from SR-152 and of associated infrastructure in limited views elsewhere, existing built environment features are not visible from any public views.

A high degree of natural harmony is visible in views of the Proposed Project study area. The natural ecological communities within and surrounding the Proposed Project study area include California annual grassland, blue oak woodland, coast live oak woodland, valley oak woodland, California bay forest, California sycamore woodland, Goodding's willow-red willow riparian woodland, California bay forest, foothill pine woodland, California buckeye groves, California sagebrush scrub, holly leaf cherry-toyon-greenbark ceanothus chaparral, reservoir (open water/seasonally dry lake bed), seasonal and riparian wetlands. Figure 3.2-1 through Figure 3.2-4 show views characteristic of the landscapes throughout the Proposed Project study area.





**Figure 3.2-1. Photo Showing Existing Views of Proposed Project Study Area; Upstream View Illustrating Pacheco Reservoir and Access Route**







**Figure 3.2-2. Photo Showing Existing Views of Proposed Project Study Area and Pacheco Reservoir Drawdown; Looking South**





**Figure 3.2-3. Photo Showing Existing Views of Proposed Project Study Area; Looking Northwest Across Pacheco Reservoir**







**Figure 3.2-4. Photo Showing Existing Views of Proposed Project Study Area; Looking West on SR-152**





## 3.2.2 Regulatory Framework

### Federal Laws, Regulations, and Policies

There are no federal laws, regulations, plans, or policies pertaining to aesthetics that are applicable to the Proposed Project.

### State Laws, Regulations, and Policies

#### *California Scenic Highway Program*

The California Scenic Highway Program identifies and designates scenic highways, while the Caltrans Corridor Protection Program ensures that the scenic quality of these highways is maintained through specific local measures. State scenic highways are routes that have been officially designated as such by Caltrans (Caltrans 2021). "Scenic resources" in the context of state scenic highways are the natural and built features that contribute to the scenic value of the roadway corridor and that are identified in the Caltrans Corridor Protection Program, which enables official designation as a state scenic highway (Caltrans 2024). An eligible state highway becomes officially designated through a process in which the local governing body applies to Caltrans for scenic highway approval, adopts a Corridor Protection Program, and receives notification that the highway has been Officially Designated a state scenic highway by the Caltrans Director (Caltrans 2021).

The segment of SR-152 located within Santa Clara County that passes through the Proposed Project study area is listed as an eligible state scenic highway but is not officially designated as such (Caltrans 2021). For this segment of SR-152, no application for scenic highway approval has been made, and no Corridor Protection Program has been developed. The nearest officially designated state scenic highway to the Proposed Project study area is a segment of SR-152 located several miles east of the Proposed Project study area within Merced County from the Merced County line west to Interstate 5 (I-5). This officially designated segment of SR-152 is located outside of the Proposed Project study area.

#### *California Code of Regulations, Title 8, Section 1523 (b)*

The CCR provides direction on illumination for nighttime construction work lighting as follows: *Nighttime highway construction work lighting shall be provided within the work zone to illuminate the task(s) in a manner that will minimize glare to work crews and not interfere with the vision of oncoming motorists (e.g. providing screens, mounting lamps below the top edge of the barrier wall, varying the beam angle, etc.).* All work occurring at night within SR-152 will be in accordance with this provision.



## Regional and Local Laws, Regulations, and Policies

### *Santa Clara County General Plan*

The Santa Clara County General Plan (General Plan), 1995–2010 (Santa Clara County 1994) lists strategies and policies related to scenic resources in its Parks and Recreation and Resource Conservation chapters. The Parks and Recreation and Resource Conservation chapters identify strategies and policies to manage aesthetic resources in the County. Specific policies in the section applicable for this EIR include:

**C-PR 37:** The natural scenery along many of Santa Clara County’s highways should be protected from land uses and other activities which would diminish its aesthetic beauty.

**C-PR 39:** The visual integrity of the scenic gateways to the South County (Pacheco Pass, Hecker Pass, U.S. Route 101 (US-101) south of Gilroy, and a Coyote greenbelt area north of Morgan Hill) should be protected.

**C-RC 57:** The scenic and aesthetic qualities of both the natural and built environments should be preserved and enhanced for their importance to the overall quality of life for Santa Clara County.

**C-RC 60:** Hillsides, ridgelines, scenic transportation corridors, major county entryways, and other areas designated as being of special scenic significance should receive additional consideration and protections due to their prominence, visibility, or symbolic value.

**C-RC 61:** Public and private development and infrastructure located in areas of special scenic significance should not create major, lasting adverse visual impacts.

In addition, its Regional Parks and Scenic Highways Map identifies parks and public open space and scenic roads and highways in the County as of 2008 (Santa Clara County 2008). No roads in the Proposed Project study area have been designated as County scenic roads since 2008. SR-152, identified as Pacheco Pass in the General Plan, is identified as a “scenic gateway.” Scenic gateways can be included under the definition of scenic vistas. Santa Clara County’s Parks and Recreation Policy No. C-PR 41 states, “The visual integrity of the scenic gateways to the South County (Pacheco Pass, Hecker pass, US-101 south of Gilroy, and a Coyote greenbelt area north of Morgan Hill) should be protected.”

The General Plan’s Regional Parks and Scenic Highways Map (2008) and Countywide Trails Master Plan Map (1995) do not identify any trails designated as scenic resources within the Proposed Project study area. The Regional Parks and Scenic Highways Map does identify proposed parkland within the Proposed Project study area, which could be considered scenic resources if it existed; however, no formal plans for such parks have been proposed as 2024 (Santa Clara County 2024).

### 3.2.3 Environmental Impacts and Mitigation Measures

The following sections discuss the methods and assumptions, Proposed Project study area, environmental impacts, and mitigation measures if applicable.



## Methods and Assumptions

Impacts on visual quality in non-urbanized areas, such as the Proposed Project study area, are typically assessed by evaluating the extent of visual changes introduced by a project, the visibility of these changes to nearby observers, and the sensitivity of these observers to landscape alterations. The assessment of visual changes generally involves three main factors: (1) the level of visual contrast created by the project components (including changes in form, line, color, texture, and scale), (2) the extent of view obstruction (such as loss of view and its duration), and (3) the degradation of specific scenic resources (e.g., removal of designated heritage tree.)<sup>20</sup>

Visual resources specialists reviewed the Proposed Project study area alongside applicable plans and policies, as well as maps of the area. Included in this were maps identifying scenic resources, maps of Henry W. Coe State Park, and Google Earth Street View, which allowed an initial understanding of the visibility of Proposed Project facilities from public roads within and adjacent to the Proposed Project study area. The analysis of aesthetic resources is based on field observations and review of background information including engineering reports and figures, aerial and ground level photographs, and pertinent Caltrans and Santa Clara County policies regarding scenic resources.

Throughout the discussion on impacts in this section, effects from geotechnical investigation activities, except where noted, were considered to be temporary.

### *Applicable Conservation Measures*

Conservation Measures applicable to aesthetics are listed below. Section 2.4 provides a full description of each BMP and VHP AMM.

- BMP BI-8: Choose Local Ecotypes of Native Plants and Appropriate Erosion-Control Seed Mixes
- BMP WQ-11: Maintain Clean Conditions at Work Sites.
- VHP AMM-29: Existing native vegetation shall be retained by removing only as much vegetation as necessary to accommodate the trail clearing width. Maintenance roads should be used to avoid effects on riparian corridors.
- VHP AMM-39: Minimize alterations to existing contours and slopes, including grading the minimum area necessary.
- VHP AMM-40: Maintain native shrubs, trees and groundcover whenever possible and revegetate disturbed areas with local native or non-invasive plants.

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<sup>20</sup> Heritage trees in California are individual trees designated by a county because of their historical, commemorative or horticultural significance. Santa Clara County has not designated any heritage trees in or in close proximity to the Proposed Project study area



- VHP AMM-71: Preserve existing vegetation to the extent possible.
- VHP AMM-85: Seed mixtures applied for erosion control will not contain invasive nonnative species and will be composed of native species or sterile nonnative species. If sterile nonnative species are used for temporary erosion control, native seed mixtures must be used in subsequent treatments to provide long-term erosion control and slow colonization by invasive nonnatives.

These measures will be incorporated into the geotechnical investigation work plans, and all geotechnical contractors employed on the Proposed Project will be required to adhere to them. As such, they are considered part of the Proposed Project for purposes of analysis in this EIR.

## Criteria for Determining Significance of Impacts

Significance criteria are based on CEQA Guidelines Appendix G. Implementation of the Proposed Project would have significant impacts on aesthetics if it were to:

- Have a substantial adverse effect on a scenic vista,
- Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway,
- Substantially degrade the existing visual character or quality of public views of the site and its surroundings,<sup>21</sup> or
- Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area.

In the discussion below, “scenic vistas” refers to expansive, elevated, sustained, and/or long-distance views that afford unobstructed visibility of a noticeably vivid landscape or a landscape of distinct visual quality, character, or interest. Vista views of areas of high visual quality are often designated as scenic or vista viewpoints and identified as such along roadways or trails. Scenic resources in the context of state scenic highways are the natural and built features that contribute to the scenic value of the roadway corridor, and which are identified in the Corridor Protection Program that enabled official designation as a state scenic highway.

## Environmental Impacts

### ***Impact AES-1***

#### ***Would the project have a substantial adverse effect on a scenic vista?***

According to the General Plan and the California Scenic Highway Program, no scenic vistas have been specifically identified within or near the Proposed Project study area. As discussed above,

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<sup>21</sup> Pursuant to CEQA Guidelines Appendix G, this is the applicable threshold when, as here, the project is in a nonurbanized area.



the nearest segment of SR-152 that is officially designated as a state scenic highway is several miles east of the Proposed Project study area in Merced County. None of the proposed activities described in Chapter 2 would be visible from the designated scenic highway segments of SR-152 in Merced County.

Eleven geotechnical borings (R-20-001, R-20-003, R-20-003, A-20-101, A-20-104, PB-01, PB-02, A-201, A-202, CB-18, and CB-19) would occur within the SR-152 corridor viewshed as illustrated on Figures 2-2d and 2-2e. As discussed above, SR-152 is identified as a scenic gateway that should be protected in the Santa Clara County General Plan. A single trailer or truck-mounted drill rig and associated equipment would temporarily alter the visual contrast of views seen by motorists using SR-152 for a period of one to four days at each activity area. Change in form, line, color, and texture of this viewshed would be similar to the types of normal periodic maintenance and improvement projects conducted by Caltrans or utility companies in and adjacent to the SR-152 ROW. The use of a helicopter to support boring activities in the northern portion of the Proposed Project study area would result in daily flights over SR-152 as the helicopter travels back and forth from either Las Banos or Hollister. These flights would be within the viewshed of the SR-152 corridor for several minutes, but not likely visible to motorist traveling either direction on SR-152 through the Proposed Project study area. In the event that a barge is used for borings on Pacheco Reservoir, there would be no instance where this activity or equipment would be visible to the public.

The designated contractor will implement the BMPs and VHP AMMs discussed above to ensure that the Proposed Project would not result in any permanent change in the SR-152 corridor viewshed. Views available from residents and visitors to residences and workers and visitors to Bell Station Farmers Market within the SR-152 viewshed would be exposed to views of vehicles and equipment during the short time frame (several weeks) that these borings are conducted within the SR-152 corridor. The change would only be visible to viewers traveling on SR-152 during the four-day timeframe that vehicles and equipment are in place at these activity areas.

Due to the nature of landscape and improvements associated with the SR-152 corridor viewshed, BMP WQ-11 will be applicable to activities within the SR-152 corridor viewshed to minimize distractions associated with trash and debris visible to motorists and residences. At the four activity areas within the SR-152 Caltrans ROW (R-20-001, R-20-003, PB-01, PB-02), drilling would occur between the hours of 8 p.m. and 4 a.m. to meet Caltrans and CHP safety requirements (e.g., lighting, signage). Equipment at each activity area would remain in place for up to four days and may be visible to motorist from either direction. Within the Caltrans ROW, BMP WQ-11 and VHP AMMs (e.g., VHP AMM-29, VHP AMM-40, VHP AMM-71, and VHP AMM-85) intended to reduce disturbance and reestablish vegetation would not be implemented unless consistent with current Caltrans vegetation management practices. These would be applied on private lands within this viewshed. Consistent with VHP AMMs 39, 40, and 71, removal of vegetation would be minimal and no grading would occur at any of the activity areas, including those visible from the SR-152



corridor viewshed<sup>22</sup>; all bore holes would be backfilled as described in Chapter 2 to minimize any indirect impacts resulting from trip or fall of humans, livestock or wildlife. The disturbed areas would be reseeded consistent with BMP BI-8 and specific landowner requirements to restore activity areas to conditions prior to disturbance. While it is unlikely that Caltrans would require seeding of any vegetation that would inhibit motorist visibility, some seeding may be required for erosion control purposes. On private lands visible from the SR-152 corridor viewshed, reseeding would occur consistent with existing land uses.

Any impacts to scenic vistas from implementation of the Proposed Project would be **less than significant** due to their temporary nature, small impact footprint, and minimal exposure to residents, motorists and visitors to the Proposed Project study area. No mitigation is required.

### ***Impact AES-2***

***Would the project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?***

There are no rock outcroppings, historic buildings,<sup>23</sup> or other designated scenic resources within a specific activity area incorporated into the Proposed Project study area. As discussed above, the nearest segment of SR-152 that is officially designated as a state scenic highway is several miles east of the Proposed Project study area from the Merced County line to I-5. None of the proposed activities described in Chapter 2 would be visible from the designated state scenic highway segment of SR-152 located in Merced County.

None of the activity areas that require tree trimming or tree cutting would be visible any point along the SR-152 viewshed corridor travel way. As described in Chapter 2 and Appendix B, tree trimming and cutting would occur at isolated locations within the North Fork Pacheco Creek viewshed. An estimated eight tree limbs, 11 trees, and one standing dead tree snag would require removal to accommodate equipment access to seven boring locations (UB-62, UB-65, UB-81, UB-82, UB-85, UB-88, UB-90) within the Proposed Project study area. In the event that five (S-12, S-14, S-15, S-16, and S-18) of the supplemental borings are required, approximately six additional tree limbs would require trimming, and 14 additional trees would require removal for equipment access). In addition, up to three additional trees may be identified for trimming and up to five additional trees may be identified for removal in response to unforeseen circumstances requiring their trimming or removal for access. None of these trees proposed for removal would be visible from any public viewshed.

The Santa Clara County General Plan includes strategies and policies to protect the visual quality of public views as part of Scenic Resources within the Resource Conservation Chapter. To preserve and enhance the scenic values of both natural and built environments, Strategy #2 within the

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<sup>22</sup> No native vegetation would be removed or impacted within the SR-152 corridor viewshed.

<sup>23</sup> As described in Section 3.6, there are historical buildings/structures (e.g., North Fork Dam, unnamed ranch roads) that are within the Proposed Project study area. As described in Chapter 2, all known cultural resources, including historic buildings were excluded from any designated activity area, with the exception of unnamed ranch roads.





Resource Conservation Chapter provides a policy to minimize development impacts on significant scenic resources, and Strategy #2 within the Scenic Highways Chapter provides a policy to protect scenic highway corridors. The Proposed Project would be consistent with the policies that are applicable (identified below).

- Geotechnical investigations proposed within an area of special scenic significance, namely SR-152 corridor viewshed, would not create major, lasting adverse visual impacts (Policy C-RC 61 and C-RC 57) because they would be temporary activities meant to occur over a limited period of eight working months.
- No substantial damage to the natural scenery along SR-152 would occur from the Proposed Project. Only minimal ground disturbance and no vegetation clearing would occur within the viewshed (Policy C-PR 37).
- The visual integrity of scenic gateways to the South County, which includes Pacheco Pass, would not be adversely affected (Policy C-PR 39) because the Proposed Project is temporary in nature and several miles west of Pacheco Pass.
- No permanent impacts to hillsides, ridgelines, scenic transportation corridors, major county entryways, and other areas designated as being of special scenic significance would occur due to the Proposed Project's temporary nature (C-RC 60).

The segment of SR-152 in Santa Clara County is not a designated scenic highway, nor are there any other scenic resources within the Proposed Project study area. Although there are 12 boring locations that may be visible from the SR-152 corridor viewshed, only the boring equipment and personnel would be temporarily visible for several weeks during drilling. The temporary nature, coupled with small activity areas, would have a minimal effect on motorist traveling at highway speeds through the Proposed Project study area. The Proposed Project would not impact trees, rock outcroppings, or historic buildings<sup>24</sup> within or adjacent to the SR-152 corridor viewshed. No permanent loss of scenic resources would occur, and no specific scenic resources would be altered. Therefore, impacts would be **less than significant**. No mitigation is required.

### ***Impact AES-3***

***Would the project substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point).***

The Proposed Project study area is located in a nonurbanized area; it encompasses one rural residential area (with associated outbuildings used for agricultural purposes) and a small commercial development, locally known as Bell Station just north of SR-152 within the publicly accessible SR-152 corridor viewshed. There are 11 boring activity areas (R-20-001, R-20-003, R-20-003, A-20-101, A-20-104, PB-01, PB-02, A-201, A-202, CB-18, and CB-19) that may be temporarily visible within the SR-152 corridor viewshed. The remainder of the activity areas within

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<sup>24</sup> There are no historic buildings within the Proposed Project study area.



the North Fork Pacheco Creek watershed are not publicly accessible; and therefore, do not provide public views.

As discussed in Impact AES-2, 12 geotechnical borings would occur within the SR-152 corridor viewshed. Temporary impacts associated with mobilization, drilling (including backfilling) and, demobilization at these activity areas (e.g., borings, reseeding) would be temporary in nature. As discussed in Impact AES-2, none of the trees or tree limbs that are proposed for removal would be visible from SR-152 or other publicly accessible viewsheds. Therefore, any impacts to the existing visual character of the Proposed Project study area would be less than significant because the Proposed Project would not substantially degrade the existing visual character or quality of public views of the site and its surroundings. These impacts would be considered **less than significant**. No mitigation is required

#### ***Impact AES-4***

***Would the project create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?***

With the exception of four exploratory borings (PB-01, PB-02, R-20-001, and R-20-003) in the SR-152 corridor viewshed, the Proposed Project would not include work that would require a new source of light or involve any reflective equipment that would produce a significant source of glare within this viewshed. The proposed nighttime work at these four activity areas would occur between the hours of 8 p.m. and 4 a.m. and 10 p.m. and 7 a.m. respectively, for a period of up to four nights each, and require the use of lighting for both traffic and worker safety. Nighttime lighting would be installed in accordance CCR Title 8, Section 1523 and Caltrans Standard Specifications Section 87-20.02I Temporary Lighting Systems, as described in Section 2.3.5. The glare from stationary equipment during daylight hours may be apparent to motorists traveling through the Proposed Project study area on SR-152 for several seconds during daytime hours but would essentially be similar to glare reflected from vehicles traveling in either direction. In addition, lights associated with nighttime drilling operations would be visible to motorists for several seconds as they travel through the Proposed Project study area on SR-152, but views would be temporary and nighttime lighting levels would return to normal after drilling activities are completed. Work at all other activity areas within SR-152 viewshed would be conducted during daylight hours between the hours of 7 a.m. and 6 p.m., Monday through Friday, and between 9 a.m. and 4 p.m. on Saturday. Therefore, the Proposed Project would not create a new substantial source of light or glare that would adversely affect day or nighttime views, and the impact would be **less than significant**. No mitigation is required.

### **Mitigation Measures**

No mitigation measures are required.



### 3.3 Agriculture and Forestry Resources

This section describes agriculture resources within, and adjacent to the Proposed Project study area. The environmental setting and regulatory framework discussions are provided as well as an analysis of impacts to agriculture resources from implementation of the Proposed Project. The Proposed Project study area evaluated for agriculture is described and illustrated in Chapter 2. For the purposes of this EIR, agriculture resources include agricultural land classifications established by the California Department of Conservation (CDC) Division of Land Resource Protection (DLRP), lands subject to the California Land Conservation Act of 1965 (referred to as Williamson Act) contracts, and the Santa Clara County General Plan.

#### 3.3.1 Environmental Setting

The environmental setting related to agriculture resources includes identification of Williamson Act contracts, and agricultural land classifications.

##### Agricultural Resources

Santa Clara County encompasses over 835,000 acres with nearly half identified as agricultural land by the CDC, DLRP. Approximately one-quarter of that land is under Williamson Act contracts. Most of the Proposed Project study area's land use is zoned Agricultural Ranchlands (AR) as part of the County's Rural Base District. The County of Santa Clara General Plan designates most of the Proposed Project study area as Ranchlands land use and zones the Proposed Project study area as AR (Santa Clara County, 2024a). The remainder of the Proposed Project study area is associated with existing infrastructure (e.g., SR-152).

The CDC's Office of Land Conservation maintains a statewide inventory of farmlands, which are mapped by the Department's DLRP as part of the Farmland Mapping and Monitoring Program (FMMP). CEQA defines "agricultural land" to include prime farmland, farmland of statewide importance, and unique farmland (PRC §21060.1(a)). The United States Department of Agriculture land inventory and monitoring criteria defines these terms, as well as farmland of local importance and grazing land, as follows:

- **Prime Farmland** is land that has the best combination of physical and chemical characteristics for long-term crop production. It has the soil quality, growing season, and moisture supply needed to sustain high crop yields when appropriately treated and managed. In addition, the land must have been used for irrigated agricultural production in the last four years to qualify under this category.
- **Farmland of Statewide Importance** is similar to Prime Farmland in that it has a good combination of physical and chemical characteristics for crop production, but with minor shortcomings such as greater slopes and less ability to store moisture.



- **Unique Farmland** is land that does not meet the criteria for Prime Farmland or Farmland of Statewide Importance but has been used to produce the state's leading agricultural crops. This land is usually irrigated but may include the types of non-irrigated orchards or vineyards that are found in some climatic zones of California. Unique Farmland must have been in agricultural production at some time during the four years prior to the mapping date.
- **Farmland of Local Importance** applies to land of importance to the local agricultural economy as determined by the county. This land is either currently producing crops or has the capability of production but does not meet the criteria of the preceding categories.
- **Grazing Land** is land on which the existing vegetation is suited to the grazing of livestock.

#### *Farmland Designations in the Vicinity of the Proposed Project Study Area*

Maps produced by the CDC DLRP show that no Prime Farmland, Farmland of Statewide Importance, Unique Farmland, or Farmland of Local Importance occur in the Proposed Project study area. Grazing Land occurs within the Proposed Project study area. The majority of the Proposed Project study area is within Grazing Land. The closest designated farmlands are located approximately 4.3 miles southwest of the Proposed Project study area, to the south of SR-152 and are designated as Unique Farmland (CDC 2020). FMMP designations are illustrated in Figure 3.3-1.

#### *Williamson Act Lands*

The Williamson Act aims to preserve the maximum amount of agricultural land necessary to the conservation of the state's economic resources by having local governments enter into contracts with private landowners. The DLRP prepares yearly countywide maps of lands enrolled in Williamson Act contracts and classifies them into the categories described below.

- **Prime Agricultural Land.** This category represents the state's highest quality agricultural land. Land in this category is typically used for the production of irrigated crops or to support livestock.
- **Non-prime Agricultural Land.** This category represents Open Space Land of Statewide Significance as defined under the California Open Space Subvention Act. Most land in this category is being used for agricultural purposes, such as livestock grazing or non-irrigated crops but may also include other open space uses that are compatible with agriculture and consistent with local general plans.
- **Land in Non-renewal.** This category represents land under a Williamson Act contract that is being terminated at the option of the landowner or local government.





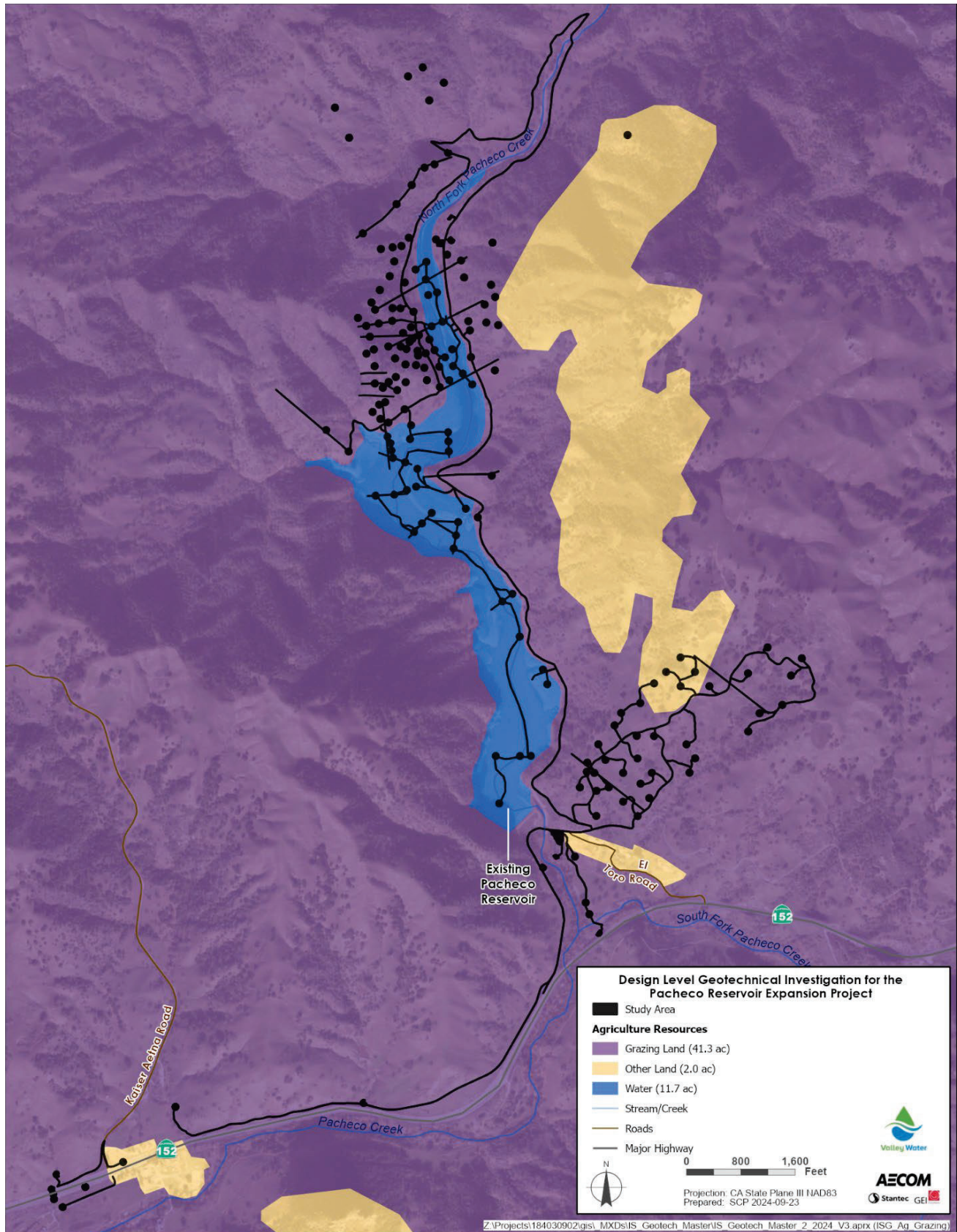


Figure 3.3-1. Farmland Mapping Within the Proposed Project Study Area



Lands subject to Williamson Act contracts are illustrated in Figure 3.3-2. Multiple parcels within or immediately adjacent to the Proposed Project study area is enrolled in the Williamson Act program under Non-prime Agricultural Land. The total acreage of Williamson Act contracts within Santa Clara County is 362,704 (County of Santa Clara 2024b). Within the Proposed Project study area, lands owned by PPWD, commercial lands associated with Bell Station and the Caltrans ROW are not subject to Williamson Act contracts (CDC 2024). As illustrated in Figure 3.3-2, most lands under Williamson Act contracts within the Proposed Project study area are located within the North Fork Pacheco Creek watershed. Lands with Prime Agricultural Land under Williamson Act contracts are not found within the existing PPWD property encompassing North Fork Dam and Pacheco Reservoir; these are publicly owned lands that are no longer used for grazing or other agricultural purposes and are under Nonprime Agricultural Land Williamson Act contracts. The nearest parcel designated as Prime Agricultural Land is approximately five miles southwest of the Proposed Project study area along SR-152.

### **3.3.2 Regulatory Framework**

#### **Federal Laws, Regulations and Policies**

There are no known federal laws, regulations, or policies that govern agriculture resources in the Proposed Project study area that are applicable to the Proposed Project.

#### **State Laws and Regulations**

##### ***California Important Farmland Inventory System and Farmland Mapping and Monitoring Program***

The CDC's Office of Land Conservation maintains a statewide inventory of farmlands, which are mapped by the Department's DLRP as part of the FMMP. The FMMP was established by the state in 1982 to continue the Important Farmland mapping efforts begun in 1975 by the U.S. Soil Conservation Service (now called the Natural Resources Conservation Service). These mapping efforts produced agricultural-resource maps based on soil quality and land use across the nation. The criteria classify the land's suitability for agricultural production. Suitability includes both the physical and chemical characteristics of soils and the actual land use.





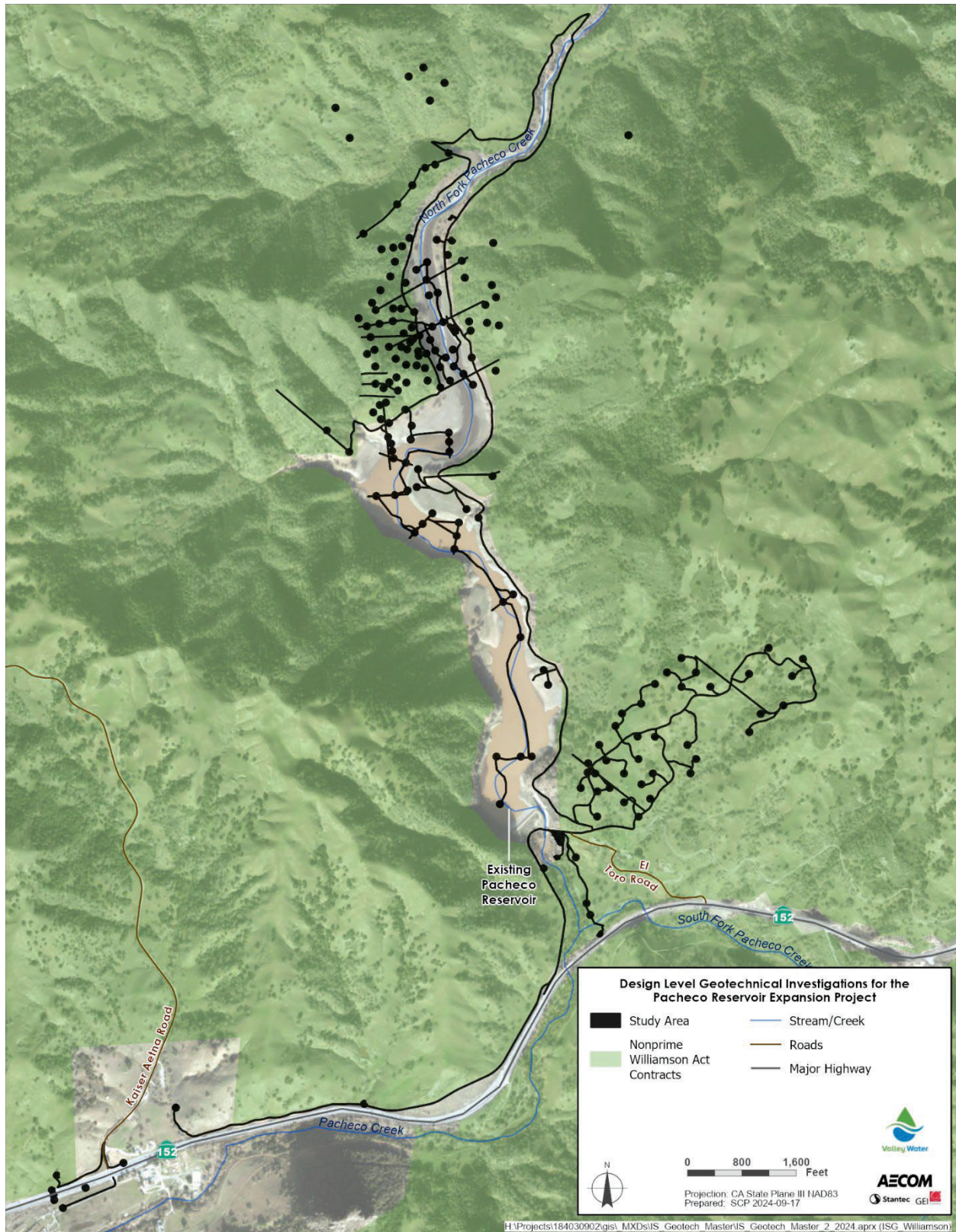


Figure 3.3-2. Williamson Act Contract Lands Within the Proposed Project Study Area



### ***Williamson Act Contracts***

The California Land Conservation Act of 1965, also known as the Williamson Act, aims to preserve the maximum amount of agricultural land necessary to the conservation of the state's economic resources by having local governments enter into contracts with private landowners. A Williamson Act contract is a legal agreement between a landowner and the local government that commits the landowner to keep their property in agricultural or open space use for a minimum of ten years, in exchange for reduced property tax assessments. This legislation aims to promote the preservation of California's agricultural land and natural resources by encouraging sustainable land management practices.

## **Regional and Local Laws, Regulations, and Policies**

### ***Santa Clara County General Plan***

The Agriculture and Agricultural Resources section of the General Plan (1994) identifies strategies and policies to manage agriculture resources in the County. A review of these policies did not identify any policies that would be applicable to this EIR.

### **3.3.3 Environmental Impacts and Mitigation Measures**

The following sections discuss the methods and assumptions, criteria for determining the significance of impacts, environmental impacts, and mitigation measures if applicable.

#### **Methods and Assumptions**

The analysis of impacts on agriculture resources, resulting from implementation of the Proposed Project is based on review of data collected and results of the desktop evaluations performed using GIS analysis.

#### ***Applicable Conservation Measures***

There are no Conservation Measures applicable to agriculture resources.

#### **Criteria for Determining Significance of Impacts**

Significance criteria are based on CEQA Guidelines Appendix G. Implementation of the Proposed Project would have significant impacts on agricultural and forestry resources if it were to:

- Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use,
- Conflict with existing zoning for agricultural use, or a Williamson Act contract,



- Conflict with existing zoning for, or cause rezoning of, forest land (as defined in PRC § 12220(g)), timberland (as defined by PRC § 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g));
- Result in the loss of forest land or conversion of forest land to non-forest use; or
- Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use.

## Environmental Impacts

### ***Impact AG-1***

***Would the project convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?***

As illustrated in Figure 3.3-1, the Proposed Project study area is predominantly Grazing Land. No Prime Farmland, Unique Farmland, or Farmland of Statewide Importance is located within or in the vicinity of the Proposed Project study area. According to the Williamson Act's definition of agricultural use for the purposes of this impact analysis, "conversion to non-agricultural use" means that land previously used for producing agricultural commodities for commercial purposes is no longer able to fulfill this function. Temporary staging and access routes within the Proposed Project study area would be used as described in Chapter 2 and no activities would occur outside the defined activity areas or beyond the Proposed Project study area. All activities associated with the Proposed Project would comply with all requirements of existing landowner right of entry agreements. There would be no permanent structures or operations placed at any location within the Proposed Project study area. Therefore, no conversion of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance would occur, resulting in **no impact** from implementation of the Proposed Project.

### ***Impact AG-2***

***Would the project conflict with existing zoning for agricultural use, or a Williamson Act contract?***

According to the 2023 Santa Clara County Williamson Act Contract Map (CDC 2024), the entire Proposed Project study area is under Williamson Act contracts except for the Pacheco Pass Water District property (i.e., Pacheco Reservoir and North Fork Dam), the land within the Caltrans ROW, and a single parcel where the Bell Station Farmers Market currently operates. All lands subject to Williamson Act within the Proposed Project study area are currently used for grazing purposes. Under Valley Water's current rights of entry for all private lands within the Proposed Project study area, all representatives of Valley Water are subject to restrictions specifically developed to minimize or avoid conflicts between existing ranching operations and the Proposed Project. While





temporary use of activity areas would occur over the duration of the Proposed Project, any disruptions to existing agricultural uses would be temporary and isolated to activity areas for several days over the course of the project and consistent with the terms of Valley Water's permission to enter for private lands within the Proposed Project study area. The proposed geotechnical investigations would be temporary in nature and would not conflict with the ranching activities or otherwise impact lands subject to existing Williamson Act contracts because the Proposed Project would not permanently alter the physical land or change the land use of the Proposed Project study area. As a result, the Proposed Project would have **no impact**. No mitigation is required.

**Impact AG-3**

***Would the project conflict with existing zoning for, or cause rezoning of, forest land (as defined in PRC § 12220(g)), timberland (as defined by PRC § 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))?***

Following consultation with the California Department of Forestry and Fire Protection (CAL FIRE), it was confirmed that no land is classified as forest land, timberland, or timberland zone within or adjacent to the Proposed Project study area (CAL FIRE, Personal Communication 2021). Therefore, given the lack of forest land, timberland, or timberland zoned within the Proposed Project study area the Proposed Project would have **no impact**. No mitigation is required.

**Impact AG-4**

***Would the project result in the loss of forest land or conversion of forest land to non-forest use?***

There is no forest land within the Proposed Project study area. Additionally, given the temporary nature of the Proposed Project, no lands would be converted, therefore the Proposed Project would have **no impact**. No mitigation is required.

**Impact AG-5**

***Would the project involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use?***

See discussions under Impact AG-1 and AG-2. The geotechnical investigations are temporary in nature, confined to a total of approximately 55 acres and would not result in the conversion of farmland to non-agricultural use. Therefore, **no impact** would occur to agricultural resources. No mitigation is required.

## **Mitigation Measures**

No mitigation measures are required.



## 3.4 Air Quality

This section includes a discussion of existing air quality conditions, a summary of applicable air quality regulations, and an analysis of air quality impacts that could result from implementation of the Proposed Project. The methods of analysis for short-term activities typically associated with construction, local mobile-source, and toxic air contaminant (TAC) emissions are consistent with the recommendations of BAAQMD and the California Air Resources Board (CARB).

### 3.4.1 Environmental Setting

The Proposed Project study area is located within the boundaries the San Francisco Bay Area Air Basin (SFBAAB). The SFBAAB includes Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, and Santa Clara Counties; the western portion of Solano County; and the southern portion of Sonoma County.

The ambient concentrations of air pollutant emissions are determined by the number of emissions released by the sources of air pollutants and the atmosphere's ability to transport and dilute such emissions. Natural factors that affect transport and dilution include terrain, wind, atmospheric stability, and sunlight. Existing air quality conditions in the Proposed Project study area are determined by such natural factors as topography, meteorology, and climate, in addition to the emissions released by existing air pollutants sources, as discussed separately in the following sections.

### Climate, Meteorology, and Topography

#### *San Francisco Bay Area Air Basin*

Atmospheric conditions such as wind speed, wind direction, and air temperature gradients interact with the physical features of the landscape to determine the movement and dispersal of air pollutants. The climate of the SFBAAB is determined largely by a high-pressure system that is often present over the eastern Pacific Ocean. High-pressure systems are characterized by an upper layer of dry air that warms as it descends, restricting the mobility of cooler marine-influenced air near the ground surface, resulting in subsidence inversions. During summer and fall, locally generated emissions can, under the restraining influences of topography and subsidence inversions, cause conditions that are conducive to the formation of photochemical pollutants, such as ozone and secondary particulates (e.g., nitrates and sulfates).

Eleven climatological subregions are located within the SFBAAB, including the Santa Clara Valley, the closest defined subregion to the west of the Proposed Project study area. Sparsely populated areas, such as that of the landscape surrounding the Proposed Project study area, are excluded from subregional designations; therefore, the following discussion describes the meteorological conditions of the Santa Clara Valley subregion. The Santa Clara Valley is bounded by San Francisco Bay to the north and by mountains to the east, south, and west. Temperatures are warm on





summer days and cool on summer nights, and winter temperatures are mild. At the northern end of the valley, mean maximum temperatures are in the low-80s during the summer and high 50s in the winter; mean minimum temperatures range from the high 50s in the summer to the low 40s in the winter (degrees Fahrenheit [°F]). Further inland, where the moderating effect of the San Francisco Bay is not as strong, temperature extremes are greater. Winds in the valley are greatly influenced by the terrain, resulting in a prevailing flow that roughly parallels the valley's northwest-southeast axis. A north-northwesterly sea breeze flows through the valley during the afternoon and early evening, and a light south-southeasterly drainage flow occurs during the late evening and early morning. In the summer, the southern end of the valley sometimes becomes a "convergence zone," when air flowing from Monterey Bay gets channeled northward into the southern end of the valley and meets with the prevailing north-northwesterly winds. Wind speeds are greatest in the spring and summer and weakest in the fall and winter. Nighttime and early morning hours frequently have calm winds in all seasons, while summer afternoons and evenings are quite breezy. Strong winds are rare, associated mostly with the occasional winter storm.

### ***Criteria Air Pollutants***

Concentrations of emissions from criteria air pollutants are used to indicate the quality of the ambient air. A brief description of key criteria air pollutants in the SFBAAB and their health effects is provided in the following sections. Criteria air pollutants include ozone, carbon monoxide (CO), nitrogen dioxide (NO<sub>2</sub>), sulfur dioxide (SO<sub>2</sub>), respirable particulate matter with an aerodynamic diameter of 10 micrometers or less (PM<sub>10</sub>), respirable particulate matter with an aerodynamic diameter of 2.5 micrometers or less (PM<sub>2.5</sub>), and lead. However, for the purposes of this analysis, criteria air pollutants of primary concern due to their nonattainment status include ozone (and ozone precursors) and particulate matter. Santa Clara County's attainment status under the California ambient air quality standards (CAAQS) and national ambient air quality standards (NAAQS) is shown in Table 3.4-1.

#### Ozone

Ozone is a photochemical oxidant (a substance whose oxygen combines chemically with another substance in the presence of sunlight) and the primary component of smog. Ozone is not directly emitted into the air but is formed through complex chemical reactions between precursor emissions of reactive organic compounds (ROG) and oxides of nitrogen (NO<sub>x</sub>) in the presence of sunlight. ROG are volatile organic compounds (VOC) that are photochemically reactive. For the purposes of CEQA analyses, ROG and VOCs are terms used interchangeably and represent the same group of emissions. ROG emissions result primarily from incomplete combustion and the evaporation of chemical solvents and fuels. NO<sub>x</sub> are a group of gaseous compounds of nitrogen and oxygen that result from the combustion of fuels. Emissions of the ozone precursors ROG and NO<sub>x</sub> have decreased over the past several years because of more stringent motor vehicle standards and cleaner burning fuels. Emissions of ROG and NO<sub>x</sub> decreased from 2000 to 2010 and are projected to continue decreasing from 2010 to 2035 (CARB 2013).



**Table 3.4-1. Attainment Status Designations for Santa Clara County**

Pollutant	NAAQS	CAAQS
Ozone	Attainment (1-hour) <sup>1</sup>	Nonattainment (1-hour) Classification <sup>2</sup>
	Nonattainment (8-hour) <sup>3</sup> Classification – Marginal	Nonattainment (8-hour)
	Nonattainment (8-hour) <sup>3</sup> Classification – Marginal	Nonattainment (24-hour)
Respirable particulate matter (PM <sub>10</sub> )	Attainment (24-hour)	Nonattainment (24-hour)
	Attainment (24-hour)	Nonattainment (Annual)
Fine particulate matter (PM <sub>2.5</sub> )	Attainment (24-hour)	(No State Standard for 24-Hour)
	Attainment (Annual)	Nonattainment (Annual)
Carbon monoxide (CO)	Attainment (Maintenance) (1-hour)	Attainment (1-hour)
	Attainment (Maintenance) (8-hour)	Attainment (8-hour)
Nitrogen dioxide (NO <sub>2</sub> )	Attainment (Maintenance) (1-hour)	Attainment (1-hour)
	Attainment (Maintenance) (Annual)	Attainment (Annual)
Sulfur dioxide (SO <sub>2</sub> ) <sup>4</sup>	Attainment (1-Hour)	Attainment (1-hour)
	Attainment (3-month rolling avg.)	Attainment (24-hour)
Lead (Particulate)	Attainment (3-month rolling avg.)	Attainment (30-day average)

Source: EPA 2024a; CARB 2024.

Notes:

<sup>1</sup> Air Quality meets federal 1-hour Ozone standard (77 FR 64036). EPA revoked this standard, but some associated requirements still apply.

<sup>2</sup> Per Health and Safety Code Section §40921.5(c), the classification is based on 1989–1991 data, and therefore does not change.

<sup>3</sup> 2015 Standard.

<sup>4</sup> 2010 Standard.

Key:

CAAQS = California ambient air quality standards

FR = Federal Register

NAAQS = national ambient air quality standards

PM<sub>2.5</sub> = respirable particulate matter with an aerodynamic diameter of 2.5 micrometers or less

PM<sub>10</sub> = respirable particulate matter with an aerodynamic diameter of 10 micrometers or less

Acute health effects of ozone exposure include increased respiratory and pulmonary resistance, cough, pain, shortness of breath, and lung inflammation. Chronic health effects include permeability of respiratory epithelia and possibility of permanent lung impairment (EPA 2024b).

### Nitrogen Dioxide

NO<sub>2</sub> is a brownish, highly reactive gas that is present in all urban environments. The major human-made sources of NO<sub>2</sub> are combustion devices, such as boilers, gas turbines, and mobile and stationary reciprocating internal combustion engines. Combustion devices emit primarily nitric oxide (NO), which reacts through oxidation in the atmosphere to form NO<sub>2</sub>. The combined emissions of NO and NO<sub>2</sub> are referred to as NO<sub>x</sub> and are reported as equivalent NO<sub>2</sub>. Because NO<sub>2</sub> is formed and depleted by reactions associated with photochemical smog (ozone), the NO<sub>2</sub> concentration in a geographical area may not be representative of the local sources of NO<sub>x</sub> emissions (EPA 2024b).



Acute health effects of exposure to NO<sub>x</sub> includes coughing, difficulty breathing, vomiting, headache, eye irritation, chemical pneumonitis, or pulmonary edema, breathing abnormalities, cough, cyanosis, chest pain, rapid heartbeat, and death. Chronic health effects include chronic bronchitis and decreased lung function (EPA 2024b).

#### Particulate Matter

PM<sub>10</sub> consists of particulate matter emitted directly into the air, such as fugitive dust, soot, smoke from mobile and stationary sources, construction operations, fires and natural windblown dust, and particulate matter formed in the atmosphere by reaction of gaseous precursors (CARB 2013).

PM<sub>10</sub> pollution can result in damage to vegetation and is often responsible for much of the haze regarded as smog. In addition, controlled human exposure studies have shown that exposure to elevated levels of PM<sub>10</sub> causes adverse health effects, especially related to the inhibition of lung functions and an increase in respiratory and cardiovascular afflictions, as well as cancer risks. PM<sub>10</sub> causes a greater health risk than larger particles because fine particles are too small for the natural filtering process of the human body and can more easily penetrate the defenses of the human respiratory system. Individuals with pre-existing respiratory or cardiovascular disease are especially susceptible to the adverse effects of PM<sub>10</sub> exposure, as are asthmatic children and the elderly. Children exposed to high concentrations of PM<sub>10</sub> for prolonged periods exhibit decreased immune function as well. Additionally, associations between long-term exposure to PM<sub>10</sub> and adverse cognitive effects, such as faster cognitive decline, including memory and attention span loss, are being further examined by health researchers.

Because PM<sub>2.5</sub> is smaller than PM<sub>10</sub>, it can more deeply penetrate the human body through inhalation, allowing many chemicals harmful to human health to be carried to internal organs. Long-term exposure to these particulates can increase the chance of chronic respiratory disease and cause lung damage and irregular heartbeat. Short-term exposure can aggravate respiratory illnesses such as bronchitis and asthma and cause heart attacks and arrhythmias in people with heart disease. Additionally, an estimated 9,000 people die prematurely each year in California as a result of PM<sub>2.5</sub> exposure (CARB 2013). A safe threshold for PM<sub>2.5</sub> has not been established and research indicates that health effects exist at low concentrations.

#### ***Toxic Air Contaminants***

A TAC is defined as an air pollutant that may cause or contribute to an increase in mortality or in serious illness, or that may pose a hazard to human health. TACs are usually present in minute quantities in the ambient air; however, their high toxicity or health risk may pose a threat to public health even at low concentrations.

A wide range of sources, from industrial plants to motor vehicles, emit TACs. The health effects associated with TACs are quite diverse and generally are assessed locally, rather than regionally. TACs can cause long-term health effects, such as cancer, birth defects, neurological damage, asthma, bronchitis, genetic damage, or short-term acute effects, such as eye watering, respiratory irritation (a cough), running nose, throat pain, and headaches.



For evaluation purposes, TACs are separated into carcinogens and noncarcinogens based on the nature of the physiological effects associated with exposure to the pollutant. Carcinogens are assumed to have no safe threshold below which health impacts would not occur. This contrasts with criteria air pollutants, for which acceptable levels of exposure can be determined and for which the ambient standards have been established (Table 3.4-2). Cancer risk from TACs is expressed as excess cancer cases per one million exposed individuals, typically over a lifetime of exposure.

The EPA regulates hazardous air pollutants through its National Emission Standards for Hazardous Air Pollutants (NESHAP). The standards for a particular source category require the maximum degree of emission reduction that EPA determines to be achievable, known as the Maximum Achievable Control Technology standards. These standards are authorized by Section 112 of the 1970, federal Clean Air Act (CAA) and the regulations are published in 40 Code of Federal Regulations (CFR) Parts 61 and 63.

### ***Sensitive Receptors***

A small number of existing sensitive receptors are located near the Proposed Project study area. Two residences are located along El Toro Road, southeast of the North Fork Dam, and two rural residences are located south of SR-152, near the intersection with Kaiser-Aetna Road. Additionally, a commercial property (Bell Station) east of the intersection between SR-152 and Kaiser-Aetna Road is treated as a sensitive receptor in this analysis. Refer to Section 3.14 and Figure 3.14-1 for identification of each receptor and proximity to proposed activity areas.

## **3.4.2 Regulatory Framework**

Air quality in the Proposed Project study area is regulated through the efforts of various federal, State, regional, and local government agencies. These agencies work jointly, as well as individually, to improve air quality through legislation, planning, policymaking, education, and a variety of programs. The agencies responsible for improving the air quality within the air basins are discussed in the following subsections.

### **Federal Laws, Regulations, and Policies**

The EPA has been charged with implementing national air quality programs. EPA's air quality mandates draw primarily from the CAA, which was enacted in 1970. The most recent major amendments were made by Congress in 1990. EPA's air quality efforts address both criteria air pollutants and hazardous air pollutants.

#### ***Criteria Air Pollutants***

The CAA required EPA to establish NAAQS for six common air pollutants found all over the United States referred to as criteria air pollutants and precursors. EPA has established primary and secondary NAAQS for the following criteria air pollutants: ozone, CO, NO<sub>2</sub>, SO<sub>2</sub>, PM<sub>10</sub>, PM<sub>2.5</sub>, and



lead. Regulatory updates to the NAAQS have occurred since 2016. The most recent standards for NAAQS and the CAAQS are summarized in Table 3.4-2. Notably, the EPA updated the 8-hour ozone NAAQS in 2015 to 0.070 parts per million (ppm) (EPA 2024c). The primary standards protect public health, and the secondary standards protect public welfare.

## State Laws, Regulations, and Policies

### *California Air Resources Board*

CARB is the agency responsible for coordination and oversight of state and local air pollution control programs in California and for implementing the California Clean Air Act (CCAA). The CCAA, which was adopted in 1988, required CARB to establish CAAQS (see Table 3.4-2).

#### Criteria Air Pollutants

CARB has established CAAQS for sulfates, hydrogen sulfide, vinyl chloride, visibility-reducing particulate matter, and the above-mentioned federally regulated criteria air pollutants. In most cases the CAAQS are more stringent than the NAAQS. Differences in the standards are generally explained by the health effects studies considered during the standard-setting process and the interpretation of the studies. In addition, the CAAQS incorporate a margin of safety to protect sensitive individuals.

**Table 3.4-2. National and California Ambient Air Quality Standards**

Pollutant	Averaging Time	CAAQS <sup>1,2</sup>	NAAQSc Primary <sup>2,4</sup>	NAAQSc Secondary <sup>2,5</sup>
Ozone	1-hour	0.09 ppm (180 µg/m <sup>3</sup> )	—e	Same as primary standard
	8-hour	0.070 ppm (137 µg/m <sup>3</sup> )	0.070 ppm (147 µg/m <sup>3</sup> )	Same as primary standard
Carbon monoxide (CO)	1-hour	20 ppm (23 mg/m <sup>3</sup> )	35 ppm (40 mg/m <sup>3</sup> )	Same as primary standard
	8-hour	9 ppm <sup>f</sup> (10 mg/m <sup>3</sup> )	9 ppm (10 mg/m <sup>3</sup> )	Same as primary standard
Nitrogen dioxide (NO <sub>2</sub> )	Annual arithmetic mean	0.030 ppm (57 µg/m <sup>3</sup> )	53 ppb (100 µg/m <sup>3</sup> )	Same as primary standard
	1-hour	0.18 ppm (339 µg/m <sup>3</sup> )	100 ppb (188 µg/m <sup>3</sup> )	—
	24-hour	0.04 ppm (105 µg/m <sup>3</sup> )	—	—
Sulfur dioxide (SO <sub>2</sub> )	3-hour	—	—	0.5 ppm (1300 µg/m <sup>3</sup> )
	1-hour	0.25 ppm (655 µg/m <sup>3</sup> )	75 ppb (196 µg/m <sup>3</sup> )	—
Respirable particulate matter (PM <sub>10</sub> )	Annual arithmetic mean	20 µg/m <sup>3</sup>	—	Same as primary standard
	24-hour	50 µg/m <sup>3</sup>	150 µg/m <sup>3</sup>	Same as primary standard
Fine particulate matter (PM <sub>2.5</sub> )	Annual arithmetic mean	12 µg/m <sup>3</sup>	12.0 µg/m <sup>3</sup>	15.0 µg/m <sup>3</sup>
	24-hour	—	35 µg/m <sup>3</sup>	Same as primary standard
Lead <sup>6</sup>	Calendar quarter	—	1.5 µg/m <sup>3</sup>	Same as primary standard
	30-Day average	1.5 µg/m <sup>3</sup>	—	—
	Rolling 3-Month Average	—	0.15 µg/m <sup>3</sup>	Same as primary standard





**Table 3.4-2. National and California Ambient Air Quality Standards (cont.)**

Pollutant	Averaging Time	CAAQS <sup>1,2</sup>	NAAQSc Primary <sup>2,4</sup>	NAAQSc Secondary <sup>2,5</sup>
Hydrogen sulfide	1-hour	0.03 ppm (42 µg/m <sup>3</sup> )	No national standards	No national standards
Sulfates	24-hour	25 µg/m <sup>3</sup>	No national standards	No national standards
Vinyl chloride <sup>6</sup>	24-hour	0.01 ppm (26 µg/m <sup>3</sup> )	No national standards	No national standards
Visibility-reducing particulate matter	8-hour	Extinction of 0.23 per km	No national standards	No national standards

Source: CARB 2024

Notes:

<sup>1</sup> California standards for ozone, carbon monoxide, SO<sub>2</sub> (1- and 24-hour), NO<sub>2</sub>, particulate matter, and visibility-reducing particles are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the CCR.

<sup>2</sup> Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based on a reference temperature of 25 degrees Celsius (°C) and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.

<sup>3</sup> National standards (other than ozone, particulate matter, and those based on annual averages or annual arithmetic means) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest 8-hour concentration in a year, averaged over three years, is equal to or less than the standard. The PM<sub>10</sub> 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/m<sup>3</sup> is equal to or less than one. The PM<sub>2.5</sub> 24-hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard. Contact the U.S. Environmental Protection Agency for further clarification and current federal policies.

<sup>4</sup> National primary standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.

<sup>5</sup> National secondary standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

<sup>6</sup> The California Air Resources Board has identified lead and vinyl chloride as toxic air contaminants with no threshold of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.

Key:

µg/m<sup>3</sup> = micrograms per cubic meter

CAAQS = California ambient air quality standards

km = kilometers

mg/m<sup>3</sup> = milligrams per cubic meter

NAAQS = national ambient air quality standards

PM<sub>10</sub> = respirable particulate matter with an aerodynamic diameter of 10 micrometers or less

PM<sub>2.5</sub> = respirable particulate matter with an aerodynamic diameter of 2.5 micrometers or less

ppb = parts per billion

ppm = parts per million

The CCAA requires that all local air districts in the state endeavor to attain and maintain the CAAQS by the earliest date practical. The CCAA specifies that local air districts should focus particular attention on reducing the emissions from transportation and area-wide emission sources. The CCAA also provides air districts with the authority to regulate indirect sources, such as vehicle movement and residential, commercial, and industrial development.

### Toxic Air Contaminants

TACs in California are regulated primarily through the Tanner Air Toxics Act (Assembly Bill (AB) 1807, Chapter 1047, Statutes of 1983) and the Air Toxics Hot Spots Information and Assessment Act of 1987 (AB 2588, Chapter 1252, Statutes of 1987). AB 1807 sets forth a formal procedure for CARB to designate substances as TACs. Research, public participation, and scientific peer review



are required before CARB can designate a substance as a TAC. To date, CARB has identified more than 21 TACs and adopted EPA's list of hazardous air pollutants as TACs. Most recently in 1998, particulate matter exhaust from diesel engines (diesel PM) was added to CARB's list of TACs.

After a TAC is identified, CARB then adopts an airborne toxics control measure for sources that emit that particular TAC. If a safe threshold exists for a substance at which there is no toxic effect, the control measure must reduce exposure below that threshold. If no safe threshold exists, the measure must incorporate best available control technology for toxics to minimize emissions.

The Air Toxics Hot Spots Information and Assessment Act of 1987, also referred to as the Hot Spots Act, requires that existing facilities that emit toxic substances above a specified level prepare an inventory of toxic emissions, prepare a risk assessment if emissions are significant, notify the public of significant risk levels, and prepare and implement risk reduction measures.

CARB has adopted diesel exhaust control measures and more stringent emissions standards for various transportation-related mobile sources of emissions, including transit buses, and off-road diesel equipment (e.g., tractors, generators). Over time, the replacement of older vehicles will result in a vehicle fleet that produces substantially lower levels of TACs than under current conditions. Mobile-source emissions of TACs (e.g., benzene, 1-3-butadiene, diesel PM) have been reduced significantly over the last decade and will be reduced further in California through a progression of regulatory measures (e.g., Low Emission Vehicle/Clean Fuels and Phase II reformulated gasoline regulations) and control technologies. With the implementation of CARB's Risk Reduction Plan and other regulatory programs, it is estimated that emissions of diesel PM will be less than half of those in 2010 by 2035 (CARB n.d.). Adopted regulations are also expected to continue to reduce formaldehyde emissions emitted by cars and light-duty trucks. As emissions are reduced, it is expected that risks associated with exposure to the emissions will also be reduced.

## **Regional and Local Laws, Regulations, and Policies**

### ***Bay Area Air Quality Management District***

The BAAQMD maintains and manages air quality conditions in the SFBAAB, including Santa Clara County, through a comprehensive program of planning, regulation, enforcement, technical innovation, and promotion of the understanding of air quality issues. The clean air strategy of BAAQMD includes the preparation of plans and programs for the attainment of the NAAQS and CAAQS, adoption and enforcement of rules and regulations, and issuance of permits for stationary sources. BAAQMD also inspects stationary sources, responds to citizen complaints, monitors ambient air quality and meteorological conditions, and implements other programs and regulations required by the CAA and CCAA.

Projects located in the SFBAAB are subject to BAAQMD's rules and regulations. The following rules and regulation are applicable to the Proposed Project:



- Regulation 2, Rule 1, General Permit Requirements. This rule includes criteria for issuance or denial of permits, exemptions, and appeals against decisions of the Air Pollution Control Officer and BAAQMD actions on applications.
- Regulation 6, Rule 1, General Requirements. This rule limits the quantity of particulate matter in the atmosphere by controlling emission rates, concentration, visible emissions, and opacity.
- Regulation 6, Rule 6 (Trackout). This rule limits the quantity of particulate matter (PM) in the atmosphere through control of trackout of solid materials onto paved public roads outside the boundaries of large sites.
- Regulation 7, Odorous Substances. Regulation 7 places general limitations on odorous substances and specific emission limitations on certain odorous compounds. A person or facility must meet all limitations of this regulation but meeting such limitations shall not exempt such person or facility from any other requirements of BAAQMD, state, or national law. BAAQMD staff investigate and track all odor complaints it receives, make attempts to visit the site and identify the source of the objectionable odor, and assist the owner or facility in finding a way to reduce the odor.
- Regulation 8, Rule 3 (Architectural Coating). This rule limits the quantity of volatile organic compounds that can be supplied, sold, applied, and manufactured within the BAAQMD region.
- Regulation 11, Rule 14 (Asbestos-Containing Serpentine). The purpose of this rule is to control emissions from asbestos from unpaved road surfaces and other surfacing operations. This rule limits the use of serpentine material with greater than 5 percent asbestos content for covering roads or paths.

The CCAA requires that all local air districts in the state endeavor to achieve and maintain the CAAQS in their region by the earliest practical date. The CCAA specifies that local air districts should focus attention on reducing the emissions from transportation and area-wide emission sources and provides districts with the authority to regulate indirect sources. To achieve the CAAQS, BAAQMD prepares and updates air quality plans on a regular basis. The air quality plans published by BAAQMD and other local air districts in the state are incorporated into California's State Implementation Plan Strategy and meet CAA requirements.

BAAQMD also provides guidance for CEQA practitioners for evaluating the significance of proposed projects and plans. BAAQMD's most recent 2022 CEQA Air Quality Guidelines (2022 BAAQMD CEQA Guidelines) include nonbinding recommendations intended to assist lead agencies with navigating the CEQA process (BAAQMD 2022a). The 2022 BAAQMD CEQA Guidelines provide numerical thresholds to measure a project's average daily and annual emissions of criteria air pollutants and ozone precursors of a project, which are scientifically substantiated, are numerical concentrations of criteria air pollutants considered to be protective of human health. Projects that do not exceed thresholds would not contribute to the



nonattainment of the CAAQS and subsequently the NAAQS or result in increases in health-related impacts associated with increases in criteria air pollutants or ozone precursors. Significance thresholds in the 2022 BAAQMD CEQA Guidelines are described in the "Criteria for Determining Significance of Impacts" section below.

#### 2017 Clean Air Plan: Spare the Air, Cool the Climate

For state air quality planning purposes, the SFBAAB is classified as a serious nonattainment area with respect to the 1-hour CAAQS ozone standard. The "serious" classification triggers various plan submittal requirements and transportation performance standards. One such requirement is that BAAQMD update its Clean Air Plan every three years to reflect progress in meeting the NAAQS and CAAQS and to incorporate new information regarding the feasibility of control measures and new emission inventory data. BAAQMD's record of progress in implementing previous measures must also be reviewed. On April 19, 2017, BAAQMD adopted the most recent revision to the Clean Air Plan, titled the *2017 Clean Air Plan: Spare the Air, Cool the Climate* (BAAQMD 2017). This plan serves to:

- define a vision for transitioning the region to a post-carbon economy needed to achieve 2030 and 2050 greenhouse gas reduction targets;
- decrease emissions of air pollutants most harmful to San Francisco Bay Area (Bay Area) residents, such as particulate matter, ozone, and TACs;
- reduce emissions of methane and other potent climate pollutants; and
- decrease emissions of carbon dioxide by reducing fossil fuel combustion

#### ***County of Santa Clara***

##### Santa Clara County General Plan

The General Plan, 1995-2010, was first adopted in 1994 and was updated in 2015 to include the Health Element of the General Plan. The Health Element includes several strategies and accompanying policies relating to air quality. The strategies and policies applicable to the Proposed Project include the following:

- **Strategy #1:** Strive for air quality improvement through regional and local land use, transportation, and air quality planning.
  - Policy HE-G.1 Air quality environmental review. Continue to utilize and comply with the Air District's project- and plan-level thresholds of significance for air pollutants and greenhouse gas emissions.
  - Policy HE-G.3 Fleet upgrades. Promote Air District mobile source measures to reduce emissions by accelerating the replacement of older, dirtier vehicles and equipment, and by expanding the use of zero emission and plug-in vehicles.



- Policy HE-G.4 Off-road sources. Encourage mobile source emission reduction from off-road equipment such as construction, farming, lawn and garden, and recreational vehicles by retrofitting, retiring and replacing equipment and by using alternate fuel vehicles.

### 3.4.3 Environmental Impacts and Mitigation Measures

The following sections discuss the methods and assumptions, criteria for determining the significance of impacts, environmental impacts, and mitigation measures if applicable.

#### Methods and Assumptions

Under BAAQMD's methodology, a determination of consistency with the 2017 Clean Air Plan should demonstrate that a project:

- Supports the primary goals of the 2017 Clean Air Plan,
- Includes applicable control measures from the 2017 Clean Air Plan, and
- Would not disrupt or hinder implementation of any control measures in the 2017 Clean Air Plan.

To estimate Proposed Project-generated emissions, activity data available for the project, as summarized in Table 2-5, were the basis for all calculations. A number of methods were employed to calculate emissions from each unique activity type and emission source. Details are provided below, by pollutant and emissions source.

#### Criteria Air Pollutants and Ozone Precursors

##### *Exhaust Emissions*

To estimate Proposed Project-generated exhaust emissions from the use of heavy-duty offroad equipment, anticipated daily use rates, equipment horsepower, and daily anticipated hours/day were used as modeling inputs. Offroad equipment emissions factors were derived from *CalEEMod's Appendix G* for each pollutant (i.e., ROG, NO<sub>x</sub>, PM exhaust, carbon dioxide (CO<sub>2</sub>)), in grams per horsepower-hour. Horsepower ratings and usage factors were applied from default values in CalEEMod to derive emissions factors in pounds per hour of equipment operation. Using the anticipated number of hours per day for each piece of equipment and the number of activity days (Table 2-5), average daily emissions were calculated for each piece of equipment.

Exhaust emissions would also be generated from use of onroad vehicles (e.g., worker commute, heavy truck/trailers, water and fuel trucks). Emissions factors for these vehicle types were derived CARB's Emissions Estimator Model (EMFAC) 2021 outputs for the Proposed Project study area (i.e., San Francisco Bay Area) and applied to the anticipated mileage each vehicle would travel. For example, drill rig mobilization would occur from Spokane Washington (i.e., 950 miles away) and West Sacramento (i.e., 135 miles away), and crews from as much as 50 miles per day. Daily vehicle





miles traveled (VMT) for each vehicle type was calculated and multiplied by the emissions factors to derive mobile source emissions. Activity was averaged over the duration of work activities to derive average daily exhaust emissions (see "Average Daily Emissions" discussion below for more details).

### ***Fugitive Dust Emissions***

Fugitive Dust Emissions (i.e., PM<sub>10</sub> and PM<sub>2.5</sub>) would be generated by vehicles traveling on paved and unpaved surfaces. Equations from U.S. EPA's AP-42: Compilation of Air Emissions Factors for travel on paved/unpaved roads were applied to the aforementioned onroad VMT to derive emissions from travel on paved roads. For travel on unpaved roads, a portion of the total VMT for each vehicle type was attributed to unpaved travel which was approximated using project-specific information regarding access road location and reasonable assumptions. In addition, BMP AQ-1, which requires incorporation of dust control measures, were applied to the calculations, resulting in a 55 percent reduction in dust emissions.

### ***Other Equipment (Helicopter, Barges)***

Emissions from the use of a single helicopter were estimated using emissions factors published by the Federal Office of Civil Aviation (FOCA 2015). Emissions factors for helicopter operations (i.e., takeoff/landing, cruising) were applied to the anticipated daily and total helicopter hour use and averaged over the duration of project activities. Emissions from in-water barge and boat use were calculated using emissions factors available from CARB's OFFROAD 2021 model and similarly applied to anticipated work hours and averaged over the duration of work activities.

### ***Average Daily Emissions***

Average daily emissions were quantified based on the anticipated daily activity to occur in 2025 and 2026, using estimated activity timeframes and equipment use/quantities shown in Table 2-4 and Table 2-5. Table 2-4 includes the anticipated range of equipment use (typical to maximum). For example, two to five drill rigs could be used per day and four hours of helicopter use would occur each day the helicopter is used. Using these data, the total maximum daily equipment use was estimated for each activity/equipment type. Table 2-5 provides a general estimate of duration for each investigation activity and associated properties where activity would occur, using the anticipated number of drill rigs required for each activity, to estimate the number of "rig days" required for each activity. If additional rigs/crews become available, the overall duration of activities would be reduced accordingly or if fewer drill rigs are available, the overall duration of activities could be extended.

While the overall anticipated timeframe shown in Table 2-5 shows four calendar months of work in 2025 and seven calendar months in 2026, individual activities would not necessarily require the entire time period estimate (e.g., vibracore/auger/rotary drilling at the sites within Pacheco Reservoir would only require about 20 drill days within a four-month period in 2025 and 2026). Understanding that individual activities (e.g., rock core drilling, auger/rotary wash drilling, test



pits) would generally be scheduled during the anticipated time frames shown in Table 2-5, all primary geotechnical investigation activities that require drilling, boring, and the use of heavy-duty equipment could be accomplished within a four-month work period in both 2025 and 2026, for a total of eight calendar months that work would be completed in.

Thus, to estimate average daily emissions, the total number of workdays were based on a four-month work window during 2025 and 2026 and assumed six working days per week, for a total of 96 workdays in each year, totaling 192 workdays. Total anticipated equipment-hours were averaged over this period, weighted with heavier activity in 2025 (based on total number of rig days in 2025 compared to 2026). This method for calculating average daily emissions acknowledges that activities could potentially occur beyond the estimated timeline of eight months (i.e., Table 2-5 shows a total of four months in 2025 and seven in 2026); however, because all emissions were averaged over this shorter duration, should activities occur beyond eight months, average daily emissions would be lower than what was estimated. Thus, emissions represent maximum daily equipment use (for each activity/equipment type) over a condensed 8-month work period.

### ***Toxic Air Contaminants, Carbon Monoxide, and Odors***

When evaluating TAC emissions from temporary sources (such as those associated with the geotechnical investigation activities), diesel PM is the TAC of primary concern, and therefore, is the focus of this analysis. The dose to which a receptor is exposed is the primary factor used to determine health risk. Dose is a function of the concentration of a substance or substances in the environment and the extent of exposure that a person has to the substance. Dose is positively correlated with time, meaning that a longer exposure period would result in a higher exposure level. Health risks are higher if a fixed exposure occurs over a longer period of time. According to the Office of Environmental Health Hazard Assessment (OEHHA), health risk assessments, which determine the exposure of sensitive receptors to toxic emissions, should be based on a 70-year exposure period; however, such assessments should be limited to the period/duration of activities associated with the project. In addition, BAAQMD recommends that TAC sources located within 1,000 feet of sensitive land uses be evaluated for health risk exposure. Thus, this analysis uses OEHHA and BAAQMD guidance, that considers both duration of exposure and proximity to a source, to conduct a qualitative health risk analysis.

A carbon monoxide hotspot is a localized concentration of CO that is above ambient air quality standard for carbon monoxide and can occur at intersections with heavy peak hour traffic. BAAQMD recommends comparing a project's attributes with the following screening criteria as a first step in evaluating whether the project would result in the generation of CO concentrations that would substantially contribute to an exceedance of the Thresholds of Significance/ ambient air quality standards. The Proposed Project would result in a less-than-significant impact to localized CO concentrations if:



- The Proposed Project is consistent with an applicable congestion management program for designated roads or highways, regional transportation plan, and local congestion management agency plans;
- The Proposed Project would not increase traffic volumes at affected intersections to more than 44,000 vehicles per hour; or
- The Proposed Project traffic would not increase traffic volumes at the affected intersections to more than 24,000 vehicles per hour where vertical and/or horizontal mixing is substantially limited (e.g., tunnel, parking garage).

To evaluate an odor impact, the EIR follows BAAQMD recommendations that the lead agency provide the buffer distance and a description of the land features and topography in the buffer zone that separates nearby sensitive receptors and the odor source. The focus of the analysis is temporary odors associated with fuel combustion as the Proposed Project would introduce any new operational sources of odor.

### ***Applicable Conservation Measures***

Conservation measures applicable to air quality are listed below. Section 2.4 provides a full description of each BMP and VHP AMM.

- BMP AQ-1: Use Dust Control Measures<sup>25</sup>
  - All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered as needed;
  - All haul trucks transporting soil, sand, or other loose material off-site shall be covered;
  - 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;
  - 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;
  - All vehicle speeds on unpaved roads shall be limited to 15 miles per hour (mph);
  - 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;
  - Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to five minutes<sup>26</sup> (as required by the California Airborne Toxic Control Measure Title 13, Section 2485 of CCR), and this requirement

<sup>25</sup> BMP AQ-1 is based upon BAAQMD recommendations for dust control.

<sup>26</sup> As reflected in Section 2.4.5, consistent with the BAAQMD BMPs, maximum Idling times for equipment will be reduced from Valley Water's standard BMP limitation of five minutes to two minutes.



- shall be clearly communicated to construction workers (such as verbiage in contracts and clear signage at all access points);
- All construction equipment shall be maintained and properly tuned in accordance with manufacturers' specifications, and all equipment shall be checked by a certified visible emissions evaluator;
  - Correct tire inflation shall be maintained in accordance with manufacturers' specifications on wheeled equipment and vehicles to prevent excessive rolling resistance; and
  - 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.
- VHP AMM-68: Stabilize stockpiled soil with geotextile for plastic covers.
  - VHP AMM-69: Maintain construction activities within defined project area to reduce the amount of disturbed area.
  - VHP AMM-71: Preserve existing vegetation to the extent possible.

These measures would be incorporated into the geotechnical investigation work plans, and all geotechnical contractors employed on the Proposed Project would be required to adhere to them. As such, they are considered part of the Proposed Project for purposes of analysis in this EIR.

## Criteria for Determining Significance of Impacts

Significance criteria are based on CEQA Guidelines Appendix G. Implementation of the Proposed Project would have significant impacts on air quality resources if it were to:

- conflict with or obstruct implementation of the applicable air quality plan,
- result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard,
- expose sensitive receptors to substantial pollutant concentrations, or
- result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.

As stated in CEQA Guidelines Appendix G, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the above determinations. Valley Water has determined substantial evidence supports the thresholds and recommendations in the 2022 BAAQMD CEQA Guidelines. Therefore, consistent with the 2022 BAAQMD CEQA Guidelines, the Proposed Project would have a significant impact on air quality if it would:



- conflict with the 2017 Clean Air Plan
- generate temporary equipment-related emissions that exceed:
  - ROG, NO<sub>x</sub>, and PM<sub>2.5</sub> (exhaust): 54 pounds per day (lb/day) (average daily);
  - PM<sub>10</sub> (exhaust): 82 lb/day (average daily)
- generate long-term emissions that exceed:
  - ROG, NO<sub>x</sub> and PM<sub>2.5</sub> (exhaust): 54 lb/day (average daily) or 10 tons per year (tpy)
  - PM<sub>10</sub> (exhaust): 82 lb/day (average daily) or 15 tpy;
- not implement any of the fugitive dust-related BMPs outlined in Table 5-2 of the 2022 BAAQMD CEQA Guidelines;
- result in long-term operational local mobile-source CO emissions that would violate or contribute substantially to concentrations that exceed the 1-hour CAAQS of 20 ppm or the 8-hour CAAQS of 9 ppm;
- result in a project level incremental increase in cancer risk (i.e., the risk of contracting cancer) greater than 10 in one million at any off-site receptor, a noncarcinogenic hazard index of 1.0 or greater, or PM<sub>2.5</sub> concentrations greater than 0.3 micrograms per cubic meter (µg/m<sup>3</sup>) (annual average), or inconsistency with a qualified community risk reduction plan;
- result in a cumulative incremental increase in cancer risk (i.e., the risk of contracting cancer) greater than 100 in one million at any off-site receptor, a noncarcinogenic hazard index of 10.0 or greater, or PM<sub>2.5</sub> concentrations greater than 0.8 µg/m<sup>3</sup> (annual average), or inconsistency with a qualified community risk reduction plan; or
- result in other emissions (such as those leading to odors) adversely affecting a substantial number of people (i.e., five confirmed complaints per year averaged over three years).

## Environmental Impacts

### ***Impact AQ-1***

#### ***Would the project conflict with or obstruct implementation of the applicable air quality plan?***

The CAA requires air districts to create a Clean Air Plan that describes how the jurisdiction will meet air quality standards. These plans must be updated periodically. As stated above, the most recently adopted air quality plan for the SFBAAB is the 2017 Clean Air Plan. To fulfill state ozone planning requirements, the 2017 control strategy includes all feasible measures to reduce emissions of ozone precursors (ROG and NO<sub>x</sub>) and reduce the transport of ozone and its precursors to neighboring air basins. In addition, the 2017 Clean Air Plan builds upon and enhances BAAQMD's efforts to reduce emissions of PM<sub>2.5</sub> and TACs. The 2017 Clean Air Plan does





not include control measures that apply directly to individual development projects. Instead, the control strategy includes measures related to stationary sources, transportation, energy, buildings, agriculture, natural and working lands, waste management, water, and super-greenhouse gas pollutants, such as methane (BAAQMD 2017).

A project that would not support the 2017 Clean Air Plan's goals would be considered to conflict with the plan. On an individual project basis, consistency with BAAQMD's quantitative thresholds is interpreted as demonstrating support for the 2017 Clean Air Plan's goals. As shown in the discussion under impact AQ-2 below, the Proposed Project, which only entails temporary geotechnical investigation activities occurring over the course of approximately eight working months, would not result in exceedances of BAAQMD's thresholds for criteria air pollutants and thus would not conflict with the 2017 Clean Air Plan's goal to attain air quality standards. Further, the Proposed Project would not result in new land use development or operational activities that would increase regional emissions sources (e.g., vehicular exhaust, area wide source). Thus, no operational impact analysis is required. As a result, the Proposed Project would not conflict with or obstruct implementation of the adopted Clean Air Plan. Therefore, there would be **no impact**. No mitigation is required.

#### **Impact AQ-2**

***Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?***

The use of vehicles, excavation and drilling equipment, boats and barges, and a medium lift helicopter to conduct the proposed surface and subsurface geotechnical investigations would generate emissions of ROG, NO<sub>x</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub>. Proposed Project activities include the use of off-road equipment (e.g., drill rigs, excavator), in-water equipment (e.g., boat, barge), a helicopter, other associated equipment (e.g., pumps, generators), worker transport/commute (e.g., all-terrain vehicles, passenger vehicles), and ground-disturbing activities/vegetation clearing (i.e., chainsaws). During boring, the designated contractor would implement VHP AMM-68, VHP AMM-69, and VHP AMM-71 for dust control and to minimize PM<sub>10</sub>, and PM<sub>2.5</sub> emissions. Plastic covers (VHP AMM-68) would limit the amount of dust swept into the air by any wind. VHP AMM-69 and VHP AMM-71 would minimize the disturbed area, and thus the amount of disturbed dust that could become particulate matter.

The Proposed Project would not include any ongoing operational activities; thus, this analysis focuses on short-term emissions of criteria air pollutants and ozone precursors associated with equipment operation during geotechnical investigations.

Exhaust emissions from heavy-duty equipment use and fugitive dust emissions from earth moving activities were quantified based on anticipated equipment type and duration of activities, as described above. Average daily emissions were compared to BAAQMD's average daily thresholds. For a detailed summary of model inputs, emissions factors, and emissions modeling, refer to



Appendix D, Air Quality/GHG Emissions Data. Table 3.4-3 details the emissions that would result from the Proposed Project's investigation activities.

**Table 3.4-3. Equipment-Related Emissions of Criteria Air Pollutants**

Emission Source	Average Daily Emissions (pounds/day)			
	ROG	NO <sub>x</sub>	PM <sub>10</sub> (exhaust)	PM <sub>2.5</sub> (exhaust)
<b>2025 Investigations</b>				
Off-Road Equipment	0.7	7.0	0.2	0.2
On-Road Mobile Sources	0.3	1.7	0.2	0.2
Helicopter	6.3	25.9	0.7	0.7
Boat/Barge	0.9	0.2	0.1	0.1
<b>2025 Total</b>	<b>8.3</b>	<b>34.8</b>	<b>1.2</b>	<b>1.2</b>
<b>2026 Investigations</b>				
Off-Road Equipment	0.6	6.1	0.2	0.2
On-Road Mobile Sources	0.3	1.5	0.2	0.2
Helicopter	5.5	22.8	0.6	0.6
Boat/Barge	0.8	0.1	0.1	0.1
<b>2026 Total</b>	<b>7.3</b>	<b>30.6</b>	<b>1.1</b>	<b>1.0</b>
Thresholds of Significance	54	54	82	54
Exceed?	No	No	No	No

Key:

NO<sub>x</sub> = oxides of nitrogen

PM<sub>2.5</sub> = respirable particulate matter with an aerodynamic diameter of 2.5 micrometers or less

PM<sub>10</sub> = respirable particulate matter with an aerodynamic diameter of 10 micrometers or less

ROG = reactive organic gas

As shown in Table 3.4-3 average daily emissions for all modeled criteria air pollutants and ozone precursors would not exceed BAAQMD's thresholds of significance; therefore, Proposed Project-generated emissions of ROG, NO<sub>x</sub>, and exhaust particulate matter would not result in a substantial contribution to the nonattainment status of the region. Furthermore, as shown in Table 2-5, the Proposed Project would result in a total of approximately 16 daily round trips (32 individual daily trips), which, in consideration of hourly traffic volume increases, would not combine with existing intersection volumes to result in more than 44,000 vehicles per hour at any one signalized intersection, i.e., the Proposed Project is below the BAAQMD's screening criteria for localized CO hotspots, discussed above.<sup>27</sup> Additionally, there would be no long-term increase in vehicular traffic that could lead to CO hotspots, therefore the Proposed Project would not result in impacts associated with CO Hotspots.

Regarding fugitive dust emissions, ground-disturbing activities such as drilling and boring, as well as the movement of vehicles on unpaved roads, could contribute particulate matter into the local atmosphere. No material off-hauling would occur, the only soil that would be hauled off-site

<sup>27</sup> There are no signalized intersections on SR-152 within or in close proximity to the Proposed Project study area.



would be soil and rock samples, both of which would be contained and covered. The BAAQMD has not established a quantitative threshold for fugitive dust emissions; instead, the BAAQMD states that projects that incorporate all applicable BMPs listed in Table 5-2 of the BAAQMD CEQA Guidelines for fugitive dust control during short-term emissions-generating activities (i.e., geotechnical investigation activities), especially when activities are located near sensitive communities, would have a less-than significant impact related to fugitive dust emissions. The Proposed Project includes implementation of all applicable BMPs as part of compliance with Valley Water's BMP AQ-1, which requires implementation of BAAQMD's dust control measures (described in Section 2.4.5). Therefore, fugitive dust emissions associated with use of vehicles, heavy equipment and a helicopter would also not exceed BAAQMD's pollutant thresholds or result in a substantial contribution to the nonattainment status of the region. The proposed geotechnical investigation activities would not result in a cumulatively considerable net increase of any criteria pollutant for which the region that includes the Proposed Project study area is in non-attainment. This impact would be **less than significant**. No mitigation is required.

### ***Impact AQ-3***

#### ***Would the project expose sensitive receptors to substantial pollutant concentrations?***

Increased concentrations TACs can result in health-related impacts to sensitive receptors. Sources of geotechnical investigation activity-related TACs potentially affecting sensitive receptors include off-road diesel-powered equipment and associated diesel PM emissions. As discussed above, the Proposed Project does not include any operational activities; thus, this analysis focuses on diesel PM (i.e., PM<sub>2.5</sub> exhaust) emissions from short-term geotechnical investigation activities, the primary TAC of concern. When evaluating TAC concentrations and associated health risks, the primary factors influencing risk exposure include duration of exposure and proximity of sources to receivers, as health risk increases with increased exposure duration and pollutant concentrations reduce with increasing distance from the source. The BAAQMD has adopted project-level and cumulative-level health-based thresholds for TACs because an individual project can result in health risk exposure that contributes to regional background risk exposure- both thresholds are evaluated herein.

While BAAQMD provides qualitative screening criteria for the purpose of evaluating operational stationary and mobile TAC sources, BAAQMD does not provide guidance on when short-term emissions (such as those that would be generated by the Proposed Project) should be quantified. In accordance with guidance from OEHHA, it is not recommended to assess health risks quantitatively from sources with exposure of two months or less (OEHHA 2015).

The anticipated duration of all investigation activities would be approximately eight working months, over the course of 11 months (e.g., August through November 2025, June through October 2026). However, as described above, health risk exposure is determined based on the exposure duration at individual receptors exposed to a TAC source for extended periods of time. For the Proposed Project, this means diesel PM exhaust from equipment used during investigation activities at individual test sites affecting a nearby receptor. In total, investigation activities would



occur at 181 different activity areas over the course of a total of up to 11 months, with drill rig crews moving through each activity area, completing investigations in a systematic approach, one by one. This means that to complete investigations at 181 activity areas, equipment use would move from area to the next, spending much less time than 11 months at any single activity area. Thus, it would not be accurate to evaluate the Proposed Project's health-related impacts on a sensitive receptor resulting from the duration of overall investigation activities. In contrast, TAC exposure should be based on the anticipated duration of investigation activities at any single test site.

The anticipated duration of investigation activities can be characterized into the number of drill rig days. That is, an estimate of the number of days that a drill rig would be used (see Table 2-6). If more drill rig crews become available then additional investigations can occur simultaneously (at different activity areas), reducing the amount of drill rig days and overall investigation activity duration. Using the drill rig days factor and the anticipated work schedule from Table 2-6, approximate durations of activities at each activity area were calculated to determine the number of hours of investigation activities at one individual boring/test pit activity area. For the calculated rates by each activity type, refer to Activity Rate Calculation sheet in Appendix D. Based on this assessment, activities at any one activity area would range from as short as less than one work day (i.e., 10 hours/activity area for Auger/Rotary Wash Drilling) to as long as 5.3 work days (i.e., 58 hours/site for Rock Core Drilling) at any one activity area. TAC-generating activities would not occur at any single location for more than a few days at a time. Further, Proposed Project-generated emissions of diesel PM, as shown in Table 3.4-3, are substantially below the BAAQMD thresholds. The nearest residential sensitive receptor to an activity area (A-20-104) is located approximately 385 feet away. Considering the relatively low levels of diesel PM emissions that would be generated by investigations, the relatively short duration of diesel PM-emitting equipment operation at any one activity area, and the highly dispersive properties of diesel PM, activity-related TAC emissions would not expose sensitive receptors to an incremental increase in cancer risk that exceed BAAQMD thresholds of significance.

The contribution of a project's air emissions to regional air quality impact is, by its nature, a cumulative effect and thus, individual projects can contribute to cumulative risk. Regarding cumulative risk and PM<sub>2.5</sub> concentrations, BAAQMD provides screening level data on existing TAC and PM<sub>2.5</sub> emissions from stationary sources and mobile sources, in the Stationary Source Screening Map and Mobile Source Screening Map (BAAQMD 2022b, BAAQMD 2023). While data is available, it is not refined to the project level such that accurate risk values at individual receptors can be determined. This is primarily because risk estimates were conducted at a regional scale using generalized data and represent emissions levels at the facility, not nearby receptors. Nonetheless, the resources were reviewed. Regarding stationary sources, a polygon was drawn around the Proposed Project study area near the intersection of Kaiser Aetna Road (representing the approximate center of the proposed activity areas) and an 8-mile buffer was drawn, which is used by the tool to identify permitted stationary sources. No sources were returned using the Stationary Source Screening Map. SR-152 is the closest major roadway to the Proposed Project



study area; however, this roadway was not included in the BAAQMD's Mobile Source Screening Map tool, thus, no data is available for this roadway. Based on these available tools, there are no known substantial TAC sources contributing to cumulative risk exposure in the Proposed Project study area.

Considering that project-level TAC concentrations would be minimal, not exceeding the project-level risk thresholds, and would reduce in concentration with increasing distance from the sources, combined with the fact that project-generated sources would be temporary in any one activity area (i.e., a matter of hours at any single investigation site), the Proposed Project would not result in a considerable contribution to the cumulative risk at any single receptor location.

Thus, activity-related TAC emissions would not expose sensitive receptors to an incremental increase in cancer risk that exceeds BAAQMD's threshold of 10 in 1 million for carcinogenic risk, PM<sub>2.5</sub> concentrations above 0.3 µg/m<sup>3</sup>, or noncancer hazard index above 1.0 at the project-level, or result in cumulatively considerable contribution to the existing cumulative risk levels in the Proposed Project study area. Therefore, this impact would be **less than significant**. No mitigation is required.

#### ***Impact AQ-4***

##### ***Would the project result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?***

The occurrence and severity of odor impacts depends on numerous factors, including: the nature, frequency, and intensity of the source; wind speed and direction; and the sensitivity of the affected receptors. While offensive odors rarely cause any physical harm, they can still be very unpleasant, leading to considerable distress among the public and often generating citizen complaints to local governments and regulatory agencies.

The predominant source of power for vehicles and heavy equipment proposed to be used as part of the Proposed Project would be gasoline or diesel engines and the helicopter that would be used to support certain activities, fueled by aviation fuel (e.g., Jet A fuel). The generation of these odor emissions would vary greatly on a day-to-day basis depending on the type of investigation activity and local atmospheric conditions. The odors would be limited to the investigation period and would be temporary (i.e., typically no more than two days at any one activity area over a period of eight to 11 months). The Proposed Project does not include an operational phase and therefore the Proposed Project would not result in operational odor impacts. Because odors associated with Proposed Project activities would occur intermittently throughout the geotechnical investigation efforts over a 11 working month period, the Proposed Project would not generate odors adversely affecting a substantial number of people, and impacts would be **less than significant**. No mitigation is required.

Once the temporary geotechnical investigation activities are complete, no long-term criteria air pollutants, ozone precursors, TACs or odor sources would occur; therefore, there would be **no impact**. No mitigation is required.





## Mitigation Measures

No mitigation measures are required.

### 3.5 Biological Resources

An evaluation of potential impacts to sensitive biological resources within the Proposed Project study area is based on the biological conditions within the Proposed Project study area detailed in Appendix E, Biological Resources, which includes the following:

- Attachment 1 – Biological Resources Assessment Report
  - Exhibit 1A – USFWS, California Natural Diversity Database (CNDDDB), and California Native Plant Society (CNPS) Database Results
  - Exhibit 1B – Botanical Special-Status Species Assessment
  - Exhibit 1C – California Red-legged Frog Site Assessment
  - Exhibit 1D – California Tiger Salamander Site Assessment
  - Exhibit 1E – Special-Status Species and Other Species of Interest
- Attachment 2 – Terrestrial Habitat Mapping
  - Exhibit 2A – Vegetation Communities and Other Habitat Map Figures
  - Exhibit 2B – Vegetation Alliances and Associations and Other Land Cover Types in the Proposed Project study area by Project Component
- Attachment 3 – Aquatic Resources Delineation
  - Exhibit 3A – Wetland Determination Data Forms
  - Exhibit 3B – Plant List
  - Exhibit 3C – Soils Maps and Table
  - Exhibit 3D – Delineation Map – Waters of United States
  - Exhibit 3E – Delineation Map – Waters of State
  - Exhibit 3F – Photos
- Attachment 4 – 2024 Eagle Survey Results Technical Memorandum
  - Exhibit 4A – Figures
  - Exhibit 4B – Workplan for Nesting Bald and Golden Eagle Surveys
  - Exhibit 4C – 2024 Nesting Bald and Golden Eagle Survey Memorandums

For the purposes of this analysis, sensitive biological resources are defined as follows:



- Aquatic resources (wetland, stream, and open water features) and associated riparian habitats
- Sensitive natural communities as defined by CDFW
- Critical Habitats designated by USFWS or National Marine Fisheries Service (NMFS)
- Nesting birds and raptor nests in or near the Proposed Project study area, pursuant to Federal or State law
- Special-status species, which for the purposes of this analysis, are defined as follows:
  - Species listed or proposed for listing as threatened or endangered under the Federal ESA (50 CFR 17.12 [listed plants], 50 CFR 17.11 [listed animals]) and various notices in the Federal Register (FR) (proposed species)
  - Species that are candidates for possible future listing as threatened or endangered under the ESA (61 FR 40 7596–7613)
  - Species listed or proposed for listing as threatened or endangered under the California Endangered Species Act (CESA) (14 CCR Section 670.5)
- Species that meet the definitions of rare, threatened or endangered under CEQA (State CEQA Guidelines, §15380)
- Animal species, subspecies, or distinct populations designated as Species of Special Concern (SSC) by the CDFW, as identified in its “Special Animals List”
  - Plants listed as rare or endangered under the California Native Plant Protection Act (California Fish and Game Code [FGC] Section 1900 *et seq.*)
- Plants assigned to one of the following California Rare Plant Ranks by the CNPS:
  - 1A – Presumed extirpated in California and either rare or extinct elsewhere
  - 1B – Rare, threatened, or endangered in California and elsewhere
  - 2A – Presumed extirpated in California, but more common elsewhere
  - 2B – Rare, threatened, or endangered in California, but more common elsewhere
  - 3 – Plants about which more information is needed
  - 4 – Plants of limited distribution
    - Animal species, subspecies, or distinct populations designated as SSC, as identified in its “Special Animals List”
    - Animals designated as Fully Protected species in California (FGC Sections 3511 [birds], 4700 [mammals], and 5050 [reptiles and amphibians])
- Animals determined to be Species of Interest based on communications with CDFW, including comments on the Pacheco Reservoir Expansion Project Draft EIR, that requested



that additional species with local or cultural significance be included in relevant CEQA analysis

### **3.5.1 Environmental Setting**

This section describes biotic conditions, including sensitive biological resources, that have potential to occur in the Proposed Project study area. The Proposed Project study area encompasses approximately 55 acres and includes all proposed activity areas associated with the Proposed Project as described in Chapter 2 (e.g., access routes, borings, test pits). In addition to detailed information on biological resources provided in Appendix E, this section also provides a general discussion of relevant abiotic and physical characteristics as they relate to biological resources, such as geographic locations/landmarks, geologic features, climate, topography, hydrology, and land use conditions that are present in and near the Proposed Project study area.

#### **Physical Setting**

The Proposed Project study area is located within the Diablo Range portion of the Coast Ranges Geomorphic Province and is characterized by northwest-trending mountain ranges and valleys bordered on the west by the Pacific Ocean and on the east by the Great Valley Geomorphic Province. Other than Pacheco Reservoir, there are no perennial water features within the Proposed Project study area. The existing North Fork Dam and shoreline of Pacheco Reservoir create a sharp visual contrast to the surrounding hills and valleys. Land use in and surrounding the Proposed Project study area consists of private and publicly owned properties (e.g., Henry W. Coe State Park) comprised of a rural and pastoral landscape of open space, consisting of a few private ranches and residences. Predominant vegetation communities include oak woodlands, grassland, and chaparral communities. With the exception of land owned by PPWD, the land surrounding North Fork Dam and Pacheco Reservoir is privately owned and primarily used for ranching and grazing.

The Proposed Project study area is located within the Pacheco Pass portion of the Diablo Range. Elevations range from a high of nearly 960 feet above msl in the upper portions of the Proposed Project study area to a low of approximately 370 feet above msl near SR-152. The Proposed Project study area is characterized by rugged topography with steep, mostly northeast- and southwest-facing slopes.

Summers in Santa Clara County are generally rainless and range from warm to hot, with cool winters. The average annual precipitation is approximately 19 inches. Most of the precipitation falls in the winter, during October through April (NOAA Regional Climate Centers 2023).

#### **Biological Setting**

The biological setting section provides an overview of the vegetation communities, aquatic resources, and special-status species present or potentially present in the Proposed Project study



area. The sensitive biological resources identified and analyzed in this section are based on a combination of the desktop reviews and the biological field surveys that were conducted between 2019 and 2024 within the Proposed Project study area and the surrounding PREP study area.

The information sources that were reviewed as part of the desktop reviews included but were not limited to:

- *Pacheco Peak, California* U.S. Geological Survey (USGS) 7.5-minute topographic quadrangle (USGS 2024).
- Aerial photographs of the study area and vicinity (Google 2024)
- USFWS list of endangered and threatened species that may occur in the vicinity of the study area (USFWS 2024a) (Exhibit 1A of Attachment 1, Biological Resources Assessment Report in Appendix E)
- USFWS Critical Habitat Mapper (USFWS 2024b)
- National Wetland Inventory map (USFWS 2024c)
- CNDDDB plant and wildlife records (CDFW 2024a) (Exhibit 1A of Attachment 1, Biological Resources Assessment Report in Appendix E) and the CNPS Online Inventory of Rare and Endangered Plants (CNPS 2024) records for the *Pacheco Peak, California* USGS 7.5-minute topographic quadrangle and the surrounding quadrangles immediately adjacent (i.e., reviewed 8 quadrangles total) (Exhibit 1A of Attachment 1, Biological Resources Assessment Report in Appendix E)
- California Wildlife Habitat Relationships System (CDFW 2014)
- Species and land cover descriptions identified in the Santa Clara Valley Habitat Plan (Valley Habitat Plan, VHP) (SCVHA 2012)
- Information from *The Jepson Manual: Vascular Plants of California* (Baldwin et. al. 2012) including applicable errata and supplements (Jepson Flora Project 2024)
- State and Federally Listed Endangered, Threatened and Rare Plants of California (CDFW 2024b)
- Special Vascular Plants, Bryophytes, and Lichens List (CDFW 2024c)
- Special Animals List (CDFW 2024d)
- State and Federally Listed Endangered and Threatened Animals of California (CDFW 2024e)
- National Oceanic and Atmospheric Administration's NMFS Species and Habitat App (NOAA Fisheries 2024a), ESA Critical Habitat Mapper (NOAA Fisheries 2024b) and Essential Fish Habitat Mapper (NOAA Fisheries 2024c)
- CDFW Biogeographic Information and Observation System (BIOS 6 Viewer) (CDFW 2024f)
- Global Biodiversity Information Facility map (GBIF 2024)



The biological surveys that were conducted included vegetation mapping, aquatic resources delineations, inventory and assessment of aquatic organisms (e.g., fish), botanical surveys, and special-status species surveys and habitat assessments. Survey dates, methodology, and detailed results for each of the biological field surveys are described in detail in Appendix E.

### ***Vegetative Communities and Other Land Cover Types***

As shown in Table 3.5-1, 32 vegetation communities have been characterized to the alliance or association level,<sup>28</sup> and four other land cover types have been identified in the 55-acre Proposed Project study area. Fifteen of the vegetation communities, which account for 8.9 acres of the Proposed Project study area, are categorized as sensitive natural communities by CDFW. Sixteen of the other vegetation communities, which account for 31.3 acres of the Proposed Project study area, are not considered sensitive. One vegetation community and four other land cover types not currently described in the Manual of California Vegetation (Sawyer et al. 2009) were documented in the Proposed Project study area and comprise the remaining 14.8 acres of the Proposed Project study area. The other land cover types are not considered to be sensitive natural communities<sup>29</sup> because they are dominated by non-native/invasive species, are non-vegetated, or are sparsely developed rural areas. For the remaining vegetation community (Blue Oak Woodland - *Quercus douglasii*/*Artemisia californica*), there is not enough information available to determine whether it is sensitive but for the purposes of this EIR it is considered sensitive and impacts would be avoided.

Each of the vegetation communities and other land cover types mapped within the Proposed Project study area are listed in Appendix E, Attachment 2, Terrestrial Habitat Mapping with figures illustrating their locations and tables detailing their respective acreages within the overall Proposed Project study area and within each Project component.

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<sup>28</sup> An alliance is a group of associations whose diagnostic species define a set of associations with similar composition reflecting regional to sub-regional climate, substrate, hydrology, moisture/nutrient factors, and disturbance regimes, typically broader than at the association level. An association is often recognized by two or more diagnostic species that are often found in different vegetation layers (Sawyer et al. 2009).

<sup>29</sup> Natural communities with ranks of S1-S3 are considered sensitive as defined by CDFW using NatureServe's Heritage Methodology which assesses communities by their rarity and threats.





**Table 3.5-1. Vegetation Alliances and Associations and Other Land Cover Types in the Proposed Project Study Area**

Alliance <sup>1</sup>	Association <sup>1</sup>	Sensitive Natural Community	Santa Clara Valley Habitat Plan Land Cover Type	Map ID	Area (Acres)
<b>Forests and Woodlands</b>					
California buckeye groves	<i>Aesculus californica</i>	Yes	Mixed evergreen forest	12	0.049
California sycamore woodlands	No Association	Yes	Central California sycamore alluvial woodland and mixed riparian forest and woodland	67	0.057
	<i>Platanus racemosa</i> – <i>Quercus agrifolia</i>	Yes	Central California sycamore alluvial woodland and mixed riparian forest and woodland	67.1	0.012
Coast live oak woodland	<i>Quercus agrifolia</i>	No	Coast live oak forest and woodland	78	0.958
	<i>Quercus agrifolia</i> / <i>Adenostoma fasciculatum</i> – ( <i>Salvia mellifera</i> )	Yes	Coast live oak forest and woodland	78.2	0.057
	<i>Quercus agrifolia</i> / <i>Artemisia californica</i>	Yes	Coast live oak forest and woodland	78.3	0.829
	<i>Quercus agrifolia</i> / grass	No	Coast live oak forest and woodland	78.4	2.578
	<i>Quercus agrifolia</i> / <i>Toxicodendron diversilobum</i>	No	Coast live oak forest and woodland	78.5	0.094
	<i>Quercus agrifolia</i> – <i>Umbellularia californica</i>	Yes	Coast live oak forest and woodland	78.7	3.175
Blue oak woodland	<i>Quercus douglasii</i> / <i>Artemisia californica</i> <sup>2</sup>	No <sup>2</sup>	Blue oak woodland	80.1	1.159
	<i>Quercus douglasii</i> – <i>Aesculus californica</i> / grass	No	Blue oak woodland	80.2	0.224
	<i>Quercus douglasii</i> – <i>Pinus sabiniana</i>	No	Blue oak woodland	80.3	0.829
	<i>Quercus douglasii</i> – <i>Quercus agrifolia</i>	No	Blue oak woodland	80.4	1.511
	<i>Quercus douglasii</i> – Mixed herbaceous	No	Blue oak woodland	80.7	5.331



**Table 3.5-1. Vegetation Alliances and Associations and Other Land Cover Types in the Proposed Project Study Area (cont.)**

Alliance <sup>1</sup>	Association <sup>1</sup>	Sensitive Natural Community	Santa Clara Valley Habitat Plan Land Cover Type	Map ID	Area (Acres)
Valley oak woodland	<i>Quercus lobata</i> – <i>Quercus agrifolia</i> / grass	Yes	Valley oak woodland	84.1	0.387
	<i>Quercus lobata</i> / grass	Yes	Valley oak woodland	84.4	2.151
Goodding's willow – red willow riparian woodlands	<i>Salix laevigata</i> – <i>Salix lasiolepis</i>	Yes	Willow riparian forest and scrub	520.1	0.057
<b>Shrublands</b>					
California sagebrush scrub	<i>Artemisia californica</i> – <i>Diplacus aurantiacus</i>	Yes	Northern coastal scrub/Diablan sage scrub	136.1	0.218
	<i>Artemisia californica</i>	No	Northern coastal scrub/Diablan sage scrub	136.2	1.949
California sagebrush – black sage scrub	<i>Artemisia californica</i> – <i>Salvia mellifera</i>	No	Northern coastal scrub/Diablan sage scrub	138	0.448
Coyote brush scrub	<i>Baccharis pilularis</i> – <i>Artemisia californica</i>	No	Northern coastal scrub/Diablan sage scrub	151	0.119
California buckwheat	<i>Eriogonum fasciculatum</i>	No	Northern coastal scrub/Diablan sage scrub	203	1.627
Holly leaf cherry – toyon – greenbark ceanothus chaparral	<i>Prunus ilicifolia</i> ssp. <i>ilicifolia</i>	Yes	Northern mixed chaparral/chamise chaparral	525	0.391
	<i>Prunus ilicifolia</i> ssp. <i>ilicifolia</i> – <i>Fraxinus dipetala</i>	Yes	Northern mixed chaparral/chamise chaparral	525.1	0.022
Black sage scrub	<i>Salvia mellifera</i>	No	Northern coastal scrub/Diablan sage scrub	293	0.533
Poison oak scrub	<i>Toxicodendron diversilobum</i>	No	Northern mixed chaparral/chamise chaparral	301	0.281
<b>Herbaceous</b>					
Wild oats and annual brome grasslands	<i>Avena</i> spp. – <i>Bromus</i> spp.	No	California annual grassland	535	13.433
	<i>Avena barbata</i>	No	California annual grassland	535.1	0.855
Yellow star-thistle fields	<i>Centaurea solstitialis</i>	No	California annual grassland	368	0.384
Needle grass – melic grass grassland	No Association	Yes	Non-serpentine native grassland	536	0.007
	<i>Nassella pulchra</i> – <i>Avena</i> spp. – <i>Bromus</i> spp.	Yes	Non-serpentine native grassland	536.1	1.363
	<i>Nassella pulchra</i> – <i>Melica californica</i>	Yes	Non-serpentine native grassland	536.3	0.114



**Table 3.5-1. Vegetation Alliances and Associations and Other Land Cover Types in the Proposed Project Study Area (cont.)**

Alliance <sup>1</sup>	Association <sup>1</sup>	Sensitive Natural Community	Santa Clara Valley Habitat Plan Land Cover Type	Map ID	Area (Acres)
<b>Other Land Cover Types</b>					
Non-vegetated areas <sup>3</sup>	Water (Reservoir)	No <sup>3</sup>	Reservoir	902	12.506
Urban <sup>3</sup>	Urban (Barren)	No <sup>3</sup>	Barren	901	0.506
	Urban (Rural residential)	No <sup>3</sup>	Rural residential	901.1	0.631
	Urban (Urban-Suburban)	No <sup>3</sup>	Urban-suburban	901.3	0.042
<b>TOTAL</b>					<b>54.887</b>

Notes:

<sup>1</sup> A Manual of California Vegetation, 2nd Edition (Sawyer et al. 2009).

<sup>2</sup> Not described in A Manual of California Vegetation or in Holland (1986). Insufficient data to determine sensitivity but considered sensitive for the purposes of this Proposed Project.

<sup>3</sup> Not described in A Manual of California Vegetation and dominated by non-native species, or agriculture, non-vegetated, or urban areas.



## Aquatic Resources

A total of 12.568 acres of potentially jurisdictional waters of the State are located within the 55-acre Proposed Project study area. Of these, 12.364 acres are considered potentially jurisdictional waters of the United States. The Proposed Project study area contains 12.474 acres of other waters, consisting of 0.043 acre (107 feet) of intermittent streams, 0.110 acre (1,904 feet) of ephemeral streams, and 12.321 acres of reservoir. All other waters of the state are under the jurisdiction of both the CCRWQCB and CDFW.

Approximately 0.094 acre of wetland features are present consisting of seasonal wetland (Table 3.5-2). The 0.094 acre of seasonal wetlands is under the jurisdiction of the CCRWQCB because they are located upslope of the full-pool elevation of the reservoir; for the purposes of this EIR, full pool elevations is defined as the spillway elevation or 472 feet above msl. As a result, this 0.094 acre of seasonal wetlands do not have a perennial or near perennial surface connection to the reservoir. Per current USACE guidance (see Section 3.5.2), these wetlands are not considered USACE-jurisdictional. Aquatic resources in the Proposed Project study area are presented in Table 3.5-2.

**Table 3.5-2. Aquatic Resources in the Proposed Project Study Area**

Resource Type	Waters of the State (portion also considered Waters of the U.S.) <sup>1</sup>	
	Area (acres)	Length (feet)
<b>Other (Non-Wetland) Waters</b>		
Riverine Intermittent Streams (RVI)	0.043 (0.043)	107 (107)
Riverine Ephemeral Streams (RVE)	0.110 (0.000)	1,904 (0)
Reservoirs (RES) <sup>2</sup>	12.321 (12.321)	-
<b>Subtotal Other Waters</b>	<b>12.474 (12.364)</b>	<b>2,011 (107)</b>
<b>Wetlands</b>		
Seasonal Wetland (SWD) <sup>3</sup>	0.094 (0.000)	-
<b>Subtotal Wetlands</b>	<b>0.094 (0.000)</b>	-
<b>Total Aquatic Resources in Study Area</b>	<b>12.568 (12.364)</b>	<b>2,011 (107)</b>

Notes:

<sup>1</sup> Acreages in parentheses are considered potentially jurisdictional to both the United States and the state (CCRWQCB and CDFW) pending an aquatic resources delineation verification by the USACE.

<sup>2</sup> Reservoir shoreline consists of areas above the ordinary high-water mark of the existing reservoir and the full-pool elevation of 472 feet above mean sea level. This acreage does not include other wetlands/other water types.

<sup>3</sup> Due to being located above the full-pool line of the reservoir, the 0.094-acre of seasonal wetland is only CCRWQCB-jurisdictional. It is not CDFW jurisdictional due to a lack of a defined bed and bank, and it is not USACE jurisdictional due to a lack of a perennial or near perennial surface connection to the reservoir.

Key:

CCRWQCB = Central Coast Regional Water Quality Control Board

CDFW = California Department of Fish and Wildlife

USACE = U.S. Army Corps of Engineers



Aquatic resources mapped within the Proposed Project study area are listed in Appendix E, Attachment 3, Aquatic Resources Delineation, with figures illustrating their locations and tables detailing their respective acreages within the overall Proposed Project study area and within each Project component.

### ***Special-status Species***

Based on the desktop review, 43 special-status plant species, 44 special-status wildlife species and five special-status fish species were analyzed for their potential to occur within the Proposed Project study area. Out of the 43 special-status plant species, 25 species were determined to have potential to occur based on the vegetation communities identified in the Proposed Project study area as detailed in Appendix E, Attachment 1, Biological Resources Assessment Report. Out of the 44 special-status wildlife species and other species of interest, 39 terrestrial wildlife species were determined to have potential to occur based on the vegetation communities, habitat present, and results of species surveys in the Proposed Project study area (Appendix E). All five special-status fish species were determined to have potential to occur within the Proposed Project study area as described in Exhibit 1E of Appendix E.

#### Special-Status Plants

As described in Exhibit 1B, Botanical Special-Status Species Assessment, in Attachment 1, Biological Resources Assessment Report in Appendix E, protocol-level plant surveys were conducted in the Proposed Project study area from 2020 to 2023 with a focus on the 26 special-status plant species determined to have potential to occur on site (Table 3.5-3). Of these 26 species, two are known to occur within the Proposed Project study area based on the results of the surveys: Hall's bush-mallow (*Malacothamnus arcuatus* var. *elmeri* [*syn. M. hallii*]) and woodland woollythreads (*Monolopia gracilens*). The Proposed Project study area partially-overlaps with three mapped locations of Hall's bush-mallow that support 395 individuals from a population and mapped area of woodland woollythreads population that was last observed to support 61 individuals. Descriptions of these two species are provided in Exhibit 1B. In addition, all plant species noted during botanical surveys were identified to the lowest taxonomic level necessary to determine rarity status, so any additional rare plant species not on the potential-to-occur list could be identified.





**Table 3.5-3. Special-Status Plant Species with Potential to Occur in the Proposed Project Study Area**

Common Name Scientific Name	Federal / State / CNPS Status <sup>1</sup>	Habitat	Elevation	Bloom	Potential to Occur in Proposed Project Study Area
Santa Clara thorn-mint ( <i>Acanthomintha lanceolata</i> )	–/–/4.2	Chaparral, cismontane woodland, coastal scrub, talus, rocky slopes, outcrops. Often in serpentinite.	260–3935 feet.	Mar–Jun.	<b>High<sup>2</sup>.</b> The Proposed Project study area is within the known range of this plant species. There is potential suitable habitat for this plant species within the Proposed Project study area in the form of chaparral and cismontane woodland. There are no historical CNDDDB occurrences of this plant species within 5 miles of the Proposed Project study area. However, there are two modern collections of this plant species within 5 miles of the Proposed Project study area. This species has also been identified both north and south of Pacheco Pass during previous efforts for the larger Pacheco Reservoir Expansion Project. On a scale of 1.0 to 6.5, this plant species has a mean ultramafic affinity of 3.4: a strong indicator. It is included within a group of 123 taxa with 65 to 74 percent (%) of their occurrences on ultramafics (such as serpentinite). Serpentine soils and serpentinite specific vegetation communities are not present in the study area.
Howell's onion ( <i>Allium howellii</i> var. <i>howellii</i> )	–/–/4.3	Valley and foothill grassland (often clay or serpentinite).	160–7,220 feet.	Mar–Apr.	<b>Absent.</b> The Proposed Project study area is outside of the known range of this plant species. There is no potential suitable habitat for this plant species within the Proposed Project study area. There are no historical CNDDDB records of this plant species within 5 miles of the Proposed Project study area.



**Table 3.5-3. Special-Status Plant Species with Potential to Occur in the Proposed Project Study Area (cont.)**

Common Name Scientific Name	Federal / State / CNPS Status <sup>1</sup>	Habitat	Elevation	Bloom	Potential to Occur in Proposed Project Study Area
Parry's rough tarplant ( <i>Centromadia parryi</i> ssp. <i>rudis</i> )	–/–/4.2	Valley and foothill grassland (vernally mesic, alkaline), vernal pools, sometimes disturbed sites, roadsides	0–1,650 feet.	May– October (November).	<b>High<sup>2</sup>.</b> Potential habitat for this plant species is present in the northern portion of the Proposed Project study area on the west side of the North Fork Pacheco Creek. This species has been identified both north and south of Pacheco Pass during previous efforts for the larger Pacheco Reservoir Expansion Project. One occurrence of 17 plants was identified within 250 feet of the Proposed Project study area during 2020 surveys. There are no historical CNDDDB occurrences of this plant species within 5 miles of the Proposed Project study area.
Brewer's clarkia ( <i>Clarkia breweri</i> )	–/–/4.2	Chaparral, cismontane woodland, coastal scrub. Often in serpentine soils.	705–3,660 feet.	Apr–Jun.	<b>Moderate<sup>2</sup>.</b> The Proposed Project study area is within the known range of this plant species and there is potential suitable habitat within the Proposed Project study area. There are no historical CNDDDB occurrences of this plant species within 5 miles of the Proposed Project study area. On a scale of 1.0 to 6.5, this plant species has a mean ultramafic affinity of 3.8: a broad endemic/strong indicator. It is included within a group of 71 taxa with 75–84% of their occurrences on ultramafics (such as serpentine). Serpentine soils and serpentine specific vegetation communities are not present in the Proposed Project study area.
Santa Clara red ribbons ( <i>Clarkia concinna</i> ssp. <i>automixa</i> )	–/–/4.2	Chaparral, cismontane woodland.	295–4,920 feet.	Apr–Jun.	<b>Moderate.</b> The Proposed Project study area is within the known range of this plant species. There is potential suitable habitat for this plant species within the Proposed Project study area in the form of chaparral and cismontane woodland. Species has been observed at Palassou Ridge (approximately 15 miles west of the Proposed Project study area) in 2004 by Valley Water botanists. There are no historical CNDDDB occurrences of this plant species within 5 miles of the Proposed Project study area.



**Table 3.5-3. Special-Status Plant Species with Potential to Occur in the Proposed Project Study Area (cont.)**

Common Name Scientific Name	Federal / State / CNPS Status <sup>1</sup>	Habitat	Elevation	Bloom	Potential to Occur in Proposed Project Study Area
Lewis' clarkia ( <i>Clarkia lewisii</i> )	–/–/4.3	Broadleafed upland forest, closed-cone coniferous forest, chaparral, cismontane woodland, coastal scrub.	95–3,920 feet.	May–Apr.	<b>Moderate.</b> The Proposed Project study area is within the northernmost extent of the range of this plant species. There is potential suitable habitat for this plant species within the Proposed Project study area in the form of cismontane woodland and chaparral. There are no historical CNDDDB occurrences of this plant species within 5 miles of the Proposed Project study area.
Small-flowered morning-glory ( <i>Convolvulus simulans</i> )	–/–/4.2	Openings in chaparral, coastal scrub, valley, and foothill grassland; clay, serpentinite seeps.	95–2,430 feet.	Mar–Jul.	<b>Low.</b> The Proposed Project study area is outside the known range of this plant species, but there is potential suitable habitat within the Proposed Project study area. There are no historical CNDDDB occurrences of this plant species within 5 miles of the Proposed Project study area. On a scale of 1.0 to 6.5, this plant species has a mean ultramafic affinity of 3.7: a transition from a broad endemic to a strong indicator. It is included within a group of 71 taxa with 75 to 84% of their occurrences on ultramafics (such as serpentinite). Serpentine soils and serpentinite specific vegetation communities are not present in the Proposed Project study area.
Rattan's cryptantha ( <i>Cryptantha rattanii</i> )	–/–/4.3	Cismontane woodland, riparian woodland, valley, and foothill grassland.	500–3,000 feet.	Apr–Jul.	<b>Low.</b> The Proposed Project study area is outside the known range of this plant species, but there is potential suitable habitat within the Proposed Project study area. There are no historical CNDDDB occurrences of this plant species within 5 miles of the Proposed Project study area.



**Table 3.5-3. Special-Status Plant Species with Potential to Occur in the Proposed Project Study Area (cont.)**

Common Name Scientific Name	Federal / State / CNPS Status <sup>1</sup>	Habitat	Elevation	Bloom	Potential to Occur in Proposed Project Study Area
Hospital Canyon larkspur ( <i>Delphinium californicum</i> ssp. <i>interius</i> )	–/–/1B.2	Openings in chaparral, cismontane woodland (mesic), coastal scrub.	635–3,595 feet.	Apr–Jun.	<b>High<sup>2</sup>.</b> The Proposed Project study area is outside the known range of this plant species. There is potential suitable habitat for this plant species within the Proposed Project study area in the form of chaparral and cismontane woodland. This species has been identified both north and south of Pacheco Pass during previous efforts for the larger Pacheco Reservoir Expansion Project. There is one CNDDDB occurrence of this plant species within 5 miles of the Proposed Project study area.
Santa Clara Valley dudleya ( <i>Dudleya abramsii</i> ssp. <i>setchellii</i> )	E/–/1B.1	Rocky outcrops within cismontane woodland, valley, and foothill grassland, predominantly in serpentine.	195–1,495 feet.	Apr–Oct.	<b>Moderate.</b> The Proposed Project study area is within the known range of this plant species. There is potential suitable habitat within the Proposed Project study area in the form of rocky outcrops within valley and foothill grassland and cismontane woodland. There is one CNDDDB occurrences of this plant species within 5 miles of the Proposed Project study area. On a scale of 1.0 to 6.5, this plant species has a mean ultramafic affinity of 6.1: a strict endemic. It is included within a group of 164 taxa with 95% of their occurrences on ultramafics (such as serpentine). Serpentine soils and serpentine specific vegetation communities are not present in the Proposed Project study area.
Hoover's button-celery ( <i>Eryngium aristulatum</i> var. <i>hooveri</i> )	–/–/1B.1	Vernal pools, seasonal wetlands, occasionally alkaline.	0–150 feet.	Jun–Jul.	<b>Low<sup>2</sup>.</b> The Proposed Project study area is outside of the known range of this plant species. Suitable habitat is present for the species in the Proposed Project study area. Species was previously detected within the vicinity of San Felipe Lake during previous efforts for the Pacheco Reservoir Expansion Proposed Project. There are no historical CNDDDB occurrences of this plant species within 5 miles of the Proposed Project study area.



**Table 3.5-3. Special-Status Plant Species with Potential to Occur in the Proposed Project Study Area (cont.)**

Common Name Scientific Name	Federal / State / CNPS Status <sup>1</sup>	Habitat	Elevation	Bloom	Potential to Occur in Proposed Project Study Area
Spiny-sepaed button- celery ( <i>Eryngium spinosepalum</i> )	–/–/1B.2	Valley and foothill grassland, vernal pools.	260–3,200 feet.	Apr–Jun.	<b>High<sup>2</sup>.</b> The Proposed Project study area is outside of the known range of this plant species. Suitable habitat is present for the species in the Proposed Project study area. This species has been identified just south of Pacheco Pass during previous efforts for the larger Pacheco Reservoir Expansion Project in an area that is within 250 feet of the Proposed Project study area. There are no historical CNDDB occurrences of this plant species within 5 miles of the Proposed Project study area.
San Joaquin spearscale ( <i>Extriplex joaquinana</i> )	–/–/1B.2	Chenopod scrub, meadows and seeps, playas, valley, and foothill grassland; alkaline habitats.	0–2,740 feet.	Apr–Oct.	<b>Low<sup>2</sup>.</b> The Proposed Project study area is outside of the known range of this plant species. Suitable habitat is present for the species in the Proposed Project study area. Species was previously detected within the vicinity of San Felipe Lake during previous efforts for the larger Pacheco Reservoir Expansion Project. There are no historical CNDDB occurrences of this plant species within 5 miles of the Proposed Project study area.



**Table 3.5-3. Special-Status Plant Species with Potential to Occur in the Proposed Project Study Area (cont.)**

Common Name Scientific Name	Federal / State / CNPS Status <sup>1</sup>	Habitat	Elevation	Bloom	Potential to Occur in Proposed Project Study Area
Stinkbells ( <i>Fritillaria agrestis</i> )	–/–/4.2	Chaparral, cismontane woodland, pinyon and juniper woodland, valley, and foothill grassland; clay substrates, sometimes serpentinite.	30–5,100 feet.	Mar–Jun.	<b>Moderate</b> <sup>2</sup> . The Proposed Project study area is within the known range of this plant species. There is potential suitable habitat for this plant species within the Proposed Project study area in the form of chaparral, cismontane woodland, and valley and foothill grassland. There are no historical CNDDDB occurrences of this plant species within 5 miles of the Proposed Project study area. Species has been observed in the eastern portion of the Pacheco Reservoir Expansion Project study area east of the Proposed Project study area. On a scale of 1.0 to 6.5, this plant species has a mean ultramafic affinity of 2.7: a strong indicator. It is included within a group of 123 taxa with 65 to 74% of their occurrences on ultramafics (such as serpentinite). Serpentine soils and serpentinite specific vegetation communities are not present in the Proposed Project study area.
Phlox-leaf serpentine bedstraw ( <i>Galium andrewsii</i> ssp. <i>gatense</i> )	–/–/4.2	Chaparral, cismontane woodland, lower montane coniferous forest; rocky, serpentinite substrates.	490–4,755 feet.	Feb–Apr.	<b>Moderate</b> <sup>2</sup> . The Proposed Project study area is outside the known range of this plant species. There is potential suitable habitat for this plant species within the Proposed Project study area in the form of chaparral and cismontane woodland. There are no historical CNDDDB occurrences of this plant species within 5 miles of the Proposed Project study area. Species has been observed in the eastern portion of the study area for the larger Pacheco Reservoir Expansion Project east of the Proposed Project study area. On a scale of 1.0 to 6.5, this plant species has a mean ultramafic affinity of 5.1: a broad endemic. It is included within a group of 82 taxa with 85 to 94% of their occurrences on ultramafics (such as serpentinite). Serpentine soils and serpentinite specific vegetation communities are not present in the Proposed Project study area.





**Table 3.5-3. Special-Status Plant Species with Potential to Occur in the Proposed Project Study Area (cont.)**

Common Name Scientific Name	Federal / State / CNPS Status <sup>1</sup>	Habitat	Elevation	Bloom	Potential to Occur in Proposed Project Study Area
Coastal Iris ( <i>Iris longipetala</i> )	–/–/4.2	Coastal prairie, lower montane coniferous forest, meadows, and seeps; mesic habitats.	0–1,970 feet.	Mar–May.	<b>Absent.</b> The Proposed Project study area is outside of the known range of this plant species. The Proposed Project study area lacks suitable habitat for this plant species. There are no historical CNDDDB occurrences of this plant species within 5 miles of the Proposed Project study area.
Serpentine leptosiphon ( <i>Leptosiphon ambiguus</i> )	–/–/4.2	Cismontane woodland, coastal scrub, valley, and foothill grassland, usually serpentinite.	390–3,705 feet.	Mar–Jun.	<b>Low.</b> The Proposed Project study area is within the known range of this plant species. There is potential suitable habitat for this plant species within the Proposed Project study area in the form of valley and foothill grassland and cismontane woodland. There are no historical CNDDDB occurrences of this plant species within 5 miles of the Proposed Project study area. On a scale of 1.0 to 6.5, this plant species has a mean ultramafic affinity of 6.1: a strict endemic. It is included within a group of 164 taxa with 95% of their occurrences on ultramafics (such as serpentine). Serpentine soils and serpentine specific vegetation communities are not present in the Proposed Project study area.
Large-flowered leptosiphon ( <i>Leptosiphon grandiflorus</i> )	–/–/4.2	Typically found in sandy soils within coastal strand, foothill woodland, northern coastal scrub, coastal sage scrub, closed-cone pine forest, valley grassland, or coastal prairie habitats.	0–4,000 feet.	Apr–Aug.	<b>Moderate<sup>2</sup>.</b> The Proposed Project study area is within the range of the species. This species has been identified both north and south of Pacheco Pass during previous efforts for the larger Pacheco Reservoir Expansion Project but outside the Proposed Project study area. There are no historical CNDDDB occurrences of this plant species within 5 miles of the Proposed Project study area.



**Table 3.5-3. Special-Status Plant Species with Potential to Occur in the Proposed Project Study Area (cont.)**

Common Name Scientific Name	Federal / State / CNPS Status <sup>1</sup>	Habitat	Elevation	Bloom	Potential to Occur in Proposed Project Study Area
Mt. Hamilton coreopsis ( <i>Leptosyne hamiltonii</i> )	–/–/1B.2	Rocky cismontane woodland.	1,800–4,265 feet.	Mar–May.	<b>Absent.</b> The Proposed Project study area is within the known geographic range of this plant species, but the Proposed Project study area lacks the elevational profile within which this plant species is known to occur. All the CNDDDB occurrences of this plant species are between 1,800 to 2,600 feet. Only portions of the highest ridges within the central portion of the Proposed Project study area associated with Pacheco Reservoir and the North Fork of Pacheco Creek exceed 1,000 feet in elevation. The highest point within the Proposed Project study area is 1,275 feet. The Proposed Project study area lacks potential suitable habitat in the form of rocky cismontane woodland. There are no historical CNDDDB occurrences of this plant species within 5 miles of the Proposed Project study area.
Smooth lessingia ( <i>Lessingia micradenia</i> var. <i>glabrata</i> )	–/–/1B.2	Chaparral, cismontane woodland, valley, and foothill grassland; serpentinite substrates, often roadsides.	390–1,380 feet.	Apr–Jun.	<b>Low.</b> The Proposed Project study area is within the known range of this plant species. There is potential suitable habitat for this plant species within the Proposed Project study area in the form of roadsides, valley and foothill grassland, chaparral, and cismontane woodland. There are no historical CNDDDB occurrences within 5 miles of the Proposed Project study area. On a scale of 1.0 to 6.5, this plant species has a mean ultramafic affinity of 5.1: a broad endemic. It is included within a group of 82 taxa with 85 to 94% of their occurrences on ultramafics (such as serpentine). Serpentine soils and serpentine specific vegetation communities are not present in the Proposed Project study area.



**Table 3.5-3. Special-Status Plant Species with Potential to Occur in the Proposed Project Study Area (cont.)**

Common Name Scientific Name	Federal / State / CNPS Status <sup>1</sup>	Habitat	Elevation	Bloom	Potential to Occur in Proposed Project Study Area
Spring lessingia ( <i>Lessingia tenuis</i> )	–/–/4.3	Openings in chaparral, cismontane woodland, lower montane coniferous forest.	980–7,055 feet.	May–Jul.	<b>Moderate.</b> The Proposed Project study area is within the known range of this plant species. The majority of the elevational profile of the Proposed Project study area is below the known elevational range at which this plant species occurs; only portions of the highest ridges within the Proposed Project study area associated with Pacheco Reservoir and the North Fork Pacheco Creek exceed 1,000 feet in elevation. There is potential suitable habitat for this plant species within the Proposed Project study area in the form of openings in chaparral and cismontane woodland. There are no historical CNDDDB occurrences of this plant species within 5 miles of the Proposed Project study area.
Hall's bush-mallow ( <i>Malacothamnus arcuatus</i> var. <i>elmeri</i> [syn. <i>Malacothamnus hallii</i> ])	–/–/1B.2	Chaparral, coastal scrub.	30–2,495 feet.	Apr–Sep.	<b>Present<sup>2</sup>.</b> Documented within the Proposed Project study area during plant surveys. The Proposed Project study area overlaps with a population that contains 395 individuals in three mapped locations. An additional 350 individuals from this population are within 250 feet of the Proposed Project study area. The Proposed Project study area is within the known range of this plant species. There is suitable habitat for this plant species within the Proposed Project study area in the form of chaparral. There are four CNDDDB occurrences of this plant species within 5 miles of the Proposed Project study area.



**Table 3.5-3. Special-Status Plant Species with Potential to Occur in the Proposed Project Study Area (cont.)**

Common Name Scientific Name	Federal / State / CNPS Status <sup>1</sup>	Habitat	Elevation	Bloom	Potential to Occur in Proposed Project Study Area
Woodland woollythreads ( <i>Monolopia gracilens</i> )	–/–/1B.2	Openings in broadleafed upland forest, chaparral, cismontane woodland, North Coast coniferous forest; valley and foothill grassland; occasionally on serpentine.	325–3,935 feet.	Feb–Jul.	<b>Present<sup>2</sup>.</b> Documented within the Proposed Project study area during plant surveys. The Proposed Project study area is within the known range of this plant species. There is suitable habitat for this plant species within the Proposed Project study area in the form of valley and foothill grassland, chaparral, and cismontane woodland. The Proposed Project study area overlaps with one occupied area that contained 61 individuals (in one population) at the time of the 2020 surveys. There are no historical CNDDB occurrences of this plant species within 5 miles of the Proposed Project study area. On a scale of 1.0 to 6.5, this plant species has a mean ultramafic affinity of 2.4: a weak indicator. It is included within a group of 150 taxa with 55 to 64% of their occurrences on ultramafics (such as serpentine). Serpentine soils and serpentine specific vegetation communities are not present in the Proposed Project study area.
Lime Ridge navarretia ( <i>Navarretia gowenii</i> )	–/–/1B.1	Chaparral	590–1,000 feet.	May–Jun.	<b>Low.</b> The Proposed Project study area is outside the known range of this plant species. There is potential suitable habitat for this plant species in the Proposed Project study area. There are no historical CNDDB occurrences of this plant species within 5 miles of the Proposed Project study area.
Shining Navarretia ( <i>Navarretia nigelliformis</i> ssp. <i>radians</i> )	–/–/1B.2	Cismontane woodland, valley and foothill grassland, vernal pools, sometimes clay soils.	210–3,280 feet.	Mar–Jul.	<b>Moderate.</b> The Proposed Project study area is within the known range of this plant species. There is potential suitable habitat for this plant species within the Proposed Project study area in the form of cismontane woodland and valley and foothill grassland. There are no historical CNDDB occurrences of this plant species within 5 miles of the Proposed Project study area.



**Table 3.5-3. Special-Status Plant Species with Potential to Occur in the Proposed Project Study Area (cont.)**

Common Name Scientific Name	Federal / State / CNPS Status <sup>1</sup>	Habitat	Elevation	Bloom	Potential to Occur in Proposed Project Study Area
Prostrate vernal pool navarretia ( <i>Navarretia prostrata</i> )	–/–/1B.1	Coastal scrub, meadows and seeps, valley, and foothill grassland (alkaline); vernal pools; mesic areas.	0–3,970 feet.	Apr–Jul.	<b>Absent<sup>2</sup>.</b> The Proposed Project study area is outside of the known range of this plant species. The Proposed Project study area lacks suitable habitat for this plant species. Species was previously detected within the vicinity of San Felipe Lake during previous efforts for the larger Pacheco Reservoir Expansion Project. There are no historical CNDDB occurrences of this plant species within 5 miles of the Proposed Project study area.
Mt. Diablo phacelia ( <i>Phacelia phacelioides</i> )	–/–/1B.2	Chaparral, cismontane woodland (Rocky)	1,640–4,495 feet	Apr–May.	<b>Moderate.</b> The Proposed Project study area is within the known range of this plant species. There is potential suitable habitat for this plant species within the Proposed Project study area in the form of chaparral and cismontane woodland, including rocky areas. There are no historical CNDDB occurrences of this plant species within 5 miles of the Proposed Project study area.
Michael's rein orchid ( <i>Piperia michaelii</i> )	–/–/4.2	Coastal bluff scrub, closed-cone coniferous forest, chaparral, cismontane woodland, coastal scrub, lower montane coniferous forest.	0–3,000 feet.	Apr–Aug.	<b>High<sup>2</sup>.</b> The Proposed Project study area is within the known range of this plant species. There is potential suitable habitat for this plant species within the Proposed Project study area in the form of chaparral and cismontane woodland. There are no historical CNDDB occurrences of this plant species within 5 miles of the Proposed Project study area. Species has been observed in the eastern portion of the Pacheco Reservoir Expansion Project study area east of the Proposed Project study area.
Hairless popcornflower ( <i>Plagiobothrys glaber</i> )	–/–/1A	Meadows and seeps (alkaline), marshes and swamps (coastal salt).	45–590 feet.	Mar–May.	<b>Absent.</b> The Proposed Project study area is outside of the range of this plant species. The Proposed Project study area lacks suitable habitat for this plant species. There are no historical CNDDB records of this plant species within 5 miles of the Proposed Project study area.



**Table 3.5-3. Special-Status Plant Species with Potential to Occur in the Proposed Project Study Area (cont.)**

Common Name Scientific Name	Federal / State / CNPS Status <sup>1</sup>	Habitat	Elevation	Bloom	Potential to Occur in Proposed Project Study Area
Chaparral harebell ( <i>Ravenella exigua</i> )	–/–/1B.2	Chaparral (rocky, usually serpentinite).	900–4,100 feet.	May–Jun.	<b>Low.</b> The Proposed Project study area is within the known range of this plant species. There is potential suitable habitat for this plant species within the Proposed Project study area in the form of chaparral scrub. There are no historical CNDDDB occurrences of this plant species within 5 miles of the Proposed Project study area. On a scale of 1.0 to 6.5, this plant species has a mean ultramafic affinity of 3.9: a broad endemic/strong indicator. It is included within a group of 71 taxa with 75–84% of their occurrences on ultramafics (such as serpentinite). Serpentine soils and serpentinite specific vegetation communities are not present in the Proposed Project study area.
Most beautiful jewelflower ( <i>Streptanthus albidus</i> ssp. <i>peramoenus</i> )	–/–/1B.2	Chaparral, cismontane woodland, valley and foothill grassland, serpentinite substrates.	310–3,280 feet.	Mar–Sep.	<b>Moderate<sup>2</sup>.</b> The Proposed Project study area is within the known range of this plant species. There is potential suitable habitat for this plant species within the Proposed Project study area in the form of valley and foothill grassland and cismontane woodland. Species has been observed in the eastern portion of the Pacheco Reservoir Expansion Project study area east of the Proposed Project study area. There are no historical CNDDDB occurrences of this plant species within 5 miles of the Proposed Project study area. On a scale of 1.0 to 6.5, this plant species has a mean ultramafic affinity of 4.3: a transition from broad endemic to a strong indicator. It is included within a group of 71 taxa with 75 to 84% of their occurrences on ultramafics (such as serpentinite). Serpentine soils and serpentinite specific vegetation communities are not present in the Proposed Project study area.





**Table 3.5-3. Special-Status Plant Species with Potential to Occur in the Proposed Project Study Area (cont.)**

Common Name Scientific Name	Federal / State / CNPS Status <sup>1</sup>	Habitat	Elevation	Bloom	Potential to Occur in Proposed Project Study Area
Saline clover ( <i>Trifolium hydrophilum</i> )	--/1B.2	Marshes and swamps, valley, and foothill grassland (mesic, alkaline), vernal pools.	0–985 feet.	Apr–Jun.	<b>Absent<sup>2</sup></b> . The Proposed Project study area is outside of the range of this plant species. The Proposed Project study area lacks suitable habitat for this plant species. Species was previously detected within the vicinity of San Felipe Lake during previous efforts for the larger Pacheco Reservoir Expansion Project. There are no historical CNDDb records of this plant species within 5 miles of the Proposed Project study area.

Key:

CNDDb = California Natural Diversity Database

CNPS = California Native Plant Society

Notes:

<sup>1</sup> Status Codes: Federal and State Codes: E = Endangered; T = Threatened; R = Rare.

CRPR Codes:

List 1A Plants presumed extinct in California.

List 1B Plants rare, threatened, or endangered in California and elsewhere.

List 2 Plants rare, threatened, or endangered in California but more common elsewhere.

List 3 Plants for which we need more information – Review list.

List 4. Plants of limited distribution.

Extensions: x.1 - Seriously endangered in California; x.2 – Fairly-endangered in California; x.3 - Not very endangered in California.

<sup>2</sup> Species documented during focused botanical surveys from 2020 to 2023 for the larger Pacheco Reservoir Expansion Project, which included areas outside of the Proposed Project study area. Attachment 2 provides further details regarding the results of the botanical surveys.



### Special-status Wildlife and Fish

As described in Appendix E, Attachment 1, Biological Resources Assessment Report, 39 special-status wildlife species and other wildlife species of interest were determined to have potential or were known to occur within the Proposed Project study area. In addition, five special-status fish species/species of interest that have the potential or are known to occur<sup>30</sup> (Table 3.5-4). The species assessments were based on desktop reviews and biological surveys, along with the results from the Terrestrial Habitat Mapping (See Appendix E, Attachment 2, Exhibits 2a and 2b) and Aquatic Resources Delineation (See Appendix E, Attachment 3 including Exhibits 3a, 3b, 3c, 3d, 3e, and 3f). Species specific assessments were conducted for California red-legged frog (*Rana draytonii*) and California tiger salamander (*Ambystoma californiense*), as described in Appendix E, Attachment A, Exhibit 1C, California Red-legged Frog Site Assessment, and Appendix E, Attachment A, Exhibit 1D, California Tiger Salamander Site Assessment For eagle survey results, see Appendix E, Attachment 4, 2024 Eagle Survey Results Technical Memorandum.

Valley Water conducted field surveys and investigations in 2019 and 2023 to determine the type and location of native and non-native aquatic organisms. These efforts included those portions of the Proposed Project study area within North Fork Pacheco Creek, Pacheco Reservoir and South Fork Pacheco Creek. These surveys and investigations also included Pacheco Creek, including the reach from just west of the intersection of SR-152 and Kaiser-Aetna Road, east to the confluence with South Fork Pacheco Creek. From the closest activity area, the distance to Pacheco Creek is about 500 feet.

Table 3.5-4 shows the special-status species and other species of interest (which do not have a formal listing status) that were determined to have potential to occur within the Proposed Project study area.

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<sup>30</sup> There is historical reference to occurrence of Pacific lamprey (*Entosphenus tridentatus*) in the Pajaro River (Snyder 1912) but more recent information suggests they may only occur in the cooler, northern tributaries of the Pajaro River (Smith 1982). Snorkeling surveys and eDNA sampling conducted by Valley Water in 2023 found no evidence of this species within Pacheco Creek or its tributaries (Valley Water 2024). Additionally, according to Smith (1982), riffle sculpin was noted in the South Fork Pacheco Creek, however it is unknown if they still occur in the Pacheco watershed but may occur in other tributaries to the Pajaro River (Moyle 2002). Therefore, they are considered to have a low potential for occurrence and likely absent for this EIR.



**Table 3.5-4. Special-Status Wildlife and Fish Species and Other Species of Interest with Potential to Occur in the Project Study Area**

Common Name Scientific Name	Listing Status <sup>1</sup> (Federal/State)	Habitat Requirements	Potential for Occurrence in Proposed Project Study Area
<b>Invertebrates</b>			
California floater mussel ( <i>Anodonta californiensis</i> )	-/SOI	Lakes, reservoirs, and low gradient rivers/streams in depositional pools.	<b>Present.</b> The Proposed Project study area is located in the known species range (Xerces Society 2010). California floater mussels have been detected upstream of the Proposed Project study area in North Fork Pacheco Creek and downstream of the North Fork Dam in Pacheco Creek. California floater mussel shells have been observed in the reservoir. No occurrences are documented in CNDDDB in or within 5 miles of the Proposed Project study area. Due to the annual fluctuations in water levels and water quality in the Pacheco Reservoir, it provides low-quality habitat for the species.
Vernal pool fairy shrimp ( <i>Branchinecta lynchi</i> )	T/-	Grass or mud-bottomed swales, earth slump or basalt-flow depression pools in grasslands.	<b>Absent.</b> The Proposed Project study area is located outside of the known species range (USFWS 2024a). No occurrences are documented in or within 5 miles of the Proposed Project study area. The Proposed Project study area does not support habitat for this species.
Monarch butterfly ( <i>Danaus plexippus plexippus</i> )	PT/-	Monarch butterflies depend on milkweed sp. as a nectar and host plant, along with other species for nectar plants for adults including thistle sp. ( <i>Carduus</i> sp.) and purple loosestrife ( <i>Lythrum salicaria</i> ). Migratory and breeding habitat consists of the same characteristics: Milkweed sp., nectar plants, and places to roost (trees and shrubs). The host and nectar plants for monarchs grow in a variety of vegetation communities including forests, woodlands, chaparral, and grasslands.	<b>High:</b> The Proposed Project study area is within the range of the species. Potential suitable breeding and migration habitat occur within the Proposed Project study area, adjacent to and upstream of Pacheco Reservoir. The Proposed Project study area does not support overwintering habitat. Only overwintering occurrences of the species are tracked in CNDDDB, and no overwintering occurrences are within 5 miles of the Proposed Project study area. There is one observation of a monarch butterfly within 4 miles of the Proposed Project study area (Western Monarch Milkweed Mapper 2024)



**Table 3.5-4. Special-Status Wildlife and Fish Species and Other Species of Interest with Potential to Occur in the Project Study Area (cont.)**

Common Name Scientific Name	Listing Status <sup>1</sup> (Federal/State)	Habitat Requirements	Potential for Occurrence in Proposed Project Study Area
Western bumble bee ( <i>Bombus occidentalis</i> )	-/CE	Once common and widespread, this species has declined precipitously from central California to southern B.C.	<b>Absent.</b> The Proposed Project study area is outside the range of the species. In California, populations of this species are currently largely restricted to high elevation sites in the Sierra Nevada (CDFW 2023).
Crotch's bumble bee ( <i>Bombus crotchii</i> )	-/CE	Coastal California east to the Sierra-Cascade crest and south into Mexico. Typically found in grassland, chaparral, and scrub habitats. Food plant genera include but are not limited to <i>Asclepias</i> , <i>Salvia</i> , <i>Lupinus</i> , <i>Vicia</i> , <i>Acmispon</i> , <i>Phacelia</i> , <i>Eschscholzia</i> , and <i>Centaurea</i> .	<b>High.</b> The Proposed Project study area is in the range of the species. The Proposed Project study area supports suitable habitat for this species. There are two recent occurrences documented approximately 5.5 miles east of the Proposed Project study area in Upper Cottonwood Creek Wildlife Area (Bumble Bee Watch 2024) and 2.7 miles to the west of the Proposed Project study area (iNaturalist 2024).
Bay checkerspot butterfly ( <i>Euphydryas editha bayensis</i> )	T/-	Found in shallow, serpentine-derived soils in valley and foothill grassland; strong association to host plants dwarf plantain ( <i>Plantago erecta</i> ) and purple owl's clover ( <i>Castilleja densiflora</i> or <i>C. exerta</i> ).	<b>Absent:</b> The study area is located outside of the known species range (USFWS 2024b). No occurrences are documented in or within 5 miles of the Proposed Project study area.
<b>Amphibians</b>			
California tiger salamander ( <i>Ambystoma californiense</i> )	T/T	Requires seasonally inundated aquatic habitats: ponds, wetlands, and vernal pools for breeding with associated upland terrestrial habitat. Utilizes small mammal burrows within upland habitat.	<b>High.</b> The species has been observed and documented within 5 miles of the Proposed Project study area within the last 5 years and suitable breeding habitat (seasonally inundated aquatic pond) and suitable upland habitat (all natural vegetation communities in the Proposed Project study area, which are within 1.24 miles of suitable breeding habitat, including ponds) for the species is present near the Proposed Project study area and within the 1.24 mile buffer that contains breeding habitat. There are multiple CNDDDB occurrences of this species within 5 miles of the Proposed Project study area.



**Table 3.5-4. Special-Status Wildlife and Fish Species and Other Species of Interest with Potential to Occur in the Project Study Area (cont.)**

Common Name Scientific Name	Listing Status <sup>1</sup> (Federal/State)	Habitat Requirements	Potential for Occurrence in Proposed Project Study Area
Foothill yellow-legged frog ( <i>Rana boylei</i> )	PT/SE	Requires seasonal to perennial partly shaded, shallow streams and riffles with a rocky substrate in a variety of habitats. Need at least some cobble-sized substrate for egg laying. Foothill yellow-legged frogs occupy a diverse range of ephemeral, intermittent, seasonal, and permanent streams, rivers, and adjacent moist terrestrial habitats over the course of their complex life history (U.S. Department of Agriculture 2016). Foothill yellow-legged frog move up into tributaries in the event of stream dry backs (Gonsolin, 2010) and have been known to breed in ponds adjacent to stream aquatic habitat in Sonoma County when predators (e.g., bullfrogs) have been removed. (Willcox and Alvarez, 2019).	<b>Moderate.</b> The species has been observed and documented within five miles of the Proposed Project study area and the Proposed Project study area is within the range for the species. There is one CNDDDB occurrence of this species within the Proposed Project study area from 1950, on mainstem Pacheco Creek. Suitable aquatic habitat occurs primarily upstream of North Fork Dam along North Fork Pacheco Creek.
California red-legged frog ( <i>Rana draytonii</i> )  Critical Habitat	T/SSC	Requires perennial or near-perennial aquatic habitats, especially for breeding: streams, freshwater pools, and ponds over 1-foot deep with overhanging vegetation.	<b>High.</b> The species was observed within the Pacheco Reservoir Expansion Project study area in 2020, 2023, and 2024 and is documented within 5 miles of the Proposed Project study area within the last 5 years. Habitat for the species is present in the Proposed Project study area in the form of North Fork Pacheco Creek; South Fork Pacheco Creek; and all natural vegetation communities in the Proposed Project study area, which are within 1 mile of suitable breeding habitat, including ponds. There are multiple CNDDDB occurrences of this species either in or within 5 miles of the Proposed Project study area. The Proposed Project study area is within critical habitat for this species.



**Table 3.5-4. Special-Status Wildlife and Fish Species and Other Species of Interest with Potential to Occur in the Project Study Area (cont.)**

Common Name Scientific Name	Listing Status <sup>1</sup> (Federal/State)	Habitat Requirements	Potential for Occurrence in Proposed Project Study Area
Western spadefoot toad ( <i>Spea hammondi</i> )	–/SSC	Grasslands with temporary pools within mixed woodland, coastal sage scrub, chaparral, lowlands, and floodplains in gravelly or sandy soils. Require both temporary pools for reproduction and upland habitat for constructing burrows and foraging.	<b>Absent.</b> The Proposed Project study area is located outside of the known species range (CDFW 2024g). No occurrences are documented in or within 5 miles of the Proposed Project study area.
Coast Range newt ( <i>Taricha torosa</i> )	–/SSC (Monterey County and south only)	Found in grasslands, woodlands, and conifer forest; requires ponds, reservoirs, and slow-moving streams for breeding.	<b>SSC Population Absent.</b> The Proposed Project study area is outside of the portion of this species' range that has SSC status (Monterey County and south only) (CDFW 2024h). Coast Range newts occurring in the Proposed Project study area are not a California SSC.
<b>Reptiles</b>			
Northwestern pond turtle ( <i>Actinemys marmorata</i> )	PT/SSC	Slow water aquatic habitat with available basking sites. Hatchlings require shallow water with dense submergent or short emergent vegetation. Require an upland oviposition site in the vicinity of the aquatic site.	<b>Present.</b> The species is known to be present and has been observed just outside the Proposed Project study area near the confluence of the North Fork Pacheco Creek and South Fork Pacheco Creek during a site visit on 8/8/2019. There are multiple CNDDB occurrences of this species either in or within 5 miles of the Proposed Project study area.
Silvery legless lizard ( <i>Aniella pulchra pulchra</i> )	–/SSC	Occurs in areas with sandy or loose loamy soils, often areas under sparse vegetation including beaches, chaparral, or pine-oak woodland; often near riparian vegetation along stream terraces.	<b>Moderate.</b> The Proposed Project study area is located within the range of the species and potential (chaparral, oak woodland, and riparian) habitat for the species exists in the Proposed Project study area. No occurrences are known from the Proposed Project study area or within 5-miles.
San Joaquin coachwhip ( <i>Masticophis flagellum ruddocki</i> )	–/SSC	Found in grassland, desert, scrub, chaparral, and pasture habitats.	<b>Moderate.</b> The Proposed Project study area is located within the range of the species; potential (grassland, chaparral, and pasture) habitat for the species is present in the Proposed Project study area. No occurrences are known from the Proposed Project study area or within 5 miles.





**Table 3.5-4. Special-Status Wildlife and Fish Species and Other Species of Interest with Potential to Occur in the Project Study Area (cont.)**

Common Name Scientific Name	Listing Status <sup>1</sup> (Federal/State)	Habitat Requirements	Potential for Occurrence in Proposed Project Study Area
Coast horned lizard ( <i>Phrynosoma blainvillii</i> )	–/SSC	Found in a wide variety of habitats, most common in lowlands along sandy washes with scattered low bushes. Uses open areas for sunning, bushes for cover, patches of loose soil for burial, and abundant supply of ants and other insects. Occurs in the Sierra Nevada foothills throughout the central and southern California coast.	<b>High.</b> The Proposed Project study area is located within the range of the species. Habitat (grassland and riparian) for the species exists in the Proposed Project study area. Species has been observed in the Pacheco Reservoir Expansion Project study area 2.75 miles north of the Proposed Project study area in April and October 2024 (CNDDDB, Unprocessed Data [CDFW 2025]). No other occurrences are known from the Proposed Project study area or within 5 miles.
<b>Birds</b>			
Grasshopper sparrow ( <i>Ammodramus savannarum</i> )	–/SSC	Nests and forages in grasslands, meadows, fallow fields, and pastures; also known to inhabit grasslands with scattered shrubs.	<b>Moderate.</b> The Proposed Project study area is located within the range of the species and potential (nesting and foraging) habitat for the species exists in the Proposed Project study area. There are no occurrences within 5 miles of the Proposed Project study area.
Tricolored blackbird ( <i>Agelaius tricolor</i> )	–/T	Breeds near fresh water in dense emergent vegetation. Requires open water, protected nesting substrate, and foraging area with insect prey within a few kilometers of the colony.	<b>Moderate.</b> The species has been observed and documented within 5 miles of the Proposed Project study area within the last 5 years. Foraging habitat (grassland) for the species is present in the Proposed Project study area. No breeding habitat (emergent marsh, riparian areas, or pond fringes consisting of cattails, tules, or brambles) is present within or in the vicinity (within 250 feet) of the Proposed Project study area. There is one CNDDDB occurrence known within 5 miles of the Proposed Project study area.
Golden eagle ( <i>Aquila chrysaetos</i> )	–/FP	Inhabit forests, canyons, shrublands, grasslands and oak woodlands often nests on cliffs or in the large trees with unobstructed views.	<b>Present.</b> The species is known to be present and has been observed in flight throughout the Proposed Project study area during multiple site visits during surveys from 2019 – 2024. Potential (nesting and foraging) habitat is present within the Proposed Project study area.



**Table 3.5-4. Special-Status Wildlife and Fish Species and Other Species of Interest with Potential to Occur in the Project Study Area (cont.)**

Common Name Scientific Name	Listing Status <sup>1</sup> (Federal/State)	Habitat Requirements	Potential for Occurrence in Proposed Project Study Area
Long-eared owl ( <i>Asio otus</i> )	–/SSC	Nest in bottomlands with tall, dense vegetation, often dense willow, cottonwood, or dense upland conifer or woodland vegetation for roosting. Requires adjacent open areas such as grasslands, meadows, or shrublands for foraging.	<b>Moderate.</b> The Proposed Project study area is located within the range of the species, and potential (nesting and foraging) habitat for the species exists in the Proposed Project study area. There are no occurrences within 5 miles of the Proposed Project study area.
Western burrowing owl ( <i>Athene cunicularia</i> )	–/CT-CE	Grasslands and ruderal habitats. Uses mammal burrows or other suitable underground cavities.	<b>Moderate.</b> The Proposed Project study area is located within the range of the species, and potential grasslands and ruderal (foraging, movement, overwintering) habitat for the species exists in the Proposed Project study area. Breeding not expected given the high elevations. Western burrowing owl may overwinter only in the Proposed Project study area as when individuals migrate south. Potential burrows were observed scattered throughout the site. There are no occurrences within 5 miles of the Proposed Project study area.
Swainson's hawk ( <i>Buteo swainsoni</i> )	–/T	Breeds in stands with few trees in juniper-sage flats, riparian areas, and oak savannah; forages in adjacent livestock pasture, grassland, or grain.	<b>Moderate.</b> The Proposed Project study area is located within the range of the species; the Proposed Project study area supports foraging habitat for the species. There are no occurrences in the Proposed Project study area or within 5 miles.
Northern harrier ( <i>Circus cyaneus</i> )	–/SSC	Forages in marshes, grasslands, and ruderal habitats; nests in extensive marshes and wet fields.	<b>Present.</b> The Proposed Project study area is located within the range of the species and potential (limited open grassland, agricultural pasture, or wetland) habitat for the species is present in the Proposed Project study area. This species has also been observed in the Proposed Project study area.



**Table 3.5-4. Special-Status Wildlife and Fish Species and Other Species of Interest with Potential to Occur in the Project Study Area (cont.)**

Common Name Scientific Name	Listing Status <sup>1</sup> (Federal/State)	Habitat Requirements	Potential for Occurrence in Proposed Project Study Area
Vaux's swift ( <i>Chaetura vauxi</i> )	–/SSC	Nests in coastal conifer forests; and occasionally in chimneys; requires adjacent foraging habitat.	<b>Absent as Breeder.</b> The Proposed Project study area is located outside of the known species breeding range (CDFW 2024i). Although this species is tracked by CNDDDB, no CNDDDB occurrences have been reported for this species. There are non-CNDDDB observations of this species within 5 miles of the Proposed Project study area east and west of the Proposed Project study area along SR-152. Therefore, the Proposed Project study area may be used for foraging and as a migratory corridor for the species.
Olive-sided flycatcher ( <i>Contopus cooperi</i> )	–/SSC	Nests in mature conifer forest with open canopies, along forest edges; often in recently burned areas and in harvested areas.	<b>Absent as Breeder.</b> The Proposed Project study area is located outside the breeding range of the species (CDFW 2024j). Although this species is tracked by CNDDDB, there are no CNDDDB occurrences that have been reported for this species. There are species observations within 5 miles east of the Proposed Project study area.
Yellow warbler ( <i>Setophaga petechia</i> )	–/SSC	Occupies riparian habitats along streamside's and wet meadows; often found in willows and cottonwoods and willows, but also found in numerous other riparian tree species in California.	<b>Moderate.</b> The Proposed Project study area is located within the range of the species and potential (riparian nesting and foraging) habitat for the species is present downstream of the North Fork Dam in the Proposed Project study area. There are no occurrences within 5 miles of the Proposed Project study area.
White-tailed kite ( <i>Elanus leucurus</i> )	–/FP	Nests in tall shrubs and trees, forages in grasslands, agricultural fields, and marshes.	<b>High.</b> The Proposed Project study area is located within the range of the species; and potential (nesting tree and foraging) habitat for the species exists in the Proposed Project study area. No CNDDDB occurrences are known from the Proposed Project study area or within 5 miles; however, the species has been observed along Kaiser-Aetna Road within 5 miles of the Proposed Project study area.



**Table 3.5-4. Special-Status Wildlife and Fish Species and Other Species of Interest with Potential to Occur in the Project Study Area (cont.)**

Common Name Scientific Name	Listing Status <sup>1</sup> (Federal/State)	Habitat Requirements	Potential for Occurrence in Proposed Project Study Area
California condor ( <i>Gymnogyps californianus</i> )	E/E, FP	Nests in caves on cliff faces often surrounded by dense brush; forages up to 100 miles from nest site.	<b>High.</b> The Proposed Project study area is located within the range of the species, and nesting (cliff) habitat is not present in the Proposed Project study area. However, foraging and roosting habitat is present throughout the Proposed Project study area. While there are no CNDDDB occurrences within 5 miles of the Proposed Project study area, there are published observations of the species within the immediate vicinity of the Proposed Project study area.
Bald eagle ( <i>Haliaeetus leucocephalus</i> )	–/E	Found near rivers, lakes, marshes, where abundant food supply is nearby. Require perching areas and nesting sites.	<b>Present.</b> The species is known to be present and has been observed in flight throughout the Proposed Project study area during multiple site visits during surveys from 2019 – 2024. Potential (nesting and foraging) habitat is present within the Proposed Project study area.
American peregrine falcon ( <i>Falco peregrinus anatum</i> )	–/SOI	Typically nests on ledges of large cliff faces; also nests on city buildings, bridges, and tree cavities of coastal redwoods	<b>High.</b> The Proposed Project study area is located within the range of the species. While this species may also occupy city buildings and tree cavities of coastal redwoods, which are absent from the Proposed Project study area; the species may forage in the grassland and chaparral in the Proposed Project study area. No nesting habitat is present for American peregrine falcon within the Proposed Project study area. No CNDDDB occurrences are within the Proposed Project study area or within 5 miles. However, this species has been observed in the portion of the Pacheco Reservoir Expansion Project study area within Henry Coe State Park.
Yellow-breasted chat ( <i>Icteria virens</i> )	–/SSC	Found in the lower elevations of mountains in riparian habitat in the foothills of the Sierra Nevada and coastal California as an uncommon summer resident and migrant. Breeds in the coastal southern and inland southern California habitats.	<b>Moderate.</b> The Proposed Project study area is located within the range of the species, and potential (perching and nesting) riparian habitat for the species exists in the Proposed Project study area. No occurrences are within 5 miles of the Proposed Project study area



**Table 3.5-4. Special-Status Wildlife and Fish Species and Other Species of Interest with Potential to Occur in the Project Study Area (cont.)**

Common Name Scientific Name	Listing Status <sup>1</sup> (Federal/State)	Habitat Requirements	Potential for Occurrence in Proposed Project Study Area
Loggerhead shrike ( <i>Lanius ludovicianus</i> )	–/SSC	Breeds in tall shrubs and dense trees, often in shrublands or open woodlands; requires adjacent grasslands, marshes, ruderal areas for foraging.	<b>Moderate.</b> The Proposed Project study area is located within the range of the species, and potential (perching and nesting) shrubland and open woodland habitat for the species exists in the Proposed Project study area. No occurrences are within the Proposed Project study area or within 5 miles.
Purple martin ( <i>Progne subis</i> )	–/SSC	Inhabits valley and montane hardwood, riparian, conifer, habitats as well as open habitats during near water bodies during migration. Nests in cavities, typically snags with woodpecker holes and sometimes cavities in nesting boxes and utility poles.	<b>Moderate.</b> The Proposed Project study area is located just outside the range of the species (CDFW 2024k), and potential (foraging and breeding) habitat for the species is present in the Proposed Project study area. No occurrences are known from within 5 miles of the Proposed Project study area.
Least Bell's vireo ( <i>Vireo bellii pusillus</i> )	E/E	Found in riparian habitats along flowing water and in desert habitats, found along dry watercourses with dense vegetation. Requires dense riparian shrubbery breeding and above-ground nesting.	<b>Low.</b> The Proposed Project study area is within the historical range of the species. Low quality riparian foraging habitat for the species exists in the downstream reaches of Proposed Project study area. Riparian areas within and in the vicinity (within 250 feet) of the Proposed Project study area consist of mature riparian stands rather than the expansive, early successional scrub/shrub areas required by the species for nesting. There are no occurrences within 5 miles of the Proposed Project study area.
<b>Mammals</b>			
Pallid bat ( <i>Antrozous pallidus</i> )	–/SSC	Forages over many habitats; roosts in buildings, bridges, trees, rocky outcrops and rocky crevices in mines and caves.	<b>High.</b> The Proposed Project study area is located within the range of the species. Roosting and foraging habitat for the species is present in the Proposed Project study area. There is one historical CNDDB occurrence (#250) just outside the Proposed Project study area from 1937 at Bell Station.



**Table 3.5-4. Special-Status Wildlife and Fish Species and Other Species of Interest with Potential to Occur in the Project Study Area (cont.)**

Common Name Scientific Name	Listing Status <sup>1</sup> (Federal/State)	Habitat Requirements	Potential for Occurrence in Proposed Project Study Area
Ringtail ( <i>Bassariscus astutus</i> )	–/FP	Occurs in various riparian, brush, forest, and shrub habitats at low to mid elevations. Nests in rock recesses, hollow trees, logs, snags, abandoned burrows or woodrat nests.	<b>Moderate.</b> The Proposed Project study area is located within the range of the species and potential habitat for the species exists in the Proposed Project study area in the form of riparian, brush, forest, and shrub habitats. Nesting habitat also occurs within the Proposed Project study area. This species is not tracked by CNDDDB, and there are no public observations of this species within 5 miles of the Proposed Project study area.
Tule elk ( <i>Cervus canadensis nannodes</i> )	–/SOI	Occurs in various grassland, shrubland, woodland habitats. Grazes typically in open habitats and moves to areas with more cover during calving season.	<b>Present.</b> The Proposed Project study area is located within the range of the species, and potential habitat is present in the Proposed Project study area as grasslands, shrub/chapparral, and woodland habitats. The species is not tracked by the CNDDDB, but there are numerous observations of the species within 5 miles of the Proposed Project study area. In addition, a tule elk was tracked during a CDFW radio telemetry through the Proposed Project study area near Pacheco Reservoir.
Townsend's big-eared bat ( <i>Corynorhinus townsendii</i> )	–/SSC	Found in all but subalpine and alpine habitats and can be found at any season throughout its range. It is most common in mesic habitats. This species requires caves, mines, tunnels, buildings, other human-made structures including bridges, or other cave analogs (such as large hollow redwood trees) for roosting.	<b>High.</b> There is a CNDDDB occurrence from 1995 for this species just outside the Proposed Project study area from under the SR-152 bridge over Pacheco Creek. Foraging habitat for the species is present in the Proposed Project study area, including in the immediate vicinity of the CNDDDB occurrence. The species is only known to breed in a few locations in buildings in Santa Clara County, and there are no suitable buildings for the species to roost in in the Proposed Project study area.
Western mastiff bat ( <i>Eumops perotis californicus</i> )	–/SSC	Found in open, semi-arid to arid habitats, including conifer, deciduous woodland, coastal scrub, grasslands, palm oasis, chaparral, desert scrub and urban. Nests in cliff faces crevices, high buildings, trees, and tunnels for roosting.	<b>Moderate.</b> The Proposed Project study area is located within the range of the species and roosting and foraging habitat is present. There are no occurrences for this species within 5 miles of the Proposed Project study area.





**Table 3.5-4. Special-Status Wildlife and Fish Species and Other Species of Interest with Potential to Occur in the Project Study Area (cont.)**

Common Name Scientific Name	Listing Status <sup>1</sup> (Federal/State)	Habitat Requirements	Potential for Occurrence in Proposed Project Study Area
Western red bat ( <i>Lasiurus frantzii</i> <i>[blossevillii]</i> )	-/SSC	Typically roost solitarily in dense tree foliage, particularly in willows, cottonwoods, and sycamores as well as conifer forests. Strongly associated with riparian habitats, often mature stands of cottonwood/sycamore. Forages in grassland, shrubland, open woodland, forest, and agricultural habitats.	<b>Moderate.</b> The Proposed Project study area is located within the range of the species; and potential (tree foliage roosting) habitat for the species is present in the Proposed Project study area. There are no occurrences for this species within 5 miles of the Proposed Project study area. However, the species is not known to breed in Santa Clara County.
Hoary bat ( <i>Lasiurus cinereus</i> )	-/SOI	Roosts in a variety of woodlands, particularly along the edges of clearings.	<b>Moderate.</b> The Proposed Project study area is located within the range of the species; and potential (tree foliage roosting) habitat for the species is present in the Proposed Project study area. There are no occurrences for this species within 5 miles of the Proposed Project study area. However, the species is not known to breed in Santa Clara County.
San Francisco dusky-footed woodrat ( <i>Neotoma fuscipes annectens</i> )	-/SSC	Occurs in a variety of woodland and scrub habitats, often in riparian and oak woodland forests with dense understory cover, or thick chaparral habitat.	<b>High.</b> The Proposed Project study area is located within the range of this species, and suitable habitat is present within the Proposed Project study area. There are no CNDDDB occurrences for this species within 5 miles of the Proposed Project study area. This species has been observed within 5 miles of the Proposed Project study area by Santa Clara Valley Habitat Agency staff.



**Table 3.5-4. Special-Status Wildlife and Fish Species and Other Species of Interest with Potential to Occur in the Project Study Area (cont.)**

Common Name Scientific Name	Listing Status <sup>1</sup> (Federal/State)	Habitat Requirements	Potential for Occurrence in Proposed Project Study Area
Mountain lion, Southern California/Central Coast Evolutionary Significant Unit (ESU) ( <i>Pumas concolor</i> )	-/CT	Mountain lions occur within a variety of habitats including pine forests, oak woodlands and savannahs, riparian woodlands, chaparral, and grasslands. They require large amounts of undisturbed habitat for dispersal and foraging, and individuals are territorial and live a solitary life (except for breeding). Mountain lion prey consists of mainly deer, with other large and small mammals making up a smaller portion of prey, including livestock, wild horses and hogs, and coyotes.	<b>Present.</b> Sign (i.e., scat) of the species has been documented during surveys within the Pacheco Reservoir Expansion Proposed Project study area, including sightings within the Proposed Project study area, primarily north of the existing North Fork Dam. All terrestrial habitat adjacent to and upstream of the existing Pacheco Reservoir is suitable habitat for mountain lions. This species is not tracked by the CNDDDB, but the two nearest occurrences are within 4 miles of the Proposed Project study area (iNaturalist 2024).
American badger ( <i>Taxidea taxus</i> )	-/SSC	Herbaceous, shrub, and open stages of most habitats with dry, friable, often uncultivated soils; require sufficient food sources (feeds mostly on burrowing rodents).	<b>High.</b> The Proposed Project study area is located within the range of the species; there are documented occurrences within 5 miles of the Proposed Project study area, and/or potential (open herbaceous and shrub) habitat for the species exists in the Proposed Project study area. There are five CNDDDB occurrences within 5 miles of the Proposed Project study area.
San Joaquin kit fox ( <i>Vulpes macrotis mutica</i> )	E/T	Found in annual grassland and various scrub and subshrub habitats. Requires dens for shelter and breeding.	<b>Low.</b> The Proposed Project study area is located within the range of the species. This species typically inhabits grassland areas on slopes less than 5%; therefore, moderate to steep sloping grassland within and in the vicinity (within 250 feet) of the Proposed Project study area offers only atypical habitat with limited suitability. There are three CNDDDB occurrences within 5 miles of the Proposed Project study area.



**Table 3.5-4. Special-Status Wildlife and Fish Species and Other Species of Interest with Potential to Occur in the Project Study Area (cont.)**

Common Name Scientific Name	Listing Status <sup>1</sup> (Federal/State)	Habitat Requirements	Potential for Occurrence in Proposed Project Study Area
<b>Fish</b>			
South-Central California Coast steelhead <i>Oncorhynchus mykiss</i>	FT/SCC	Ocean, Rivers and Streams	<b>Present.</b> The portion of the Proposed Project study area downstream from North Fork Dam, including those reaches of Pacheco Creek, North Fork Pacheco Creek and South Fork Pacheco creek within and in close proximity to the Proposed Project study area are known to provide spawning, rearing and holding habitat for this species (NMFS 2013). The 2023 survey detected <i>O. mykiss</i> DNA in Pacheco Creek (Valley Water 2024), and that portion of the Proposed Project study area that provides habitat for this species is included in the South-Central California Coast Steelhead Recovery Planning Area (NMFS 2013).
Monterey Hitch <i>Lavinia exilicauda</i>	SSC	Rivers, Streams and Lakes	<b>Present.</b> The portion of the Proposed Project study area downstream from North Fork Dam, including reaches of Pacheco Creek, North Fork Pacheco Creek and South Fork Pacheco Creek provide habitat for this species. Surveys did not indicate presence of this species within Pacheco Reservoir, but this species has the potential to occur within the Proposed Project study area based on surveys and investigations (Valley Water 2024).
Southern coastal roach <i>Lavinia symmetricus</i>	SSC	Rivers, Streams and Lakes	<b>Present:</b> The Proposed Project study area provides habitat for this species in Pacheco Creek, North Fork Pacheco Creek and South Fork Pacheco Creek. Surveys did not indicate presence of this species within Pacheco Reservoir, but this species has the potential to occur within the Proposed Project study area based on surveys and investigations (Valley Water 2024).



**Table 3.5-4. Special-Status Wildlife and Fish Species and Other Species of Interest with Potential to Occur in the Project Study Area (cont.)**

Common Name Scientific Name	Listing Status <sup>1</sup> (Federal/State)	Habitat Requirements	Potential for Occurrence in Proposed Project Study Area
Pacific lamprey <i>Entosphenus tridentatus</i>	SSC	Ocean, Rivers, Streams	<b>Low.</b> Pacific lamprey have been reported as historically existing in the Pajaro River (Snyder 1912) but may only occur in the cooler northern tributaries of the Pajaro River, where the species is abundant (Smith 1982). Sampling efforts throughout Pacheco Creek and North Fork Pacheco Creek in 2023 did not result in collections, observations nor eDNA detections of Pacific lamprey in 2023 (Valley Water 2024).
Riffle sculpin <i>Cottus gulosus</i>	SSC	Rivers, Streams	<b>Low.</b> The Proposed Project study area is within the historic range. Riffle sculpin had been observed in the South Fork Pacheco Creek in the late 1970s (Smith 1982). Sampling efforts throughout Pacheco Creek and in South Fork Pacheco Creek in 2023 did not result in collections, observations nor eDNA detections of riffle sculpin in 2023 (Valley Water 2024).

Notes:

<sup>1</sup>Status Codes:

**Federal:**

- = Not Listed
- D = Delisted
- E = Endangered
- FC = Federal Candidate
- PT = Proposed Threatened
- T = Threatened

**State:**

- = Not Listed
- CE = Candidate Endangered
- CT = Candidate Threatened
- FP = Fully Protected
- SSC = CDFW Species of Special Concern

**Other:**

- CNDDDB = California Natural Diversity Database
- SOI = Species of Interest
- eDNA = environmental DNA or environmental deoxyribonucleic acid



### 3.5.2 Regulatory Framework

Biological resources in the Proposed Project study area are protected by numerous federal and state regulations, including the ESA, Migratory Bird Treaty Act (MBTA), Clean Water Act (CWA), Bald and Golden Eagle Protection Act, CESA, and California Native Plant Protection Act.

#### Federal Laws, Regulations, and Policies

##### *Clean Water Act, Sections 404 and 401*

The objective of the CWA of 1977, as amended, is to maintain and restore the chemical, physical, and biological integrity of the nation's waters. Discharge of dredged or fill material into waters of the United States, including wetlands, is regulated under Section 404 of the CWA by USACE. The USACE authorizes the discharge of dredge or fill materials into jurisdictional waterbodies through the issuance of a permit. Applicants for Section 404 permits are also required to obtain Water Quality Certification through the SWRCB or one of the nine Regional Water Quality Control Boards (RWQCB) in California under Section 401 of the CWA.

##### *Waters of the United States*

Waters of the United States, as defined in the CWA Sections 404 and 401, consist of wetlands and "other waters" regulated by the USACE and, for California, the SWRCB and the RWQCBs. On August 29, 2023, the U.S. Environmental Protection Agency and the USACE issued a rule to conform to the regulatory definition of Waters of the United States as defined in the May 25, 2023, United States Supreme Court decision in *Sackett v. Environmental Protection Agency* (2023) 598 U.S. 651 (*Sackett*), which replaces all previous guidance regarding features considered waters of the United States, (i.e., wetlands and "other waters" subject to jurisdiction under the CWA). The most notable changes or redefinitions described under the *Sackett* rule is that ephemeral features (e.g., streams, ditches, swales) are no longer considered waters of the United States, and the CWA only covers relatively permanent, standing, or continuously flowing bodies of water ("streams, oceans, rivers, and lakes"). In addition, under the *Sackett* decision, to be considered a water of the United States, wetlands must have "a continuous surface connection to bodies that are considered waters of the United States (i.e., relatively permanent bodies of water connected to a Traditional Navigable Water) so that they are "indistinguishable" from those waters.

The Proposed Project has the potential to result in materials being dredged from or discharged into waters of the United States, triggering the need for permitting under Sections 404 and 401 of the CWA. As described in Chapter 2, exploratory borings would result in the temporary removal of sediments and underlying bedrock within the Pacheco Reservoir, which would be immediately backfilled to the pre-existing grade, resulting in no net dredge or fill within waters of the United States.



### ***Federal Endangered Species Act***

The ESA of 1973 was established to protect and recover imperiled species and the ecosystems upon which they depend. The USFWS and NMFS administer the act. In the Proposed Project study area, the USFWS has jurisdiction over wildlife species and NMFS has jurisdiction with respect to SCCC steelhead that have potential to occur within the Proposed Project study area.

ESA Section 7 states that all federal agencies must ensure that their actions do not jeopardize the continued existence of a listed species or destroy or adversely modify critical habitat. Consultation with USFWS or NMFS under Section 7 can be initiated only by project-related activities originating from a federal agency. The result of this consultation may be an incidental take statement that authorizes take of a listed species without jeopardizing its continued existence or adversely modifying critical habitat. Take is defined under the ESA as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect or attempt to engage in any such conduct.

For projects needing to obtain take authorization without a federal lead agency or federal nexus, project proponents (i.e., non-federal entities and agencies) may obtain a Section 10 incidental take permit. Section 10 (a)(1)(B) allows issuance of permits for take that is incidental to otherwise lawful, project-related activities for non-federal projects. Incidental take permits require preparation of a Habitat Conservation Plan. In addition, scientific monitoring, research, and enhancement activities that may result in take may receive scientific research and/or an enhancement permit under ESA Section 10(a)(1)(A). The Proposed Project is within the plan area for the VHP. For terrestrial species covered under the VHP as well as covered activities, incidental take approval is provided by the VHP.

For threatened species, the ESA does not automatically prohibit take, but instead authorizes regulations deemed necessary for species conservation [ESA Section 4(d)]. As such, Section 4(d) regulations may include the take prohibitions of ESA Section 9.

Under Section 4(f) of the ESA, both NMFS and USFWS are required to publish a recovery plan for each species it lists as threatened or endangered. These plans must have objective and measurable criteria that would help the species be removed from the ESA list, a description of site-specific management actions necessary for the species' recovery, and estimates of time and cost to carry out the recommended recovery measures. Recovery plans are advisory and have no legal effect.

#### **Critical Habitat**

The ESA requires the federal government (i.e., NMFS and USFWS) to designate critical habitat for any species it lists as endangered or threatened. Critical habitat is identified by the presence of physical or biological features, previously termed primary constituent elements, that are essential to the conservation of a federally listed species. Physical and biological features may include, but are not limited to, space for growth of individuals and populations; food, water, air, light, minerals, or other nutritional or physiological requirements; cover or shelter; sites for breeding, reproduction, rearing of offspring, germination, or seed dispersal; and habitats that are protected





from disturbance or are representative of the species' historical geographic and ecological distribution.

Within the Proposed Project study area, NMFS or USFWS has designated critical habitat for all federally listed species listed in Table 3.5-3 and Table 3.5-4.

#### Recovery Plans

Under Section 4(f) of the ESA, both NMFS and USFWS are required to publish a recovery plan for each species it lists as threatened or endangered. These plans must have objective and measurable criteria that would help the species be removed from the ESA list, a description of site-specific management actions necessary for the species' recovery and estimates of time and cost to carry out the recommended recovery measures. Recovery plans are advisory and have no legal effect.

Recovery plans have been published by NMFS or USFWS for all federally listed species listed in Table 3.5-3 and Table 3.5-4.

#### ***Migratory Bird Treaty Act***

The MBTA of 1918 enacts the provisions of treaties among the United States, Great Britain, Mexico, Japan, and the Soviet Union and authorizes the U.S. Secretary of the Interior to protect and regulate the taking of migratory birds. This treaty makes it unlawful to take, possess, buy, sell, purchase, or barter any migratory bird listed under the act, including feathers or other parts, nests, eggs, or products, except as allowed by implementing regulations.

The Proposed Project would comply with applicable provisions of the MBTA.

#### ***Bald and Golden Eagle Protection Act***

The Bald and Golden Eagle Protection Act, enacted in 1940 and amended several times since, prohibits the take, possession, and transport of the parts, nests, or eggs of the bald and golden eagles without prior authorization. Take is defined in the Bald and Golden Eagle Protection Act as to pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, destroy, molest, or disturb. An incidental take permit from the USFWS must be obtained for new activities/projects that are located near eagle nests, roosting sites, and foraging areas and have potential to result in take of the species.

If it is determined the Proposed Project would result in take of bald eagles or golden eagles, an incidental take permit from the USFWS would be required.

#### ***Executive Orders***

Federal agencies are guided by Presidential Executive Orders established to protect the environment. Relevant Executive Orders include:

- Executive Order 11990 (Wetlands): For projects that could affect wetlands, federal agencies are required to demonstrate that no practical alternative exists to avoid the wetland(s) and that all practical avoidance, mitigation, and/or preservation measures have been



incorporated into the project to minimize impacts on wetlands. Federal agencies are also required to provide an opportunity for early public review of any plans or proposals for new construction in wetlands.

- Executive Order 13112 (Invasive Species): Federal agencies are required to prevent the introduction of invasive species and not authorize actions that could cause or promote the introduction or spread of invasive species. Federal agencies need to identify feasible and prudent measures to minimize the risk of harm caused by invasive species.
- Executive Order 13186 (Migratory Birds): Federal agencies are required to evaluate the effects of their actions on migratory birds, with emphasis on species of concern, and to minimize the take of migratory birds through development of procedures for evaluating such take and conservation efforts in coordination with the USFWS. This Executive Order further implements the MBTA and requires coordination between the USFWS and federal agencies.

## **State Laws, Regulations, and Policies**

### ***California Endangered Species Act***

The CESA under Section 2081 subdivision (b) of the FGC prohibits take of state-listed species and protects native species of fishes, amphibians, reptiles, birds, mammals, invertebrates, and plants, and their habitats, that are threatened with extinction or experiencing a significant decline which, if not halted, would lead to a threatened or endangered designation. Take is defined in Section 86 of the FGC as “hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill.” CESA authorizes the CDFW to issue incidental take permits for state-listed species when specific criteria are met.

An incidental take permit from CDFW would be required if it is determined the Proposed Project would result in take of state-listed species. For Valley Habitat Plan covered terrestrial species and covered activities, incidental take approval is provided by the Valley Habitat Plan.

### ***Porter-Cologne Water Quality Control Act***

The Porter-Cologne Water Quality Control Act authorizes the SWRCB to oversee water quality policy and establishes nine RWQCBs to protect and enhance water quality at the regional and local levels. In addition to preparing water quality control plans to designate beneficial uses of water bodies in each region, the RWQCBs issue waste discharge requirements for activities that result in pollutant or nuisance discharges that may affect surface or groundwater, including waters of the State (e.g., isolated wetlands) not subject to USACE jurisdiction (see SWRCB 2020).

### ***Waters of the State***

Waters of the State are defined under the Porter-Cologne Water Quality Control Act and are further described for wetlands in the SWRCB’s *Implementation Guidance for the State Wetland*



*Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State* (SWRCB 2020). SWRCB uses similar definitions as those described in the CWA to define wetlands and “other waters” and are further described as follows:

- **Wetlands:** Wetlands are considered waters of the State when features meet the three-parameters/criteria used by the USACE (i.e., prevalence of hydrophytic vegetation, hydric soils, and hydrology). The state definition differs for wetlands in cases where features are naturally devoid of vegetation (i.e., features with less than five percent cover) where the hydric substrate indicators (i.e., hydric soils and hydrology) can act as a substitute for a dominance of hydrophytic vegetation. Under the state definition, isolated wetlands are also considered waters of the State (i.e., non-adjacent features are jurisdictional).
- **Other Waters:** Unless separate guidance is provided by a local RWQCB, the State defers to the USACE for how other waters are delineated and defined (SWRCB 2020); however, unlike the waters of the United States, the state definition extends the jurisdiction to any surface water in the State, which includes ephemeral and isolated features (SWRCB 2024).

### ***Fish and Game Code***

The FGC provides several provisions for the protection of water features and the state’s plant, fish, and wildlife resources, including the following relevant sections:

- **Sections 1600-1616 (Lake or Streambed Alteration Agreement):** CDFW is responsible for the protection and conservation of fish and wildlife resources in California. Under Section 1602, CDFW has the authority to issue lake or streambed alteration agreements for work activities that substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake designated by the CDFW as providing resources for fish or wildlife.
- **Sections 1900-1913 (Native Plant Protection Act):** The Native Plant Protection Act prohibits the taking, possessing, or sale within the State of any plants that the CDFW has determined are rare, threatened, or endangered. The CDFW has the authority to enforce the provisions of this act and authorize measures to salvage native plants that may otherwise be affected by Proposed Project activities, if deemed appropriate.
- **Sections 3500-3516 (Game Birds and Birds of Prey):** The CDFW protects game birds, birds of prey, migratory birds, and fully protected birds from take or possession, except as otherwise provided by the code (e.g., incidental take under CESA).
- **Sections 3511, 4700, 5050, and 5515 (Fully Protected Species):** California statutes accord a “fully protected” status to specifically identified birds, mammals, reptiles, amphibians, and fish. The FGC was recently updated as part of Senate Bill (SB) 147 to allow for the take of fully protected species for certain projects.

The Proposed Project would require a Lake or Streambed Alteration Agreement from CDFW for impacts on features subject to FGC Section 1602.



## **Regional and Local Laws, Regulations, and Policies**

### ***County of Santa Clara***

#### Santa Clara County General Plan

Part 3 of *Book B* of the General Plan provides strategies and policies for rural unincorporated areas of Santa Clara County. There are no specific policies applicable to this EIR related to biological resources.

#### Santa Clara County Tree Preservation and Removal Ordinance

The County of Santa Clara Tree Preservation and Removal Ordinance (County Code, Section C16.1 to C16.17) requires a tree removal permit for “protected trees.” Section C16-3 of the code describes the criteria for a “protected tree.” Valley Water may be exempt from compliance with the County tree ordinance and other County tree regulations under *Hall v. Taft* (1956) 47 Cal. 2d 177,189 (which holds that water districts are exempt from municipal police power regulation).

### ***Santa Clara Valley Habitat Agency***

#### Santa Clara Valley Habitat Plan

Six local partners including the County of Santa Clara, Santa Clara Valley Transportation Authority, Valley Water, and the cities of San José, Gilroy, and Morgan Hill prepared and adopted the Valley Habitat Plan (SCVHA 2012), which is a multi-species, joint Habitat Conservation Plan and Natural Communities Conservation Plan that covers much of Santa Clara County. The Valley Habitat Plan was developed in association with CDFW and USFWS and has a 50-year permit term. The SCVHA implements the Valley Habitat Plan, which addresses 18 covered plant and animal species (nine plants and nine animals) as well as natural communities in the Valley Habitat Plan area. The Valley Habitat Plan provides a framework for promoting the protection and recovery of natural resources, including threatened and endangered species, while streamlining the permitting process for certain projects. Specifically, rather than separately permitting and mitigating individual projects, the Valley Habitat Plan evaluates natural-resource impacts and mitigation requirements comprehensively in a way that is more efficient and effective for at-risk species and their essential habitats. The Valley Habitat Plan also provides a more efficient process for protecting natural resources by creating new habitat reserves that will be larger in scale, more ecologically valuable, and easier to manage than the individual mitigation sites. The Valley Habitat Plan determines the level of take of a covered animal species by the level of project-related impact to Valley Habitat Plan modeled habitat for each species. There are also limits on the number of populations of a covered plant species and the number of acres of natural communities that a project can affect. Many of the land cover types that have potential to support covered species are also considered sensitive natural communities by CDFW (e.g., Central California sycamore alluvial woodlands).



The Proposed Project study area is within the boundaries of the Valley Habitat Plan (SCVHA 2012), and the SCVHA has confirmed that the Proposed Project is covered by the Valley Habitat Plan. (SCVHA 2024). As described in Section 2.4.4, the Proposed Project will incorporate all applicable Conditions and AMMs of the Valley Habitat Plan. Compliance with these Conditions and AMMs will ensure impacts to special-status species covered by the Valley Habitat Plan (described in Section 3.5.1) are minimized to the greatest extent feasible.

### **3.5.3 Environmental Impacts and Mitigation Measures**

The following sections discuss the methods and assumptions, criteria for determining the significance of impacts, environmental impacts, and mitigation measures if applicable.

#### **Methods and Assumptions**

This analysis of impacts on botanical, wildlife, and fish resources resulting from implementation of the Proposed Project. The analysis is based on review of data collected as a result of the desktop evaluations and field surveys performed for the Proposed Project at the time of Draft EIR preparation. The analysis also used information incorporated into the GIS.

#### ***Applicable Conservation Measures***

Section 2.4 of this EIR identifies a wide array of Conservation Measures applicable to the analysis of impacts on biological resources. These measures would be incorporated into the geotechnical investigation work plan, and all geotechnical contractors employed on the Proposed Project would be required to adhere to them. As such, they are considered best management practices that are part of the Proposed Project.

These Conservation Measures include: BMPs, PAMMs, established survey protocols for milkweed for monarch butterfly, and Crotch's bumble bee, and VHP Conditions and AMMs. All BMPs, VHP Conditions, and VHP AMMs incorporated into the Proposed Project are applicable to this section (see Section 2.4 for a complete list). In addition, this analysis assumes incorporation of PAMMs BIO-1, BIO-2, BIO-3, BIO-4, and BIO-5.

#### **Criteria for Determining Significance of Impacts**

Significance criteria are based on Appendix G of the 2025 CEQA Guidelines. CEQA states that a Proposed Project would have a significant impact on biological resources if it would:

- a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by NMFS, USFWS, or CDFW;



- b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by NMFS, USFWS, or CDFW;
- c) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means;
- d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites;
- e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; or
- f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or State Habitat Conservation Plan.

The subsequent impact analyses in this section of the EIR ascribe a number to each potential impact that could result from the Proposed Project. The discussion is numbered by potential impact (Impact BIO-1 through BIO-19) rather than by CEQA impact criteria listed above. These impact topics are as follows:

- Impact BIO-1: Would the project result in substantial adverse effects on sensitive natural communities or riparian habitat?
- Impact BIO-2: Would the project result in substantial adverse effects on waters of the United States and/or waters of the State?
- Impact BIO-3: Would the project result in substantial adverse effects on special-status plants?
- Impact BIO-4: Would the project result in substantial adverse effects on monarch butterfly or Crotch's bumble bee or their habitat?
- Impact BIO-5: Would the project result in substantial adverse effects on California tiger salamander or California red-legged frog or their habitat?
- Impact BIO-6: Would the project result in substantial adverse effects on foothill yellow-legged frog or its habitat?
- Impact BIO-7: Would the project result in substantial adverse effects on northwestern pond turtle or its habitat?
- Impact BIO-8: Would the project result in substantial adverse effects on California floater mussel or its habitat?
- Impact BIO-9: Would the project result in substantial adverse effects on silvery legless lizard, San Joaquin coachwhip, and coast horned lizard or their habitat?





- Impact BIO-10: Would the project result in substantial adverse effects on special-status fish species or their habitat?
- Impact BIO-11: Would the project result in substantial adverse effects on special-status avian species, nesting migratory birds, or raptors (excluding bald and golden eagles) or their habitat?
- Impact BIO-12: Would the project result in substantial adverse effects on nesting bald eagles or golden eagles or its habitat?
- Impact BIO-13: Would the project result in substantial adverse effects on mountain lion or tule elk or its habitat?
- Impact BIO-14: Would the project result in substantial adverse effects on American badger or its habitat?
- Impact BIO-15: Would the project result in substantial adverse effects on San Joaquin kit fox or its habitat?
- Impact BIO-16: Would the project result in substantial adverse effects on San Francisco dusky-footed woodrat or its habitat?
- Impact BIO-17: Would the project result in substantial adverse effects on special-status bats (pallid bat, western red bat, western mastiff bat, Townsend's big-eared bat, and hoary bat), bat roosts, or ringtail or their habitat?
- Impact BIO-18: Would the project interfere with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?
- Impact BIO-19: Would the project conflict with the Santa Clara Valley Habitat Plan or local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

Table 3.5-5 is a "crosswalk" table illustrating how each numbered impact discussion aligns with the applicable CEQA threshold. In some instances, impact discussions may be assigned to more than one threshold.



**Table 3.5-5. Applicable CEQA Biological Thresholds to EIR Impacts**

CEQA Biological Threshold, Would the Project:	Applicable Impact Number
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by NMFS, USFWS, or CDFW?	BIO-3, BIO-4, BIO-5, BIO-6, BIO-7, BIO-8, BIO-9, BIO-10, BIO-11, BIO-12, BIO-13, BIO-14, BIO-15, BIO-16, BIO-17
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by CDFW or USFWS?	BIO-1
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	BIO-2
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	BIO-18
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	Not Applicable <sup>1</sup>
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or State Habitat Conservation Plan?	BIO-19

Note:

<sup>1</sup> As discussed under BIO-19, there are no applicable policies of the Santa Clara County General Plan as it relates to biological resources.

Key:

CDFW = California Department of Fish and Wildlife

NMFS = National Marine Fisheries Service

USFWS = U.S. Fish and Wildlife Service

## Environmental Impacts

### ***Impact BIO-1***

#### ***Would the project result in adverse effects on sensitive natural communities or riparian habitat?***

As shown in Table 3-1 of Attachment 2, Terrestrial Habitat Mapping in Appendix E, 15 of the 36 mapped vegetation communities/land cover types, which account for 9.1 acres of the Proposed Project study area, are categorized as sensitive natural communities (Table 3.5-6 at end of this impact discussion). Two of these sensitive natural communities (California sycamore woodlands and Goodding's willow red-willow riparian woodlands) are also classified as riparian habitats and total 0.127 acres.



One additional natural community which was classified under the Blue Oak Woodland Alliance (*Quercus douglasii* / *Artemisia californica*), is not formally described, and there is insufficient data to determine whether it would be considered sensitive by CDFW. As a result, Valley Water is taking a conservative approach and considering it sensitive for this impact analysis. When this natural community is included as sensitive, there are a total of 16 sensitive natural communities comprised of 10.2 acres within the Proposed Project study area.

Because the Proposed Project study area is within the VHP permit area, and the SCVHA has confirmed that the Proposed Project is a covered activity in the VHP, sensitive natural communities are covered under the VHP. Payment of VHP impact fees and implementing all applicable VHP Conditions and VHP AMMs provides take authorization for any potential impacts to VHP covered species and resources. Additionally, as discussed below, numerous Conservation Measures, described in detail in Section 2.4, will be incorporated into the Proposed Project to augment protection of sensitive natural communities and riparian habitat.

Specifically, the following BMPs, which are further described in Table 2-7 of Chapter 2, have been incorporated into the Proposed Project.

- BMP AQ-1: Use Dust Control Measures
- BMP BI-8: Choose Local Ecotypes of Native Plants and Appropriate Erosion-Control Seed Mixes
- BMP HM-7: Restrict Vehicle and Equipment Cleaning to Appropriate Locations
- BMP HM-8: Ensure Proper Vehicle and Equipment Fueling and Maintenance
- BMP HM-9: Ensure Proper Hazardous Materials Management
- BMP HM-10: Utilize Spill Prevention Measures
- BMP HM-12: Incorporate Fire Prevention Measures
- BMP WQ-4: Limit Impacts from Staging and Stockpiling Materials
- BMP WQ-9: Use Seeding for Erosion Control, Weed Suppression, and Site Improvement

Through targeted application of water to access routes and activity areas, implementation of BMP AQ-1 would reduce the potential for vehicles and equipment to generate excessive dust, which might otherwise cover plants within sensitive natural communities and riparian areas, reducing their photosynthetic capacity and lowering fecundity. BMP BI-8 and WQ-9 focus on utilizing native, local plants for erosion control seed mixes, which would reduce the potential for erosion during the wet season, maintain genetic integrity of herbaceous seeded species within the Proposed Project study area, and suppress the establishment or spread of non-native invasive plant (NNIP) species through establishing competitive native plant cover. BMPs HM-7, HM-8, HM-9, HM-10, and WQ-4, minimize the risk of equipment and vehicle leaks and spills causing soil and water contamination, including the risk stockpiled materials entering waterbodies. By requiring all vehicles to be equipped with spark arrestors and works crews to be properly equipped with fire



extinguishers, implementation of BMP HM-12 would reduce the risk of wildfire caused by the presence and operation of equipment and machinery within plant communities susceptible to fire.

The following PAMMs from Section 2.4.2 have also been incorporated into the Proposed Project.

- PAMM BIO-1: Work Environmental Awareness Training
- PAMM BIO-2: Biological Site Inspections and Summary Report (Compliance Program)
- PAMM BIO-3: Sensitive Natural Community and Aquatic Resource Avoidance
- PAMM BIO-4: Biological Monitoring for Special-Status Species and Environmentally Sensitive Areas
- PAMM BIO-5: Plant Pathogen, Non-Native Invasive Species, and Aquatic Invasive Species Prevention

PAMM BIO-1 requires all project personnel receive the WEAT before entering the Proposed Project study area. The WEAT will be provided by a qualified biologist and will include training on the roles and responsibilities of project personnel, including notification and documentation requirements for sensitive natural communities.

PAMM BIO-2 requires the daily inspection and reporting of activities associated with the Proposed Project by qualified biologists. Specifically, PAMM BIO-2 requires the daily inspections document that BMPs, PAMMs, VHP Conditions, and VHP AMMs are being implemented appropriately and to ensure compliance. Monitoring will also provide information necessary to demonstrate compliance with CEQA monitoring and reporting requirements. Monitoring reports summarizing the daily inspections will be provided bi-weekly to Valley Water.

PAMM BIO-3 addresses sensitive natural communities and riparian habitats by having qualified biologists conduct pre-activity botanical and aquatic resources (e.g., wetlands) surveys between 14 and 21 days prior to the movement of heavy equipment within work activity areas designated by the project engineer or geologist. Sensitive natural communities, riparian habitats, and aquatic resources identified during the surveys will be assessed for avoidance feasibility, which would be determined by Valley Water in coordination with the qualified botanist or vegetation ecologist. Determining avoidance may include minor design modifications (e.g., re-routing access routes) or establishment of avoidance buffers in areas proposed for temporary disturbances (e.g., staging areas). Specifically for purple needlegrass grassland, access through the community will be restricted during critical life history stages (flowering, seed set) and during wet weather. Access (without ground disturbance) will be allowed during the dormant season for the plants (typically late summer).

PAMM BIO-4 addresses areas designated as environmentally sensitive by requiring a qualified biologist to be present during the initial mobilization of equipment during setup and the start of the geotechnical borings at each work activity area. PAMM BIO-4 also requires that a qualified biologist is present during any ground disturbing and vegetation removal activities. The biologist would document pre-disturbance conditions and verify BMPS, PAMMs, VHP Conditions, and VHP



AMMs. If any avoidance markings for environmentally sensitive areas were damaged, removed, or obscured, the biologist would mark them again for avoidance and inform work crews if equipment or vehicles are too close to avoidance areas.

PAMM BIO-5 reduces the potential for introduction and spread of plant pathogens, non-native invasive species and AIS, which could otherwise degrade or reduce the extent of sensitive natural communities or riparian areas. Specifically, PAMM BIO-5 requires vehicles, equipment, tools, and boots be cleaned/decontaminated following the six-step cleaning/decontamination procedures prior to equipment and personnel entering the Proposed Project study area. This reduces the potential for the introduction and spread of *Phytophthora* plant pathogens within sensitive natural communities, which could otherwise result in mortality to individual plants and a reduction in the overall health and extent of vegetation in the vicinity of work activities, particularly in areas downslope from work areas. Incorporation of PAMM BIO-5 into the Proposed Project also minimizes the risk of establishment of NNIP species, by preventing introduction of seeds that could otherwise be transported into Proposed Project activity areas by contaminated vehicles/equipment.

Further, as discussed in the EIR prepared for the VHP (USFWS et al. 2012), as an NCCP the VHP's reserve system benefits the entire suite of natural communities in Santa Clara County, including many sensitive natural communities. VHP-required fees that are paid due to the proposed project will benefit sensitive natural communities (such as sycamore alluvial woodland) as well as a variety of non-sensitive natural communities within the area subject to the VHP. In addition, the following five Conditions of the VHP (as further discussed in Appendix C) are incorporated into the Proposed Project to address sensitive natural communities and riparian habitat:

- Condition 3. Maintain Hydrologic Conditions and Protect Water Quality
- Condition 4. Avoidance and Minimization for In-Stream Projects.
- Condition 5. Avoidance and Minimization Measures for In Stream Operations and Maintenance.
- Condition 12. Wetland and Pond Avoidance and Minimization
- Condition 14. Valley Oak and Blue Oak Woodland Avoidance and Minimization

Condition 3 requires the development and implementation of a stormwater management plan, while Conditions 4, 5, and 12 minimize sediment and pollutant discharges into waterways and minimizing riparian disturbance footprints. Implementation of Condition 14 reduces potential disturbances within oak woodlands by minimizing Project activity footprints within tree driplines.

Specific VHP avoidance and minimization measures incorporated into the Project Description (see Table 2-8) address sensitive natural communities and riparian habitats that include the following: VHP AMM-7, VHP AMM-8, VHP AMM-11, VHP AMM-29, VHP AMM-39, VHP AMM-40, VHP AMM-49, VHP AMM-58, VHP AMM-61, VHP AMM-63, VHP AMM-65, VHP AMM-68, VHP AMM-69, VHP AMM-71, VHP AMM-72, VHP AMM-73, VHP AMM-85, VHP AMM-86, VHP AMM-88, VHP AMM-



92, VHP AMM-93, VHP AMM-94, VHP AMM-87, VHP AMM-100, and VHP AMM-102. Collectively, these VHP AMMs avoid and/or minimize the extent of ground disturbance, potential for equipment leaks and spills, potential for the spread of invasive plant species, and potential for the spread of plant pathogens that could result in impacts on sensitive natural communities and riparian areas.

Within the Proposed Project study area, project activity would require the use of approximately 12.2 acres of established existing access roads. These established/existing access roads consist of either bare earth roads or established bare earth tire tracks, that are regularly traveled by ranch vehicles. Collectively, approximately 2.2 acres of these roads are within the boundary of a mapped sensitive natural community, even though the existing road footprint is essentially unvegetated.<sup>31</sup> Although these existing roads may be within these sensitive areas, regular existing vehicle use either precludes plant establishment entirely or only supports a strip of annual grasses and forbs between tire tracks. As a result, these roads are considered degraded areas due to their reduced ecological function (i.e., lack of native plant recruitment and establishment). Although the weight of drilling equipment associated with the Proposed Project may be greater than typical ranch vehicles that travel along these roads, transport of drilling equipment would not result in excessive compaction relative to baseline condition, which includes vehicular travel during the wet and dry seasons, because activities would only be occurring on site during the dry season and would be limited in duration from one two trips per day for up to several weeks. Therefore, impacts to existing bare earth access roads and established bare earth tire tracks from the Proposed Project would not result in significant impacts to sensitive natural communities.

**Table 3.5-6. Sensitive Natural Community Impacts**

Sensitive Natural Community (Alliance, Association)	Geotechnical Investigation Activity in or near Sensitive Natural Communities	Acreage within Activity Area <sup>2</sup>	Potential Ground Disturbance <sup>1</sup>	
			Square Feet	Acres
California Buckeye Grove <i>Aesculus californica</i>	Established/Existing Road <sup>3</sup>	0.049	-	-
California Sagebrush Scrub <i>Artemisia californica</i> – <i>Diplacus aurantiacus</i>	Helicopter Boring (2 total)	0.193	450	0.010
	Refraction Line	0.025	-	-
Gooding's Willow – Red Willow Riparian Woodland <i>Salix laevigata</i> / <i>Salix lasiolepis</i>	Established/Existing Road <sup>3</sup>	0.057	-	-
Holly Leaf Cherry – Toyon – Greenbark Ceanothus Chaparral <i>Prunus ilicifolia</i> ssp. <i>ilicifolia</i> – <i>Fraxinus dipetala</i>	Helicopter Boring (1 total)	0.022	225	0.005
	Refraction Line	<0.001	-	-

<sup>31</sup> The mapping convention described in Appendix E, Attachment 2 did not exclude these narrow roads from the surrounding vegetation communities.





**Table 3.5-6. Sensitive Natural Community Impacts (cont.)**

Sensitive Natural Community (Alliance, Association)	Geotechnical Investigation Activity in or near Sensitive Natural Communities	Acreage within Activity Area <sup>2</sup>	Potential Ground Disturbance <sup>1</sup>	
			Square Feet	Acres
Holly Leaf Cherry – Toyon – Greenbark Ceanothus Chaparral <i>Prunus ilicifolia</i> ssp. <i>ilicifolia</i>	Helicopter Boring (3 total)	0.020	675	0.015
	Established/Existing Road <sup>3</sup>	0.128	-	-
	Refraction Line	0.067	-	-
	Helicopter Supplemental Boring (1 total)	0.008	225	0.005
	Supplemental Boring (1 total)	0.169	4	<0.001
Needle grass – Melic Grass Grassland <i>Stipa pulchra</i> – <i>Avena</i> spp. – <i>Bromus</i> spp.	Access Route	0.129	-	-
	Established/Existing Road <sup>3</sup>	0.354	-	-
	Refraction Line	0.137	-	-
	Test Pit (12 total)	0.743	6,000	0.138
Needle grass – Melic Grass Grassland <i>Stipa pulchra</i> – <i>Melica californica</i> – Annual grass	Boring (1 total)	0.059	4	<0.001
	Helicopter Boring (1 total)	0.006	225	0.005
	Established/Existing Road <sup>3</sup>	0.041	-	-
	Refraction Line	0.014	-	-
Needle grass – Melic grass grassland No Association	Established/Existing Road <sup>3</sup>	0.007	-	-
California Sycamore Woodlands <i>Platanus racemosa</i> – <i>Quercus agrifolia</i>	Established/Existing Road <sup>3</sup>	0.012	-	-
California Sycamore Woodlands <i>Platanus racemosa</i>	Access Route	0.014	-	-
	Established/Existing Road <sup>3</sup>	0.043	-	-
Coast Live Oak Woodland <i>Quercus agrifolia</i> / <i>Adenostoma fasciculatum</i> – ( <i>Salvia mellifera</i> )	Access Route	< <0.000	-	-
	Refraction Line	0.057	-	-
Coast Live Oak Woodland <i>Quercus agrifolia</i> / <i>Artemisia californica</i>	Boring (1 total)	0.132	4	<0.001
	Established/Existing Road <sup>3</sup>	0.162	-	-
	Helicopter Boring (7 total)	0.665	1,575	0.036
	Refraction Line	0.179	-	-
	Resistivity Line	0.021	-	-



**Table 3.5-6. Sensitive Natural Community Impacts (cont.)**

Sensitive Natural Community (Alliance, Association)	Geotechnical Investigation Activity in or near Sensitive Natural Communities	Acreage within Activity Area <sup>2</sup>	Potential Ground Disturbance <sup>1</sup>	
			Square Feet	Acres
Coast Live Oak Woodland <i>Quercus agrifolia</i> – <i>Umbellularia californica</i>	Access Route	0.009	-	-
	Boring (5 total)	0.300	20	<0.001
	Established/Existing Road <sup>3</sup>	0.220	-	-
	Helicopter Boring (12 total)	1.463	2,700	0.062
	Refraction Line	0.194	-	-
	Resistivity Line	0.070	-	-
	Supplemental Boring (2 total)	0.057	8	<0.001
	Supplemental Helicopter Boring (7 total)	0.861	1,575	0.036
Blue Oak Woodland <i>Quercus douglasii</i> / <i>Artemisia californica</i> <sup>4</sup>	Boring (1 total)	0.132	4	<0.001
	Established/Existing Road <sup>3</sup>	0.162	-	-
	Helicopter Boring (8 total)	0.665	1,800	0.041
	Refraction Line	0.179	-	-
	Resistivity Line	0.021	-	-
Valley Oak Woodland <i>Quercus lobata</i> – <i>Quercus agrifolia</i> /grass	Access Route	0.008	-	-
	Established/Existing Road <sup>3</sup>	0.179	-	-
	Refraction Line	0.047	-	-
	Test Pit (3 total)	0.153	1,500	0.034
Valley Oak Woodland <i>Quercus lobata</i> /grass	Access Route	0.172	-	-
	Boring (4 total)	0.292	16	<0.001
	Established/Existing Road <sup>3</sup>	1.115	-	-
	Helicopter Landing Area	0.002	-	-
	Refraction Line	0.080	-	-
	Storage/Staging Area	0.049	-	-
	Supplemental Boring (2 total)	0.278	8	<0.001
	Test Pit (2)	0.016	1,000	0.023
<b>Total</b>		<b>10.236</b>	<b>18,018</b>	<b>0.410</b>

Note:

<sup>1</sup> Values represent maximum potential ground disturbance – sensitive communities would be avoided to the maximum extent practicable. In areas with trees, no ground disturbance would occur within the dripline of trees.

<sup>2</sup> These values equal the extent of sensitive natural communities within work areas and therefore the maximum amount of potential disturbance, which would be avoided to the maximum extent practicable. Types of disturbances include vehicle access, crew access, and shrub trimming.

<sup>3</sup> Established/existing roads consist of bare/compacted vehicle tracks that comprise ranch roads in the Proposed Project study area. Use of these areas would not result in additional disturbance relative to baseline conditions.

<sup>4</sup> Because there is not enough data to determine whether this natural community is sensitive, it is being considered as a sensitive natural community for this impact analysis. Within this natural community, no work would be conducted within tree driplines, no trees would be pruned, and any trimmed shrub vegetation would cut to ground level (no disturbance to roots) and would be assumed to resprout.



During geotechnical investigations, areas supporting sensitive natural communities may be subject to temporary ground disturbance (approximately 0.41-acre total ground disturbance; see Table 3.5-6) associated with test pits, borings, supplemental borings, and contouring with hand tools to accommodate drilling platforms. This acreage was calculated based on whether a sensitive natural community was mapped within the 100-foot diameter work area around each boring and test pit location. When present, the analysis conservatively assumed that the full extent of potential ground disturbance in that work area would occur in that sensitive natural community. However, the actual acreage of total ground disturbance within sensitive natural communities would be less than this amount because work within these areas would be minimized to the maximum extent practical consistent with PAMM BIO-3, which requires a biologist to mark sensitive natural communities and riparian areas within work areas for avoidance. As described in Section 2.3.2, to minimize potential damage to tree root systems, no ground-disturbance activities or driving along new access routes would occur within tree driplines. Additional impacts within activity areas could include shrub trimming for access to and within work areas as well as trampling of herbaceous vegetation due to vehicle and equipment ingress/egress. Within the *Quercus douglasii* / *Artemisia californica* community, no trees would be pruned, and any trimmed shrubs would be assumed to be able to resprout, resulting in no long-term impacts to woody vegetation. Because refraction line and resistivity testing activities would be conducted on foot and would not result in ground disturbance, these activities would not result in impacts on sensitive natural communities. Because work in these areas would take place in the dry season when soils have low soil moisture content, potential impacts from compaction would be minimized. In addition, compaction related to travel would not occur within any of the 64 (46 initial and 18 supplemental) the helicopter boring activity areas.

As noted in Attachment 2, Terrestrial Habitat Mapping in Appendix E, the only herbaceous sensitive natural community in the Proposed Project study area is the Needle Grass – Melic Grass Alliance. Protection of this community will be augmented by implementation of PAMM BIO-3.

Shrub trimming/cutting would occur using handheld tools, and efforts would be made to cut or trim shrubs in a manner that would not compromise the vitality of the shrub or result in removal of the entire plant. Trees would be limbed and/or removed by a professional arborist using handheld power tools at 11 boring location work areas that contain two coast live oak woodland sensitive communities (*Quercus agrifolia* / *Artemisia californica* and *Quercus agrifolia* – *Umbellularia californica* associations) to accommodate helicopter access to four boring and five supplemental boring activity areas and access to two non-helicopter boring activity areas. The area required for helicopter access at each boring location measures 15 feet by 15 feet or 225 square feet. Although each area does not need to be fully cleared at each boring location, the full combined area of these 11 sites that require tree trimming and removal equals 2,475 square feet or 0.06 acre. Therefore, the impact areas calculated in this analysis for sensitive natural communities resulting from trimming and tree removal are conservative. Due to the overlapping structure of the tree canopy layer, tree limbing and removal could extend beyond the actual area underlying the area subject to vegetation removal. Coast live oak woodlands within the Proposed



Project study area have dense canopy cover and could potentially fill back in through neighboring tree growth or new tree recruitment.

Following temporary ground-disturbing activities, areas of disturbed and bare soil would be returned to original condition and seeded with a native and regionally appropriate erosion control mix approved by Valley Water and the landowner, as described in Section 2.3.2.

Impacts from the Proposed Project on sensitive natural communities would be **less than significant**. No mitigation is required.

### ***Impact BIO-2***

#### ***Would the project result in adverse effects on waters of the United States and/or waters of the State?***

As described in Attachment 3, Aquatic Resources Delineation in Appendix E, 12.568 acres of potential waters of the State are present in the 55-acre Proposed Project study area (Table 3.5-2), which include 0.094 acre of isolated seasonal wetlands. Of the total 12.568 acres of waters of the State in the Proposed Project study area, 12.364 acres are also potential waters of the United States and are under USACE jurisdiction. The 0.094 acre of seasonal wetlands is not under the jurisdiction of the USACE or CDFW but is under the jurisdiction of the CCRWQCB. Of the 12.568 acres of potentially State-jurisdictional aquatic resources, 12.474 acres associated with the existing reservoir and streams are under CDFW jurisdiction. As discussed below, numerous Conservation Measures, described in detail in Section 2.4, will be incorporated into the Proposed Project description to augment protection of waters of the United States and waters of the State.

Specifically, the following BMPs are incorporated into the Proposed Project, as described in Table 2-7 of Chapter 2:

- BMP HM-7: Restrict Vehicle and Equipment Cleaning to Appropriate Locations
- BMP HM-8: Ensure Proper Vehicle and Equipment Fueling and Maintenance
- BMP HM-9: Ensure Proper Hazardous Materials Management
- BMP HM-10: Utilize Spill Prevention Measures
- BMP WQ-4: Limit Impacts from Staging and Stockpiling Materials
- BMP WQ-9: Use Seeding for Erosion Control, Weed Suppression, and Site Improvement
- BMP WQ-11: Maintain Clean Conditions at Work Sites
- BMP WQ-12: Manage Well or Exploratory Boring Materials
- BMP WQ-13: Protect Groundwater from Contaminates Via Wells or Exploratory Borings
- BMP WQ-14: Backfill Completed Exploratory Borings
- BMP WQ-15: Prevent Water Pollution
- BMP WQ-16: Prevent Stormwater Pollution



- BMP WQ-17: Manage Sanitary and Septic Waste

BMPs BI-8 and WQ-9 require native, local plants to be used for erosion control seed mixes, which would reduce the potential for erosion and subsequent discharge of sediments into waterbodies during the wet season. BMPs HM-7, HM-8, HM-9, HM-10, WQ-4, WQ-11, WQ-15, WQ-16, and WQ-17 minimize the risk of equipment and vehicle leaks and spills causing soil and water contamination, including the risk stockpiled materials entering waterbodies. BMPs WQ-12 and WQ-13 reduce the potential for contaminants related borings from entering waterbodies.

The following PAMMs are also incorporated into the Proposed Project (see Section 2.4).

- PAMM BIO-1: Work Environmental Awareness Training
- PAMM BIO-2: Biological Site Inspections and Summary Report (Compliance Program)
- PAMM BIO-3: Sensitive Natural Community and Aquatic Resource Avoidance
- PAMM BIO-4: Biological Monitoring for Special-Status Species and Environmentally Sensitive Areas
- PAMM BIO-5: Plant Pathogen, Non-Native Invasive Species, and Aquatic Invasive Species Prevention

PAMM BIO-1 requires all project personnel receive the WEAT before entering the Proposed Project study area. The WEAT will be provided by a qualified biologist and will include training on the roles and responsibilities of project personnel, including notification and documentation requirements intended to avoid or minimize impacts to sensitive biological resources.

PAMM BIO-2 requires the daily inspection and reporting of activities associated with the Proposed Project by qualified biologists. PAMM BIO-2 requires the daily inspections document that BMPs, PAMMs, VHP Conditions, and VHP AMMs are being implemented appropriately and to ensure compliance. Monitoring will also provide information necessary to demonstrate compliance with CEQA mitigation monitoring and reporting requirements. Monitoring reports summarizing the daily inspections will be provided bi-weekly to Valley Water.

PAMM BIO-3 addresses waters of the United States and waters of the State by having qualified biologists conduct pre-activity surveys between 14 and 21 days prior to the movement of heavy equipment within work activity areas designated by the project engineer or geologist. Aquatic resources identified during the surveys will be assessed for avoidance feasibility, which would be determined by Valley Water in coordination with the qualified botanist or vegetation ecologist. Determining avoidance may include minor design modifications (e.g., re-routing access routes) or establishment of avoidance buffers in areas proposed for temporary disturbances (e.g., staging areas).

PAMM BIO-4 addresses areas designated as environmentally sensitive by requiring a qualified biologist to be present during the initial mobilization of equipment during setup and the start of surface and subsurface investigations at each activity area. PAMM BIO-4 also requires that a



qualified biologist is present during any ground disturbing and vegetation removal activities. The biologist would document pre-disturbance conditions and verify BMPs, PAMMs, VHP Conditions, and VHP AMMs. If any avoidance markings for environmentally sensitive areas are damaged, removed, or obscured, the biologist would mark them again for avoidance and inform work crews if equipment or vehicles were too close to avoidance areas.

PAMM BIO-5 reduces the potential for introduction of plant pathogen, non-native invasive species and AIS as a result of the implementation of the Proposed Project which could otherwise degrade or reduce the extent of sensitive natural communities or riparian areas, which include features considered potential waters of the United States and waters of the State. Specifically, PAMM BIO-5 requires vehicles, equipment, tools, and boots be cleaned/decontaminated following the six-step cleaning/decontamination procedures prior to equipment and personnel from entering the Proposed Project study area, which reduces the potential for the introduction and spread of *Phytophthora* plant pathogens within aquatic resources, which could otherwise result in mortality to individual plants and a reduction in the overall health and extent of vegetation in the vicinity of work activities, particularly in areas downslope or downstream from work areas. Incorporation of PAMM BIO-5 into the Proposed Project also minimizes the risk of establishment of NNIP species, by preventing introduction of seeds that could otherwise be transported into Proposed Project activity areas by contaminated vehicles/equipment.

Further, as part of the Proposed Project, Valley Water would be paying fees to the SCVHA to compensate for temporary impacts to seasonal wetlands and streams. These fees would be used by the SCVHA to restore, acquire and/or preserve aquatic resources as part of the VHP's Reserve System. In addition, four Conditions of the VHP (as further discussed in Appendix C) are incorporated into the Proposed Project and would be implemented to address waters of the U.S. and waters of the State:

- Condition 3. Maintain Hydrologic Conditions and Protect Water Quality
- Condition 4. Avoidance and Minimization for In-Stream Projects.
- Condition 5. Avoidance and Minimization Measures for In Stream Operations and Maintenance.
- Condition 12. Wetland and Pond Avoidance and Minimization

Condition 3 requires the development and implementation of a stormwater management plan, while Conditions 4, 5, and 12 minimize sediment and pollutant discharges into waterways and minimizing riparian disturbance footprints.

In addition, 48 VHP AMMs listed in Table 2-8 have been incorporated into the Project Description to protect, avoid, and/or minimize disturbance to wetlands and riparian areas by protecting water quality and minimizing disturbances within aquatic resources. These AMMs applicable to wetlands and aquatic resources would restrict vehicles to designated activity areas, including pre-approved access routes; require stabilization of stockpiled materials, including stockpiled topsoil; require





that spill prevention kits kept nearby to work areas, and through avoidance of wet season activities.

Within these aquatic resources, a total of 48 borings (41 primary and seven supplemental borings) would be drilled below the full-pool elevation of the reservoir. Each individual boring would have a total disturbance area of 4-square feet (with a boring diameter of 6 inches). Borings could be accomplished with one or a combination of up to four methods: rock core drilling, hollow stem auger drilling, auger/rotary wash drilling, and possibly vibrocore barge borings if the Pacheco Reservoir is not drawn down at the time of the boring. Each boring method type would result in the same area of temporary disturbance, for a total of 0.004 acre of temporary impacts to aquatic resources within the full pool elevation of the reservoir. There would be no geotechnical investigations that would impact seasonal wetlands. In addition, up to 11 sediment samples within the reservoir would be collected for erodibility testing with a footprint of 2 square feet each, for a total of 22 square feet of additional temporary impacts on aquatic resources. With the exception of the borings/supplemental borings, no other geotechnical investigation work areas would result in temporary ground disturbance to aquatic resources regulated by the CCRWQCB, CDFW, or the USACE.

Following subsurface analysis, each boring would be backfilled and returned to its original condition. At up to 11 boring locations within the boundary of the existing reservoir, piezometers would be installed for more than one year to monitor surface and subsurface water levels, even when the boring holes are inundated. Following data collection, piezometers and associated casings would be removed, and the boring holes would be backfilled to original condition.<sup>32</sup>

The Proposed Project study area overlaps with aquatic resources along access routes and existing roads that go through portions of the reservoir, intermittent and ephemeral streams, and seasonal wetlands. Table 3.5-7 below provides a summary of the types of aquatic resources, relationship to project activity type and area potentially affected within potential waters of the United States and State. As described in Impact BIO-1, vehicular and drilling equipment travel could also result in compaction within aquatic features. However, because work would occur when these features are dry (i.e., no surface soil moisture present) any resulting soil compaction would be minimized.

Within the reservoir, and intermittent drainages throughout the Proposed Project study area (e.g., South Fork Pacheco Creek), any potential sediments disturbed within the aquatic features would constitute a small proportion of the total sediment load that the Pacheco Creek watershed receives on an annual basis. As a result, Proposed Project impacts on aquatic resources would not have an appreciable effect on water quality with the Pacheco Creek watershed. At the access route crossing of South Fork Pacheco Creek, the channel bed and banks is completely covered with

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<sup>32</sup> In the event piezometers located within the reservoir are inundated, they would be removed after at least two years of data has been collected and the casings would be abandoned in place after backfilling to meet Valley Water requirements.



coarse gravels and small cobbles. Therefore, equipment travel in this location would have a minimal effect on water quality through soil disturbance and compaction.

The acreage of each activity area associated with aquatic resources is shown in Table 3.5-7.

**Table 3.5-7. Aquatic Resources by Project Component**

Resource Type (Map Code)	Project Activity Area	Waters of the State (portion also considered Waters of the U.S.)		Temporary Impact Area (acres)
		Acres	Linear Feet	
Reservoir	Access Route	3.325 (3.325)	-	-
	Access Route - Barge	0.055 (0.055)	-	-
	Boring	7.246 (7.246)	-	0.004
	Established/Existing Road	0.011 (0.011)	-	-
	Refraction Line	0.539 (0.539)	-	-
	Resistivity Line	0.039 (0.039)	-	-
	Supplemental Boring	1.106 (1.106)	-	0.0006
	<b>Subtotal</b>	<b>12.321 (12.321)</b>	-	<b>0.0046</b>
Riverine Ephemeral	Access Route	<0.001 (0.000)	12.19 feet	-
	Established/Existing Road	0.109 (0.000)	1,871.72 feet	-
	Refraction Line	0.001 (0.000)		-
	<b>Subtotal</b>	<b>0.110 (0.000)</b>		<b>0.000</b>
Riverine Intermittent	Access Route	0.017 (0.017)		-
	Established/Existing Road	0.026 (0.026)		-
	<b>Subtotal</b>	<b>0.043 (0.043)</b>		<b>0.000</b>
Seasonal Wetland <sup>1</sup>	Access Route	0.057 (0.000)		-
	Established/Existing Road	0.018 (0.000)		-
	Refraction Line	0.019 (0.000)		-
	<b>Subtotal</b>	<b>0.094 (0.000)</b>		<b>0.000</b>
<b>Total</b>		<b>12.568 (12.364)</b>		<b>0.0046</b>

Notes:

<sup>1</sup> Due to being located above the full-pool line of the reservoir, the 0.094-acre of seasonal wetland is only CCRWQCB-jurisdictional. It is not CDFW jurisdictional due to a lack of a defined bed and bank, and it is not USACE jurisdictional due to a lack of a perennial or near perennial surface connection to the reservoir.

Key:

CCRWQCB = Central Coast Regional Water Quality Control Board

CDFW = California Department of Fish and Wildlife

Unless Pacheco Reservoir is inundated at the time of geotechnical investigations, activities (e.g., jet testing, boring) would take place when the reservoir is drawn down/dry. Due to the small footprint of each boring and associated jet testing location and the fact that bore holes are temporary and would be backfilled to the pre-existing grade within hours after boring is completed, the proposed geotechnical activities investigations would not result in significant impacts to waters of the U.S, waters of the State, or wetlands.



With implementation of the Proposed Project, impacts on waters of the United States and/or waters of the State would be **less than significant**. No mitigation is required.

### **Impact BIO-3**

#### ***Would the project result in adverse effects on special-status plants?***

As described in Exhibit 1B, Botanical Special-status Species Assessment, to Attachment 1, Biological Resources Assessment Report in Appendix E, two special-status plant species (Hall's bush-mallow and woodland woollythreads) were observed within the Proposed Project study area during protocol-level plant surveys. Specifically, the Proposed Project study area partially-overlaps with three mapped locations of one population that support 395 Hall's bush-mallow individuals and location of one population that was observed to support 61 of woodland woollythreads individuals. Special-status plant species located within the Proposed Project study area and a surrounding 250-foot buffer from designated activity areas are shown in Table 3.5-8 below. Special-status plant species occurrences within the Proposed Project study area and the 250-foot buffer would be fully avoided by geotechnical investigation activities. Survey results are detailed in Exhibit 1B, Botanical Special-status Species Assessment, to Attachment 1, Biological Resources Assessment Report in Appendix E.

**Table 3.5-8. Special-Status Plants within Activities Areas Encompassed by the Proposed Project Study Area and/or a 250-foot Buffer Area**

Species	Mapped Areas Supporting Species (number of individuals) within or Overlapping Proposed Project Study Area <sup>1</sup>	Mapped Areas Supporting Species (number of individuals) within 250 feet of Proposed Project Study Area <sup>1</sup>
Pappose tarweed <i>Centromadia parryi</i> ssp. <i>rudis</i>	-	2 Mapped Areas (201 Individuals); 1 population
Spiny sepaled button celery <i>Eryngium spinosepalum</i>	-	1 Mapped Area (2 Individuals); 1 population
Hall's Bush-mallow <i>Malacothamnus acuratus</i> var. <i>elmeri</i>	3 Mapped Areas (395 Individuals); 1 population	10 Mapped Areas (350 Individuals); 1 population
Woodland woollythreads <i>Monolopia gracilens</i>	1 Mapped Area (61 Individuals); 1 population	6 Mapped Areas (18 Individuals); 1 population
Most beautiful jewel flower <i>Streptanthus albidus</i> ssp. <i>peramoenus</i>	-	1 Mapped Area (2 Individuals); 1 population

Notes

<sup>1</sup> Mapped areas for each species are part of the same population (are within 0.25 mile of each other)

As discussed below, numerous Conservation Measures, described in detail in Section 2.4, have been incorporated into the Proposed Project to avoid and/or reduce impacts special-status plants. Specifically, the following BMPs, which are further described in Table 2-7 of Chapter 2, have been incorporated into the Proposed Project.

- BMP AQ-1: Use Dust Control Measures



- BMP BI-8: Choose Local Ecotypes of Native Plants and Appropriate Erosion-Control Seed Mixes
- BMP HM-7: Restrict Vehicle and Equipment Cleaning to Appropriate Locations
- BMP HM-8: Ensure Proper Vehicle and Equipment Fueling and Maintenance
- BMP HM-9: Ensure Proper Hazardous Materials Management
- BMP HM-10: Utilize Spill Prevention Measures
- BMP HM-12: Incorporate Fire Prevention Measures
- BMP WQ-9: Use Seeding for Erosion Control, Weed Suppression, and Site Improvement

Through targeted application of water to access routes and activity areas, implementation of BMP AQ-1 would reduce the potential for vehicles and equipment to generate excessive dust, which might otherwise cover special-status plants, reducing their photosynthetic capacity and lowering fecundity. BMPs BI-8 and WQ-9 focus on utilizing native, local plants for erosion control seed mixes, which would reduce the potential for erosion during the wet season, maintain genetic integrity of herbaceous seeded species within the Proposed Project study area, and suppress the establishment or spread of NNIP that could otherwise compete with special-status plants through establishing native plant cover. BMPs HM-7, HM-8, HM-9, and HM-10 would minimize the risk of equipment and vehicle leaks and spills causing soil and water contamination. By requiring all vehicles to be equipped with spark arrestors and works crews to be properly equipped with fire extinguishers, implementation of BMP HM-12 would reduce the risk of wildfire caused by the presence and operation of equipment and machinery within plant communities, including those supporting special-status plants, susceptible to fire.

Similar to the BMPs, the following PAMMs have been incorporated into the Proposed Project and would avoid and/or reduce potential impacts on special-status plants (see Section 2.4)

- PAMM BIO-1: Work Environmental Awareness Training (WEAT)
- PAMM BIO-2: Biological Site Inspections and Summary Report (Compliance Program)
- PAMM BIO-3: Sensitive Natural Community and Aquatic Resource Avoidance
- PAMM BIO-4: Biological Monitoring for Special-Status Species and Environmentally Sensitive Areas
- PAMM BIO-5: Plant Pathogen, Non-Native Invasive Species, and Aquatic Invasive Species (AIS) Prevention

PAMM BIO-1 requires all project personnel receive the WEAT before entering the Proposed Project study area. The WEAT will be provided by a qualified biologist and will include training on the roles and responsibilities of project personnel, including notification and documentation requirements intended to avoid or minimize impacts to special-status species and their habitats.



PAMM BIO-2 requires the daily inspection and reporting of activities associated with the Proposed Project by qualified biologists. PAMM BIO-2 requires the daily inspections document that BMPs, PAMMs, VHP Conditions and VHP AMMs, and Mitigation Measures are being implemented appropriately and to ensure compliance. Monitoring will also provide information necessary to demonstrate compliance with CEQA mitigation monitoring and reporting requirements. Monitoring reports summarizing the daily inspections will be provided bi-weekly to Valley Water.

PAMM BIO-3 augments protection of special-status plants by having qualified biologists conduct pre-activity botanical surveys between 14 and 21 days prior to the movement of heavy equipment within work activity areas designated by the project engineer or geologist. Special-status plant occurrences will be assessed for avoidance, which would be determined by Valley Water in coordination with the qualified botanist or vegetation ecologist. Determining avoidance may include minor design modifications (e.g., re-routing access routes) or establishment of avoidance buffers in areas proposed for temporary disturbances (e.g., staging areas).

PAMM BIO-4 augments protection of special-status species and areas designated as environmentally sensitive by requiring a qualified biologist to be present during the initial mobilization of equipment during setup and the start of the geotechnical borings at each work activity area. PAMM BIO-4 also requires that a qualified biologist is present during any ground disturbing and vegetation removal activities. The biologist would document pre-disturbance conditions and verify BMPs, PAMMs, VHP Conditions, VHP AMMs, and mitigation measures. If any avoidance markings for environmentally sensitive areas were damaged, removed, or obscured, the biologist would mark them again for avoidance and inform work crews if equipment or vehicles are too close to avoidance areas.

PAMM BIO-5 reduces the potential for introduction and spread of plant pathogens, non-native invasive species and AIS, which could otherwise degrade or reduce the extent of special-status plant occurrences through either direct mortality or through increased competition with non-native species. Specifically, PAMM BIO-5 requires vehicles, equipment, tools, and boots be cleaned/decontaminated following the six-step cleaning/decontamination procedures prior to equipment and personnel entering the Proposed Project study area. This reduces the potential for the introduction and spread of *Phytophthora* plant pathogens within or near special-status plant occurrences, which could otherwise result in mortality to individual plants and a reduction in the overall health and extent of vegetation in the vicinity of work activities, particularly in areas downslope from work areas. Incorporation of PAMM BIO-5 into the Proposed Project also minimizes the risk of establishment of NNIP species, by preventing introduction of seeds that could otherwise be transported into Proposed Project activity areas by contaminated vehicles/equipment. In addition, the following three Conditions of the VHP (as further discussed in Appendix C) are incorporated into the Proposed Project and would be implemented to address special-status plants:

- Condition 3. Maintain Hydrologic Conditions and Protect Water Quality
- Condition 19. Plant Salvage when Impacts are Unavoidable



- Condition 20. Avoid and Minimize Impacts to Covered Plant Occurrences

Condition 3 requires the development and implementation of a stormwater management plan to reduce impacts on water quality from erosion, which could otherwise reduce habitat quality for special-status plant species. While not anticipated, if impacts on individual special-status plants are unavoidable, Condition 19 sets forth notification procedures to the SCVHA to determine if salvage is appropriate for plants species covered by the VHP. Condition 20 minimizes impacts on covered plant species within and adjacent to Project activity areas by requiring plant surveys, avoidance and minimization practices (e.g., exclusion fencing or marking), and monitoring of activities in the vicinity of covered plants.

Specific measures from the VHP include the following AMMs described in Table 2-8: VHP AMM-8, VHP AMM-11, VHP AMM-39, VHP AMM-40, VHP AMM-49, VHP AMM-58, VHP AMM-61, VHP AMM-62, VHP AMM-69, VHP AMM-71, VHP AMM-73, VHP AMM-76, VHP AMM-85, VHP AMM-86, VHP AMM-87, VHP AMM-92, and VHP AMM-100. Collectively, these measures minimize the extent of ground disturbance, potential for equipment leaks and spills, potential for the spread of invasive plant species that could result in impacts on special-status plant species.

However, even with the inclusion of all applicable Conservation Measures, this impact would remain significant. This is because Woodland woollythreads is an annual species, and the mapped boundaries of the population that occurs within a portion of the Proposed Project study area may have shifted (contracted or expanded) since the time of the original plant survey in 2019). In contrast, Hall's bush-mallow is a perennial species, and as a result, the boundaries of occurrences within the Proposed Project study area have not changed appreciably since they were mapped during baseline botanical surveys. Without the current boundaries of the woodland woollythread occurrence, implementation of applicable Conservation Measures may not be effective in reducing/avoiding impacts to the species to a less than significant level. Therefore, the following mitigation measure would be implemented to reduce the potential for direct and indirect impacts on special-status plants to a less than significant level (see Table 3.5-9 in Mitigation Measures Section for full text):

- MM BIO-1: Special-Status Plant Surveys and Avoidance

Implementation of mitigation measure BIO-1 requires a qualified botanist familiar with the plant communities and special-status plant species known to occur in the Proposed Project study area to verify the boundaries of all previously mapped woodland woollythread occurrences within the Proposed Project study area or update any boundaries if they have changed and will mark these areas for avoidance. By marking these areas for avoidance, the potential for damage from vehicles and equipment on mapped populations would be minimized.

With the incorporation of mitigation measure BIO-1, impacts on special-status plants would be reduced to less than significant. Therefore, Proposed Project impacts would be **less than significant with mitigation**.





#### **Impact BIO-4**

##### ***Would the project result in adverse effects on monarch butterfly and Crotch's bumble bee?***

Suitable breeding and migration habitat for the monarch butterfly occurs adjacent to and upstream of Pacheco Reservoir within the Proposed Project study area (Appendix E, Attachment 1, Biological Resource Assessment). Breeding habitat consists of large and scattered populations of the host plant (milkweed). Migration habitat consists of forests, woodlands, chaparral, and grasslands. Downstream of the reservoir habitat becomes fragmented by SR-152 and rural development, reducing the quality of breeding and migration habitat. The Proposed Project study area does not support overwintering habitat for monarch butterfly.

The Crotch's bumble bee requires foraging, nesting, and overwintering habitats. Primary land cover types that provide the three habitat requirements are grassland, chaparral, and scrub; oak woodland and forest likely provide suitable habitat as well. Secondarily, riparian areas, coastal and valley freshwater marshes, seasonal wetlands, and agricultural areas can provide foraging habitat, and drier sites within these habitats could possibly provide nesting or overwintering habitat. There are also a few recent records from urban areas, suggesting that urban parks or suburban/residential areas may provide habitat as well. Crotch's bumble bee nesting biology is poorly known, though known nests have been recorded in abandoned rodent burrows. Nests have mostly been found in grasslands or chaparral to date (though only eight nests, total, have been found in California in 2023 and 2024 [H. Sardinas, pers. comm. 2025]). Bumble bee queens overwinter in cavities below the ground or in loose soil and leaf litter, occasionally in other refugia such as wood piles or rock walls. The Proposed Project study area supports suitable foraging, nesting, and overwintering habitats (Appendix E, Attachment 1, Biological Resource Assessment).

Milkweed is a preferred floral resource for Crotch's bumble bee; therefore, impacting milkweed plants may also reduce foraging habitat for Crotch's bumble bee and potentially kill individuals if foraging on the affected plants at the time of the impact. Impacts to other floral resources may reduce foraging habitat and potentially kill individuals of both species if foraging on the affected floral resources at the time of the impact. Crotch's bumble bee mortality could result from ground disturbance that could crush burrows or other refugia containing nests.

To address monarch butterfly, Valley Water's monarch butterfly avoidance protocol is incorporated into the Proposed Project. As described in Chapter 2 and detailed in the USFWS-approved Milkweed Survey Plan in Appendix C, a qualified biologist will conduct pre-activity biological survey including a 25-foot buffer surrounding activity areas prior to beginning activities at those areas when the milkweed is identifiable. If milkweed is found, a minimum 10-foot disturbance buffer will be demarcated in the field so that vehicular damage to the milkweed and any monarch butterfly eggs or larvae is avoided. For any plants that cannot be avoided and do not support monarch eggs, larvae, or pupae, the qualified biologist will remove those plants immediately (during the survey) to prevent monarchs from laying eggs between the time of the survey and initiation of impacts. If impacts to plants supporting individuals cannot be avoided or delayed until the emergence of those individuals as adults, Valley Water will coordinate with the



USFWS regarding recommendations. Given that Crotch's bumble bee preferentially forage on milkweed, implementation of Valley Water's monarch butterfly avoidance protocol will also avoid and minimize potential impacts to Crotch's bumble bee.

To address Crotch's bumble bee, Valley Water's Crotch's bumble bee avoidance protocol is incorporated into the Proposed Project. As described in Chapter 2 and detailed in the CDFW-approved Crotch's Bumble Bee Avoidance Plan in Appendix C, a qualified biologist will conduct pre-activity biological surveys for Crotch's bumble bee with an appropriate camera during the Colony Active Period (generally April 1 through August 31) prior to work activities during this timeframe. Surveys will be conducted within all areas with potential to support Crotch's bumble bee nesting and foraging. If a Crotch's bumble bee nest is found, a minimum 50-foot no-disturbance buffer<sup>33</sup> will be implemented around the nest and a biological monitor will be present until it is determined the buffer is sufficient to protect the nest, which would avoid vehicular and equipment damage to nests and nesting individuals. If individual Crotch's bumble bees are present in the work areas, a biological monitor will be present until those individuals are no longer present. In addition, prior to working on the Proposed Project, all contractor staff will be trained how to identify insects as bumble bees, how to avoid impacts to bumble bees, and when to stop work and to contact a qualified biologist for additional investigation of bumble bee occurrences or potential nests.

In addition to the habitat assessments and surveys incorporated into the Proposed Project for milkweed for monarch butterfly and Crotch's bumble bee, the following BMPs have been incorporated into the Proposed Project, as described in Table 2-7 of Chapter 2:

- BMP AQ-1: Use Dust Control Measures
- BMP BI-8: Choose Local Ecotypes of Native Plants and Appropriate Erosion-Control Seed Mixes
- BMP HM-7: Restrict Vehicle and Equipment Cleaning to Appropriate Locations
- BMP HM-8: Ensure Proper Vehicle and Equipment Fueling and Maintenance
- BMP HM-9: Ensure Proper Hazardous Materials Management
- BMP HM-10: Utilize Spill Prevention Measures
- BMP HM-12: Incorporate Fire Prevention Measures
- BMP WQ-4: Limit Impacts from Staging and Stockpiling Materials
- BMP WQ-9: Use Seeding for Erosion Control, Weed Suppression, and Site Improvement
- BMP WQ-11: Maintain Clean Conditions at Work Sites

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<sup>33</sup> If a smaller buffer distance would be appropriate (e.g., if a nest is found alongside an existing road where no excavation or other ground disturbing activities would occur), Valley Water would first consult with and seek approval from CDFW as required by the Crotch's Bumble Bee Avoidance Plan.



- BMP WQ-15: Prevent Water Pollution
- BMP WQ-16: Prevent Stormwater Pollution

Through targeted application of water to access routes and activity areas, implementation of BMP AQ-1 would reduce the potential for vehicles and equipment to generate excessive dust, which might otherwise cover host plants for monarch butterfly and floral resources for Crotch's bumble bee, reducing their health and potential habitat values. BMPs BI-8 and WQ-9 focus on utilizing native, local plants for erosion control seed mixes, which would reduce the potential for erosion that could reduce habitat quality for monarch butterfly and Crotch's bumble bee during the wet season; maintain genetic integrity of herbaceous seeded species within the Proposed Project study area, contributing to long-term viability of foraging plant species populations; and suppress the establishment or spread of NNIP that could otherwise compete with native foraging species through establishing native plant cover. BMPs HM-7, HM-8, HM-9, and HM-10 would minimize the risk of equipment and vehicle leaks and spills causing soil and water contamination, reducing the risk of habitat degradation and mortality from exposure to hazardous materials. BMP HM-12 reduces the risk of wildfire through the use of vehicles with combustion engines equipped with spark arrestors and work crews being properly equipped with fire extinguishers, decreasing the risk of wildfires which could destroy habitat and result in species mortality.

Similar to the BMPs, the following PAMMs included in Section 2.4.2 have been incorporated into the Proposed Project.

- PAMM BIO-1: Work Environmental Awareness Training
- PAMM BIO-2: Biological Site Inspections and Summary Report (Compliance Program)
- PAMM BIO-4: Biological Monitoring for Special-Status Species and Environmentally Sensitive Areas
- PAMM BIO-5: Plant Pathogen, Non-Native Invasive Species, and Aquatic Invasive Species Prevention

PAMM BIO-1 requires all project personnel receive the WEAT before entering the Proposed Project study area. The WEAT will be provided by a qualified biologist and will include training on the roles and responsibilities of project personnel, including notification and documentation requirements intended to avoid or minimize impacts to special-status species and their habitats.

PAMM BIO-2 requires the daily inspection and reporting of activities associated with the Proposed Project by qualified biologists. PAMM BIO-2 requires the daily inspections document that BMPs, PAMMs, VHP Conditions, and VHP AMMs are being implemented appropriately and to ensure compliance. Monitoring will also provide information necessary to demonstrate compliance with CEQA mitigation monitoring and reporting requirements. Monitoring reports summarizing the daily inspections will be provided bi-weekly to Valley Water.

PAMM BIO-4 addresses monarch butterfly and Crotch's bumble bee by requiring a qualified biologist to be present during the initial mobilization of equipment during setup and the start of



the geotechnical borings at each work activity area. PAMM BIO-4 also requires that a qualified biologist is present during any ground disturbing and vegetation removal activities. The biologist would document pre-disturbance conditions and verify BMPS, PAMMs, VHP Conditions, and VHP AMMs. If any avoidance markings for environmentally sensitive areas were damaged, removed, or obscured, the biologist would mark them again for avoidance and inform work crews if equipment or vehicles are too close to avoidance areas.

PAMM BIO-5 minimizes impacts from plant pathogen, non-native invasive species and AIS as a result of the implementation of the Proposed Project which could otherwise degrade or reduce the extent of species habitat. PAMM BIO-5 would minimize impacts by requiring vehicles, equipment, tools, and boots be cleaned/decontaminated following the six-step cleaning/decontamination procedures prior to equipment/personnel entering the Proposed Project study area. These procedures also reduce the potential for the introduction and spread of *Phytophthora* plant pathogens within species habitat, which could otherwise result in mortality to individual plants and a reduction in the overall health and extent of the vegetation that comprises species habitat in the vicinity of work activities, particularly in areas downslope from work areas. Incorporation of PAMM BIO-5 into the Proposed Project also minimizes the risk of establishment of NNIP species, by preventing introduction of seeds that could otherwise be transported into Proposed Project activity areas by contaminated vehicles/equipment.

Two Conditions of the VHP (as further discussed in Appendix C) will be implemented regarding monarch butterfly and Crotch's bumble bee as part of the Proposed Project:

- Condition 1. Avoid Direct Impacts on Legally Protected Plant and Wildlife Species.
- Condition 3. Maintain Hydrologic Conditions and Protect Water Quality

Implementation of VHP Conditions 1 and 3 reduces the potential for and magnitude of impacts on special-status invertebrates and their habitats through numerous VHP AMMs summarized in Table 2-8, which are among the following applicable VHP AMMs: VHP AMM-8, VHP AMM-11, VHP AMM-39, VHP AMM-40, VHP AMM-49, VHP AMM-58, VHP AMM-61, VHP AMM-62, VHP AMM-69, VHP AMM-71, VHP AMM-73, VHP AMM-76, VHP AMM-85, VHP AMM-86, VHP AMM-87, VHP AMM-92, and VHP AMM-100. Collectively, these measures minimize the extent of ground disturbance, potential for equipment leaks and spills, potential for the spread of invasive plant species, and potential for the spread of plant pathogens that could result in impacts to monarch butterfly and Crotch's bumble bee habitats.

Although the monarch butterfly and Crotch's bumble bee are not currently VHP-covered species, the VHP's vast conservation program would conserve lands that support populations of these two species due to its breadth, both geographically and in terms of the diversity of habitat types to be conserved. For example, narrow-leaved milkweed, the primary native larval host plant of the monarch butterfly, is common and widespread in the county, and it occurs on a variety of lands in the VHP's conservation areas. Similarly, Crotch's bumble bee is a generalist forager, using a vast array of flowering plants. VHP conservation lands are expected to support Crotch's bumble bee



populations, given the geographic spread of recent occurrences in the county, as well as high-quality habitat for the species. Therefore, Valley Water's payment of VHP impact fees for the Proposed Project would contribute to a conservation program that would provide a benefit for these species.

With implementation of the Proposed Project direct and indirect impacts to monarch butterfly and Crotch's bumble bee and their habitat would be **less than significant**. No mitigation is required.

***Impact BIO-5***

***Would the project result in adverse effects or loss of habitat for California tiger salamander or California red-legged frog?***

As described in the California Red-legged Frog Site Assessment and California Tiger Salamander Site Assessment in Exhibit 1C and Exhibit 1D, respectively of Appendix E, Attachment 1, biologists conducted protocol habitat assessments within the Proposed Project study area and standard USFWS recommended buffer areas for California red-legged frog and California tiger salamander. The habitat assessments determined that none of the four aquatic features within the Proposed Project study area support breeding habitat for either species, although the three shallow seasonal wetlands and Pacheco Reservoir, do provide non-breeding dispersal habitat for juvenile and adult California red-legged frogs. The Proposed Project study area is within upland dispersal distance from multiple ponds and other aquatic features in the surrounding vicinity that could support California tiger salamander and California red-legged frog breeding. As a result, the upland habitats within the Proposed Project study area provide upland refugia and dispersal habitat for juvenile and adult life stages of each of these amphibian species, which include oak woodlands, shrub communities, and grasslands. California red-legged frog has also been observed by Valley Water's consulting biologists upstream and downstream of the Proposed Project study area within North Fork Pacheco Creek and South Fork Pacheco Creek (Appendix E, Attachment 1, Biological Resources Assessment Report). The entirety of the Proposed Project study area is within California red-legged frog designated critical habitat (Unit STC-2). California tiger salamander has not been observed within the Proposed Project study area; however, there are multiple CNDDDB occurrences within 5 miles of the Proposed Project study area, and the species has a high potential to occur.

The Proposed Project study area is within the VHP permit area and the SCVHA has confirmed that the Proposed Project is a covered activity in the VHP. California tiger salamander and California red-legged frog are covered under the VHP. Payment of VHP impact fees and implementing all applicable VHP Conditions and VHP AMMs provides take authorization for any potential impacts to VHP covered species and resources. Additionally, as discussed below, numerous Conservation Measures, described in detail in Section 2.4, will be incorporated into the Proposed Project to augment protection of California tiger salamander and California red-legged frog.

Specifically, the following BMPs have been incorporated into the Proposed Project, as described in Table 2-7 of Section 2.4:



- BMP BI-10: Avoid Animal Entry and Entrapment
- BMP BI-11: Minimize Predator Attraction
- BMP HM-7: Restrict Vehicle and Equipment Cleaning to Appropriate Locations
- BMP HM-8: Ensure Proper Vehicle and Equipment Fueling and Maintenance
- BMP HM-9: Ensure Proper Hazardous Materials Management
- BMP HM-10: Utilize Spill Prevention Measures
- BMP HM-12: Incorporate Fire Prevention Measures
- BMP WQ-4: Limit Impacts from Staging and Stockpiling Materials
- BMP WQ-15: Prevent Water Pollution
- BMP WQ-17: Manage Sanitary and Septic Waste

By covering all exposed pipes and similar structures and covering exposed trenches or providing escape ramps, BMP BI-10 would prevent the entrapment of individuals within trenches and stockpiled materials, reducing the potential for injury or mortality. The daily removal of trash associated with BMP BI-11 would reduce increased predation risk through removing trash for work areas each day that could otherwise attract predatory species to the area that could prey on individuals. BMPs HM-7, HM-8, HM-9, and HM-10, WQ-15, and WQ-17 would minimize the risk of equipment and vehicle leaks and spills causing soil and water contamination, reducing the risk of habitat degradation and mortality from exposure to hazardous materials. BMP HM-12 reduces the risk of wildfire through the use of vehicles with combustion engines equipped with spark arrestors and work crews being properly equipped with fire extinguishers, decreasing the risk of wildfires which could destroy habitat and result in species mortality.

The following PAMMs have also been incorporated into the Proposed Project and would avoid or reduce potential impacts on California tiger salamander and California red-legged frog (see Section 2.4).

- PAMM BIO-1: Work Environmental Awareness Training
- PAMM BIO-2: Biological Site Inspections and Summary Report (Compliance Program)
- PAMM BIO-3: Sensitive Natural Community and Aquatic Resource Avoidance
- PAMM BIO-4: Biological Monitoring for Special-Status Species and Environmentally Sensitive Areas
- PAMM BIO-5: Plant Pathogen, Non-Native Invasive Species, and Aquatic Invasive Species Prevention

PAMM BIO-1 addresses sensitive biological resources, including California tiger salamander and California red-legged frog, by requiring all project personnel receive the WEAT before entering the Proposed Project study area. The WEAT will be provided by a qualified biologist and will





include training on the roles and responsibilities of project personnel, including notification and documentation requirements intended to avoid or minimize impacts to nesting birds, special-status species, sensitive habitats and other sensitive biological resources.

PAMM BIO-2 requires the daily inspection and reporting of activities associated with the Proposed Project by qualified biologists. PAMM BIO-2 requires the daily inspections document that BMPs, PAMMs, VHP Conditions, and VHP AMMs are being implemented appropriately and to ensure compliance. Monitoring will also provide information necessary to demonstrate compliance with CEQA mitigation monitoring and reporting requirements. Monitoring reports summarizing the daily inspections will be provided bi-weekly to Valley Water.

PAMM BIO-3 addresses California tiger salamander and California red-legged frog by having qualified biologists conduct pre-activity aquatic resources (e.g., wetlands) surveys between 14 and 21 days prior to the movement of heavy equipment within work activity areas designated by the project engineer or geologist. Sensitive natural communities and riparian habitats which include areas of suitable upland habitat for California tiger salamander and California red-legged frog, identified during the surveys will be assessed for avoidance feasibility, which will be determined by Valley Water in coordination with the qualified botanist or vegetation ecologist. Determining avoidance may include minor design modifications (e.g., re-routing access routes) or establishment of avoidance buffers in areas proposed for temporary disturbances (e.g., staging areas).

PAMM BIO-4 addresses special-status species and areas designated as environmentally sensitive by requiring a qualified biologist to be present during the initial mobilization of equipment during setup and the start of the geotechnical borings at each work activity area. PAMM BIO-4 also requires that a qualified biologist is present during any ground disturbing and vegetation removal activities. The biologist would document pre-disturbance conditions and verify BMPs, PAMMs, VHP Conditions, and VHP AMMs. If any avoidance markings for environmentally sensitive areas were damaged, removed, or obscured, the biologist would mark them again for avoidance and inform work crews if equipment or vehicles are too close to avoidance areas.

PAMM BIO-5 minimizes impacts from plant pathogen, non-native invasive species and AIS as a result of the implementation of the Proposed Project which could otherwise degrade or reduce the extent of habitat for California tiger salamander and California red-legged frog. Specifically, PAMM BIO-5 requires vehicles, equipment, tools, and boots be cleaned/decontaminated following the six-step cleaning/decontamination procedures prior to equipment/personnel from entering the Proposed Project study area. These procedures also reduce the potential for the introduction and spread of *Phytophthora* plant pathogens within species habitat, which could otherwise result in mortality to individual plants and a reduction in the overall health and extent of the vegetation that comprises species habitat in the vicinity of work activities, particularly in areas downslope from work areas. Incorporation of PAMM BIO-5 into the Proposed Project also minimizes the risk of establishment of NNIP species, by preventing introduction of seeds that



could otherwise be transported into Proposed Project activity areas by contaminated vehicles/equipment.

The Proposed Project is a VHP covered activity. California tiger salamander and California red-legged frog are covered species under the VHP. The entirety of the Proposed Project study area is within critical habitat for California red-legged frog. As proposed by the Project, and required by the VHP, Valley Water will pay VHP impact fees for land cover types impacted by the Proposed Project. The fees collected by the Valley Habitat Agency would then be used to purchase and preserve other lands within the VHP planning area, which would compensate for Project-related impacts to VHP covered species and their habitat.

Four conditions of the VHP (as further discussed in Appendix C) have also been incorporated into the Proposed Project to reduce the potential for impacts on California tiger salamander and California red-legged frog:

- Condition 3. Maintain Hydrologic Conditions and Protect Water Quality
- Condition 4. Avoidance and Minimization for In-Stream Projects
- Condition 5. Avoidance and Minimization Measures for In Stream Operations and Maintenance
- Condition 12. Wetland and Pond Avoidance and Minimization

Condition 3 requires the development and implementation of a stormwater management plan, reducing the potential for excess sedimentation into waterways and waterbodies occupied by the species and the potential for habitat degradation caused by erosion. Conditions 4, 5, and 12 minimize sediment and pollutant discharges into waterways, and minimize riparian disturbance footprints that could otherwise negatively affect aquatic dispersal habitats and increase the risk of mortality or injury from vehicles and equipment. These Conditions include numerous VHP AMMs, which are incorporated into the Proposed Project that would reduce potential effects, which are among the following applicable VHP AMMs: VHP AMM-1, 2, 3, 6, 7, 8, 9, 11, 12, 39, 58, 61, 62, 63, 69, 72, 73, 75, 76, 87, 88, 89, 90, 92, 95, and 100, and 101. Implementation of VHP AMM-1, 73, 88, 89, 90, and 95 reduce the potential for direct mortality of individuals through minimizing the potential for impacts on species affected by changes in hydrology and water quality, avoidance of working in wet-season when California tiger salamander and California red-legged frog are most likely to be above ground dispersing through the Proposed Project study area, covering trenches and holes to prevent entrapment and the potential resulting injury or mortality, limiting parking of vehicles to established roads and previously disturbed areas to reduce the risk of vehicles crushing or otherwise injuring or killing individuals, preventing the attraction of predatory species by leaving out trash, and establishing speed limited to reduce the potential for vehicular strikes, respectively. VHP AMMs 2, 6, 7, 8, 9, 11, 12, 63, 72, 75, 76, 87, and 100 minimize impacts on water quality from spills or leaks of hazardous materials which could otherwise result in the degradation of aquatic dispersal habitat for these species or result in direct injury or



mortality from exposure. VHP AMM 92 reduces the risk of spreading water-borne pathogens (e.g., *Chytrid* fungus) that could indirectly harm infected wildlife through lowered fitness and mortality.

In consideration of the Conservation Measures discussed above, the following discussion addresses specific direct and indirect impacts that could occur to California red-legged frog and California tiger salamander individuals through implementation of the Proposed Project.

Although nighttime lighting is known to alter wildlife behavior, foraging patterns, and diurnal activity patterns, with exception of the geotechnical investigations (four borings) within the SR-152 ROW, no nighttime work and associated lighting would occur. Because this area is already exposed to elevated nighttime lighting from vehicles driving along SR-152, lighting would not have an impact on these species.

Both California red-legged frog and California tiger salamander are known to inhabit small mammal burrows within upland habitats distributed throughout the Proposed Project study area and the surrounding area. Because individuals may be within underground refuges dispersed throughout the uplands when Project geotechnical activities would occur, there is potential for the take of individuals. Direct impacts on California red-legged frog and California tiger salamander individuals within the Proposed Project study area could also occur from equipment and vehicle strikes while individuals are moving overland or from crushing or excavating burrows containing individuals resulting in injury or mortality. In addition, occupied burrows in loose soils could collapse due to vibration caused by equipment. Elevated noise levels generated by equipment and vehicles and the presence of people could cause physiological stress, behavioral changes, reduced fitness, and potential increased risk of predation. Indirect impacts on these species resulting from geotechnical investigation activities include individuals displaced from temporarily disturbed habitat that could experience reduced fitness, increased stress, and increased risk of predation.

However, the potential take of individuals within the Proposed Project study area from Proposed Project activities that are discrete and limited in extent will be offset through the payment of VHP fees, which will result in the preservation of habitat for both species on a population and regional level in perpetuity. Additionally, impacts to individuals and species' habitats would be isolated and temporary. Therefore, impacts to the California tiger salamander and California red-legged frog or their habitat would be **less than significant**. No mitigation is required.

#### ***Impact BIO-6***

##### ***Would the project result in adverse effects on foothill yellow-legged frog or its habitat?***

Based on the results from the reconnaissance-level habitat assessment surveys along with terrestrial vegetation mapping and the aquatic resources delineation, the Proposed Project study area contains suitable aquatic breeding habitat for foothill yellow-legged frog in North Fork Pacheco Creek and along the South Fork Pacheco Creek and potentially suitable aquatic dispersal habitat within the ephemeral and other intermittent drainages in the Proposed Project study area. There is one historical occurrence from 1950 of this species just outside the Proposed Project



study area along Pacheco Creek near SR-152 and Kaiser Aetna Road (Appendix E, Attachment 1, Biological Resource Assessment). Based on the proximity of the species occurrences to the Proposed Project study area and the presence of potentially suitable habitat, foothill yellow-legged frog has a moderate potential to occur in the portion of the Proposed Project study area above the reservoir and below the North Fork Dam.

The Proposed Project study area is within the VHP permit area and the SCVHA has confirmed that the Proposed Project is a covered activity in the VHP. Foothill yellow-legged frog is covered under the VHP. Payment of VHP impact fees and implementing all applicable VHP Conditions and VHP AMMs provides take authorization for any potential impacts to VHP covered species and resources. Additionally, as discussed below, numerous Conservation Measures, described in detail in Section 2.4, will be incorporated into the Proposed Project to address foothill yellow-legged frog.

Specifically, the following BMPs are incorporated into the Proposed Project, as described in Table 2-7 of Section 2.4:

- BMP BI-10: Avoid Animal Entry and Entrapment
- BMP BI-11: Minimize Predator Attraction
- BMP HM-7: Restrict Vehicle and Equipment Cleaning to Appropriate Locations
- BMP HM-8: Ensure Proper Vehicle and Equipment Fueling and Maintenance
- BMP HM-9: Ensure Proper Hazardous Materials Management
- BMP HM-10: Utilize Spill Prevention Measures
- BMP HM-12: Incorporate Fire Prevention Measures
- BMP WQ-4: Limit Impacts from Staging and Stockpiling Materials
- BMP WQ-15: Prevent Water Pollution
- BMP WQ-17: Manage Sanitary and Septic Waste

By covering all exposed pipes and similar structures and covering exposed trenches or providing escape ramps, BMP BI-10 would prevent the entrapment of individuals within trenches and stockpiled materials, reducing the potential for injury or mortality. The daily removal of trash associated with BMP BI-11 would reduce increased predation risk through removing trash for work areas each day that could otherwise attract predatory species to the area that could prey on individuals. BMPs HM-7, HM-8, HM-9, and HM-10, WQ-15, and WQ-17 would minimize the risk of equipment and vehicle leaks and spills causing soil and water contamination, reducing the risk of habitat degradation and mortality from exposure to hazardous materials. BMP HM-12 reduces the risk of wildfire through the use of vehicles with combustion engines equipped with spark arrestors and work crews being properly equipped with fire extinguishers, decreasing the risk of wildfires which could destroy habitat and result in species mortality.



The following PAMMs have been incorporated into the Proposed Project and will avoid or reduce potential impacts on foothill yellow-legged frog (see Section 2.4).

- PAMM BIO-1: Work Environmental Awareness Training
- PAMM BIO-2: Biological Site Inspections and Summary Report (Compliance Program)
- PAMM BIO-3: Sensitive Natural Community and Aquatic Resource Avoidance
- PAMM BIO-4: Biological Monitoring for Special-Status Species and Environmentally Sensitive Areas
- PAMM BIO-5: Plant Pathogen, Non-Native Invasive Species, and Aquatic Invasive Species Prevention

PAMM BIO-1 minimizes potential impacts on sensitive biological resources, including foothill yellow-legged frog, by requiring all project personnel receive the WEAT before entering the Proposed Project study area. The WEAT will be provided by a qualified biologist and will include training on the roles and responsibilities of project personnel, including notification and documentation requirements intended to avoid or minimize impacts to nesting birds, special-status species, sensitive habitats and other sensitive biological resources.

PAMM BIO-2 minimizes potential impacts on sensitive biological resources through the daily inspection and reporting of activities associated with the Proposed Project by qualified biologists. PAMM BIO-2 requires the daily inspections document that BMPs, PAMMs, VHP Conditions, and VHP AMMs are being implemented appropriately and to ensure compliance. Monitoring will also provide information necessary to demonstrate compliance with CEQA mitigation monitoring and reporting requirements. Monitoring reports summarizing the daily inspections will be provided bi-weekly to Valley Water.

PAMM BIO-3 addresses foothill yellow-legged frog by having qualified biologists conduct pre-activity aquatic resources (e.g., wetlands) surveys between 14 and 21 days prior to the movement of heavy equipment within work activity areas designated by the project engineer or geologist. Sensitive natural communities, riparian habitats, and aquatic resources, which include areas of suitable aquatic habitat for foothill yellow-legged frog, identified during the surveys will be assessed for avoidance feasibility, which will be determined by Valley Water in coordination with the qualified botanist or vegetation ecologist. Determining avoidance may include minor design modifications (e.g., re-routing access routes) or establishment of avoidance buffers in areas proposed for temporary disturbances (e.g., staging areas).

PAMM BIO-4 minimizes the potential for impacts on special-status species and areas designated as environmentally sensitive by requiring a qualified biologist to be present during the initial mobilization of equipment during setup and the start of the geotechnical borings at each work activity area. PAMM BIO-4 also requires that a qualified biologist is present during any ground disturbing and vegetation removal activities. The biologist would document pre-disturbance conditions and verify BMPs, PAMMs, VHP Conditions, and VHP AMMs. If any avoidance markings



for environmentally sensitive areas were damaged, removed, or obscured, the biologist would mark them again for avoidance and inform work crews if equipment or vehicles are too close to avoidance areas.

PAMM BIO-5 minimizes impacts from plant pathogen, non-native invasive species and AIS as a result of the implementation of the Proposed Project which could otherwise degrade or reduce the extent of habitat for foothill yellow-legged frog. Specifically, PAMM BIO-5 requires vehicles, equipment, tools, and boots be cleaned/decontaminated following the six-step cleaning/decontamination procedures prior to equipment/personnel entering the Proposed Project study area, which reduces the potential for the spread of fungal pathogens (e.g., *Chytrid*) that could result in reduced individual fitness and mortality. These procedures also reduce the potential for the introduction and spread of *Phytophthora* plant pathogens within species habitat, which could otherwise result in mortality to individual plants and a reduction in the overall health and extent of the vegetation that comprises species habitat in the vicinity of work activities, particularly in areas downslope from work areas. Incorporation of PAMM BIO-5 into the Proposed Project also minimizes the risk of establishment of NNIP species, by preventing introduction of seeds that could otherwise be transported into Proposed Project activity areas by contaminated vehicles/equipment.

The Proposed Project is a VHP covered activity. Foothill yellow-legged frog is a covered species under the VHP. Valley Water will pay VHP impact fees for land cover types impacted by the Proposed project, in order to obtain take coverage for VHP covered species. The fees collected by the Valley Habitat Agency will then be used to purchase and preserve other lands within the VHP planning area, which will compensate for impacts to VHP covered species and their habitat.

Four Conditions of the VHP (as further discussed in Appendix C) would reduce the potential for impacts on foothill yellow-legged frog:

- Condition 3. Maintain Hydrologic Conditions and Protect Water Quality
- Condition 4. Avoidance and Minimization for In-Stream Projects
- Condition 5. Avoidance and Minimization Measures for In Stream Operations and Maintenance
- Condition 12. Wetland and Pond Avoidance and Minimization

Condition 3 requires the development and implementation of a stormwater management plan, reducing the potential for excess sedimentation into waterways and waterbodies occupied by the species and the potential for habitat degradation caused by erosion. Conditions 4, 5, and 12 minimize sediment and pollutant discharges into waterways and minimizing riparian disturbance footprints which could otherwise negatively affect aquatic dispersal habitats and increase the risk of mortality or injury from vehicles and equipment.

Additionally, AMMs from the VHP and the VHP Conditions described above are incorporated into the Proposed Project that would reduce potential effects, which include the following: VHP AMM-





1, 2, 3, 6, 7, 8, 9, 11, 12, 39, 58, 61, 62, 63, 69, 72, 73, 75, 76, 87, 88, 89, 90, 92, 95, and 100, and 101. Implementation of VHP AMM-1, 73, 89, and 90 reduce the potential for direct mortality of individuals through minimizing the potential for impacts on species affected by changes in hydrology and water quality, avoidance of working in wet-season when foothill yellow-legged frogs are most likely to be within the portions of North Fork Pacheco Creek and South Fork Pacheco Creek in the Proposed Project study area, establishing speed limited to reduce the potential for vehicular strikes, and preventing the attraction of predatory species by leaving out trash, respectively. VHP AMMs 2, 6, 7, 8, 9, 11, 12, 63, 72, 75, 76, 87, and 100 minimize impacts on water quality from spills or leaks of hazardous materials which could otherwise result in the degradation of aquatic dispersal habitat for these species or result in direct injury or mortality from exposure. VHP AMM 92 reduces the risk of spreading water-borne pathogens (e.g., *Chytrid* fungus) that could indirectly harm infected wildlife through lowered fitness and mortality.

In consideration of the Conservation Measures discussed above, the following discussion addresses specific direct and indirect impacts that could occur to foothill yellow-legged frog individuals through implementation of the Proposed Project.

Although nighttime lighting is known to alter wildlife behavior, foraging patterns, and diurnal activity patterns, with exception of the geotechnical investigations (four borings) within the SR-152 right of way, no nighttime work and associated lighting would occur. Because this area is already exposed to elevated nighttime lighting from vehicles driving along SR-152, lighting would not have an impact on this species.

As discussed above, foothill yellow-legged frog has a moderate potential to occur within and in the immediate vicinity of streams in the portion of the Proposed Project study area above the existing reservoir and below North Fork Dam. Because individuals may be within underground refuges dispersed through the uplands and dried-down aquatic habitats during the dry-season when Proposed Project geotechnical activities would occur, they may be difficult to detect. Direct impacts on foothill yellow-legged frog individuals within the Proposed Project study area could also occur from equipment and vehicle strikes while individuals are moving overland or from crushing or excavating burrows containing individuals resulting in injury or mortality. In addition, occupied burrows in loose soils could collapse due to vibration caused by equipment. Elevated noise levels generated by equipment and vehicles and the presence of people in these areas could also cause physiological stress, behavioral changes, reduced fitness, and potential increased risk of predation. Therefore, there is potential for the take of individuals.

However, due to the species having potential to occur within Proposed Project study area only in the immediate vicinity of North Fork Pacheco Creek and South Fork Pacheco Creek, the activity areas where potential take of individuals could occur are discrete and limited in extent (e.g. CB-18 and associated activity area at the time South Fork Pacheco Creek is dry). Indirect impacts on these species resulting from geotechnical investigation activities include individuals displaced from temporarily disturbed habitat could also experience reduced fitness, increased stress, and increased risk of predation.



However, the potential take of individuals within the Proposed Project study area from Proposed Project activities that are discrete and limited in extent will be offset through the payment of VHP fees, which will result in the preservation of habitat for both species on a population and regional level in perpetuity. Additionally, due to the nature of the geotechnical investigation activities compared to the extent and connectivity of wildlife habitat within and around the Proposed Project study area, impacts to individuals and its habitat would be isolated and temporary. Therefore, impacts to the foothill yellow-legged frog and its habitat would be **less than significant**. No mitigation is required.

***Impact BIO-7***

***Would the project result in adverse effects and loss of habitat for northwestern pond turtle?***

Aquatic dispersal, foraging and refuge habitat occurs within the Proposed Project study area in the form of the existing reservoir, ephemeral drainages, and intermittent drainages (e.g., South Fork Pacheco Creek). Numerous areas of basking habitat were also observed within and outside the Proposed Project study area, including rock outcrops, logs, gravel, and sandy banks. Nesting habitat occurs throughout the Proposed Project study area in the form of grasslands and valley oak woodland. The Proposed Project study area also contains upland dispersal habitat which consists of woodlands and scrub/chaparral vegetation communities. Northwestern pond turtles have been documented by Valley Water's consulting biologists downstream of the North Fork and South Fork Pacheco Creek confluence just outside the Proposed Project study area. Northwestern pond turtles are present in the Proposed Project study area given the observation locations and the abundance of available habitat.

The Proposed Project study area is within the VHP permit area and the SCVHA has confirmed that the Proposed Project is a covered activity in the VHP. Northwestern pond turtle is a covered species under the VHP. Payment of VHP impact fees and implementing all applicable VHP Conditions and VHP AMMs provides take authorization for any potential impacts to VHP covered species and resources. Additionally, as discussed below, numerous Conservation Measures, described in detail in Section 2.4, will be incorporated into the Proposed Project to augment protection of northwestern pond turtle.

Specifically, the following BMPs are incorporated into the Proposed Project, as described in Table 2-7 of Section 2.4:

- BMP BI-10: Avoid Animal Entry and Entrapment
- BMP BI-11: Minimize Predator Attraction
- 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



- BMP HM-12: Incorporate Fire Prevention Measures
- WQ-9: Use Seeding for Erosion Control, Weed Suppression, and Site Improvement
- 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

By covering all exposed pipes and similar structures and covering exposed trenches or providing escape ramps, BMP BI-10 would prevent the entrapment of individuals within trenches and stockpiled materials, reducing the potential for injury or mortality. Similarly, as part of BMP WQ-14, exploratory borings would be backfilled, preventing the entrapment of individuals within borings. The daily removal of trash associated with BMP BI-11 would reduce increased predation risk through removing trash for work areas each day that could otherwise attract predatory species to the area that could prey on individuals. BMPs HM-7, HM-8, HM-9, HM-10, WQ-11, WQ-15, and WQ-17 would minimize the risk of equipment and vehicle leaks and spills causing soil and water contamination, reducing the risk of habitat degradation and mortality from exposure to hazardous materials. BMP HM-12 reduces the risk of wildfire through the use of vehicles with combustion engines equipped with spark arrestors and work crews being properly equipped with fire extinguishers, decreasing the risk of wildfires which could destroy habitat and result in species mortality. BMP WQ-9 and WQ-16 protect water quality from excess turbidity, which could temporarily reduce habitat quality while BMPs WQ-12 and WQ-13 reduce the potential for contaminants related to exploratory wells and borings from entering waterbodies, which could also result in lowered habitat quality and individual fitness.

The following PAMMs have been incorporated into the Proposed Project and would avoid or reduce potential impacts on northwestern pond turtle (see Section 2.4).

- PAMM BIO-1: Work Environmental Awareness Training
- PAMM BIO-2: Biological Site Inspections and Summary Report (Compliance Program)
- PAMM BIO-3: Sensitive Natural Community and Aquatic Resource Avoidance
- PAMM BIO-4: Biological Monitoring for Special-Status Species and Environmentally Sensitive Areas
- PAMM BIO-5: Plant Pathogen, Non-Native Invasive Species, and Aquatic Invasive Species Prevention



PAMM BIO-1 minimizes potential impacts on sensitive biological resources, including northwestern pond turtle, by requiring all project personnel receive the WEAT before entering the Proposed Project study area. The WEAT will be provided by a qualified biologist and will include training on the roles and responsibilities of project personnel, including notification and documentation requirements intended to avoid or minimize impacts to nesting birds, special-status species, sensitive habitats and other sensitive biological resources.

PAMM BIO-2 minimizes potential impacts on sensitive biological resources through the daily inspection and reporting of activities associated with the Proposed Project by qualified biologists. PAMM BIO-2 requires the daily inspections document that BMPs, PAMMs, VHP Conditions, and VHP AMMs are being implemented appropriately and to ensure compliance. Monitoring will also provide information necessary to demonstrate compliance with CEQA mitigation monitoring and reporting requirements. Monitoring reports summarizing the daily inspections will be provided bi-weekly to Valley Water.

PAMM BIO-3 minimizes impacts on northwestern pond turtle by having qualified biologists conduct pre-activity aquatic resources (e.g., wetlands) surveys between 14 and 21 days prior to the movement of heavy equipment within work activity areas designated by the project engineer or geologist. Sensitive natural communities, riparian habitats, and aquatic resources, which include areas of suitable aquatic habitat for northwestern pond turtle, identified during the surveys will be assessed for avoidance feasibility, which will be determined by Valley Water in coordination with the qualified botanist or vegetation ecologist. Determining avoidance may include minor design modifications (e.g., re-routing access routes) or establishment of avoidance buffers in areas proposed for temporary disturbances (e.g., staging areas).

PAMM BIO-4 minimizes the potential for impacts on special-status species and areas designated as environmentally sensitive by requiring a qualified biologist to be present during the initial mobilization of equipment during setup and the start of the geotechnical borings at each work activity area. PAMM BIO-4 also requires that a qualified biologist is present during any ground disturbing and vegetation removal activities. The biologist would document pre-disturbance conditions and verify BMPS, PAMMs, VHP Conditions, and VHP AMMs. If any avoidance markings for environmentally sensitive areas were damaged, removed, or obscured, the biologist would mark them again for avoidance and inform work crews if equipment or vehicles are too close to avoidance areas.

PAMM BIO-5 minimizes impacts from plant pathogen, non-native invasive species and AIS as a result of the implementation of the Proposed Project which could otherwise degrade or reduce the extent of habitat for northwestern pond turtle. Specifically, PAMM BIO-5 requires vehicles, equipment, tools, and boots be cleaned/decontaminated following the six-step cleaning/decontamination procedures prior to equipment/personnel entering the Proposed Project study area, which reduces the potential for the spread of fungal pathogens (e.g., *Emte*) that could result in reduced individual fitness and mortality. These procedures also reduce the potential for the introduction and spread of *Phytophthora* plant pathogens within species habitat,



which could otherwise result in mortality to individual plants and a reduction in the overall health and extent of the vegetation that comprises species habitat in the vicinity of work activities, particularly in areas downslope from work areas. Incorporation of PAMM BIO-5 into the Proposed Project also minimizes the risk of establishment of NNIP species, by preventing introduction of seeds that could otherwise be transported into Proposed Project activity areas by contaminated vehicles/equipment.

The Proposed Project is a VHP covered activity. Northwestern pond turtle is a covered species under the VHP. Valley Water will pay VHP impact fees for land cover types impacted by the Proposed project, in order to obtain take coverage for VHP covered species. The fees collected by the Valley Habitat Agency will then be used to purchase and preserve other lands within the VHP planning area, which will compensate for impacts to VHP covered species and their habitat.

Four Conditions of the VHP (as further discussed in Appendix C) have also been incorporated into the Proposed Project to reduce the potential for impacts on northwestern pond turtle:

- Condition 3. Maintain Hydrologic Conditions and Protect Water Quality
- Condition 4. Avoidance and Minimization for In-Stream Projects
- Condition 5. Avoidance and Minimization Measures for In Stream Operations and Maintenance
- Condition 12. Wetland and Pond Avoidance and Minimization

Condition 3 requires the development and implementation of a stormwater management plan, reducing the potential for excess sedimentation into waterways and waterbodies occupied by the species, reducing potential impacts on habitat quality and indirect adverse effects on individual health. Conditions 4, 5, and 12 minimize sediment and pollutant discharges into waterways and minimizing riparian disturbance footprints which could otherwise negatively affect aquatic dispersal habitats, increase the risk of mortality or reduced fitness from hazardous materials, and increase the risk of mortality or injury from vehicles and equipment.

Additionally, AMMs from the VHP and the VHP Conditions described above are incorporated into the Proposed Project that would reduce potential effects, which include the following: VHP AMM-1, 2, 3, 6, 7, 8, 9, 11, 12, 39, 58, 61, 62, 63, 69, 72, 75, 76, 87, 88, 89, 90, 92, 95, and 100, and 101. Implementation of VHP AMM-1, 88, 89, 90, and 95 reduce the potential for direct mortality of individuals through minimizing the potential for impacts on species affected by changes in hydrology and water quality, covering trenches and holes to prevent entrapment and the potential resulting injury or mortality, limiting parking of vehicles to established roads and previously disturbed areas to reduce the risk vehicles crushing or otherwise injuring or killing individuals, preventing the attraction of predatory species by leaving out trash, and establishing speed limited to reduce the potential for vehicular strikes, respectively. VHP AMMs 2, 6, 7, 8, 9, 11, 12, 63, 72, 75, 76, 87, and 100 minimize impacts on water quality from spills or leaks of hazardous materials which could otherwise result in the degradation of aquatic dispersal habitat for these species or result in direct injury or mortality from exposure. VHP AMM 92 reduces the risk of spreading



water-borne pathogens (e.g., *Emte* fungus) that could indirectly harm infected wildlife through lowered fitness and mortality.

In consideration of the Conservation Measures discussed above, the following discussion addresses specific direct and indirect impacts that could occur to Northwestern pond turtle individuals through implementation of the Proposed Project.

Although nighttime lighting is known to alter wildlife behavior, foraging patterns, and diurnal activity patterns, with exception of the geotechnical investigations (four borings) within the SR-152 right of way, no nighttime work and associated lighting would occur. Because this area already is exposed to elevated nighttime lighting from vehicles driving along SR-152, lighting would not have an impact on this species.

Northwestern pond turtle has the potential to be within aquatic habitats throughout the Proposed Project study area, as well as within upland habitats distributed throughout the Proposed Project study area and the surrounding area, including individuals moving overland or taking refuge as well as eggs and hatchlings in underground nests that are in proximity to the reservoir and associated North Fork Pacheco Creek, South Fork Pacheco Creek, and Pacheco Creek. Because these individuals and nests are difficult to detect, there is potential for the take of individuals. Direct impacts could also occur from equipment and vehicle strikes while individuals are moving overland or from crushing or excavating nests containing individuals resulting in injury or mortality to adults, juveniles, or eggs. In addition, nests in loose soils could collapse due to vibration caused by equipment resulting in mortality. Elevated noise levels generated by equipment and vehicles and the presence of people could also cause physiological stress, behavioral changes, reduced fitness, and potential increased risk of predation.

Indirect impacts resulting from geotechnical investigation activities include individuals displaced from temporarily disturbed habitat could also experience reduced fitness, increased stress, and increased risk of predation. Habitat quality within the reservoir could be adversely affected during geotechnical investigation activities and vibracore borings are taken from a barge, which would temporarily increase turbidity within the reservoir. A reduction in habitat quality could cause individuals to disperse to less impacted aquatic habitats, increasing stress levels and lowering fitness.

However, the potential take of individuals within the Proposed Project study area from the Proposed Project activities that are discrete and limited in extent will be offset through the payment of VHP fees, which will result in the preservation of habitat for both species on a population and regional level in perpetuity. Additionally, impacts to individuals and species' habitats would be isolated and temporary. Therefore, impacts to the northwestern pond turtle and its habitat would be **less than significant**. No mitigation is required.





### **Impact BIO-8**

#### ***Would the project result in adverse effects on California floater mussel?***

Although California floater mussel does not have a formal listing status, Valley Water is taking a conservative approach and analyzing project impacts on the species due to its cultural importance to local indigenous peoples and regulatory agency interest in the species. California floater mussel has been detected within the intermittent channel of North Fork Pacheco Creek, along the shoreline of the reservoir, and downstream along the banks of Pacheco Creek (Appendix E, Attachment 1, Biological Resources Assessment Report). Pacheco Reservoir provides low-quality habitat for the species, due to its periodic draw-downs (once every 4 years) and relatively low dissolved oxygen (5%) in the portions of the reservoir that remain ponded late into the summer and fall prior to refilling from winter precipitation (see discussion in Section 3.11, Hydrology and Water Quality). Because the species can burrow into moist sediments to avoid desiccation, it may be present in areas near the historical North Fork Pacheco Creek stream channel in the lowest elevation portions of the existing reservoir inundation area.

As a result, Project activities could negatively impact the species through direct mortality during vehicular and equipment along access routes within the reservoir. Individuals could also be excavated within up to 11 sediment samples during erodibility testing, with the volume of each sample measuring 2 feet square to a maximum depth of 2 feet. Mortality to individuals could occur from either vehicular and equipment ingress/egress and direct sediment removal at the 36 boring work area locations (34 primary and 2 supplemental) within the low-elevational areas of the reservoir that can contain unconsolidated sediments and may retain subsurface water following draw-down.

In addition to direct mortality, habitat quality could be adversely affected during Project activities. Unless Pacheco Reservoir contains water at the time of geotechnical analysis, which would then consist of vibracore borings from a barge, geotechnical investigation activities would take place when reservoir is dry to minimize potential impacts, including impacts to water quality.

To protect water quality and floater mussel habitat, the following BMPs are incorporated into the Proposed Project, as described in Table 2-7 of Section 2:

- BMP HM-7: Restrict Vehicle and Equipment Cleaning to Appropriate Locations
- BMP HM-8: Ensure Proper Vehicle and Equipment Fueling and Maintenance
- BMP HM-9: Ensure Proper Hazardous Materials Management
- BMP HM-10: Utilize Spill Prevention Measures
- BMP WQ-9: Use Seeding for Erosion Control, Weed Suppression, and Site Improvement
- BMP WQ-11: Maintain Clean Conditions at Work Sites
- BMP WQ-12: Manage Well or Exploratory Boring Materials
- BMP WQ-13: Protect Groundwater from Contaminates Via Wells or Exploratory Borings



- BMP WQ-15: Prevent Water Pollution
- BMP WQ-16: Prevent Stormwater Pollution
- BMP WQ-17: Manage Sanitary and Septic Waste

BMPs BI-8 and WQ-9 require native, local plants to be used for erosion control seed mixes, which would reduce the potential for erosion and subsequent discharge of sediments into waterbodies during the wet season which would otherwise negatively affect water quality through increased turbidity. BMPs HM-7, HM-8, HM-9, HM-10, WQ-4, WQ-11, WQ-15, WQ-16, and WQ-17 minimize the risk of equipment and vehicle leaks and spills causing soil and water contamination, including the risk stockpiled materials entering waterbodies which could otherwise result in lowered fitness or mortality. Similarly, BMPs WQ-12 and WQ-13 reduce the potential for contaminants related to exploratory wells and borings from entering waterbodies which could negatively affect California floater mussels.

The following PAMMs have been incorporated into the Proposed Project and will avoid or reduce potential impacts on California floater mussel (see Section 2.4).

- PAMM BIO-1: Work Environmental Awareness Training
- PAMM BIO-2: Biological Site Inspections and Summary Report (Compliance Program)
- PAMM BIO-3: Sensitive Natural Community and Aquatic Resource Avoidance
- PAMM BIO-4: Biological Monitoring for Special-Status Species and Environmentally Sensitive Areas
- PAMM BIO-5: Plant Pathogen, Non-Native Invasive Species, and Aquatic Invasive Species Prevention

PAMM BIO-1 minimizes potential impacts on sensitive biological resources, including California floater mussel, by requiring all project personnel receive the WEAT before entering the Proposed Project study area. The WEAT will be provided by a qualified biologist and will include training on the roles and responsibilities of project personnel, including notification and documentation requirements intended to avoid or minimize impacts to nesting birds, special-status species, sensitive habitats and other sensitive biological resources.

PAMM BIO-2 minimizes potential impacts on sensitive biological resources through the daily inspection and reporting of activities associated with the Proposed Project by qualified biologists. PAMM BIO-2 requires the daily inspections document that BMPs, PAMMs, VHP Conditions, and VHP AMMs are being implemented appropriately and to ensure compliance. Monitoring will also provide information necessary to demonstrate compliance with CEQA mitigation monitoring and reporting requirements. Monitoring reports summarizing the daily inspections will be provided bi-weekly to Valley Water.

PAMM BIO-3 minimizes impacts on California floater mussel by having qualified biologists conduct pre-activity aquatic resources (e.g., wetlands) surveys between 14 and 21 days prior to



the movement of heavy equipment within work activity areas designated by the project engineer or geologist. Sensitive natural communities, riparian habitats, and aquatic resources, which include areas of suitable aquatic habitat for California floater mussel, identified during the surveys will be assessed for avoidance feasibility, which will be determined by Valley Water in coordination with the qualified botanist or vegetation ecologist. Determining avoidance may include minor design modifications (e.g., re-routing access routes) or establishment of avoidance buffers in areas proposed for temporary disturbances (e.g., staging areas).

PAMM BIO-4 minimizes the potential for impacts on special-status species and areas designated as environmentally sensitive by requiring a qualified biologist to be present during the initial mobilization of equipment during setup and the start of the geotechnical borings at each work activity area. PAMM BIO-4 also requires that a qualified biologist is present during any ground disturbing and vegetation removal activities. The biologist would document pre-disturbance conditions and verify BMPS, PAMMs, VHP Conditions, and VHP AMMs. If any avoidance markings for environmentally sensitive areas were damaged, removed, or obscured, the biologist would mark them again for avoidance and inform work crews if equipment or vehicles are too close to avoidance areas.

PAMM BIO-5 minimizes impacts from plant pathogen, non-native invasive species and AIS as a result of the implementation of the Proposed Project which could otherwise degrade habitat for the species or introduce competitor species. PAMM BIO-5 would minimize impacts by requiring vehicles, equipment, tools, and boots be cleaned/decontaminated following the six-step cleaning/decontamination procedures prior to equipment/personnel entering the Proposed Project study area.

Although it would not compensate for this impact, Valley Water will be paying VHP land cover impact fees for the Proposed Project as a VHP covered activity. The SCVHA will then use these fees to purchase and protect natural lands in their plan area in perpetuity, which could be considered a benefit on this resource. Although California floater mussel is present within the VHP permit area, their presence within or near SCVHA reserves is unknown, so the extent that the payment of land cover fees would offset impacts on these species is uncertain.

Three conditions of the VHP (as further discussed in Appendix C) have also been incorporated into the Proposed Project to reduce the potential for impacts on California floater mussel:

- Condition 3. Maintain Hydrologic Conditions and Protect Water Quality
- Condition 4. Avoidance and Minimization for In-Stream Projects
- Condition 5. Avoidance and Minimization Measures for In Stream Operations and Maintenance

Condition 3 requires the development and implementation of a stormwater management plan, reducing the potential for excess sedimentation into waterways and waterbodies occupied by the species and the potential for habitat degradation caused by erosion. Conditions 4 and 5 minimize sediment and pollutant discharges into waterways and minimizing riparian disturbance footprints



which could otherwise negatively affect aquatic habitats and increase the risk of mortality or injury from vehicles and equipment.

Additionally, AMMs from the VHP and Conditions described above are incorporated into the Proposed Project that would reduce potential effects, which include the following: VHP AMM-1, 2, 3, 6, 7, 8, 9, 11, 12, 13, 14, 26, 61, 62, 63, 65, 66, 67, 69, 72, 73, 75, 76, 83, 84, 87, 93, 100, 101, and 102. Implementation of VHP AMM-1, 62, 63, 66, 67, 73, 83, 84, 89, 90, and 102 reduce the potential for direct mortality of individuals through minimizing the potential for impacts on species affected by changes in hydrology and water quality due to sedimentation. VHP AMMs 2, 6, 7, 8, 9, 11, 12, 63, 72, 75, 76, 87, and 100 minimize impacts on water quality from spills or leaks of hazardous materials which could otherwise result in the degradation of aquatic dispersal habitat for these species or result in direct injury or mortality from exposure.

Due to periodic draw-downs within the reservoir and low dissolved oxygen concentrations, habitat for the California floater mussel within the Proposed Project study area is low quality. Therefore, impacts to the California floater mussel would be **less than significant**. No mitigation is required.

#### ***Impact BIO-9***

##### ***Would the project result in adverse effects and loss of habitat for silvery legless lizard, San Joaquin coachwhip, and coast horned lizard?***

The woodland, riparian, chaparral, and grassland vegetation communities present in the Proposed Project study area provide suitable habitat for silvery legless lizard and coast horned lizard. Coast horned lizards have also been observed by Valley Water consulting biologists within grasslands/chaparral areas within 5 miles of the Proposed Project study area. Therefore, there is a moderate potential for silvery legless lizard to occur and a high potential for coast horned lizard to occur.

Grasslands, scrub/chaparral, and pasture habitats are present in the Proposed Project study area and provide potential habitat for the San Joaquin coachwhip. Although no CNDDDB occurrences for this species have been documented within 5 miles of the Proposed Project study area, potentially suitable habitat for this species occurs within the Proposed Project study area; therefore, this species has a moderate potential to occur.

As discussed below, numerous Conservation Measures, described in detail in Section 2.4, will be incorporated into the Proposed Project to address potential temporary impacts these species and their habitat. The following BMPs have been incorporated into the Proposed Project (see Table 2-7 for details):

- BMP BI-8: Choose Local Ecotypes of Native Plants and Appropriate Erosion-Control Seed Mixes
- BMP BI-10: Avoid Animal Entry and Entrapment
- BMP BI-11: Minimize Predator Attraction
- BMP HM-12: Incorporate Fire Prevention Measures



BMP BI-8 focuses on utilizing native, local plants for erosion control seed mixes which would reduce the potential for erosion during the wet season, maintain genetic integrity of herbaceous seeded species within the Proposed Project study area, and suppress the establishment or spread of NNIP which could otherwise lower habitat quality for the species. By covering all exposed pipes and similar structures and covering exposed trenches or providing escape ramps, BMP BI-10 would prevent the entrapment of individuals within trenches and stockpiled materials, reducing the potential for injury or mortality. The daily removal of trash associated with BMP BI-11 would reduce increased predation risk through removing trash for work areas each day that could otherwise attract predatory species to the area that could prey on individuals. BMP HM-12 reduces the risk of wildfire through the use of vehicles with combustion engines equipped with spark arrestors and work crews being properly equipped with fire extinguishers, decreasing the risk of wildfires which could destroy habitat and result in species mortality.

Similar to the BMPs, the following PAMMs have been incorporated into the Proposed Project and will avoid or reduce potential impacts on silvery legless lizard, San Joaquin coachwhip, and coast horned lizard (see Section 2.4).

- PAMM BIO-1: Work Environmental Awareness Training
- PAMM BIO-2: Biological Site Inspections and Summary Report (Compliance Program)
- PAMM BIO-4: Biological Monitoring for Special-Status Species and Environmentally Sensitive Areas
- PAMM BIO-5: Plant Pathogen, Non-Native Invasive Species, and Aquatic Invasive Species Prevention

PAMM BIO-1 minimizes potential impacts on sensitive biological resources, including silvery legless lizard, San Joaquin coachwhip, and coast horned lizard by requiring all project personnel receive the WEAT before entering the Proposed Project study area. The WEAT will be provided by a qualified biologist and will include training on the roles and responsibilities of project personnel, including notification and documentation requirements intended to avoid or minimize impacts to nesting birds, special-status species, sensitive habitats and other sensitive biological resources.

PAMM BIO-2 minimizes potential impacts on sensitive biological resources through the daily inspection and reporting of activities associated with the Proposed Project by qualified biologists. PAMM BIO-2 requires the daily inspections document that BMPs, PAMMs, VHP Conditions and VHP AMMs, and mitigation measures are being implemented appropriately and to ensure compliance. Monitoring will also provide information necessary to demonstrate compliance with CEQA mitigation monitoring and reporting requirements. Monitoring reports summarizing the daily inspections will be provided bi-weekly to Valley Water.

PAMM BIO-4 minimizes the potential for impacts on special-status species and areas designated as environmentally sensitive by requiring a qualified biologist to be present during the initial mobilization of equipment during setup and the start of the geotechnical borings at each work activity area. PAMM BIO-4 also requires that a qualified biologist is present during any ground



disturbing and vegetation removal activities. The biologist would document pre-disturbance conditions and verify BMPS, PAMMs, VHP Conditions, VHP AMMs, and mitigation measures. If any avoidance markings for environmentally sensitive areas were damaged, removed, or obscured, the biologist would mark them again for avoidance and inform work crews if equipment or vehicles are too close to avoidance areas.

PAMM BIO-5 minimizes impacts from plant pathogen and non-native invasive species that could result from the implementation of the Proposed Project which could otherwise degrade or reduce the extent of habitat for these species. Specifically, PAMM BIO-5 requires vehicles, equipment, tools, and boots be cleaned/decontaminated following the six-step cleaning/decontamination procedures prior to equipment/personnel entering the Proposed Project study area. These procedures also reduce the potential for the introduction and spread of *Phytophthora* plant pathogens within species habitat, which could otherwise result in mortality to individual plants and a reduction in the overall health and extent of the vegetation that comprises species habitat in the vicinity of work activities, particularly in areas downslope from work areas. Incorporation of PAMM BIO-5 into the Proposed Project also minimizes the risk of establishment of NNIP species, by preventing introduction of seeds that could otherwise be transported into Proposed Project activity areas by contaminated vehicles/equipment.

Although it would not provide compensation for this impact, Valley Water will be paying VHP land cover impact fees for the Proposed Project as a VHP covered activity. The SCVHA will then use these fees to purchase and protect natural lands in their plan area in perpetuity, which could be considered a benefit on this resource. Although silvery legless lizard, San Joaquin coachwhip, and coast horned lizard habitat is present within the Valley Habitat Plan permit area, their presence within or near SCVHA reserves is unknown, so the extent that the payment of land cover fees would offset impacts on these species is uncertain.

Additionally, AMMs from the VHP are incorporated into the Proposed Project that would reduce potential effects, which include the following: AMM 7, 8, 11, 29, 39, 49, 58, 61, 62, 69, 71, 76, 87, 88, 89, 90, 95, 100, and 101. Implementation of AMMs VHP-88 and 89 reduce the risk of mortality or injury from vehicular strikes by limiting parking to paved surfaces, roads, or disturbed areas where individuals are less likely to occur and by enacting speed limits, respectively. AMMs VHP-90 and VHP-101 reduces the potential for indirect mortality of individuals by preventing the attraction of predatory species by leaving out trash, and VHP AMM-95 reduces the potential for direct mortality or injury through covering trenches and holes to prevent entrapment. AMMs VHP-7, 8, 11, 76, 87, and 100 minimize the potential for spills and leaks from vehicles and equipment that could degrade habitat quality or expose individuals to hazardous materials. Implementation of AMMs VHP-29, 39, 49, 58, 61, 62, 69, and 71 reduce the extent of ground and vegetation disturbance by reducing work areas to the minimum amount necessary, restricting vehicle and equipment travel to designated access routes and preserving as much vegetation to the extent possible. These reductions in ground and vegetation disturbance from Proposed Project activities





reduces the likelihood of direct mortality from equipment or vehicles and minimizes the extent of temporary habitat disturbances.

In consideration of the Conservation Measures discussed above, the following discussion addresses specific direct and indirect impacts that could occur to silverly legless lizard, San Joaquin coachwhip, and coast horned lizard individuals through implementation of the Proposed Project.

Although nighttime lighting is known to alter wildlife behavior, foraging patterns, and diurnal activity patterns, with exception of the geotechnical investigations (four borings) within the SR-152 ROW, no nighttime work and associated lighting would occur. Because this area is already exposed to elevated nighttime lighting from vehicles driving along SR-152, lighting will not have an impact on these species.

Silverly legless lizard, San Joaquin coachwhip, and coast horned lizard often utilize open and exposed areas (e.g., roads) as part of their thermoregulation. Within the Proposed Project study area, existing roads comprise a large proportion of the non-vegetated upland areas where the species have potential to occur, putting them at risk of take, particularly early in the day when temperatures are cool and they are unable to quickly move out of harm's way. Direct impacts could occur from equipment and vehicle strikes along access routes and within work areas. Elevated noise levels generated by equipment and vehicles and the presence of people could also cause physiological stress, behavioral changes, reduced fitness, and potential increased risk of predation. Similarly, vibration from equipment usage could cause individuals to leave their burrows or refugia, increasing predation risk.

Indirect impacts resulting from geotechnical investigation activities can also occur. Individuals displaced from temporarily disturbed habitat could also experience reduced fitness, increased stress, and increased risk of predation.

Impacts to species' habitats would be isolated and temporary due to the nature of the geotechnical investigation activities compared to the extent and connectivity of wildlife habitat within and around the Proposed Project study area. However, impacts to silverly legless lizard, San Joaquin coachwhip, and coast horned lizard individuals could occur through implementation of the Proposed Project due to use by individuals of existing roads and potential injury or mortality due to equipment and vehicle strikes. Although VHP impact fees paid by Valley Water to implement the Proposed Project would help protect natural lands in perpetuity, which could be considered a benefit on the silverly legless lizard, San Joaquin coachwhip, and coast horned lizard, these three species are not covered species under the VHP (i.e., these species do not have the direct benefit of compensation afforded to VHP covered species). Therefore, impacts would be significant.

To reduce significant direct and indirect impacts to a less than significant level, the following mitigation measure would be implemented (see Table 3.5-9):

- MM BIO-2: Protection of Silvery Legless Lizard, San Joaquin Coachwhip, and Coast Horned Lizard



Mitigation measure BIO-2 requires pre-activity surveys for silvery legless lizard, San Joaquin Coachwhip, and coast horned lizard by a qualified biologist, the establishment of avoidance buffers, and monitoring of observed individuals to ensure they either leave the site of their own volition to a safe distance from Proposed Project activities, are moved by an agency-approved qualified biologist with all required regulatory agency approvals and handling permits out of harm's way, or delaying or rescheduling work until the individual is no longer in the activity area.

With the incorporation of mitigation measure BIO-2, impacts on silvery legless lizard, San Joaquin coachwhip, and coast horned lizard would be reduced to a less-than-significant level. Therefore, impacts on silvery legless lizard, San Joaquin coachwhip, and coast horned lizard would be **less than significant with mitigation**.

### ***Impact BIO-10***

#### ***Would the project result in adverse effects on special-status fish species or their habitat?***

As described in Table 3.5-3, there are five special-status fish species that have the potential to be present within, or in close proximity to the Proposed Project study area; two anadromous and three resident fish species. None of these fish species have the benefit of coverage afforded by the Valley Habitat Plan. Two of the five fish species, however, have not been observed or detected in Pacheco Creek or its tributaries in many years. Pacheco Creek, a short reach of North Fork Pacheco Creek, and a short reach of South Fork Pacheco Creek provide habitat for SCCC steelhead, including spawning, rearing and holding habitat. North Fork Dam serves as a barrier about 0.5 mile up North Fork Pacheco Creek and there is a natural barrier about 2.5 miles up South Fork Pacheco Creek (Valley Water 2024).

In addition to providing SCCC steelhead habitat, these creeks provide habitat for Monterey hitch, southern coastal roach, and historically provided habitat for Pacific lamprey and riffle sculpin as described in Appendix E, Attachment 1, Exhibit 1E, Table 3.5.

Monterey hitch, a California species of special concern, have been documented downstream from the North Fork Dam, including the lower 0.5 miles of North Fork Creek, and the entire mainstem Pacheco Creek (Valley Water 2024). Monterey hitch are dependent upon flows released from Pacheco Reservoir.

Southern coastal roach, a California species of special concern have been documented in the North Fork Pacheco but were not documented in Pacheco Reservoir Creek (Valley Water 2024). They may, however, occur in the reservoir. This species inhabits residual pools when the main channel periodically dries up. The documentation of southern coastal roach upstream from the dam suggest that North Fork Pacheco Creek and its tributaries provide additional habitat for southern coastal roach when the reservoir dries up periodically, Monterey hitch and southern coastal roach have the potential to hybridize in this watershed.

Activities associated with the Proposed Project that have potential to impact special-status fish species and habitat would be those that could result in a physical disturbance to habitat, or an adverse effect on environmental or physiological conditions in a manner that impacts fish health



or behavior. The Proposed Project includes three types of activities that could potentially result in a substantial adverse effect on special-status fish species or their habitat:

- Impacts of vehicles and equipment driving through or across South and North Fork Pacheco Creek for a limited number of times over several days at a single location;
- Boring within or along the edges of Pacheco Reservoir; and
- Borings within SR-152 corridor, a minimum of 500 feet north of Pacheco Creek.

Two activity areas are located within, or in close proximity to habitat for special-status fish species in South Fork Pacheco Creek immediately north of SR-152. Due to topographic limitations, there is no access to the proposed exploratory boring activity area from the westbound shoulder of SR-152. To access this activity area, vehicles and equipment would use an access route that would cross the bed and banks of South Fork Creek at a time there is no flow in the channel, nor residual pools. Without water, South Fork Pacheco Creek would not provide habitat for any special-status fish (e.g., SCCC steelhead, Pacific lamprey, riffle sculpin, Monterey hitch, or southern coastal roach). Regardless, BMPs HM-8, HM-9, and HM-10 would ensure that no fueling or other activities that could result in a potential discharge of hazardous materials would occur. BMP WQ-4 would require that no staging or storage of materials would occur within the access or boring activity areas. BMPs WQ-12, WQ-13, and WQ-14 would ensure that exploratory borings are backfilled and activity areas are returned to pre-project conditions. BMPs WQ-15 and WQ-16 would be applied to ensure water quality is not impaired and beneficial uses (i.e., special-status fish species and species of special concern) are protected.

Two PAMMs (BIO-1, BIO-2) would be applied to ensure that special-status fish species are protected and appropriate documentation of compliance with applicable Conservation Measures is completed. Two PAMMs (BIO-3, BIO-4) would ensure that the boundaries of any avoidance areas are surveyed and marked prior to any boring activity. PAMM BIO-5 would ensure that measures are taken to clean and decontaminate vehicles and equipment to prevent the introduction or spread of pathogens and invasive aquatic species.

Although all proposed activities associated with these two activity areas would only occur when South Fork Pacheco Creek is dry and there is confirmation that no residual pools are present within or downstream of these activity areas, three Conditions (i.e., Conditions 3, 4 and 5) of the VHP would be incorporated to minimize potential adverse effects to special-status fish species and habitat. All VHP AMMS listed in Table 2-8 would also be applied to specific to these two activity areas. With implementation of the Proposed Project impacts to special-status fish or their habitat would be **less than significant**. No mitigation is required.

There are 21 exploratory boring activity areas proposed at locations below the full-pool elevation of Pacheco Reservoir. Exploratory drilling may cause adverse effects to southern coastal roach. As described in Table 3.5-3, southern coastal roach have been documented in North Fork Pacheco Creek upstream from Pacheco Reservoir, and are presumed to periodically occupy habitat in Pacheco Reservoir though southern coastal roach were not documented during the Valley Water



(2024) study. Southern coastal roach that do occupy reservoirs are typically found at the shallow edge habitats (Moyle 2002). Southern coastal roach could be impacted by exploratory boring in the reservoir, noise and vibration, heavy equipment operation and the potential for decreased water quality resulting from pollution, and increased turbidity associated with the vibracore borings. Indirect impacts resulting from geotechnical investigation activities include individuals displaced from temporarily disturbed habitat, reduced fitness, increased stress, and increased risk of predation. Habitat quality within the reservoir could be adversely affected during geotechnical investigation activities due to reduced water quality. A reduction in habitat quality could cause individuals to disperse to less impacted aquatic habitats, increasing stress levels and lowering fitness. However, due to the nature of the geotechnical investigation activities compared to the extent of habitat within the reservoir, impacts to southern coastal roach and their habitat would be isolated and temporary. For all exploratory drilling that would be performed within or adjacent to Pacheco Reservoir, all BMPs, PAMMs, VHP Conditions, and AMMS described above will be applied.

Exploratory drilling activities would not result in adverse effects on southern coastal roach. Therefore, impacts to southern coastal roach would be **less than significant**. No mitigation is required.

Exploratory borings within the SR-152 corridor would occur over a several week period during the time frame when Pacheco Creek may have flow or residual pools that provide habitat for the special-status fish species that occur downstream from North Fork Dam. The exploratory boring location closest to Pacheco Creek is about 500 feet to the north. The application of the Conservation Measures described for South Fork Pacheco Creek activity areas would avoid or minimize potential impacts to water quality in Pacheco Creek as described under Impact HYD-1. As a result, impacts on water quality in Pacheco Creek would be **less than significant**. No mitigation is required.

Effects on special-status fish species from changes in hydrostatic pressure are not related to the distance of the fish from the point of impact, but to the level and duration of the sound exposure (Hastings and Popper 2005). In order to avoid injury, sound levels should be less than 206 peak decibels (dB) and extended time should be less than 187 dB sound exposure level (183 dB for fish that weigh less than 2 grams), referenced at 1 micropascal (re 1  $\mu$ Pa) for sound traveling through water, measured at a distance of 10 meters (Fisheries Hydroacoustic Working Group 2008).

The Proposed Project would include four activity areas (A-20-104, R-20-002, R-20-003, PB-01) that may be close enough to Pacheco Creek where the sound of exploratory drilling for six to eight hours a day over a several week period could affect SCCC steelhead and Monterey hitch. As described in Section 3.14.2, the ambient noise in the general vicinity of these activity areas was measured at ST-2 to be 69.6 A-weighted decibels (dBA) Leq. Factoring in the noise associated with a single drill rig and ancillary equipment, the attenuated noise at SR-3 (residential dwelling approximately 435 feet southwest of activity area A-20-104) would be 56.7 dBA Leq, well below



the sound exposure levels known to have adverse effects to fish, Therefore, the impacts of sound levels on special-status fish species would be **less than significant**. No mitigation is required.

In addition to sound effects, excessive ground vibrations can affect fish, particularly the sensitive egg life stage (Kolden and Aimone-Martin 2013). Smirnov (1954, as cited in Alaska Department of Fish and Game 1991) found significant egg mortality caused by ground vibrations with a peak particle velocity (PPV) of 2 inches per second (ips). Jensen and Collins (2003) found that a PPV of 5.8 ips resulted in 10 percent mortality of Chinook salmon embryos. Faulkner et al. (2008) found that PPVs up to 9.7 ips resulted in significantly higher mortality in *O. mykiss* (rainbow trout and steelhead) eggs but there was no increase in mortality when exposed to PPVs of 5.2 ips or less. While these studies focus on salmonid species, it is likely that either Monterey hitch (downstream of North Fork Dam) and southern coastal roach (upstream of North Fork Dam) would be affected in a similar manner.

Vibration levels published by the Federal Transit Administration (FTA) for caisson drilling were used as the surrogate for the proposed exploratory drilling equipment. These vibration levels are presented in Table 3.14-10 and represent levels typically associated with caisson drilling. Without specific information on vibration levels for truck or track mounted drill rigs, vibration levels provided in Table 3.14-10 for caisson drilling were used as a surrogate for this EIR. Modeling data discussed in Impact NOI-2, supported by information in Appendix D documents that caisson drilling generates vibration levels of 0.089 inches per second (in/sec) PPV and 87 vibration decibels (VdB) at 25 feet (FTA 2018: 184). Exploratory drilling would occur several hundred feet north of Pacheco Creek. Based on the vibration data provided in Impact NOI-2 the vibration levels that may occur from the Proposed Project would be much lower than those known to result in adverse effects to fish. Therefore, vibration impacts on special-status fish species would be **less than significant**. No mitigation is required.

#### ***Impact BIO-11***

##### ***Would the project result in adverse effects to special-status avian species, nesting migratory birds, or raptors (excluding bald and golden eagles) or their habitat?***

Within the Proposed Project study area, suitable foraging and nesting habitat is present for the following special-status avian species in addition to non-listed migratory nesting birds and raptors:

- Grasshopper sparrow
- Long-eared owl
- Northern harrier
- Yellow-breasted chat
- Loggerhead shrike
- Purple martin



- Yellow warbler
- White-tailed kite

In addition, the Proposed Project study area provides suitable foraging habitat, but not nesting habitat, for the following special-status species :

- Tricolored blackbird
- Western burrowing owl
- Least Bell's vireo
- Vaux's swift
- Olive-sided flycatcher
- American peregrine falcon
- California condor
- Swainson's hawk

Small patches of woody riparian habitats along North Fork Pacheco Creek downstream of North Fork Dam provide foraging and nesting habitat for yellow warbler and yellow breasted chat. Grassland and shrubland habitats that could support grasshopper sparrow and loggerhead shrike nesting are also present throughout the Proposed Project study area. There is no suitable nesting habitat for tricolored blackbird (i.e., emergent marsh or willow thickets) in the Proposed Project study area or within a 250-foot buffer around the Proposed Project study area, although grassland foraging habitat is present. Similarly, there is no suitable habitat for least Bell's vireo (stratified and dense riparian areas with a minimum width of 800 feet) within the Proposed Project study area or surrounding 250-foot buffer, although there is low-quality foraging habitat present comprised of riparian woodlands downstream of the North Fork Dam. Woodland habitats that may contain snags and cavities (e.g., oak woodlands) suitable for purple martin nesting are present within the Proposed Project study area. Vaux's swift and olive-sided flycatcher foraging habitat exists within the grassland, shrubland, and woodland vegetation communities within the Proposed Project study area.

The Proposed Project study area also provides a wide array of potential nesting and foraging habitat for a variety of migratory birds protected under the MBTA and species protected under Sections 3500-3516 of the FGC. These bird species may utilize habitats and land cover types such as the oak and riparian woodlands, shrubland and chaparral communities, and annual grasslands in the Proposed Project study area for nesting.

The Proposed Project study area provides suitable foraging habitat for seven special-status raptors species including long-eared owl, western burrowing owl, Swainson's hawk, northern harrier, white-tailed kite, American peregrine falcon, and California condor. The Proposed Project study area provides suitable nesting habitat for three of these special-status raptor species – long-eared owl, Northern harrier, and white-tailed kite (no nesting habitat is present for western





burrowing owl, Swainson's hawk, American peregrine falcon, or California condor). Grassland habitats within the Proposed Project study area may provide overwintering (non-breeding) habitat for burrowing owl, and foraging habitat for all seven of the special-status raptor species. On-site woodland and scrub habitats that may provide suitable nesting for white-tailed kite, and grassland habitats provide suitable nesting and foraging habitat for northern harrier. Dense woodland habitats in the Proposed Project study area (e.g., coast live oak woodlands) may provide suitable nesting habitat for the long-eared owl. No cliff habitats to support American peregrine falcon or California condor nesting are present in the Proposed Project study area. Known nest locations of Swainson's hawk in the permit area for the VHP, are all located in the lower reaches of Pacheco Creek near agricultural fields; the Proposed Project study area does not support nesting habitat for the species. Similarly, burrowing owl nesting (breeding) habitat is not present.

The Proposed Project study area is within the VHP permit area and the SCVHA has confirmed that the Proposed Project is a covered activity in the VHP. Western burrowing owl, tricolored blackbird, and least Bell's vireo are covered under the VHP. Payment of VHP impact fees and implementing all applicable VHP Conditions and VHP AMMs provides take authorization for any potential impacts to VHP covered species and resources. Additionally, as discussed below, numerous Conservation Measures, described in detail in Section 2.4, have been incorporated into the Proposed Project to avoid and/or reduce impacts to these species and their habitat. The following BMPs have been incorporated into the Proposed Project to avoid and/or reduce potential impacts on special-status wildlife species (see Table 2-7 for details):

- BMP BI-5 Avoid Impacts to Nesting Migratory Birds
- BMP BI-6 Avoid Impacts to Nesting Migratory Birds from Pending Construction
- BMP BI-10: Avoid Animal Entry and Entrapment
- BMP BI-11: Avoid Predator Attraction
- BMP HM-7: Restrict Vehicle and Equipment Cleaning to Appropriate Locations
- BMP HM-8: Ensure Proper Vehicle and Equipment Fueling and Maintenance
- BMP HM-9: Ensure Proper Hazardous Materials Management
- BMP HM-10: Utilize Spill Prevention Measures
- BMP HM-12: Incorporate Fire Prevention Measures
- BMP WQ-4: Limit Impacts from Staging and Stockpiling Materials
- BMP WQ-17: Manage Sanitary and Septic Waste

BMP BI-5 requires that a qualified biologist perform pre-activity surveys for nesting birds to ensure that active nests remain undisturbed to prevent nest abandonment, damage, or destruction. If any structures are determined to provide potential nesting substrates for birds, then exclusionary devices could be installed prior to nest establishment to prevent nest abandonment or mortality of individuals nesting in areas with ongoing activities as part of BMP BI-6. By covering all exposed



pipes and similar structures and covering exposed trenches or providing escape ramps, BMP BI-10 would prevent the entrapment of individuals within trenches and stockpiled materials, reducing the potential for injury or mortality. The daily removal of trash associated with BMP BI-11 would reduce increased predation risk through removing trash for work areas each day that could otherwise attract predatory species to the area that could prey on individuals. BMPs HM-7, HM-8, HM-9, HM-10, WQ-4, and WQ-17 would minimize the risk of equipment and vehicle leaks and spills causing soil and water contamination, reducing the risk of habitat degradation and mortality from exposure to hazardous materials. BMP HM-12 reduces the risk of wildfire through the use of vehicles with combustion engines equipped with spark arrestors and work crews being properly equipped with fire extinguishers, decreasing the risk of wildfires which could destroy habitat and result in species mortality.

The following PAMMs have been incorporated into the Proposed Project to avoid and/or reduce potential impacts on special-status avian species, nesting migratory birds, and raptors (see Section 2.4).

- PAMM BIO-1: Work Environmental Awareness Training
- PAMM BIO-2: Biological Site Inspections and Summary Report (Compliance Program)
- PAMM BIO-4: Biological Monitoring for Special-Status Species and Environmentally Sensitive Areas
- PAMM BIO-5: Plant Pathogen, Non-Native Invasive Species, and Aquatic Invasive Species Prevention

PAMM BIO-1 minimizes potential impacts on sensitive biological resources, including special-status avian species, nesting migratory birds, and raptors, by requiring all project personnel receive the WEAT before entering the Proposed Project study area. The WEAT will be provided by a qualified biologist and will include training on the roles and responsibilities of project personnel, including notification and documentation requirements intended to avoid or minimize impacts to nesting birds, special-status species, sensitive habitats and other sensitive biological resources.

PAMM BIO-2 minimizes potential impacts on sensitive biological resources through the daily inspection and reporting of activities associated with the Proposed Project by qualified biologists. PAMM BIO-2 requires the daily inspections document that BMPs, PAMMs, VHP Conditions, and VHP AMMs are being implemented appropriately and to ensure compliance. Monitoring will also provide information necessary to demonstrate compliance with CEQA mitigation monitoring and reporting requirements. Monitoring reports summarizing the daily inspections will be provided bi-weekly to Valley Water.

PAMM BIO-4 minimizes the potential for impacts on special-status species and areas designated as environmentally sensitive by requiring a qualified biologist to be present during the initial mobilization of equipment during setup and the start of the geotechnical borings at each work activity area. PAMM BIO-4 also requires that a qualified biologist is present during any ground disturbing and vegetation removal activities. The biologist will document pre-disturbance



conditions and verify BMPS, PAMMs, VHP Conditions, and VHP AMMs. If any avoidance markings for environmentally sensitive areas are damaged, removed, or obscured, the biologist will mark them again for avoidance and inform work crews if equipment or vehicles are too close to avoidance areas.

PAMM BIO-5 minimizes impacts from plant pathogen and non-native invasive species that could result from the implementation of the Proposed Project which could otherwise degrade or reduce the extent of habitat for these species. Specifically, PAMM BIO-5 requires vehicles, equipment, tools, and boots be cleaned/decontaminated following the six-step cleaning/decontamination procedures prior to equipment/personnel entering the Proposed Project study area. These procedures also reduce the potential for the introduction and spread of *Phytophthora* plant pathogens within species habitat, which could otherwise result in mortality to individual plants and a reduction in the overall health and extent of the vegetation that comprises species habitat in the vicinity of work activities, particularly in areas downslope from work areas. Incorporation of PAMM BIO-5 into the Proposed Project also minimizes the risk of establishment of NNIP species, by preventing introduction of seeds that could otherwise be transported into Proposed Project activity areas by contaminated vehicles/equipment.

The Proposed Project is a VHP covered activity. Western burrowing owl, tricolored blackbird, and least Bell's vireo are covered species under the VHP. Valley Water will pay VHP impact fees for land cover types impacted by the Proposed project, in order to obtain take coverage for VHP covered species. The fees collected by the Valley Habitat Agency will then be used to purchase and preserve other lands within the VHP permit area, which will compensate for impacts to VHP covered species and their habitat. Although the other special-status bird species either known to occur or with potential to occur in the Proposed Project study area are present within the VHP permit area, their presence within or near SCVHA reserves is unknown, so the extent that the payment of land cover fees would offset impacts on these species is uncertain but could be considered a benefit.

Five Conditions of the VHP (as further discussed in Appendix C) would reduce the potential for impacts on special-status avian species and nesting migratory birds and raptors:

- Condition 1. Avoid Direct Impacts on Legally Protected Plant and Wildlife Species
- Condition 14. Valley Oak and Blue Oak Woodland Avoidance and Minimization
- Condition 15. Western Burrowing Owl
- Condition 16. Least Bell's Vireo
- Condition 17. Tricolored Blackbird

Under Condition 1, the Proposed Project will comply with the provisions of the MBTA, which states it is illegal to take migratory birds, their young, eggs, and nests. This also applies to bald and golden eagles, including provisions against altering conditions around previously used eagle nests to such an extent that the nests would not be used by breeding pairs following Proposed Project



activities. Condition 14 provides design guidelines and setbacks to avoid disturbances within riparian areas and valley and blue oak woodlands, which support nesting habitat for birds. Conditions 15, 16, and 17 for western burrowing owl, least Bell's vireo, and tricolored blackbird, respectively, include pre-activity surveys for nests and 250-foot avoidance buffers and monitoring requirements to minimize the risk of nest abandonment and lowered fitness of individuals due to stress and displacement. Because burrowing owl breeding habitat is not present in the Proposed Project study area, Condition 15 would only be implemented if burrowing owl individuals are observed on site.

Additionally, AMMs from the VHP are incorporated into the Proposed Project that would reduce potential effects, which include the following: VHP AMMs 29, 39, 49, 58, 61, 62, 69, 71, 89, and 90. Implementation of VHP AMMs 88 and 89 reduce the risk of mortality or injury from vehicular strikes by limiting parking to paved surfaces, roads, or disturbed areas where individuals are less likely to occur and by enacting speed limits, respectively. Implementation of VHP AMMs 29, 39, 49, 58, 61, 62, 69, and 71 reduce the extent of ground and vegetation disturbance by reducing work areas to the minimum amount necessary, restricting vehicle and equipment travel to designated access routes, and preserving as much vegetation to the extent possible. These reductions in ground and vegetation disturbance from Proposed Project activities reduces the likelihood of direct mortality from equipment or vehicles and minimizes the extent of temporary habitat disturbances.

In consideration of the Conservation Measures discussed above, the following discussion addresses specific direct and indirect impacts that could occur to special-status avian species, migratory birds, and raptors, including tricolored blackbird, least Bell's vireo, and western burrowing owl, through implementation of the Proposed Project.

Although nighttime lighting is known to alter wildlife behavior, foraging patterns, and diurnal activity patterns, with exception of the geotechnical investigations (four borings) within the SR-152 right of way, no nighttime work and associated lighting would occur. Because this area is already exposed to elevated nighttime lighting from vehicles driving along SR-152, lighting would not have an impact on these species.

Special-status avian species, migratory birds, and raptors, including tricolored blackbird, least Bell's vireo, and western burrowing owl, may forage and roost within the Proposed Project study area when Project geotechnical activities would occur. As a result, there is potential for geotechnical investigation activities to affect their foraging and roosting behavior, which could increase the risk of mortality, injury, or lowered fitness. Because Proposed Project activities would be discrete and limited in extent, the potential for these impacts to occur would be relatively low due to these species' ability to disperse to other suitable habitats within the vicinity of the Proposed Project study area. In addition, for tricolored blackbird, least Bell's vireo, and western burrowing owl, potential impacts would be offset through the payment of VHP fees, which would result in the preservation of habitat for the species on a population and regional level in perpetuity.



Direct impacts on foraging special-status avian species and migratory birds and raptors resulting from geotechnical investigation activities include displacement due to the presence of people and equipment and vehicle generated noise and vibration which could result in lowered fitness by needing to fly further to obtain food resources or an increase the risk of predation from flushing birds from vegetation cover into open areas where they are more easily visible to predators.

Indirect impacts on special-status avian species and nesting migratory birds and raptors resulting from geotechnical investigation activities include lowered fitness from the temporary displacement of habitat caused by human presence; vehicles, including the helicopter; and equipment. Noise generated during Proposed Project activities could also interfere with calling individuals during mating season, resulting in a reduction to local populations due to lowered mating success.

However, due to the nature of the geotechnical investigation activities (i.e., limited duration and spatial footprint at each activity area) compared to the extent and connectivity of wildlife habitat within and around the Proposed Project study area, impacts to species' habitats will be discrete and limited in extent. Therefore, impacts on special-status avian species, nesting migratory birds, and raptors and their habitat would be **less than significant**. No mitigation is required.

#### ***Impact BIO-12***

##### ***Would the project result in adverse effects on nesting bald eagles or golden eagles or their habitat?***

The majority of the upstream and downstream areas around Pacheco Reservoir provide suitable nesting habitat for bald eagles and golden eagles; however, only two active eagle nests (one bald eagle and one golden eagle) were observed in or near the Proposed Project study area during annual surveys conducted in 2020, 2021, 2022, 2023, and 2024. During 2020 surveys, an active bald eagle nest was observed approximately 3 miles west of the Proposed Project study area downstream along Pacheco Creek, and an active golden eagle nest was observed 0.6 mile north of the Proposed Project study area (Appendix E, Attachment 4). Pacheco Creek, North Fork Pacheco Creek, South Fork Pacheco Creek, and Pacheco Reservoir provide potential foraging habitat for bald eagle. Woodland, scrub, and grassland habitats provide foraging habitat for bald and golden eagle, and the woodlands provide nesting habitat. There is one inactive potential eagle nest (species not determined) within 100 feet of the Proposed Project study area, with no observations of raptors or eagles utilizing the stick nest during the last five years of consecutive surveys. Numerous golden and bald eagle individuals have been observed foraging over the Proposed Project study area in each survey year (Appendix E, Attachment 4).

As discussed below, numerous Conservation Measures, described in detail in Section 2.4, will be incorporated into the Proposed Project to address potential temporary impacts these species and their habitat. The following BMPs have been incorporated into the Proposed Project to avoid or reduce potential impacts on special-status wildlife species (see Table 2-7 for details):

- BMP BI-5 Avoid Impacts to Nesting Migratory Birds



- BMP BI-6 Avoid Impacts to Nesting Migratory Birds from Pending Construction
- BMP HM-12: Incorporate Fire Prevention Measures

BMPs BI-5 would include conducting pre-activity surveys for nesting birds and leaving nests undisturbed to prevent nest abandonment. As part of BMP-6, if any structures are determined to provide potential nesting substrates for birds, then exclusionary devices could be installed prior to nest establishment to prevent nest abandonment or mortality of individuals nesting in areas with ongoing activities. BMP HM-12 reduces the risk of wildfire through the use of vehicles with combustion engines equipped with spark arrestors and work crews being properly equipped with fire extinguishers, decreasing the risk of wildfires which could destroy habitat and result in species mortality.

Similar to the BMPs, the following PAMMs have been incorporated into the Proposed Project and will avoid or reduce potential impacts on bald eagles and golden eagles (see Section 2.4).

- PAMM BIO-1: Work Environmental Awareness Training
- PAMM BIO-2: Biological Site Inspections and Summary Report (Compliance Program)
- PAMM BIO-4: Biological Monitoring for Special-Status Species and Environmentally Sensitive Areas
- PAMM BIO-5: Plant Pathogen, Non-Native Invasive Species, and Aquatic Invasive Species Prevention

PAMM BIO-1 minimizes potential impacts on sensitive biological resources, including bald eagles and golden eagles, by requiring all project personnel receive the WEAT before entering the Proposed Project study area. The WEAT will be provided by a qualified biologist and will include training on the roles and responsibilities of project personnel, including notification and documentation requirements intended to avoid or minimize impacts to nesting birds, special-status species, sensitive habitats and other sensitive biological resources.

PAMM BIO-2 minimizes potential impacts on sensitive biological resources through the daily inspection and reporting of activities associated with the Proposed Project by qualified biologists. PAMM BIO-2 requires the daily inspections document that BMPs, PAMMs, VHP Conditions, VHP AMMs, and mitigation measures are being implemented appropriately and to ensure compliance. Monitoring will also provide information necessary to demonstrate compliance with CEQA mitigation monitoring and reporting requirements. Monitoring reports summarizing the daily inspections will be provided bi-weekly to Valley Water.

PAMM BIO-4 minimizes the potential for impacts on special-status species and areas designated as environmentally sensitive by requiring a qualified biologist to be present during the initial mobilization of equipment during setup and the start of the geotechnical borings at each work activity area. PAMM BIO-4 also requires that a qualified biologist is present during any ground disturbing and vegetation removal activities. The biologist would document pre-disturbance conditions and verify BMPS, PAMMs, VHP Conditions, VHP AMMs, and mitigation measures. If any





avoidance markings for environmentally sensitive areas were damaged, removed, or obscured, the biologist would mark them again for avoidance and inform work crews if equipment or vehicles are too close to avoidance areas.

PAMM BIO-5 minimizes impacts from plant pathogen and non-native invasive species that could result from the implementation of the Proposed Project which could otherwise degrade or reduce the extent of habitat for these species. Specifically, PAMM BIO-5 requires vehicles, equipment, tools, and boots be cleaned/decontaminated following the six-step cleaning/decontamination procedures prior to equipment/personnel entering the Proposed Project study area. These procedures also reduce the potential for the introduction and spread of *Phytophthora* plant pathogens within species habitat, which could otherwise result in mortality to individual plants and a reduction in the overall health and extent of the vegetation that comprises species habitat in the vicinity of work activities, particularly in areas downslope from work areas. Incorporation of PAMM BIO-5 into the Proposed Project also minimizes the risk of establishment of NNIP species, by preventing introduction of seeds that could otherwise be transported into Proposed Project activity areas by contaminated vehicles/equipment.

Although it would not provide compensation for this impact, Valley Water will be paying VHP land cover impact fees for the Proposed Project as a VHP covered activity. The SCVHA will then use these fees to purchase and protect natural lands in their plan area in perpetuity, which could be considered a benefit on this resource. Although bald eagle and golden eagle habitat is present within the Valley Habitat Plan permit area, their presence within or near SCVHA reserves is unknown, so the extent that the payment of land cover fees would offset impacts on these species is uncertain.

Two Conditions of the VHP (as further discussed in Appendix C) would reduce the potential for impacts on bald and golden eagles:

- Condition 1. Avoid Direct Impacts on Legally Protected Plant and Wildlife Species
- Condition 14. Valley Oak and Blue Oak Woodland Avoidance and Minimization

Under Condition 1, the Proposed Project will comply with the provisions of the MBTA and the Bald and Golden Eagle Protection Act, including not conducting actions that result in eagle mortality, including nest abandonment or nest destruction. Condition 14 provides design guidelines and setbacks to avoid disturbances within riparian areas and valley and blue oak woodlands, which support nesting habitat eagles, which reduce impacts on nesting habitat and the potential for nest abandonment and displacement of foraging individuals.

Additionally, AMMs from the VHP are incorporated into the Proposed Project that would reduce potential effects, which include the following: AMMs VHP-29, 39, 49, 58, 61, 62, 69, 71, 89, and 90. Implementation of AMMs VHP-88 and 89 reduce the risk of mortality or injury from vehicular strikes by limiting parking to paved surfaces, roads, or disturbed areas where individuals are less likely to occur and by enacting speed limits, respectively. Implementation of AMMs VHP-29, 39, 49, 58, 61, 62, 69, and 71 reduce the extent of ground and vegetation disturbance by reducing



work areas to the minimum amount necessary, restricting vehicle and equipment travel to designated access routes and preserving as much vegetation to the extent possible. These reductions in ground and vegetation disturbance from Proposed Project activities reduces the likelihood of direct mortality from equipment or vehicles and minimizes the extent of temporary habitat disturbances.

In consideration of the Conservation Measures discussed above, the following discussion addresses specific direct and indirect impacts that could occur to bald and golden eagle individuals through implementation of the Proposed Project.

Although nighttime lighting is known to alter wildlife behavior, foraging patterns, and diurnal activity patterns, with exception of the geotechnical investigations (four borings) within the SR-152 right of way, no nighttime work and associated lighting would occur. Because this area is already exposed to elevated nighttime lighting from vehicles driving along SR-152, lighting will not have an impact on these species.

Bald and golden eagles may nest, forage and roost within the Proposed Project study area when Project geotechnical activities would occur. As a result, there is potential for geotechnical investigation activities to affect their nesting, foraging and roosting behavior, which could increase the risk of mortality, injury, or lowered fitness. Because Proposed Project activities would be discrete and limited in extent, the potential for these impacts to occur would be relatively low due to these species' ability to disperse to other suitable habitats within the vicinity of the Proposed Project study area.

Direct impacts on eagles include individuals that could be displaced due to the presence of people and equipment and vehicle generated noise and vibration which could result in lowered fitness by needing to fly further to obtain food resources as well as to nesting. Because nesting bald and golden eagles can be sensitive to noise and visual disturbances relatively far from their nests compared to other avian species (recommended avoidance buffers from the USFWS are one mile for golden eagles and 1,000 feet (helicopter activity) and 660 feet (non-helicopter activity) for bald eagles), there is the potential for nest abandonment and resultant egg, hatchling, and fledgling mortality.

Indirect impacts on eagles resulting from geotechnical investigation activities include lowered fitness from the temporary displacement of habitat caused by human presence; vehicles, including the helicopter; and equipment. Due to the nature of the geotechnical investigation activities compared to the extent and connectivity of wildlife habitat within and around the Proposed Project study area, impacts to species' habitats will be discrete and limited in extent.

Impacts to species' habitats would be isolated and temporary due to the nature of the geotechnical investigation activities compared to the extent and connectivity of wildlife habitat within and around the Proposed Project study area. However, impacts to bald and golden eagle individuals could occur through implementation of the Proposed Project in the event that roosting or foraging activities or habitat of these species is affected. Though VHP impact fees paid by Valley



Water to implement the Proposed Project would help protect natural lands in perpetuity, which could be considered a benefit on bald and golden eagles, these species are not covered species under the VHP (i.e., these species do not have the direct benefit of compensation afforded to VHP covered species). Therefore, impacts would be significant.

The following mitigation measure will be implemented to reduce the potential for impacts on bald eagles and golden eagles (see Table 3.5-9 for full text):

- Mitigation measure BIO-3: Nesting Golden Eagle and Bald Eagle Surveys and Avoidance of Active Eagle Nests (Bald and Golden Eagle Protection Act)

As part of mitigation measure BIO-3, qualified biologists with eagle survey experience would conduct nesting surveys for nests within one mile of Proposed Project activity areas during the times of year when eagles exhibit parenting behavior and establish nesting territories, build nests and lay eggs, and feed young prior to the initiation of Project activities. Surveys would consist of both ground and aerial searches to maximize the likelihood of nest detection. Avoidance buffers of 1,000 feet (helicopter activity) and 660 feet (non-helicopter activity) for bald eagle, and one mile for golden eagle nests, would be established until nests are no longer active to minimize the likelihood of nest abandonment and hatchling and fledgling mortality.

With the implementation of mitigation measure BIO-3, direct and indirect impacts to bald and golden eagles and their habitat would be reduced to a less than significant level. Therefore, impacts on bald and golden eagles and their habitat would be **less-than-significant with mitigation**.

### ***Impact BIO-13***

#### ***Would the project result in adverse effects on mountain lion or tule elk or their habitats?***

Unlike mountain lion Southern California/Central Coast Evolutionary Significant Unit (ESU), which is a candidate for state listing as threatened under CESA, tule elk does not have a formal listing status. Valley Water is taking a conservative approach and analyzing project impacts on the species due to its cultural importance to local indigenous peoples, public interest, and ongoing CDFW management and monitoring of the species. Proposed Project impacts for both species are analyzed together due to their similar habitat and large home range requirements. The Proposed Project study area is within the range for mountain lion and tule elk. Both mountain lion and tule elk are known to occur within the Proposed Project study area, as noted in Appendix E, Attachment 1, Biological Resources Assessment Report. All terrestrial habitat adjacent to and upstream of North Fork Dam is suitable habitat for mountain lions and tule elk, which is comprised of woodlands, grasslands, the existing reservoir (when dry), and scrub/shrublands. Downstream of the dam, habitat becomes fragmented due to SR-152 and rural development, resulting in marginal foraging habitat.

As discussed below, numerous Conservation Measures, described in detail in Section 2.4, will be incorporated into the Proposed Project to address potential temporary impacts these species and



their habitat. To minimize and avoid potential impacts, the following BMPs will be incorporated into the Proposed Project, as described in Table 2-7 of Section 2.4:

- BMP BI-11: Minimize Predator Attraction
- BMP HM-12: Incorporate Fire Prevention Measures

BMP BI-11 reduces increased predation risk for tule elk through removing trash for work areas each day that could otherwise attract predatory species to the area that could prey on young individuals or harass adults. BMP HM-12 reduces the risk of wildfire through the use of vehicles with combustion engines equipped with spark arrestors and work crews being properly equipped with fire extinguishers, decreasing the risk of wildfires which could destroy habitat and result in species mortality or reduction in habitat.

Similar to the BMPs, the following PAMMs have been incorporated into the Proposed Project and will avoid or reduce potential impacts on mountain lion and tule elk (see Section 2.4).

- PAMM BIO-1: Work Environmental Awareness Training
- PAMM BIO-2: Biological Site Inspections and Summary Report (Compliance Program)
- PAMM BIO-4: Biological Monitoring for Special-Status Species and Environmentally Sensitive Areas
- PAMM BIO-5: Plant Pathogen, Non-Native Invasive Species, and Aquatic Invasive Species Prevention

PAMM BIO-1 minimizes potential impacts on sensitive biological resources, including mountain lion and tule elk, by requiring all project personnel receive the WEAT before entering the Proposed Project study area. The WEAT will be provided by a qualified biologist and will include training on the roles and responsibilities of project personnel, including notification and documentation requirements intended to avoid or minimize impacts to nesting birds, special-status species, sensitive habitats and other sensitive biological resources.

PAMM BIO-2 minimizes potential impacts on sensitive biological resources through the daily inspection and reporting of activities associated with the Proposed Project by qualified biologists. PAMM BIO-2 requires the daily inspections document that BMPs, PAMMs, VHP Conditions, and VHP AMMs are being implemented appropriately and to ensure compliance. Monitoring will also provide information necessary to demonstrate compliance with CEQA mitigation monitoring and reporting requirements. Monitoring reports summarizing the daily inspections will be provided bi-weekly to Valley Water.

PAMM BIO-4 minimizes the potential for impacts on special-status species and areas designated as environmentally sensitive by requiring a qualified biologist to be present during the initial mobilization of equipment during setup and the start of the geotechnical borings at each work activity area. PAMM BIO-4 also requires that a qualified biologist is present during any ground disturbing and vegetation removal activities. The biologist would document pre-disturbance



conditions and verify BMPS, PAMMs, VHP Conditions, and VHP AMMs. If any avoidance markings for environmentally sensitive areas are damaged, removed, or obscured, the biologist will mark them again for avoidance and inform work crews if equipment or vehicles are too close to avoidance areas.

PAMM BIO-5 minimizes impacts from plant pathogen and non-native invasive species that could result from the implementation of the Proposed Project which could otherwise degrade or reduce the extent of habitat for these species. Specifically, PAMM BIO-5 requires vehicles, equipment, tools, and boots be cleaned/decontaminated following the six-step cleaning/decontamination procedures prior to equipment/personnel entering the Proposed Project study area. These procedures also reduce the potential for the introduction and spread of *Phytophthora* plant pathogens within species habitat, which could otherwise result in mortality to individual plants and a reduction in the overall health and extent of the vegetation that comprises species habitat in the vicinity of work activities, particularly in areas downslope from work areas. Incorporation of PAMM BIO-5 into the Proposed Project also minimizes the risk of establishment of NNIP species, by preventing introduction of seeds that could otherwise be transported into Proposed Project activity areas by contaminated vehicles/equipment.

Additionally, AMMs from the VHP are incorporated into the Proposed Project that would minimize or avoid impacts, which include the following: VHP AMM-29, 39, 49, 58, 61, 62, 69, 71, 88, 89, 90, and 101. Implementation of VHP AMMs 88 and 89 reduce the risk of mortality or injury from vehicular strikes by limiting parking to paved surfaces, roads, or disturbed areas where individuals are less likely to occur and by enacting speed limits, respectively. VHP AMMs 90 and 101 reduces the potential for indirect mortality of individuals by preventing the attraction of predatory species by leaving out trash. Implementation of VHP AMMs 29, 39, 49, 58, 61, 62, 69, and 71 reduce the extent of ground and vegetation disturbance by reducing activity areas to the minimum amount necessary, restricting vehicle and equipment travel to designated access routes and preserving as much vegetation to the extent possible. These reductions in ground and vegetation disturbance from Proposed Project activities reduce the likelihood of direct mortality from equipment or vehicles and minimize the extent of temporary habitat disturbances.

In consideration of the Conservation Measures discussed above, the following discussion addresses specific direct and indirect impacts that could occur to mountain lion or tule elk individuals through implementation of the Proposed Project.

Both tule elk and mountain lion are known to occur within the Proposed Project study area. These large, highly mobile species have the potential to be present throughout the Proposed Project study area year-round, including walking within the reservoir when it is drawn down. If individuals are present in the Proposed Project study area during implementation of the Proposed Project, direct impacts could include displacement due to presence of people and equipment, including the helicopter, during geotechnical investigation activities. The presence of humans, vehicles, and equipment and the noise generated by Proposed Project equipment (Table 3.14-7 in Section 3.14), could result indirect impacts from these species avoiding and migrating away from the Proposed



Project study area during work activities. During this time, migrating individuals could be exposed to increased risk of mortality or injury and reduced fitness. Due to the discrete nature of each work area and short duration that activities would occur associated with surface and subsurface geotechnical investigations within each discrete activity area the extent and duration of these effects would be discrete and temporary (typically 1-2 days at each activity area over a period of several months).

Although nighttime lighting is known to alter wildlife behavior, foraging patterns, and diurnal activity patterns, with exception of the geotechnical investigations (four borings) within the SR-152 ROW, no nighttime work and associated lighting would occur. Because this area already is exposed to elevated nighttime lighting from vehicles driving along SR-152, lighting will not have an impact on these species.

Based on the expansive areas of suitable habitat for these species surrounding the Proposed Project study area within the southeastern portion of Santa Clara County, limited footprint of geotechnical investigations, expansive home ranges for these two species, and connectivity of wildlife habitat within and around the Proposed Project study area, impacts to species' habitats would be limited in extent with minimal impacts on species' populations from a regional perspective. Therefore, impacts to mountain lion and tule elk or their habitat resulting from implementation of the Proposed Project would be **less than significant**. No mitigation is required.

#### ***Impact BIO-14***

##### ***Would the project result in adverse effects on American badger or its habitat?***

The Proposed Project study area is within the range for American badger and provides suitable habitat for the species in the form of denning, foraging, and dispersal habitat. Suitable habitat for this species occurs throughout the Proposed Project study area but is primarily upstream of North Fork Dam.

As discussed below, numerous Conservation Measures, described in detail in Section 2.4, will be incorporated into the Proposed Project to address potential temporary impacts this species and its habitat. To minimize and avoid potential impacts, the following BMPs will be incorporated into the Proposed Project, as described in Table 2-7 of Section 2.4:

- BMP BI-10: Avoid Animal Entry and Entrapment
- BMP BI-11: Minimize Predator Attraction
- BMP HM-12: Incorporate Fire Prevention Measures

By covering all exposed pipes and similar structures and covering exposed trenches or providing escape ramps, BMP BI-10 would prevent the entrapment of individuals within trenches and stockpiled materials, reducing the potential for injury or mortality. BMP BI-11 would reduce increased predation risk through removing trash for work areas each day that could otherwise attract predatory species to the area that could prey on individuals. BMP HM-12 reduces the risk of wildfire through the use of vehicles with combustion engines equipped with spark arrestors





and work crews being properly equipped with fire extinguishers, decreasing the risk of wildfires which could destroy habitat and result in species mortality.

Similar to the BMPs, the following PAMMs have been incorporated into the Proposed Project and will avoid or reduce potential impacts on American badger (see Section 2.4).

- PAMM BIO-1: Worker Environmental Awareness Training
- PAMM BIO-2: Biological Site Inspections and Summary Report (Compliance Program)
- PAMM BIO-4: Biological Monitoring for Special-Status Species and Environmentally Sensitive Areas
- PAMM BIO-5: Plant Pathogen, Non-Native Invasive Species, and Aquatic Invasive Species Prevention

PAMM BIO-1 minimizes potential impacts on sensitive biological resources, including American badger, by requiring all project personnel receive the WEAT before entering the Proposed Project study area. The WEAT will be provided by a qualified biologist and will include training on the roles and responsibilities of project personnel, including notification and documentation requirements intended to avoid or minimize impacts to nesting birds, special-status species, sensitive habitats and other sensitive biological resources.

PAMM BIO-2 minimizes potential impacts on sensitive biological resources through the daily inspection and reporting of activities associated with the Proposed Project by qualified biologists. PAMM BIO-2 requires the daily inspections document that BMPs, PAMMs, VHP Conditions, VHP AMMs, and mitigation measures are being implemented appropriately and to ensure compliance. Monitoring will also provide information necessary to demonstrate compliance with CEQA mitigation monitoring and reporting requirements. Monitoring reports summarizing the daily inspections will be provided bi-weekly to Valley Water.

PAMM BIO-4 minimizes the potential for impacts on special-status species and areas designated as environmentally sensitive by requiring a qualified biologist to be present during the initial mobilization of equipment during setup and the start of the geotechnical borings at each work activity area. PAMM BIO-4 also requires that a qualified biologist is present during any ground disturbing and vegetation removal activities. The biologist will document pre-disturbance conditions and verify BMPs, PAMMs, VHP Conditions, VHP AMMs, and mitigation measures. If any avoidance markings for environmentally sensitive areas are damaged, removed, or obscured, the biologist will mark them again for avoidance and inform work crews if equipment or vehicles are too close to avoidance areas.

PAMM BIO-5 minimizes impacts from plant pathogen and non-native invasive species that could result from the implementation of the Proposed Project which could otherwise degrade or reduce the extent of habitat for these species. Specifically, PAMM BIO-5 requires vehicles, equipment, tools, and boots be cleaned/decontaminated following the six-step cleaning/decontamination procedures prior to equipment/personnel entering the Proposed Project study area. These



procedures also reduce the potential for the introduction and spread of *Phytophthora* plant pathogens within species habitat, which could otherwise result in mortality to individual plants and a reduction in the overall health and extent of the vegetation that comprises species habitat in the vicinity of work activities, particularly in areas downslope from work areas. Incorporation of PAMM BIO-5 into the Proposed Project also minimizes the risk of establishment of NNIP species, by preventing introduction of seeds that could otherwise be transported into Proposed Project activity areas by contaminated vehicles/equipment.

Although it would not provide mitigation for this impact, Valley Water will be paying VHP land cover impact fees for the Proposed Project as a VHP covered activity. The SCVHA will then use these fees to purchase and protect natural lands in their plan area in perpetuity, which could be considered a benefit on this resource. Although American badger is present within the VHP permit area, their presence within or near SCVHA reserves is unknown, so the extent that the payment of land cover fees would offset impacts on this species is uncertain.

Additionally, AMMs from the VHP are incorporated into the Proposed Project that would reduce potential effects, which include the following: VHP AMM-29, 39, 49, 58, 61, 62, 69, 71, 88, 89, 90, and 101. Implementation of VHP AMMs 88 and 89 reduce the risk of mortality or injury from vehicular strikes by limiting parking to paved surfaces, roads, or disturbed areas where individuals are less likely to occur and by enacting speed limits, respectively. VHP AMMs 90 and 101 reduce the potential for indirect mortality of individuals by preventing the attraction of predatory species by leaving out trash. Implementation of VHP AMMs 29, 39, 49, 58, 61, 62, 69, and 71 reduce the extent of ground and vegetation disturbance by reducing work areas to the minimum amount necessary, restricting vehicle and equipment travel to designated access routes and preserving vegetation to the extent possible. These reductions in ground and vegetation disturbance from Proposed Project activities reduce the likelihood of direct mortality from equipment or vehicles and minimize the extent of temporary habitat disturbances.

In consideration of the Conservation Measures discussed above, the following discussion addresses specific direct and indirect impacts that could occur to American badger individuals through implementation of the Proposed Project.

Although nighttime lighting is known to alter wildlife behavior, foraging patterns, and diurnal activity patterns, with exception of the geotechnical investigations (four borings) within the SR-152 ROW, no nighttime work and associated lighting would occur. Because this area is already exposed to elevated nighttime lighting from vehicles driving along SR-152, lighting would not have an impact on this species.

American badger is a highly mobile species with potential to occur throughout the Proposed Project study area. In addition, it has potential to construct underground dens that may be present within the upland vegetation communities in within or near Project work areas. Therefore, Project activities could include both direct and indirect impacts on this species. If this species is present in the Proposed Project study area during implementation of the Proposed Project, direct impacts could include mortality or injury from individuals run over or burrows filled in by equipment and



vehicles. Increased stress could also result from displacement of individuals due to presence of people and equipment, including a helicopter, during geotechnical investigation activities within suitable habitat.

In addition to the portions of the Proposed Project study area that provide suitable habitat to this species, the presence of humans, vehicles, and equipment and the noise generated by Project equipment (Table 3.14-7 in Section 3.14), indirect impacts could result from these species avoiding and dispersing away from the Proposed Project study area during work activities. During this time, individuals could be exposed to increased risk of mortality or injury and reduced fitness. Due to the discrete nature of each activity area and short duration that activities would occur associated with surface and subsurface geotechnical investigations within each discrete activity area the extent and duration of these effects would be intermittent and temporary.

Based on the expansive areas of suitable habitat for this species surrounding the Proposed Project study area within the southeastern portion of Santa Clara County, limited footprint of geotechnical investigations, and connectivity of wildlife habitat within and around the Proposed Project study area, impacts to species' habitats would be limited in extent with minimal impacts on species' populations from a regional perspective. Although geotechnical investigation activities are discrete and temporary in nature (typically 1-2 days at each activity area over a period of several months) and all applicable BMPs, PAMMs, and VHP AMMs will be incorporated, impacts on American badger would be significant.

The following mitigation measure will be implemented to reduce the potential for impacts on American badger (see Table 3.5-9 for full text):

- Mitigation measure BIO-4: American Badger Avoidance

Mitigation measure BIO-4 requires that if individuals are observed during Project activities, all work will be immediately stopped until the animal has moved at least 100 feet from all geotechnical investigation activities. This would also include the flight path of the helicopter being utilized to support the Proposed Project. If the individual appears to be in distress or is exhibiting abnormal behavior patterns after travelling further than 100 feet from an activity area, work will not resume until the individual can no longer be observed or has resumed normal behaviors appropriate for the time of day and season. In addition, this mitigation measure would include establishing no-disturbance buffers around suspected or known badger dens to minimize the risk of mortality or lowered fitness on denning individuals and young.

With the incorporation of mitigation measure BIO-4, direct and indirect impacts on American badger and its habitat from Project activities would be reduced to a less than significant level. Therefore, impacts on American badger or their habitat would be **less-than-significant with mitigation**.



### **Impact BIO-15**

#### ***Would the project result in substantial adverse effects on San Joaquin kit fox or its habitat?***

The Proposed Project study area provides suitable dispersal habitat (i.e., habitats for movement and foraging) for San Joaquin kit fox. Based on the vegetation mapping efforts and the reconnaissance-level habitat assessment surveys within the Proposed Project study area there is limited suitable dispersal habitat (i.e., grassland areas with slopes of less than five percent) and low-quality dispersal habitat (i.e., grassland areas with slopes between five to 15 percent) present due to the generally steep terrain within the Proposed Project study area. In July 2024, surveys consistent with VHP requirements were performed specific to the Proposed Project study area. These surveys did identify several burrows that could be used as temporary denning habitat, but no evidence of occupation was documented at these locations. Although habitat for this species does occur, this species typically inhabits burrows on slopes less than five percent. Habitat suitability declines as terrain ruggedness and average slope increase, primarily due to an associated increase in predation risk for San Joaquin kit foxes. Also, this species is optimally adapted to arid environments with sparse vegetation and a high proportion of bare ground, causing suitability to decrease with an increase in vegetation density (Cypher et al. 2013). Therefore, San Joaquin kit fox has a low potential to occur within the Proposed Project study area.

The Proposed Project study area is within the VHP permit area and the SCVHA has confirmed that, the Proposed Project is a covered activity in the VHP. San Joaquin kit fox is covered under the VHP. Payment of VHP impact fees and implementing all applicable VHP Conditions and VHP AMMs provides take authorization for any potential impacts to VHP covered species and resources. Additionally, as discussed below, numerous Conservation Measures, described in detail in Section 2.4, will be incorporated into the Proposed Project to augment protection of San Joaquin kit fox.

Specifically, the following BMPs are incorporated into the Proposed Project, as described in Table 2-7 of Section 2.4:

- BMP BI-10: Avoid Animal Entry and Entrapment
- BMP BI-11: Minimize Predator Attraction
- BMP HM-12: Incorporation of Wildfire Prevention Measures

By covering all exposed pipes and similar structures and covering exposed trenches or providing escape ramps, BMP BI-10 would prevent the entrapment of individuals within trenches and stockpiled materials, reducing the potential for injury or mortality. The daily removal of trash associated with BMP BI-11 would reduce increased predation risk through removing trash for work areas each day that could otherwise attract predatory species to the area that could prey on individuals. BMP HM-12 reduces the risk of wildfire through the use of vehicles with combustion engines equipped with spark arrestors and work crews being properly equipped with fire



extinguishers, decreasing the risk of wildfires which could destroy habitat and result in species mortality.

Similar to the BMPs, the following PAMMs have been incorporated into the Proposed Project and will avoid or reduce potential impacts on San Joaquin kit fox (see Section 2.4).

- PAMM BIO-1: Work Environmental Awareness Training
- PAMM BIO-2: Biological Site Inspections and Summary Report (Compliance Program)
- PAMM BIO-4: Biological Monitoring for Special-Status Species and Environmentally Sensitive Areas
- PAMM BIO-5: Plant Pathogen, Non-Native Invasive Species, and Aquatic Invasive Species Prevention

PAMM BIO-1 minimizes potential impacts on sensitive biological resources, including San Joaquin kit fox, by requiring all project personnel receive the WEAT before entering the Proposed Project study area. The WEAT will be provided by a qualified biologist and will include training on the roles and responsibilities of project personnel, including notification and documentation requirements intended to avoid or minimize impacts to nesting birds, special-status species, sensitive habitats and other sensitive biological resources.

PAMM BIO-2 minimizes potential impacts on sensitive biological resources through the daily inspection and reporting of activities associated with the Proposed Project by qualified biologists. PAMM BIO-2 requires the daily inspections document that BMPs, PAMMs, VHP Conditions, and VHP AMMs are being implemented appropriately and to ensure compliance. Monitoring will also provide information necessary to demonstrate compliance with CEQA mitigation monitoring and reporting requirements. Monitoring reports summarizing the daily inspections will be provided bi-weekly to Valley Water.

PAMM BIO-4 minimizes the potential for impacts on special-status species and areas designated as environmentally sensitive by requiring a qualified biologist to be present during the initial mobilization of equipment during setup and the start of the geotechnical borings at each work activity area. PAMM BIO-4 also requires that a qualified biologist is present during any ground disturbing and vegetation removal activities. The biologist would document pre-disturbance conditions and verify BMPs, PAMMs, VHP Conditions, and VHP AMMs. If any avoidance markings for environmentally sensitive areas were damaged, removed, or obscured, the biologist would mark them again for avoidance and inform work crews if equipment or vehicles are too close to avoidance areas.

PAMM BIO-5 minimizes impacts from plant pathogen and non-native invasive species that could result from the implementation of the Proposed Project which could otherwise degrade or reduce the extent of habitat for these species. Specifically, PAMM BIO-5 requires vehicles, equipment, tools, and boots be cleaned/decontaminated following the six-step cleaning/decontamination procedures prior to equipment/personnel entering the Proposed Project study area. These



procedures also reduce the potential for the introduction and spread of *Phytophthora* plant pathogens within species habitat, which could otherwise result in mortality to individual plants and a reduction in the overall health and extent of the vegetation that comprises species habitat in the vicinity of work activities, particularly in areas downslope from work areas. Incorporation of PAMM BIO-5 into the Proposed Project also minimizes the risk of establishment of NNIP species, by preventing introduction of seeds that could otherwise be transported into Proposed Project activity areas by contaminated vehicles/equipment.

The Proposed Project is a VHP covered activity. San Joaquin kit fox is a covered species under the VHP. Valley Water will pay VHP impact fees for land cover types impacted by the Proposed Project, in order to obtain take coverage for VHP covered species. The fees collected by the Valley Habitat Agency will then be used to purchase and preserve other lands within the VHP planning area, which will fully compensate for impacts to VHP covered species and their habitat.

One Condition of the VHP (as further discussed in Appendix C) would reduce the potential for impacts on San Joaquin kit fox:

- Condition 18. San Joaquin Kit Fox

Condition 18 applies to projects that are located within any grassland, oak woodland, or agricultural land cover type and within Wildlife Survey Area established for this species under the VHP and helps protect San Joaquin kit foxes by prescribing pre-activity surveys, activity buffer zones, biological monitoring, and other requirements, reducing the risk of mortality or injury from equipment and vehicles.

Additionally, AMMs from the VHP are incorporated into the Proposed Project that would reduce potential effects, which include the following: VHP AMM-29, 39, 49, 58, 61, 62, 69, 71, 88, 89, 90, and 101. Implementation of VHP AMMs 88 and 89 reduce the risk of mortality or injury from vehicular strikes by limiting parking to paved surfaces, roads, or disturbed areas where individuals are less likely to occur and by enacting speed limits, respectively. VHP AMMs 90 and 101 reduce the potential for indirect mortality of individuals by preventing the attraction of predatory species by leaving out trash. Implementation of VHP AMMs 29, 39, 49, 58, 61, 62, 69, and 71 reduce the extent of ground and vegetation disturbance by reducing work areas to the minimum amount necessary, restricting vehicle and equipment travel to designated access routes and preserving as much vegetation to the extent possible. These reductions in ground and vegetation disturbance from Project activities reduces the likelihood of direct mortality from equipment or vehicles and minimizes the extent of temporary habitat disturbances.

In consideration of the Conservation Measures discussed above, the following discussion addresses specific direct and indirect impacts that could occur to San Joaquin kit fox individuals through implementation of the Proposed Project.

Although nighttime lighting is known to alter wildlife behavior, foraging patterns, and diurnal activity patterns, with exception of the geotechnical investigations (four borings) within the SR-152 ROW, no nighttime work and associated lighting would occur. Because this area is already





exposed to elevated nighttime lighting from vehicles driving along SR-152, lighting will not have an impact on this species.

If individuals are present within the Proposed Project study area, Project activities could result in increased stress on individuals from displacement due to presence of people and equipment, including a helicopter, during geotechnical investigation activities within suitable habitat. However, due to the poor habitat quality for the species within the Proposed Project study area, there is a low likelihood for the species to be present.

Indirect impacts associated with an increase in competition between individuals as a result of less available dispersal denning habitat or displacement of individuals into surrounding areas would not occur given the very low likelihood the species occur in the Proposed Project study area, poor existing habitat conditions, and the amounts of similar dispersal habitat present adjacent to the Proposed Project study area and the surrounding vicinity (Appendix E, Attachment 1, Exhibit 1E).

However, the potential take of individuals within the Proposed Project study area from Proposed Project activities that are discrete and limited in extent will be offset through the payment of VHP fees, which will result in the preservation of habitat for this species on a population and regional level in perpetuity. Additionally, impacts to individuals and species habitat would be isolated and temporary. Therefore, impacts on San Joaquin kit fox or its habitat would be **less than significant**. No mitigation is required.

#### ***Impact BIO-16***

##### ***Would the project result in adverse effects on San Francisco dusky-footed woodrat or its habitat?***

The Proposed Project study area is located within the range of San Francisco dusky-footed woodrat and provides suitable habitat for the species. Within the Proposed Project study area, species habitat is present and consists of woodland, riparian forest, and scrub/shrub vegetation communities. As a result, this species has a moderate potential to occur within the Proposed Project study area.

As discussed below, numerous Conservation Measures, described in detail in Section 2.4, will be incorporated into the Proposed Project to address potential temporary impacts this species and its habitat. The following BMPs will be incorporated into the Proposed Project, as described in Table 2-7 of Section 2.4:

- BMP BI-10: Avoid Animal Entry and Entrapment
- BMP BI-11: Minimize Predator Attraction
- BMP HM-12: Incorporate Wildfire Prevention Measures

By covering all exposed pipes and similar structures and covering exposed trenches or providing escape ramps, BMP BI-10 would prevent the entrapment of individuals within trenches and stockpiled materials, reducing the potential for injury or mortality. The daily removal of trash associated with BMP BI-11 would reduce increased predation risk through removing trash for



work areas each day that could otherwise attract predatory species to the area that could prey on individuals. BMP HM-12 reduces the risk of wildfire through the use of vehicles with combustion engines equipped with spark arrestors and work crews being properly equipped with fire extinguishers, decreasing the risk of wildfires which could destroy habitat and result in species mortality.

Similar to the BMPs, the following PAMMs have been incorporated into the Proposed Project and will avoid or reduce potential impacts on San Francisco dusky woodrat (see Section 2.4)

- PAMM BIO-1: Work Environmental Awareness Training
- PAMM BIO-2: Biological Site Inspections and Summary Report (Compliance Program)
- PAMM BIO-4: Biological Monitoring for Special-Status Species and Environmentally Sensitive Areas
- PAMM BIO-5: Plant Pathogen, Non-Native Invasive Species, and Aquatic Invasive Species Prevention

PAMM BIO-1 minimizes potential impacts on sensitive biological resources, including San Francisco dusky-footed woodrat, by requiring all project personnel receive the WEAT before entering the Proposed Project study area. The WEAT will be provided by a qualified biologist and will include training on the roles and responsibilities of project personnel, including notification and documentation requirements intended to avoid or minimize impacts to nesting birds, special-status species, sensitive habitats and other sensitive biological resources.

PAMM BIO-2 minimizes potential impacts on sensitive biological resources through the daily inspection and reporting of activities associated with the Proposed Project by qualified biologists. PAMM BIO-2 requires the daily inspections document that BMPs, PAMMs, VHP Conditions and VHP AMMs, and mitigation measures are being implemented appropriately and to ensure compliance. Monitoring will also provide information necessary to demonstrate compliance with CEQA mitigation monitoring and reporting requirements. Monitoring reports summarizing the daily inspections will be provided bi-weekly to Valley Water.

PAMM BIO-4 minimizes the potential for impacts on special-status species and areas designated as environmentally sensitive by requiring a qualified biologist to be present during the initial mobilization of equipment during setup and the start of the geotechnical borings at each work activity area. PAMM BIO-4 also requires that a qualified biologist is present during any ground disturbing and vegetation removal activities. The biologist would document pre-disturbance conditions and verify BMPs, PAMMs, VHP Conditions, and VHP AMMs. If any avoidance markings for environmentally sensitive areas were damaged, removed, or obscured, the biologist would mark them again for avoidance and inform work crews if equipment or vehicles are too close to avoidance areas.

PAMM BIO-5 would minimize impacts from plant pathogen and non-native invasive species that could result from the implementation of the Proposed Project which could otherwise degrade or



reduce the extent of habitat for these species. Specifically, PAMM BIO-5 requires vehicles, equipment, tools, and boots be cleaned/decontaminated following the six-step cleaning/decontamination procedures prior to equipment/personnel entering the Proposed Project study area. These procedures also reduce the potential for the introduction and spread of *Phytophthora* plant pathogens within species habitat, which could otherwise result in mortality to individual plants and a reduction in the overall health and extent of the vegetation that comprises species habitat in the vicinity of work activities, particularly in areas downslope from work areas. Incorporation of PAMM BIO-5 into the Proposed Project also minimizes the risk of establishment of NNIP species, by preventing introduction of seeds that could otherwise be transported into Proposed Project activity areas by contaminated vehicles/equipment.

Although it would not provide mitigation for this impact, Valley Water will be paying VHP land cover impact fees for the Proposed Project as a VHP covered activity. The SCVHA will then use these fees to purchase and protect natural lands in their plan area in perpetuity, which could be considered a benefit on this resource. Although the species is present within the Valley Habitat Plan permit area, their presence within or near SCVHA reserves is unknown, so the extent that the payment of land cover fees would offset impacts on these species is uncertain.

Additionally, AMMs from the VHP are incorporated into the Proposed Project that would reduce potential effects, which include the following: VHP AMM-29, 39, 49, 58, 61, 62, 69, 71, 88, 89, 90, and 101. Implementation of VHP AMMs 88 and 89 would reduce the risk of mortality or injury from vehicular strikes by limiting parking to paved surfaces, roads, or disturbed areas where individuals are less likely to occur and by enacting speed limits, respectively. VHP AMMs 90 and 101 would reduce the potential for indirect mortality of individuals by preventing the attraction of predatory species by leaving out trash. Implementation of VHP AMMs 29, 39, 49, 58, 61, 62, 69, and 71 would reduce the extent of ground and vegetation disturbance by reducing work areas to the minimum amount necessary, restricting vehicle and equipment travel to designated access routes and preserving as much vegetation to the extent possible. These reductions in ground and vegetation disturbance from Project activities reduces the likelihood of direct mortality from equipment or vehicles and minimizes the extent of temporary habitat disturbances.

In consideration of the Conservation Measures discussed above, the following discussion addresses specific direct and indirect impacts that could occur to San Francisco dusky woodrat individuals through implementation of the Proposed Project.

Although nighttime lighting is known to alter wildlife behavior, foraging patterns, and diurnal activity patterns, with exception of the geotechnical investigations (four borings) within the SR-152 ROW, no nighttime work and associated lighting would occur. Because this area is already exposed to elevated nighttime lighting from vehicles driving along SR-152, lighting will not have an impact on these species.

Geotechnical investigation activities could include both direct and indirect impacts on San Francisco dusky-footed woodrat. The species has relatively restricted range and low mobility compared to other small mammals due to its habitat requirements and reliance on constructed



nests which can be difficult to detect in areas of thick undergrowth. If the species is present in the Proposed Project study area during implementation of the Proposed Project, direct impacts could occur including increased risk of predation and increased stress resulting from displacement of individuals due to presence of people and equipment within suitable habitat or nest destruction. Mortality or injury of individuals within or outside of nests could also occur from vehicle and equipment strikes.

In addition to direct impacts, indirect impacts would include displacement of individuals as a result of equipment noise that could result in increased stress levels, lowered fitness, and increased risk of predation. Indirect impacts associated with an increase in competition between individuals as a result of less available nesting habitat or displacement of individuals into surrounding areas would not occur given the amounts of similar nesting habitat present adjacent to the Proposed Project study area and the surrounding vicinity (Appendix E, Attachment 1, Exhibit 1E).

Impacts to species habitat would be isolated and temporary due to the nature of the geotechnical investigation activities compared to the extent and connectivity of wildlife habitat within and around the Proposed Project study area. However, impacts to San Francisco dusky woodrat individuals could occur through implementation of the Proposed Project due to disruption of individuals, or effects on nesting and foraging habitat. Although VHP impact fees paid by Valley Water to implement the Proposed Project would help protect natural lands in perpetuity, which could be considered a benefit on the San Francisco dusky woodrat, this species is not a covered species under the VHP (i.e., these species do not have the direct benefit of compensation afforded to VHP covered species). While geotechnical investigation activities are discrete and temporary in nature (typically 1-2 days at each activity area over a period of several months), impacts on San Francisco dusky-footed woodrat would be significant.

The following mitigation measure will be implemented to the potential for impacts on San Francisco dusky-footed woodrat (described in Table 3.5-9 for full text).

- MM BIO-5: San Francisco Dusky-footed Woodrat Surveys and Avoidance

Impacts on San Francisco dusky-footed woodrat would be avoided and minimized through the implementation of mitigation measure BIO-5: San Francisco Dusky-footed Woodrat Surveys and Avoidance. Under mitigation measure BIO-5 any woodrat nest identified during a pre-activity survey within suitable habitat would be avoided when feasible. When avoidance is not feasible, then a biologist will determine a suitable location to relocate nest material based on 1) proximity to current nest location; 2) safe buffer distance from planned work; 3) availability of food resources; and 4) availability of cover. An alternate nest structure will then be built at the new, identified location, and the individual will be evicted during the evening while the existing nest is deconstructed, and the materials are moved to the new nest location.

With incorporation of mitigation measure BIO-5, impacts associated with the Proposed Project on San Francisco dusky-footed woodrat or its habitat would be **less-than-significant with mitigation**.



### ***Impact BIO-17***

#### ***Would the project result in adverse effects on special-status bats (pallid bat, western red bat, western mastiff bat, Townsend's big-eared bat, and hoary bat), bat habitat, or ringtail or its habitat?***

Within the Proposed Project study area roosting habitat in the form of woodlands, riparian forest, scrub and shrub vegetation communities is present for all special-status bat species that have potential to occur within the Proposed Project study area, with the exception of Townsend's big-eared bat, which in Santa Clara County is only known to roost in buildings. These vegetation communities also support denning habitat for ringtail.

To reduce the extent and potential severity of impacts, the following BMPs will be implemented as part of the Proposed Project, as described in Table 2-7 of Section 2.4:

- BMP BI-10: Avoid Animal Entry and Entrapment
- BMP BI-11: Minimize Predator Attraction
- BMP HM-12: Incorporate Wildfire Prevention Measures

By covering all exposed pipes and similar structures and covering exposed trenches or providing escape ramps, BMP BI-10 would prevent the entrapment of individuals within stockpiled materials, reducing the potential for injury or mortality. The daily removal of trash associated with BMP BI-11 would reduce increased predation risk through removing trash for work areas each day that could otherwise attract predatory species to the area that could prey on individuals. BMP HM-12 reduces the risk of wildfire through the use of vehicles with combustion engines equipped with spark arrestors and work crews being properly equipped with fire extinguishers, decreasing the risk of wildfires which could destroy habitat and result in species mortality.

Similar to the BMPs, the following PAMMs have been incorporated into the Proposed Project and will avoid or reduce potential impacts on special-status bat species and ringtail (see Section 2.4).

- PAMM BIO-1: Work Environmental Awareness Training
- PAMM BIO-2: Biological Site Inspections and Summary Report (Compliance Program)
- PAMM BIO-4: Biological Monitoring for Special-Status Species and Environmentally Sensitive Areas
- PAMM BIO-5: Plant Pathogen, Non-Native Invasive Species, and Aquatic Invasive Species Prevention

PAMM BIO-1 minimizes potential impacts on sensitive biological resources, including special-status bat species and ringtail, by requiring all project personnel receive the WEAT before entering the Proposed Project study area. The WEAT will be provided by a qualified biologist and will include training on the roles and responsibilities of project personnel, including notification and documentation requirements intended to avoid or minimize impacts to nesting birds, special-status species, sensitive habitats and other sensitive biological resources.



PAMM BIO-2 minimizes potential impacts on sensitive biological resources through the daily inspection and reporting of activities associated with the Proposed Project by qualified biologists. PAMM BIO-2 requires the daily inspections document that BMPs, PAMMs, VHP Conditions, VHP AMMs, and mitigation measures are being implemented appropriately and to ensure compliance. Monitoring will also provide information necessary to demonstrate compliance with CEQA mitigation monitoring and reporting requirements. Monitoring reports summarizing the daily inspections will be provided bi-weekly to Valley Water.

PAMM BIO-4 minimizes the potential for impacts on special-status species and areas designated as environmentally sensitive by requiring a qualified biologist to be present during the initial mobilization of equipment during setup and the start of the geotechnical borings at each work activity area. PAMM BIO-4 also requires that a qualified biologist is present during any ground disturbing and vegetation removal activities. The biologist would document pre-disturbance conditions and verify BMPs, PAMMs, VHP Conditions, and VHP AMMs. If any avoidance markings for environmentally sensitive areas were damaged, removed, or obscured, the biologist would mark them again for avoidance and inform work crews if equipment or vehicles are too close to avoidance areas.

PAMM BIO-5 minimizes impacts from plant pathogen and non-native invasive species that could result from the implementation of the Proposed Project which could otherwise degrade or reduce the extent of habitat for these species. Specifically, PAMM BIO-5 requires vehicles, equipment, tools, and boots be cleaned/decontaminated following the six-step cleaning/decontamination procedures prior to equipment/personnel entering the Proposed Project study area. These procedures also reduce the potential for the introduction and spread of *Phytophthora* plant pathogens within species habitat, which could otherwise result in mortality to individual plants and a reduction in the overall health and extent of the vegetation that comprises species habitat in the vicinity of work activities, particularly in areas downslope from work areas. Incorporation of PAMM BIO-5 into the Proposed Project also minimizes the risk of establishment of NNIP species, by preventing introduction of seeds that could otherwise be transported into Proposed Project activity areas by contaminated vehicles/equipment.

Although it would not provide mitigation for this impact, Valley Water will be paying VHP land cover impact fees for the Proposed Project as a VHP covered activity. The SCVHA will then use these fees to purchase and protect natural lands in their plan area in perpetuity, which could be considered a benefit on this resource. Although these species are present within the Valley Habitat Plan permit area, their presence within or near SCVHA reserves is unknown, so the extent that the payment of land cover fees would offset impacts on these species is uncertain.

VHP AMMs VHP-90 and VHP-101 will be implemented as part of the Proposed Project, which reduces the potential for indirect mortality of individuals by preventing the attraction of predatory species by leaving out trash.





In consideration of the Conservation Measures discussed above, the following discussion addresses specific direct and indirect impacts that could occur to the five special-status bat species and ringtail individuals through implementation of the Proposed Project.

Because bats and ringtail are nocturnal, foraging activity would not be affected, as the work activities would only occur during daylight hours with the exception of work at four boring locations within the SR-152 ROW. The bat species with potential to breed within the Proposed Project study area roost within tree cavities and other structures (e.g., snags), that can be difficult to detect. In addition, young bats are unable to leave maternity roosts prior to maturing and learning to fly, making them susceptible to tree trimming and removal activities. During winter hibernation, bats also have a reduced ability to leave their winter roosts. Similarly, ringtail also dens within tree cavities, and young within natal dens are susceptible to vegetation management activities. Because both bats and ringtail are nocturnal, Proposed Project activities have potential to disrupt their typical circadian rhythms.

Project activities conducted within these areas could disturb roosting bats, including maternity roosts for pallid bat and western mastiff bat, and ringtail natal dens in the riparian vegetation, tree cavities, and snags that are present within and in proximity to the Proposed Project study area. Specifically, Project activities would occur during part of the natal denning period for ringtail (i.e., May 1 to August 30 [Jameson and Peters 2004]), the maternal seasons for pallid bat (April 1 - July 31 [Harris, 1990a]) and western mastiff bat (April 1-September 30 [Ahlborn, 1990]), and the bat winter torpor period (October 15 to February 28) when bats (with the exception of Townsend's big-eared bat, which would only utilize the Proposed Project study area for foraging) are particularly vulnerable and unable to effectively leave their roosts/dens (Harris, 1990a, Harris, 1990b, Harris, 1990c, Harris, 2000, Ahlborn, 1990).

Tree trimming of up to 17 trees and removal of up to 30 trees as part of Proposed Project activities could directly affect ringtail and bats (e.g., result in injury, mortality, and loss of habitat) at natal denning and roost locations. Other activities, which have potential to occur near denning and roost locations, could result in reduced fecundity, site abandonment, and/or loss of young due to noise generated by equipment and vehicles, particularly since these species are nocturnal. However, because bats and ringtail are nocturnal, foraging activity would not be affected, as the work activities would only occur during daylight hours with the exception of work at four boring locations within the SR-152 ROW.

In addition to the portions of the Proposed Project study area that provide suitable habitat to these species, the presence of humans, vehicles, and equipment and the noise generated by Project equipment (Table 3.14-7 in Section 3.14), indirect impacts could result from these species avoiding and migrating away from the Proposed Project study area during work activities. During this time, migrating individuals could be exposed to increased risk of mortality or injury and reduced fitness. Due to the discrete nature of work at each activity area and relative short duration that activity would occur within each activity area, the potential effect would be intermittent and temporary.



Impacts to species' habitats would be isolated and temporary due to the nature of the geotechnical investigation activities compared to the extent and connectivity of wildlife habitat within and around the Proposed Project study area. However, impacts to bat and ringtail individuals could occur through implementation of the Proposed Project due to disruption of individuals or effects on breeding, roosting and foraging habitat. Although VHP impact fees paid by Valley Water to implement the Proposed Project would help protect natural lands in perpetuity, which could be considered a benefit to bats and ringtails, these species are not covered species under the VHP (i.e., these species do not have the direct benefit of compensation afforded to VHP covered species). While geotechnical investigation activities are discrete and temporary in nature (typically 1-2 days at each activity area over a period of several months), and with implementation of BMPs, PAMMs, and VHP AMMs, impacts on bats and ringtail would be significant.

The following mitigation measure will be implemented to reduce the potential for impacts on special-status bats and ringtail (see Table 3.5-9 for full text):

- Mitigation measure BIO-6 Bat and Ringtail Habitat Assessment and Tree Removal Plan

Mitigation measure BIO-6 requires pre-activity surveys by a qualified biologist, and the establishment of avoidance buffers when dens and roosts are detected. When removal of potential denning/roosting habitat is required, trees will either be removed outside of the maternity season for bats and denning season for ringtail or tree removal will follow a two-step plan that encourages any non-maternity roosting bats or non-natal denning ringtail to leave the tree on their own volition prior to trimming or removal if tree trimming and removal activities occur during those periods. As part of this mitigation measure, limbs would be removed to the extent possible to provide the opportunity for bats or other species that may reside in suitable roost habitat within the tree to relocate prior to cutting down the remaining portion of the tree the following day. Mitigation measure BIO-6 also includes a compensatory mitigation component that requires the installation of a roost or denning structure within 100 feet of any removed potential or known maternal roosts or natal dens.

With incorporation of mitigation measure BIO-6, impacts associated with the Proposed Project on bats, ringtail, and their habitats would be reduced to a less than significant level. Therefore, impacts on special-status bats (pallid bat, western red bat, western mastiff bat, Townsend's big-eared bat, and hoary bat), bat habitat, or ringtail, or their habitat would be **less-than-significant with mitigation**.

#### ***Impact BIO-18***

***Would the project interfere with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?***

Increasing ecological attention is being placed toward habitat connectivity as a mechanism of maintaining biodiversity in the face of population growth and climate change (CDFW 2020), as the ability of wildlife to move between distinct habitat areas is critical to both individual and



population survival (Yap et al., 2021). Connectivity is the degree to which the landscape facilitates or impedes movement (Taylor et al., 1993). The Proposed Project study area is located several miles west of Pacheco Pass, a low mountain pass located in the Diablo Range in southeastern Santa Clara County. Numerous separate State, regional, and local connectivity assessments and conservation plans have recognized the importance of the Pacheco Pass area for habitat connectivity between the Diablo Range and the Inner Coast Range to the southeast, the Gabilan Range to the south, and the Santa Cruz Mountains to the southwest (CDFW 2024); Diamond and Synder 2019; Diamond et al., 2022; Diamond and Sandoval 2023; SCVHA 2012; Penrod et al., 2013; Spencer et al. 2010; TNC and CRCS 2024). Landscape or critical linkages are broad areas that allow for the movement of wildlife and plant species from one area of suitable habitat to another and that support ecological processes (Ament et al., 2014). The Proposed Project study area is within the Diablo Range – Inner Coast Range linkage and immediately borders the Diablo Range – Gabilan Range linkage on the south side of SR-152 (Penrod et al., 2013). Corridors are distinct linear features whose primary function is to connect two or more significant habitat areas (Beier and Loe, 1992).

The Proposed Project study area is associated with a corridor that CDFW's Areas of Conservation Emphasis designated as an irreplaceable and essential corridor for terrestrial connectivity (CDFW 2024I). Due to the widely recognized importance of the Pacheco Pass area for habitat connectivity along with other factors, including the presence of highway undercrossings along Pacheco Creek both upstream and downstream from the Proposed Project nighttime activities, the ability for wildlife to move through the activity areas at night would persist even with then the four proposed nighttime borings within the within the SR-152 ROW. Therefore, the Proposed Project would not substantially interfere with the movement of wildlife species. Given the discrete and temporary nature of the Proposed Project activities, the Proposed Project would not create barriers to wildlife movement or remove large areas of habitat resulting in habitat fragmentation and loss of connectivity. Therefore, the Proposed Project would not substantially affect wildlife corridors in the Proposed Project study area.

In addition, land cover impact fees paid by Valley Water for the Proposed Project would contribute to the VHP's conservation program, which includes conservation and management of lands specifically to maintain and enhance connectivity for wildlife movement, and which supports the conservation, enhancement, and management of lands that provide habitat for native wildlife nurseries, further reducing Proposed Project impacts on wildlife movement, wildlife corridors, and native wildlife nurseries. Thus, the effects of the Proposed Project on wildlife movement and wildlife corridors would be less than significant. No mitigation is required.

Native wildlife nursery sites refer to areas in which members of the same species or ecological guild collectively breed and rear offspring in substantial numbers and therefore are regionally significant. As described in Impact BIO-11 above, implementation of BMP BI-5 would prevent impacts to nesting birds, which includes avian native wildlife nursery sites such as a heron and egret rookery, if present. Therefore, the Proposed Project would not impede the use of avian



native wildlife nursery sites. However, the loss of any size maternity colony of pallid bats or a large colony of common roosting bats, if present, would impede the use as a wildlife nursery site even with implementation of BMPs and VHP AMMs and would be significant due to effects on the species' local populations. As described in Impact BIO-17 above, in addition to the implementation of BMPs and compliance with VHP AMMs above, mitigation measure BIO-6 would also ensure that impacts to maternity bat roosts would be avoided and minimized. Thus, impacts to wildlife nursery sites are **less than significant with mitigation**.

As described in Impact BIO-10, the implementation of BMPs, PAMMs, VHP Conditions, and AMMs would reduce potential impacts to special-status fish species with respect to migratory corridors and rearing habitat both upstream and downstream of North Fork Dam. When implemented as described under Impact BIO-10, impacts to migratory corridors and rearing habitat for special-status fish species would be **less than significant**. No mitigation is required.

#### ***Impact BIO-19***

#### ***Would the project conflict with the Santa Clara Valley Habitat Plan or Santa Clara County General Plan?***

As discussed above, the Proposed Project is considered a covered activity by the VHP (SCVHA 2024) and will incorporate all the VHP Conditions and AMMs described in Section 2.4. Therefore, the Proposed Project would not conflict with the VHP. As a result, with implementation of the Proposed Project, there would be **no impact**. No mitigation is required.

There are no applicable policies of the Santa Clara County General Plan as it relates to biological resources. Therefore, the Proposed Project would not conflict with applicable policies of the Santa Clara County General Plan, and there would be **no impact**. No mitigation is required.

### **Mitigation Measures**

The following mitigation measures will be implemented to reduce specific impacts identified in the preceding impact analysis.



**Table 3.5-9. Mitigation Measures for Sensitive Biological Resources**

Mitigation Measure	Description
MM BIO-1: Special-Status Plant Surveys and Avoidance	<p>A qualified botanist familiar with the plant communities and special-status plant species known to occur in the Project study area will conduct a targeted pre-activity botanical survey for woodland woollythreads in the field within the proposed work areas during the species' bloom period (March through July). Surveys will also include verifying or updating the boundaries of any previously mapped woodland woollythreads occurrences. New and updated observations will be recorded on GPS devices and added to field maps for workers to avoid during Proposed Project activities.</p> <p>In addition, a qualified botanist will conduct a pre-activity pedestrian survey within the work activity areas (to be marked by the project engineer or geologist) between 14 and 21 days prior to the movement of heavy equipment to confirm the locations and boundaries of all special-status plant populations identified during previous protocol-level surveys. These follow-up surveys will be targeted for the species that may be in bloom during the time when Project activities are scheduled to take place and for any perennial species that are identifiable year-round. Any new special-status plant occurrences will be marked for avoidance using flagging, stakes, or similar highly visible materials and recorded/collected with a GPS unit for display on Project specific maps for crews to use in the field. Project activities will fully avoid special-status plant populations, which may necessitate minor design modifications (e.g., slightly re-routing access routes). In addition to the survey, an approved biological monitor will monitor construction activities near the special-status plant populations to be avoided to confirm and document avoidance.</p>
MM BIO-2: Protection of Silvery Legless Lizard, San Joaquin Coachwhip, and Coast Horned Lizard	<p>For activities that occur within or immediately adjacent to suitable habitat for silvery legless lizard, San Joaquin coachwhip, and/or coast horned lizard and work activities that could potentially impact these species (as determined by a qualified biologist), a qualified biologist will conduct a pre-activity survey for silvery legless lizard, San Joaquin coachwhip, and coast horned lizard within 48 hours prior to start of work. If a silvery legless lizard, San Joaquin coachwhip, or coast horned lizard or a lizard or snake that could possibly be one of these species is found, a qualified biologist will be contacted immediately and any work that may result in the direct injury or mortality or indirect disturbance of the individual will immediately cease. If a silvery legless lizard, San Joaquin coachwhip, or coast horned lizard is determined to be present, a buffer (the size of which will be determined by a qualified biologist) will be established around the location of the individual(s) and work may proceed outside of the buffer zone (with a qualified biological monitor present, as needed and determined by the qualified biologist). No work will occur within the buffer zone. Work within the buffer zone will be rescheduled. The individual(s) will be allowed to leave under its (their) own volition. However, if, in the opinion of the qualified biologist, capture and removal of the individual(s) to a safe place outside of the work area is necessary to prevent adverse effects, the individual will be captured and relocated by a qualified biologist with appropriate permits and/or in consultation with the CDFW.</p>
MM BIO-3: Nesting Golden Eagle and Bald Eagle Surveys and Avoidance of Active Eagle Nests (Bald and Golden Eagle Protection Act)	<p>A qualified biologist will perform nesting surveys for golden eagle and bald eagle within a 1-mile radius of the Project footprint and access routes, including flight paths for any proposed helicopter work, where access is permitted. Ground based surveys will be conducted in January and late March/early April, as well as aerial surveys in late March/early April. If active eagle nests are documented with their corresponding avoidance buffers intersecting the planned work areas, a third survey will be conducted in June/July to confirm nest status. No project activities will occur within 1-mile of any active golden eagle nest, or within 660 feet of any active bald eagle nest (within 1,000 feet for any helicopter work), from mid-December through the end of August, unless project-specific consultation and a project-specific Bald and Golden Eagle Protection Act short-term disturbance permit has been previously obtained by Valley Water from USFWS.</p>



**Table 3.5-9. Mitigation Measures for Sensitive Biological Resources (cont.)**

Mitigation Measure	Description
MM BIO-4: American Badger Avoidance	<p>For activities that occur within or immediately adjacent to suitable denning habitat for American badgers and work activities that could potentially impact this species (as determined by a qualified biologist), a pre-activity survey will be conducted within 14 days prior to the start of work activities to determine the presence or absence of active badger dens within the activity area, or close enough to the activity area to be disturbed by work activities (as determined by a qualified biologist).</p> <p>If an active badger den is identified during the pre-activity survey, an appropriate no-disturbance buffer, the size of which will be determined by a qualified biologist, will be established around the den if feasible.</p> <p>During the period from March 1 through August 31, when young could be present within a natal den, a biological monitor will be present during work activities that occur sufficiently close to any known or suspected badger den (as determined by a qualified biologist) to ensure the buffer is adequate to avoid direct impacts to individuals or den abandonment. Such monitoring will occur until it is determined that young are of an independent age such that work activities will not result in harm to individual badgers.</p> <p>During the period from March 1 through August 31, if the qualified biologist determines that young badgers are old enough to leave their natal den or have vacated the site, any active badger dens can be excavated, and ground disturbance can proceed. Alternatively, during the period from September 1 through the end of February, when young are unlikely to be present, if a non-natal badger den is located within the activity area, the den may be excavated by a qualified biologist to cause the badger to leave the area. Because badgers are known to use multiple burrows in a breeding den complex, multiple burrows may need to be excavated.</p>
MM BIO-5: San Francisco Dusky-Footed Woodrat Surveys and Avoidance	<p>In areas where the San Francisco dusky-footed woodrat potentially occurs, for activities that could potentially impact woodrats (as determined by a qualified biologist), a qualified biologist will conduct a pre-activity survey for San Francisco dusky-footed woodrats when work will occur within potentially suitable habitat. The survey will be conducted within 14 days prior to the start of work in areas where the species may occur. If woodrats are present, the biologist will determine and flag an appropriate no-disturbance buffer around each nest for avoidance purposes. Valley Water will minimize impacts to nests by avoiding the direct destruction or modification of the nests to the extent feasible, as determined by work personnel in consultation with a qualified biologist. If one or more woodrat nests are determined to be present and physical disturbance or destruction of the nest(s) cannot be avoided, then the woodrats will be evicted from their nests and the nest material relocated outside of the disturbance area, prior to onset of activities that would disturb the nest. First, an alternate location for the nest material will be chosen by a qualified biologist based on the following criteria: 1) proximity to current nest location; 2) safe buffer distance from planned work; 3) availability of food resources; and 4) availability of cover. An alternate nest structure will then be built at the chosen location. The structure will be made up of small logs (e.g., available materials 2 inches in diameter or greater) stacked to provide a foundation on which the woodrats can add nest material. Subsequently, during the evening hours (i.e., within 2 hours prior to sunset), a qualified biologist will slowly dismantle or oversee the dismantling of the existing woodrat nest to allow any woodrats to flee and seek cover. All sticks from the nest will be collected and spread over the alternate structure. If young woodrats that are still dependent on their mother are discovered, relocation efforts will cease for the evening and the nest will be checked the following evening. If it is found that adults have relocated their dependent young, relocation activities will resume. If young remain in the nest after multiple nights of checking, the CDFW will be contacted for guidance and Valley Water will implement CDFW's guidance to minimize impacts on young woodrats.</p>





**Table 3.5-9. Mitigation Measures for Sensitive Biological Resources (cont.)**

Mitigation Measure	Description
MM BIO-6: Bat and Ringtail Habitat Assessment and Tree Removal Plan	<p>Pre-Activity Survey: If activities will occur within or immediately adjacent to suitable roosting habitat for bats, for activities that could potentially impact these species (as determined by a qualified biologist), within 14 days of the start of Project activities, a qualified biologist will conduct a pre-activity survey to identify habitat features suitable for roosting bats or denning ringtail (e.g., cavities, crevices, deep bark fissures). If desired, a preliminary survey may be also performed farther in advance (e.g., during the maternity season of a prior year) to assess whether bats or ringtail are using a particular location, ensure that any necessary exclusion of bats from roosts or ringtails from dens can be scheduled prior to the work, and confirm the presence or absence of a maternity colony. If suitable habitat is present and thorough inspection of potential roost locations during the daytime is not feasible, a dusk emergence survey will be performed when bats, if present, can be observed flying out of a potential roost. If a colony of pallid bats of any size, at least 10 big brown bats, or more than 20 bats of other common species is present, the qualified biologist will leave an acoustic detector at the roost location during the maternity season (defined as April 1 to September 30 based on the maternity periods for the two species known to breed in Santa Clara County with potential to occur in the Proposed Project study area) for one to several nights, as needed, to determine if a maternity colony is present.</p> <p>If the pre-activity survey occurs outside the maternity season and the status of the roost (i.e., as a maternity or non-maternity roost) or ringtail natal den is unknown, it will be assumed to be a maternity colony or natal den. If roosting bats, or suitable roosting habitat for bats, or a natal den, are not detected during the pre-activity survey, no further measures are required. If high-quality suitable habitat is present and slated to be removed by the activity, and bats or ringtail are not detected during the initial survey, the biologist will conduct a follow-up survey (either a daytime survey or a dusk emergence survey, as appropriate and as determined by the qualified biologist) within 48 hours prior to the removal of the habitat. If roosting bats or denning ringtail are not detected during the survey, no additional measures are required.</p> <p>If roosting bats or a natal ringtail den are present within or adjacent to the work location, the biologist will determine an appropriate no-disturbance buffer to protect the active roost or natal den. The size of the no-disturbance buffer will be determined by the qualified biologist based on the nature of the activity, the vulnerability of the roost or den to disturbance, and the time of year. The biologist will determine whether monitoring to determine if the bats or ringtail are disturbed by the activity is feasible and determine if monitoring is appropriate. If monitoring is performed, the biologist will have authority to stop work if program activities disturb the roosting bats or denning ringtail. If the bats or ringtail are observed exhibiting behaviors indicating they are likely to abandon an active day roost, maternity roost, or natal den, the biologist will determine if the no-disturbance buffer needs to be increased.</p> <p>Tree Removal: If maintaining an appropriate no-disturbance buffer around an active bat roost or ringtail den is not feasible, as determined by work personnel in consultation with a qualified biologist, trees may be trimmed and removed under the guidance of a qualified biologist. Trees supporting active bat roosts or ringtail dens may be removed using a two-step removal process under the direction and supervision of a qualified biologist, to encourage bats or ringtail to leave of their own volition using the method described below during the following seasonal periods of activity: Prior to bat maternity season - from approximately March 1 (when night temperatures are above 45°F and when rains have ceased) through April 1 (when females begin to give birth to young); outside of the ringtail denning season (May 1 to August 30), and prior to bat winter torpor - from September 30 (when young bats are self-sufficiently volant) until October 15 (before night temperatures fall below 45°F and rains begin).</p>



**Table 3.5-9. Mitigation Measures for Sensitive Biological Resources (cont.)**

Mitigation Measure	Description
MM BIO-6: Bat and Ringtail Habitat Assessment and Tree Removal Plan (cont.)	<p><i>Step 1:</i> On day one, in the afternoon and under the supervision of a qualified biologist, chainsaws will only be used to fell tree limbs that do not contain suitable bat roosting habitat (e.g., cavities, crevices, deep bark fissures). Felled tree limbs will be left on the ground overnight before removal.</p> <p><i>Step 2:</i> The next day, the rest of the tree will be felled, and left on the ground overnight before removal. If trees containing bat or ringtail habitat cannot be removed during the above seasonal periods of bat and ringtail activity, a qualified biologist will survey the trees to determine if the tree contains a maternity colony or winter torpor bats or ringtail natal den. If the qualified biologist cannot make this determination with certainty, the presence of maternity colonies or winter torpor bats or ringtail will be assumed, and removal of the tree will be delayed until the seasonal periods of activity specified above. If the biologist determines bats or ringtail are present but a maternity colony or winter torpor bats or natal den are absent, then the tree may be removed outside of the above periods of seasonal activity using the above two-step tree removal process. If the qualified biologist determines that bats and ringtail are absent, then the tree may be removed without bat seasonality or ringtail seasonality or method restrictions.</p> <p>Compensatory Mitigation: If a maternity colony of pallid bats of any size, more than 20 bats of other common species, or a ringtail den is determined to be present and the roost site must be physically removed, replacement roost or den habitat that is appropriate to the species will be provided. If the pre-activity survey and roost removal occur outside the maternity season of the species and the status of the roost (i.e., as a maternity or non-maternity roost) or den is unknown, it will be assumed to be a maternity colony or natal den. The nature of the replacement roost habitat (e.g., the design of an artificial roost structure) or den will be determined by a qualified biologist based on the number and species of bats detected. Ideally, the roost structure should be installed no more 100 feet from the location of the original roost (or as close to the location as possible). Exact placement of replacement habitat will be determined in consultation with a qualified biologist.</p>

Key:

°F = degrees Fahrenheit

CDFW = California Department of Fish and Wildlife

GPS = Global Positioning System

USFWS = U.S. Fish and Wildlife Service

## 3.6 Cultural Resources

This section describes cultural resources in the Proposed Project study area/ area of potential effects (APE)<sup>34</sup> and surrounding area. The environmental setting and regulatory framework are provided as well as an analysis of impacts to cultural resources from implementation of the Proposed Project. For the purposes of this assessment, cultural resources are defined as early Native American and historic era archaeological sites, features, and isolated finds; historic era buildings, structures, and objects; early Native American and historic era districts and landscapes; and traditional properties of importance to cultural groups.

<sup>34</sup> For this section of the EIR, the term APE is used as synonymous with Proposed Project study area.



### **3.6.1 Study Area/Area of Potential Effects**

The cultural resources APE established for this EIR is comprised of 55 acres, extending from SR-152 roughly 3 miles (4.8 kilometers) to the north following Pacheco Reservoir and North Fork Pacheco Creek. It also follows Pacheco Creek south of SR-152 to the west, continuing just past the intersection of SR-152 and Kaiser Aetna Road (see Figure 2-2a).

The 55-acre APE is broken down into numerous components, including access routes (18.7 acres), staging areas (0.8 acres), boring locations with a surrounding buffer of roughly 150 feet at each boring (26.5 acres), test pits (5.8 acres), and refraction and resistivity lines (3.2 acres).

### **3.6.2 Environmental Setting**

#### **Cultural Context**

The APE is located within the western slopes of the Diablo Range, where there is extensive archaeological evidence of Native American history dating back over 10,000 years.

An ethnographic study including interviews with consulting tribes was conducted for the separately proposed PREP APE, which encompasses the APE of the Proposed Project. That ethnographic study showed that at least five tribes with traditional lands intersecting the APE expressed interest or potential interest in the PREP APE: the Amah Mutsun Tribal Band (AMTB), Amah Mutsun Tribal Band of Mission San Juan Bautista, Indian Canyon Mutsun Band of Costanoan, the Ohlone Indian Tribe, and the Costanoan Rumsen Carmel Tribe (Reddy 2021). Although many ethnographic accounts place the APE within the territory of the Costanoan/Ohlone peoples, a large language family encompassing much of the southern Bay Area (Levy 1978, Moratto 2004), some tribes within the area reject this grouping imposed on them by Euro-American researchers and identify as Mutsun. Prior to colonization, political structures and distinctions were very different from the settler-colonial perspective under which early ethnographic accounts were written. More recent studies acknowledge the complex mosaic of linguistic and cultural relationships that have long existed in the Bay Area and place the Proposed Project study area within territory attributed more specifically to the Mutsun peoples (Milliken et al., 2009).

The territory of the Mutsun stretched from the Pacific Coast inland some 32–72 kilometers (20–45 miles) to the crest of the Coast Ranges. At the time of Spanish contact, indigenous villages were common in the coast, Bay-Delta Area, and Coast Range valleys. Population estimates for the region range between 7,000 (Kroeber 1925:464) and 16,130 individuals (Milliken 2010), with an average population density of up to 2.4 individuals per square mile. The surrounding area contains many important archaeological sites testifying to Indigenous presence on the landscape extending into the deep past (Engbring and Byrd 2023).



The Mutsun territory included the open coast, the littoral zone of the bay, and a variety of inland settings, each with a varied range of resources available. Prior to European contact, the Native people in this region effectively managed and stewarded the land using sophisticated techniques including judicious burning, pruning, sowing, selective harvesting, and tilling (Crespí 1927, Levy 1978:491, Lopez and Hernandez 2024). Subsistence centered around seasonally available resources, including: an exceptionally rich variety of flora such as nuts, seeds, greens, and bulbs, as well as herbs that were used for sustenance, medicine, and crafting; deer, tule elk, smaller mammals, birds and waterfowl; fish; and shellfish (clams, oysters, mussels, and abalone). In addition to carefully managing complex ecosystems and maintaining meaningful familial, interpersonal, and inter-tribal relationships and trade networks, the ancestral inhabitants of this region were teachers, artists, spiritual leaders and practitioners, and unique individuals with varied interests and skills.

Coastal Central California was perhaps the region earliest and most profoundly affected by European colonization in California. The region was politically and economically desirable for its proximity to the sheltered San Francisco Bay. By the late eighteenth century, Spanish missions had been established throughout the area, purportedly intended to convert the Indigenous population to a Christian way of life. Peoples of widely varying language and cultures were moved across the landscape to serve in the missions, severing ties to the landscape and separating family lineages. At the same time, diseases like cholera, smallpox, and measles spread rapidly and decimated Indigenous populations across California. A thorough description of the devastation to the traditional Indigenous way of life caused by colonization and occupation, and ongoing resistance and cultural persistence of the Indigenous populations, is not provided in this EIR, but is a vital ongoing discussion in California's Native American history (Lightfoot and Simmons 1998, Milliken 1995 and 1999, Milliken et al., 1993, Panich and Schneider 2014, Rizzo-Martinez 2022), and is also further discussed in the Ethnographic Report for this project (Reddy 2021).

## Prior Investigations

Multiple records searches of the California Historical Resources Information System applicable to the APE established for the Proposed Project study area were initially conducted for the separately proposed PREP APE. The first was conducted at the Northwestern Information Center (NWIC) in Rohnert Park by NWIC staff on November 15, 2018 (Reference Number 18-0796). Subsequent records searches were conducted at the NWIC on April 9, 2019 (Reference Number 18-1942), April 29, 2022 (Reference Number 21-1596), and May 23, 2023 (Reference Number 22-1767). The records search area discussed below is only for the current Proposed Project APE and a buffer of 200-meters (1/8-mile) to provide context of resources in the surrounding area and allow for potential GIS error in older data.

The results of these records searches included four previously identified cultural resources and 25 reports overlapping the current Proposed Project APE and 200-meter search buffer (Table 3.6-1). Previous reports are dominated by regional overviews (40%) and surveys (36%). There were also



2 historic<sup>35</sup> resource surveys (8%), 2 management studies (8%), 1 ethnohistory (4%), and 1 research compendium (4%). The four resources were comprised of two prehistoric habitation sites and two historic-era residences/commercial buildings: a ranch and a former tavern listed on the Heritage Resource Inventory as “Bell Station” (Table 3.6-2).

In addition to the previous studies and previously recorded cultural resources, Valley Water’s consultant, Far Western, conducted Class III intensive pedestrian surveys<sup>36</sup> of the larger PREP study area between 2019 and 2024 as part of the ongoing CEQA process for PREP. Through these collective survey efforts, Far Western recorded 30 additional resources within the current Proposed Project APE and surrounding 200-meter buffer, for a total of 34 cultural resources identified (Engbring and Byrd 2023). These 34 resources are listed in Table 3.6-2 and consist of 13 Native American sites (six lithic scatters, five habitation sites, one quarry, and one bedrock mortar) and 19 historic-era sites (seven road alignments, six stock ponds, one dam, two ranches, one commercial building, one refuse deposit, and one shell scatter with a likely historic-era association).

**Table 3.6-1. Previous Cultural Resources Studies Within the APE and 200-Meter Buffer**

Number	Year	Author	Title / Description	Type
S-03453	1950	Meadows, Roy, Roy Martin, and Ann Fisher	Notes on the Carmel Indians (notes taken from Roy Meadows and Roy Martin on March 4th, 1950); and Southern Costanoan-Esselen Notes (notes taken from Ann Fisher on March 4th, 1950)	Regional Overview
S-04720	1973	Williams, Thomas	A preliminary archaeological survey within the proposed development areas of Mustang Mountain Ranch (letter report)	Survey
S-08585	1974	King, Thomas, Gary Berg, Patricia Hickman, Richard Hastings, Chester D. King, Katherine Flynn, and William Roop	Archaeological Element, Environmental Impact Report on the San Felipe Water Distribution System	Management
S-00848	1977	Fredrickson, David A.	A Summary of Knowledge of the Central and Northern California Coastal Zone and Offshore Areas, Vol. III, Socioeconomic Conditions, Chapter 7: Historical and Archaeological Resources	Research Compendium
S-09462	1977	Miller, Teresa Ann	Identification and Recording of Prehistoric Petroglyphs in Marin and Related Bay Area Counties	Regional Overview
S-05259	1979	Hines, Ann, Pauline Pace, and Gail Woolley	Santa Clara County Heritage Resource Inventory	Historic Architecture
S-04831	1980	Breschini, Gary S. and Trudy Haversat	Preliminary Archaeological Reconnaissance of a Parcel in the Pacheco Pass Area, Santa Clara County, California	Survey

<sup>35</sup> The term “historic-era” is used in this report to describe Euro-American cultural resources that post-date the onset of the Spanish Colonial Period in 1769 CE (Thomas and Hyde 2021).

<sup>36</sup> A Class III survey is intended to provide a complete inventory of all cultural resources within a defined APE.



**Table 3.6-1. Previous Cultural Resources Studies Within the APE and 200-Meter Buffer (cont.)**

Number	Year	Author	Title / Description	Type
S-08372	1980	Dietz, Stephen A.	An Archaeological Reconnaissance of the Proposed Bell Station Improvements, Bell Station, Santa Clara County, California	Survey
S-05222C	1980	Van Horn, David M.	Archaeological and Historical Investigations in Portions of the Central Valley Project, San Felipe Division	Survey
S-08378	1981	Wasserman, Fred and Mara Melandry	First Addendum Archaeological Reconnaissance Report, 04-SCL-152 29.9-32.4, Proposed Construction of a Truck Lane along Pacheco Pass, Santa Clara County, 04217-389221	Survey
S-07850	1983	Breschini, Gary S., Trudy Haversat, R. Paul Hampson, MaryEllen Ryan, Charles R. Smith, Georgia Lee, and Laurence H. Shoup	A Cultural Resources Overview of the Coast and Coast-Valley Study Areas	Regional Overview
S-48493G	1985	Gross, Robert L.	Extended Phase I Archaeological Survey Report for The Pacheco Pass Highway Improvement Project Santa Clara County 04-SCL-152 22.1/30.1 04216-112750	Survey
S-07408	1985	Roop, William	Archaeological survey for "Kallend Truck Stop EIR", your project number 16907-085 (letter report)	Survey
S-07483	1985	Albert B. Elsasser, R.L. Anastasio, J.C. Bard, C.I. Busby, D.M. Garaventa, S.A. Guedon, E.L. Moore, K.M. Nissen, and M.E. Tannam	Revised Data Recovery Plan, Part I: Review of the Prehistory of the Santa Clara Valley Region as Part of the Guadalupe Transportation Corridor Compliance with 36 CFR Part 800	Regional Overview
S-09915	1988	Simpson, Susan A. and Marcia K. Kelly	Archaeological Survey Report, proposed access road into Henry Coe State Park, 04-SCL-152 P.M.26.2/30.3 04272-112751 (Caltrans).	Survey
S-16394	1994	Busby, Colin I., Donna M. Garaventa, Stuart A. Guedon, and Melody E. Tannam	Recorded Archaeological Resources in Santa Clara County, California (Plotted on the BARCLAY 1993 LoCaide Atlas)	Regional Overview
S-17852	1995	Jensen Kehl, Jacquelin, and Linda Yamane	Ethnohistoric Genealogy Study, Tasman Corridor Light Rail Project, Santa Clara County, California	Ethnohistory
S-18217	1996	Gmoser, Glenn	Cultural Resource Evaluations for the Caltrans District 04 Phase 2 Seismic Retrofit Program, Status Report	Historic Architecture
S-48927	1997	Crull, Donald Scott	The Economy and Archaeology of European-made Glass Beads and Manufactured Goods Used in First Contact Situations in Oregon, California and Washington.	Regional Overview
S-20395	1998	Donna L. Gillette	PCNs of the Coast Ranges of California: Religious Expression or the Result of Quarrying?	Regional Overview
S-30204	2003	Gillette, Donna L.	The Distribution and Antiquity of the California Pecked Curvilinear Nucleated (PCN) Rock Art Tradition	Regional Overview





**Table 3.6-1. Previous Cultural Resources Studies Within the APE and 200-Meter Buffer (cont.)**

Number	Year	Author	Title / Description	Type
S-32596	2006	Milliken, Randall, Jerome King, and Patricia Mikkelsen	The Central California Ethnographic Community Distribution Model, Version 2.0, with Special Attention to the San Francisco Bay Area, Cultural Resources Inventory of Caltrans District 4 Rural Conventional Highways	Regional Overview
S-33600	2007	Meyer, Jack, and Jeff Rosenthal	Geoarchaeological Overview of the Nine Bay Area Counties in Caltrans District 4	Regional Overview
S-43964	2010	Rohde, Bob	Field Office Report of Cultural Resources Ground Survey Findings, Pipeline, range planting, spring development, Contract # 749104101AB	Survey

**Table 3.6-2. Cultural Resources Within the APE and Buffer by Age and Resource Type**

Cultural Resources Type	Resources in APE	Resources in 200-Meter Buffer	Total (n)
<b>Native American</b>			
Bedrock Mortar	0	1	1
Habitation	2	5	7
Lithic Scatter	3	3	6
Quarry	0	1	1
<b>Subtotal</b>	<b>5</b>	<b>10</b>	<b>15</b>
<b>Historic</b>			
Dam	1	0	1
Commercial/Residential	0	1	1
Ranch	1	1	2
Refuse Deposit	0	1	1
Road	4	3	7
Shell Scatter	0	1	1
Stock Pond	0	6	6
<b>Subtotal</b>	<b>6</b>	<b>13</b>	<b>19</b>
<b>Total</b>	<b>11</b>	<b>23</b>	<b>34</b>

Key:

APE = area of potential effects

## Cultural Resources

Of the 34 known cultural resources within the APE and the 200-meter search buffer, only five occur within 150 feet of proposed activity areas. Three of these five are historic-era built environment resources, including two ranch roads and one ranch complex. All three have been evaluated and recommended as ineligible for the National and California Register (Byrd et al., 2025). Work areas within the roadways would not impact the overall integrity of the roadways, and while the ranch boundaries are fairly extensive, no features would be impacted by the Proposed Project. The other two are Native American resources which are both greater than 50 feet from the respective activity areas. These resources have been determined through extensive survey and subsurface testing to



not extend into any activity areas associated with surface or subsurface investigations. There are also 11 known cultural resources, including the five resources already identified to be present within 150 feet of proposed activity areas, that overlap with or are immediately adjacent to existing ranch road segments that are included as activity areas within the Proposed Project study area. Two of these are themselves ranch roads recorded as built environment resources that are also being used for the current project. As shown in Table 3.6-3, these would be used for equipment access as part of the Proposed Project (see also confidential Appendix F, Cultural Resources Information). Many of these existing access roads have been in use for more than 150 years and pre-date the construction of North Fork Dam in 1939. No access routes are publicly accessible. Although the resource boundaries span into or across the roads, any intact cultural deposits are expected to have been either disturbed or removed by previous road construction and ongoing use, capped and obscured by road fill, or both. Access for the current project is not planned to include any improvements of existing roads, and as such access will be consistent with the previous and ongoing use of these roads. None of the activities associated with the Proposed Project would expand the existing road footprints into intact cultural deposits.

The 11 known cultural resources intersecting existing ranch roads do not include any resources listed in the Heritage Resource Inventory for the APE. Of the known resources, two are Native American habitation sites, three are Native American lithic scatters, and six are historic-era built environment resources including a dam, four roads, and a ranch complex (see Table 3.6-3).

The two Native American habitation sites were evaluated and recommended to be eligible for the National or California Register as part of the separate PREP assessment, and thereby warrant further consideration (Byrd et al., 2025). The remaining nine resources were evaluated and recommended to be ineligible (Byrd et al., 2025; Thomas and Hyde 2021).

**Table 3.6-3. Cultural Resources Overlapping with Existing Ranch Roads by Age, Type, and Recommended Eligibility**

Cultural Resources Type	Recommended Eligible Resources (n)	Recommended Ineligible Resources (n)	Count (n)
Native American Precontact	2	3	5
Habitation	2	0	2
Lithic Scatter	0	3	3
Historic-Era	0	6	6
Dam	0	1	1
Ranch	0	1	1
Road	0	4	4
<b>Total</b>	<b>2</b>	<b>9</b>	<b>11</b>



### 3.6.3 Regulatory Framework

#### Federal Laws, Regulations, and Policies

##### *National Historic Preservation Act*

Undertakings that involve federal funding, lands, or permits require that as part of the environmental analysis of a proposed project, a cultural resources investigation must be conducted pursuant to the provisions of Section 106 of the National Historic Preservation Act (NHPA; 36 CFR 800) of 1966, as amended (16 US Code 470 *et seq.*).

Under the National Historic Preservation Act (NHPA), the lead federal agency must identify and assess cultural resources (including archaeological remains, historical structures, and traditional cultural properties) eligible for the National Register of Historic Places (NRHP) in consultation with the State Historic Preservation Officer. The significance of cultural resources within the APE and associated buffer must be measured against the NRHP criteria for eligibility (36 CFR 60.4), which state that the quality of significance in American history, architecture, archaeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, materials, workmanship, feeling, and association, and:

- Are associated with events that have made a significant contribution to the broad patterns of our history; or
- Are associated with the lives of persons significant in our past; or
- Embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
- Have yielded, or may be likely to yield, information important in prehistory or history.

"Traditional Cultural Properties" are defined separately as eligible for the NRHP because of their "association with cultural practices or beliefs of a living community that (a) are rooted in that community's history, and (b) are important in maintaining the continuing cultural identity of the community" (Parker and King 1998).

Compliance with the NHPA requires consideration of the context and intensity of the environmental effects that would result from the Proposed Project. The criteria used to determine the significance of an impact to historic properties are based on Section 800.5(a)(1) and (a)(2) of the NHPA and the U.S. Department of the Interior, Bureau of Reclamation's (Reclamation) Directives and Standards (Land Management and Development 02-01). The NHPA defines an adverse effect to an eligible resource as physical destruction, damage, or alteration, including moving the property from its historical location, isolation from or alteration of the setting, introduction of elements that diminish the integrity of the property's significant historic features, neglect leading to deterioration or destruction, and transfer, sale, or lease from federal ownership.



### ***Native American Graves Protection and Repatriation Act***

The Native American Graves Protection and Repatriation Act (Public Law 101-601; 25 US Code 3001–3013) protects Native American burial sites and controls the removal of human remains, funerary objects, sacred objects, and items of cultural patrimony on federal and tribal lands.

## **State Laws, Regulations, and Policies**

### ***California Environmental Quality Act***

**Historical Resources.** Under CEQA, a project would have a significant effect if it causes a “substantial adverse change” in the significance of a “historical resource.” A “historical resource” is defined as a resource that is (CEQA Guidelines §15064.5[a]):

- Listed in or determined by the State Historical Resources Commission to be eligible for listing in the California Register of Historical Resources (CRHR);
- Listed in a local register of historic resources;
- Determined to be eligible for California Register listing based on an historical resource survey meeting defined requirements; or
- Determined by the Lead Agency’s exercise of discretion, based on substantial evidence in the record, to be an historical resource.

The CEQA Guidelines also provide guidance on how to mitigate significant impacts on historical resources (CEQA Guidelines §15126.4(b)).

**Unique Archeological Resources.** In addition, PRC § 21083.2 requires that the lead agency determine whether a project or program may have a significant effect on “unique archaeological resources.” A unique archaeological resource is defined in CEQA as an archaeological artifact, object, or site about which it can be clearly demonstrated that there is a high probability that it:

- Contains information needed to answer important scientific research questions, and there is demonstrable public interest in that information.
- Has a special or particular quality, such as being the oldest of its type or the best available example of its type; or
- Is directly associated with a scientifically recognized important prehistoric or historic event or person.

Measures to mitigate significant effects on these resources are also provided in PRC § 21083.2.

### ***California Health and Safety Code Section 7050.5***

Section 7050.5 of the Health and Safety Code requires that construction or excavation be stopped in the vicinity of discovered human remains until the county coroner can determine whether the remains are those of a Native American. If the remains are determined to be Native American, the



coroner must then contact the Native American Heritage Commission, which has jurisdiction pursuant to Section 5097 of the PRC. When human remains are discovered or recognized in any location other than a dedicated cemetery, no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent human remains may take place until the county coroner has been informed and has determined that no investigation of the cause of death is required. If the remains are of Native American origin, either the descendants of the deceased Native American(s) have made a recommendation to the landowner or the person responsible for the excavation work for means of treating or disposing of, with appropriate dignity, the human remains, and any associated grave goods as provided in PRC § 5097.98. This excludes instances where the Native American Heritage Commission was unable to identify a descendant, or the descendant failed to make a recommendation within 24 hours after being notified by the commission.

Similar procedures are required by *CEQA Guidelines* §15064.5(e).

### ***California Register of Historical Resources***

The CRHR is established in PRC § 5024.1. The register lists all California properties considered to be significant historical resources, including all properties listed in, or determined to be eligible for listing in, the NRHP, including properties evaluated under Section 106 of the NHPA. Resources listed in, or eligible for listing in, the CRHR are referred to as “historical resources.” The criteria for listing are similar to those of the NRHP. Criteria for listing in the CRHR include resources that:

- Are associated with the events that have made a significant contribution to the broad patterns of California’s history and cultural heritage;
- Are associated with the lives of persons important in our past;
- Embody the distinctive characteristics of a type, period, region, or method of construction, or represent the work of an important creative individual, or possess high artistic values; or
- Have yielded, or may be likely to yield, information important in prehistory or history.

The regulations set forth the criteria for eligibility as well as guidelines for assessing historical integrity and resources that have special considerations.

### ***Assembly Bill 52***

Please see complete discussion of AB 52 in Section 3.19, Tribal Cultural Resources.



## Regional and Local Laws, Regulations, and Policies

### *Santa Clara County General Plan and Historic Preservation Program*

The General Plan was adopted in 1994. The document provides a comprehensive approach to identifying and addressing cultural resources (referred to as "heritage resources"). The General Plan identifies three strategies for protecting heritage resources:

- Strategy #1. Inventory and Evaluate Heritage Resources
- Strategy #2. Prevent, or Minimize, Adverse Impacts on Heritage Resources
- Strategy #3. Restore, Enhance, and Commemorate Resources as Appropriate

The General Plan also acknowledges the challenges for preserving heritage resources in urban settings versus rural settings, such as the APE and associated buffer, and provides similar but different policies for each setting. There are two general policies that guide implementation of the strategies in rural settings:

**R-RC 81:** Heritage resources within the rural unincorporated areas of Santa Clara County shall be preserved, restored wherever possible, and commemorated as appropriate for their scientific, cultural, historic and place values.

**R-RC 82:** The following strategies should provide overall direction to efforts to preserve heritage resources:

- Inventory and evaluate heritage resources.
- Prevent, or minimize, adverse impacts on heritage resources.
- Restore, enhance, and commemorate resources as appropriate.

The County of Santa Clara Heritage Resource Inventory was created in 1962, overhauled in 1973 by the Historical Heritage Commission, and is now managed by the Historic Preservation Program following the Historic Preservation Ordinance of the County of Santa Clara (Santa Clara County Code, Division C17). County demolition permit applications are screened for historic resources listed in the inventory, which must apply for landmark alteration permits. The inventory includes "historic resources located in unincorporated Santa Clara County which are listed in federal or state registers or have been designated as a Landmark." Criteria for identifying and evaluating "resources of architectural, historical, and cultural merit," which may be designated as Landmarks and listed on the inventory, are very similar to those outlined in the NHPA and CEQA:

- Fifty years or older. If less than 50 years old, sufficient time must have passed to obtain a scholarly perspective on the events or individuals associated with the historic resource and/or the historic resource is a distinctive or important example of its type or style; and
- Retains historic integrity. If a historic resource was moved to prevent demolition at its former location, it may still be considered eligible if the new location is compatible with the original character of the property; and





- Meets one or more of the following criteria of significance:
  - Associated with events that have made a significant contribution to the broad patterns of local or regional history, or the cultural heritage of California or the United States;
  - Associated with the lives of persons important to local, California or national history;
  - Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of a master or possesses high artistic values; or
  - Yielded or has the potential to yield information important to the pre-history or history of the local area, California, or the nation.

### 3.6.4 Environmental Impacts and Mitigation Measures

The following sections discuss the methods and assumptions, criteria for determining the significance of impacts, environmental impacts, and mitigation measures if applicable.

#### Methods and Assumptions

The following sections discuss the methods and assumptions, criteria for determining the significance of impacts, direct impacts, and mitigation measures related to cultural resources. The analysis in this section is focused on the direct and indirect physical impacts of the Proposed Project on cultural resources based on a review of identified resources within the APE. As previously discussed, the APE/Proposed Project study area has been entirely surveyed for both historic and Native American resources with an Ohlone representative present for portions of survey and all subsurface testing (Engbring and Byrd 2023). Two archaeological resources have been identified within 150 feet<sup>37</sup> of two boring activity areas as discussed in Section 2.3; both are still greater than 50 feet away from these work areas. Eleven cultural resources intersect existing ranch roads that will be used for project access.

#### *Applicable Conservation Measures*

The conservation measures applicable to the analysis of impacts on cultural resources are listed below. Section 2.4 provides a full description of each BMP and VHP AMM.

- BMP WQ-4: Limit Impacts from Staging and Stockpiling Materials
- VHP AMM-61: Minimize ground disturbance to the smallest area feasible.
- VHP AMM-62: Use existing roads for access and disturbed area for staging as site constraints allow. Off-road travel would avoid sensitive communities such as wetlands and known occurrences of covered plants.

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<sup>37</sup> This is a standard buffer designed to protect resources through avoidance while allowing for margins of error in mapping and surface visibility at the time of resource recordation.



These measures will be incorporated into the geotechnical investigation work plans, and all geotechnical contractors employed on the Proposed Project will be required to adhere to them. As such, they are considered part of the Proposed Project for purposes of analysis in this EIR.

## Criteria for Determining Significance of Impacts

Significance criteria are based on CEQA Guidelines Appendix G. Implementation of the Proposed Project would have significant impacts on cultural resources if it were to:

- Cause a substantial adverse change in the significance of a historical resource pursuant to CCR Section 15064.5;
- Cause a substantial adverse change in the significance of an archaeological resource pursuant to CCR Section 15064.5;
- Disturb any human remains, including those interred outside of formal cemeteries;

## Impacts

### ***Impact CUL-1***

#### ***Would the project cause a substantial adverse change in the significance of a historical resource pursuant to CCR Section 15064.5?***

The APE and associated buffer has been subject to comprehensive pedestrian surveys that included participation by tribal representatives as discussed in Section 3.6.2. Six historic-era built environment resources have been identified as overlapping with, or being immediately adjacent to, activity areas associated with existing access roads. This includes three historic-era roads that are proposed to be used for Project access, two of which have proposed boring activity areas along their length; one ranch property intersected by existing roads and a single boring activity area; one road adjacent to the access roads; and one dam adjacent to the access roads. All six have been evaluated and recommended as not eligible for listing on the NRHP or CRHR (Thomas and Hyde 2021) and therefore do not constitute historical resources as defined under CEQA Guidelines §15064.5[a]).

Five known precontact Native American archaeological resources, and no historic-era archaeological resources, have been identified as overlapping with or being immediately adjacent to project activity areas (Table 3.6-3). All five precontact archaeological resources were intersected by or adjacent to existing ranch roads to be used for Proposed Project access. Of the five identified archaeological resources, three were evaluated and recommended as not eligible for listing on the NRHP or CRHR, while two Native American habitation sites were recommended eligible under Criterion D/4 (Byrd et al., 2025) and represent potential historical resources.

The Proposed Project has been designed to avoid substantial impacts to all identified resources regardless of eligibility. BMP WQ-4, and VHP AMM 61 would reduce ground disturbance, while VHP AMM 62 requires use of existing roads to the extent possible. None of the precontact



archaeological resources are within activity areas subject to surface or subsurface geotechnical investigations, although two of these activity areas are within the 150-foot avoidance buffer designed by Valley Water; one is significantly downslope from the proposed boring activity area. The single boring activity area associated with the ranch compound was placed to avoid all associated built environment features. Boring activity areas were located adjacent to existing roads and outside of the road prism.

The roads identified as built environment resources being used for project access have been in use since the 1870s (Thomas and Hyde 2021) and continue to be used regularly for ranching activities<sup>38</sup> and the Proposed Project would not constitute a substantial permanent increase in use of these roads above the current baseline conditions.<sup>39</sup> Access for the current project is not planned to include any improvements of existing roads or changes to the road prism, and as such access will be consistent with the previous and ongoing use of these roads, and will remain within the existing roadway, and is not expected to impact any archaeological sites and other built environment intersected by the roadways. The use of these existing access roads is therefore not anticipated to have a substantial adverse change to any cultural resources.

No built environment historical resources have been identified within the Proposed Project APE, and the project has been designed to avoid impacts to archaeological sites representing potential historic resources. Therefore, the Proposed Project is not expected to result in substantial adverse changes to the significance of any identified built environment historical resources pursuant to *CEQA Guidelines* §15064.5. However, inadvertent discovery of a resource during Proposed Project activities could result in a significant impact. Mitigation Measure CUL-2: Pre-activity Cultural Resources Identification and Sensitivity Training (see Table 3.6-4) will be implemented for all workers prior to conducting project activities, which should reduce the likelihood and impact of inadvertent discoveries by ensuring careful and respectful work at all times. In the case of an inadvertent discovery, the designated contractor will implement mitigation measure CUL-1: Accidental Discovery of Archaeological Artifacts, Tribal Cultural Resources, or Burial Finds Protocol. These measures will reduce potential impacts to a less-than significant level. Therefore, potential impacts on a historic resource would be **less than significant with mitigation**.

### ***Impact CUL-2***

#### ***Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to CCR Section 15064.5?***

As described under Impact CUL-1, the APE and associated buffer has been subject to comprehensive pedestrian surveys. No historic-era archaeological resources were identified within or adjacent to project activity areas. Five known precontact Native American archaeological resources have been identified as overlapping with or being immediately adjacent to project activity areas (Table 3.6-

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<sup>38</sup> These access routes also provide primary access for CAL FIRE for wildfire prevention and suppression efforts.

<sup>39</sup> Chapter 2 provides additional details on the type of vehicles and level of use of these roads. Note that the use of these roads for the Proposed Project is similar to the level of use by fire suppression vehicles over the course of fire suppression and rehabilitation in 2000 associated with large wildfires in the North Fork Pacheco Creek watershed.



3). All five were intersected by or adjacent to existing ranch roads to be used for Proposed Project access. None are within activities areas subject to surface or subsurface geotechnical investigations, although two of these activity areas are within the 150-foot avoidance buffer designed by Valley Water; one is significantly downslope from the proposed boring activity area. Of the five identified archaeological resources, three were evaluated and recommended as not eligible for listing on the NRHP or CRHR, while two Native American habitation sites were recommended eligible under Criterion D/4 (Byrd et al., 2025).

As also described under CUL-1, the Proposed Project has been developed to avoid significant impacts to all identified resources regardless of eligibility. Adverse changes in the significance of any archaeological resource as a result of the use of existing access routes during Proposed Project implementation would be less than significant. As discussed above, access for the Proposed Project would not require any improvements to existing roads. Use of existing access roads would be consistent with the previous and ongoing use of these roads, and all vehicles or equipment would remain within the existing roadway.

Inadvertent discovery of resources could occur during implementation of the Proposed Project, leading to a significant impact on archaeological resources. Mitigation measure CUL-1: Accidental Discovery of Archaeological Artifacts, Tribal Cultural Resources, or Burial Finds Protocol and mitigation measure CUL-2: Pre-activity Cultural Resources Identification and Sensitivity Training will be implemented, which would reduce potential impacts to a less-than significant level. Therefore, potential impacts on archaeological resources from implementation of the Proposed Project would be **less than significant with mitigation**.

### ***Impact CUL-3***

#### ***Would the project disturb any human remains, including those interred outside of formal cemeteries?***

Human remains were recovered during prior subsurface testing within the two Native American habitation sites that overlap with or are immediately adjacent to activity areas-associated with existing and well-established access roads and have been evaluated as eligible for listing on the NRHP and CRHR (Byrd et al., 2025). During recent surveys of the APE, no human remains were encountered within any activity areas, and no disturbance of human remains is expected as a result of continued use of existing unpaved access roads during Proposed Project implementation, as discussed above. However, inadvertent discovery of human remains during project activities could occur. Any inadvertent damage to the remains would result in a significant impact.

The designated contractor will implement mitigation measures CUL-1 and CUL-2 which would reduce potential impacts to a less-than significant level. Therefore, potential impacts to human remains from implementation of the Proposed Project would be **less than significant with mitigation**.



## Mitigation Measures

The following mitigation measures will be implemented to reduce the potential for impacts on cultural resources to less than significant levels.

**Table 3.6-4. Cultural Resources Mitigation Measures**

Mitigation Measure/ Name	Description
<b>MM CUL-1:</b> Accidental Discovery of Archaeological Artifacts, Tribal Cultural Resource, or Burial Finds Protocol	<p>If historical or precontact archaeological artifacts, or tribal cultural resources, are accidentally discovered during work activities, work in affected areas will be stopped until proper protocols are met. Work at the location of the find will halt immediately within 150 feet of the find. A “no work” zone will 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. In addition, the Amah Mutsun Tribal Band will be notified of the find and consulted regarding the significance. If the Consulting Archaeologist in consultation with the Amah Mutsun Tribal Band determines that the artifact is not significant, work may resume. If the Consulting Archaeologist in consultation with the Amah Mutsun Tribal Band determines that the artifact or resource is significant, the Consulting Archaeologist in consultation with the Amah Mutsun Tribal Band, will detail avoidance procedures based on the nature of the resource and expected impacts. Avoidance procedures would potentially involve fencing and/or monitoring to avoid impacts to the cultural material, or disuse or relocation of the work area and associated staging areas. If the relocated work area is nearby the inadvertent discovery and has the potential to encounter additional cultural material, Amah Mutsun and archaeological monitors may be present for the duration of subsurface work in the relocated work area. If avoidance is not possible, archaeological subsurface testing to assess the extent and nature of the cultural material would be performed at the location prior to any subsequent work, with results and appropriate mitigation measures approved by the Amah Mutsun and State Historic Preservation Office.</p> <p>If burial finds are accidentally discovered during work activities, work in affected areas will be stopped. Upon discovering any human skeletal remains, the County Coroner, Consulting Archaeologist, and Amah Mutsun Tribal Band will be immediately notified, and the field crew supervisor will take immediate steps to secure and protect such remains from vandalism during periods when work crews are absent. No further excavation or disturbance within 150 feet of the site or any nearby area reasonably suspected to overlie adjacent remains may be made except as authorized by the County Coroner, and the California Native American Heritage Commission.</p>
<b>MM CUL-2:</b> Pre-activity Cultural Resources Identification and Sensitivity Training	<p>Valley Water will provide pre-activity cultural resources identification and sensitivity training to all geotechnical personnel active on the Project within the Proposed Project study area during drilling and excavation activities throughout the duration of the investigations. The training will be conducted in person, via a video or PowerPoint presentation, or via an informational brochure to be viewed by all geotechnical personnel involved in ground disturbing activities prior to working on the Proposed Project within the Proposed Project study area. The training will be developed and conducted in coordination with a qualified archaeologist meeting the U.S. Secretary of Interior standards for professional archaeologists and a representative or representatives from the Amah Mutsun Tribal Band or other culturally affiliated Native American tribe(s) who have participated in consultations with Valley Water. The program will include relevant information regarding sensitive cultural resources (including human remains and burials), applicable regulations, protocols for avoidance, and consequences of violating state laws and regulations. The pre-activity cultural resources identification and sensitivity training will also describe appropriate avoidance and minimization measures for resources that have the potential to be located within the Proposed Project study area and would outline what to do and whom to contact if any cultural resources, artifacts, or human remains, are encountered. The training will also underscore the requirement for confidentiality and culturally appropriate treatment of any finds of significance to Native Americans.</p>

Key: Valley Water = Santa Clara Valley Water District



## **3.7 Energy**

This section describes energy resources and uses within and adjacent to the Proposed Project study area. The environmental setting and regulatory framework are provided as well as an analysis of impacts to energy resources from implementation of the Proposed Project.

### **3.7.1 Environmental Setting**

California's energy resources used to generate electricity and run vehicles and equipment includes electricity, natural gas, and petroleum. According to the California Energy Commission, California's energy system generates approximately 70 percent of the electricity, 10 percent of the natural gas, and approximately 26 percent of the petroleum consumed or used in the state. The rest of the state's energy and energy sources are imported and include electricity from the Pacific Northwest and the Southwest; natural gas purchases from Canada, the Rocky Mountain states, and the Southwest; and petroleum imported from Alaska and foreign sources (CEC 2023a, 2023b, and 2021). Project implementation would require the use of transportation fuels, primarily in the form of gasoline, diesel and aviation fuel (avgas or Jet A depending on aircraft).

### **3.7.2 Regulatory Framework**

#### **Federal Laws, Regulations and Policies**

##### ***National Energy Conservation Policy Act***

The National Energy Conservation Policy Act serves as the underlying authority for federal energy management goals and requirements. Signed into law in 1978, it has been regularly updated and amended by subsequent laws and regulations. The act is the foundation of most federal energy requirements. It established fuel economy standards for on-road motor vehicles in the United States.

##### ***Energy Policy Act of 2005***

The Energy Policy Act created energy-related tax incentives from 2005 to 2016 to promote energy efficiency and conservation, renewable energy, oil and gas production and transmission, coal production, and electric generation and transmission.

##### ***American Recovery and Reinvestment Act of 2009***

As part of a larger stimulus package, the Recovery Act authorized federal funding to the U.S. Department of Energy to forward specific energy priorities, including modernizing the nation's electric transmission grid.





### ***Fuel Economy Standards***

The EPA, in conjunction with the National Highway Traffic Safety Administration, issued the first of a series of GHG emissions standards for new cars and light-duty vehicles in April 2010 and significantly increased the fuel economy of all new passenger cars and light trucks sold in the United States. Under the Safer Affordable Fuel-Efficient Vehicles Rule, the National Highway Traffic Safety Administration and EPA have proposed establishing new standards covering model years 2021 through 2026 by maintaining the current standards through 2026. The CCAA waiver issued by the EPA allows California to set and enforce more stringent emissions standards than the federal government, including California's greenhouse gas emission standards and zero emissions vehicle mandate. Also, the EPA and National Highway Traffic Safety Administration in 2016 adopted fuel economy and GHG standards for medium- and heavy-duty trucks (81 Federal Register 73478).

### **State Laws, Regulations, and Policies**

#### ***Senate Bill 350***

SB 350 (Chapter 547, Statutes of 2015) was signed into law in September 2015. SB 350 establishes tiered increases to the Renewables Portfolio Standard of 40 percent by 2024, 45 percent by 2027, and 50 percent by 2030. The former target was 33 percent by 2020. SB 350 also set a new goal to double the electricity and natural gas savings for existing buildings through energy efficiency and conservation measures.

#### ***Senate Bill 100***

SB 100 (Chapter 312, Statutes of 2018) establishes a state goal of 100 percent clean electricity goal by 2045 and advances the Renewables Portfolio Standard to 50 percent by 2026 and 60 percent by 2030.

#### ***California Energy Commission***

The California Energy Commission was established by the Warren-Alquist Act in 1974 and is the state's primary energy policy and planning agency. The commission has five major responsibilities: forecasting future energy needs and keeping historical energy data; licensing thermal power plants 50 megawatts or larger; promoting energy efficiency through appliance and building standards; developing energy technologies and supporting renewable energy; and planning for and directing the state's responses to any energy emergencies.

#### ***California 2021 Energy Efficiency Action Plan Update***

Originally developed in 2003 and most recently updated in 2021, the California Energy Efficiency Action Plan identifies specific action areas to ensure that California's energy resources are adequate, affordable, technologically advanced, and environmentally sound (CEC 2021). The initial priorities of the plan addressed California's increasing energy demands and focused on energy



efficiency and demand response, which involves reducing customer energy usage during peak periods to enhance system reliability and optimize energy infrastructure. Additional priorities included the promotion of renewable energy sources and distributed generation. The plan also emphasizes the importance of investing in conventional transmission infrastructure to help the state achieve its renewable energy goals. The 2021 update continues to drive energy efficiency through three specific goals: doubling energy efficiency savings by 2030, removing and reducing barriers to energy efficiency in low-income and disadvantaged communities, and reducing greenhouse gas emissions from the buildings sector (CEC 2021).

## **Regional and Local Laws, Regulations, and Policies**

### ***Santa Clara County General Plan***

The General Plan, 1995-2010, was adopted in 1994 and includes energy efficiency and conservation strategies and policies. The following policy is relevant to the Proposed Project:

**Policy C-RC 77** – Energy efficiency and conservation efforts in the transportation, industrial, commercial, residential, agricultural, and public sectors shall be encouraged at the local, county (subregional), and regional level.

### ***Valley Water Climate Change Action Plan and Board Policies***

Valley Water's 2021 Climate Change Action Plan (CCAP) builds upon its existing climate change efforts by identifying the ways in which Valley Water and Santa Clara County are vulnerable to climate change and providing goals, strategies, and possible actions (Valley Water 2021). Referenced in the CCAP, the Valley Water Board Ends Policy No. E-5 (Climate Change Mitigation and Adaptation) goals and objectives shown below, are applicable goals and objectives in reducing direct greenhouse gas emissions, expanding renewable energy and improving energy efficiency, and reducing indirect greenhouse gas emissions. Under the Valley Water's form of Policy Governance, "Ends" policies describe the mission, outcomes or results to be achieved by Valley Water staff.

**CCAP Goal 1:** Reduce Direct Greenhouse Gas Emissions

**Strategy:** Minimize GHG emissions associated with planning, design, construction, operation and maintenance of capital projects

## **3.7.3 Environmental Impacts and Mitigation Measures**

The following sections discuss the methods and assumptions, criteria for determining the significance of impacts, environmental impacts, and mitigation measures if applicable.



## Methods and Assumptions

The energy requirements for the Proposed Project were determined quantitatively using the equipment use estimates discussed above in Section 3.4, Air Quality, and fuel and electricity consumption rates were derived from EMFAC 2021 for on road vehicles and from OFFROAD 2021 for off-road equipment. Detailed calculations are included in the Appendix D, Air Quality/GHG Emissions Data and illustrated in Table 3.7-1.

**Table 3.7-1 Proposed Project Energy Consumption Estimates (Total)**

Source	Gasoline (gallons)	Diesel (gallons)	Aviation Fuel (gallons)
Off-Road Equipment	147	24,871	--
On-Road Mobile Sources	4,932	1,696	--
Helicopter	--	--	60,663
Boat/Barge	260	--	--
Total	5,339	26,567	60,663

Key:

-- = not applicable

### *Applicable Conservation Measures*

The conservation measure applicable to energy is listed below. Section 2.4 provides a full description of this BMP.

- BMP AQ-1: Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to five minutes.

This measure will be incorporated into the geotechnical investigation work plans, and all geotechnical contractors employed on the Proposed Project will be required to adhere to it. As such, it is considered part of the Proposed Project for purposes of analysis in this EIR.

## Criteria for Determining Significance of Impacts

Significance criteria are based on CEQA Guidelines Appendix G. Implementation of the Proposed Project would have significant impacts on energy resources if it were to:

- Result in potentially significant environmental impacts due to wasteful, inefficient, or unnecessary consumption of energy resources during project construction or operation, or
- Conflict with or obstruct a state or local plan for renewable energy or energy efficiency.



## Environmental Impacts

### ***Impact ENG-1***

***Would the project result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?***

The Proposed Project would implement the design level geotechnical investigations that consist of drilling 119 initial borings, and up to an additional 30 supplemental borings, excavating up to 32 test pits, and involving 19 seismic-refraction lines totaling approximately 16,890 linear feet. Once the design-level geotechnical investigations have been completed, no ongoing or operational activities would occur that would consume additional energy. Based on the extent and duration of Proposed Project activities, it is estimated that 5,339 gallons of gasoline, 26,567 gallons of diesel fuel and 60,663 gallons of aviation fuel would be used. There would not be a use of excessive amounts of fuel (i.e., gasoline, diesel fuel, aviation fuel) that would constitute wasteful, inefficient, or unnecessary consumption of energy because only the required amount of fuel necessary to complete the proposed work would be used. In addition, Valley Water BMP AQ-1 would be implemented in compliance with Title 13, Section 2485 of the CCR to reduce air quality impacts and fuel consumption by limiting idling times to five minutes. BMP AQ-1 requires that this idling limit be clearly communicated to workers (such as verbiage in contracts and clear signage at all access points) and documented as described in Chapter 2. When the helicopter, boats, and barges are used, they would be shut down or idled consistent with federal and state safety requirements when not operating or flying to reduce consumption of fuel.

Therefore, the Proposed Project would result in **no impact** since no wasteful, inefficient, or unnecessary consumption of energy resources would occur. No mitigation is required.

### ***Impact ENG-2***

***Would the project conflict with or obstruct a state or local plan for renewable energy or energy efficiency?***

The Proposed Project would not include the development or demolition of any buildings. Therefore, no impact related to compliance with applicable energy and energy efficiency/conservation standards or codes, such as the California Building Standards or California Energy Code, would result. In addition, given the nature of the Proposed Project, which only entails temporary geotechnical investigation activities occurring over the course of the approximate eight months, it would not conflict with or obstruct federal, state, regional, or local laws, regulations, and policies in addition to California's Renewable Portfolio Standard. Therefore, **no impact** would occur. No mitigation is required.

## Mitigation Measures

No mitigation measures are required.



## 3.8 Geology, Soils, and Paleontology

This section describes the geology, soils, and paleontological and unique geological resources within and surrounding the Proposed Project study area (Figure 3.8-1). The environmental setting and regulatory framework are provided as well as an analysis of impacts to geology, soils, and unique paleontological and geologic resources from implementation of the Proposed Project.

### 3.8.1 Environmental Setting

The Proposed Project study area lies entirely in the central portion of Coast Ranges Geomorphic Province, south of San Francisco Bay. The mountains within the Coast Ranges are generally between 2,000 to 4,000 feet above msl with some peaks over 6,000 feet above msl. The valleys of the Coast Ranges range between 400 to 1,000 feet above msl. The ridges and valleys of the Coast Ranges trend northwest, subparallel to the San Andreas Fault. To the east, strata dip beneath the alluvium underlying the San Joaquin Valley. To the west is the Pacific Ocean where the coastline is uplifted, terraced, and wave cut. The Coast Ranges are composed of thick Mesozoic and Cenozoic strata. The San Andreas Fault crosses through this province 26 miles west of the Proposed Project study area (CGS 2002).

#### Regional Geologic Setting

This section describes the geologic formations, seismicity, geologic hazards, and unique geological resources at the regional scale. Due to the scale and type of geologic features and geomorphic processes, this section also includes a discussion of geologic hazards related to landslides, earthquakes, and seiches. Figure 3.8-1 provides a regional geology map for the Proposed Project study area.

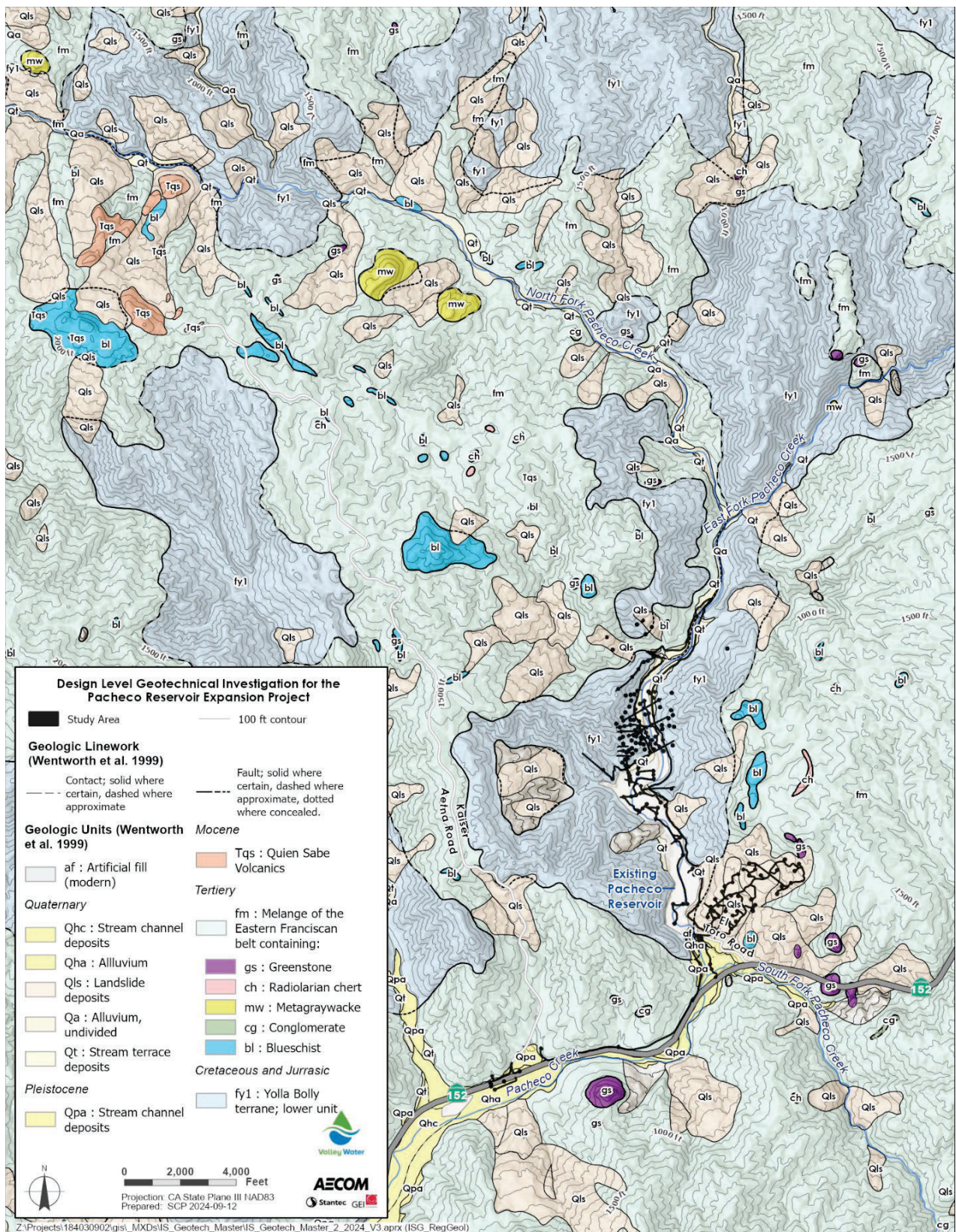
The igneous, metamorphic, and sedimentary rock units in this part of the Coast Ranges province are tilted along the eastern flank of the Diablo Range to form an east-dipping homocline,<sup>40</sup> and they flatten eastward across the western San Joaquin Valley (Harden 2004). The Mt. Hamilton structural block, within which the Proposed Project study area is located, is comprised of predominantly eastern belt Franciscan Complex rocks: graywacke sandstone, siltstone, shale, chert, and high-grade metamorphic rocks (Wentworth et al., 1999).

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<sup>40</sup> Homocline is a geological structure in which the layers of a sequence of rock strata dip uniformly in a single direction.







### Figure 3.8-1. Regional Geology Map





### ***Regional Seismicity***

The San Francisco Bay Area and surrounding areas are characterized by numerous geologically young faults (see Figure 3.8-2). These faults can be classified as historically active, active, potentially active, or inactive (Valley Water 2021a and 2021b) and redefined under the new classification of the Alquist-Priolo Earth Quake Fault Zoning Act, which includes Holocene active faults, pre-Holocene faults, and age-undetermined faults. Fault activity levels as described under the 1972 Alquist-Priolo Earthquake Fault Zoning Act (CGS 2018) and the California Department of Water Resources (DWR), DSOD (DWR 2018) are:

#### Alquist-Priolo Act Fault Classification

- Faults that have generated earthquakes accompanied by surface rupture during Holocene time (approximately the last 11,700 years) and faults that exhibit seismic fault creep are defined as Holocene-active faults. Previous fault activity classifications under the Alquist-Priolo Act call this an historically active fault.
- Faults that are older than Holocene time are referred to as pre-Holocene faults that have not moved in the last 11,700 years. Previous fault activity classifications under the Alquist-Priolo Act call this an inactive fault or potentially active fault.
- Faults where the recency of fault movement is unknown is referred to as age-undetermined faults.

#### Division of Safety of Dams Fault Classification

- The Division of Safety of Dams requires that fault activity be based on fault rupture events within the past 35,000 years (DWR 2018).
- Faults are considered to be: 1) active under DSOD criteria if they have ruptured within the past 35,000 years; 2) conditionally active if they have moved in Quaternary,<sup>41</sup> time but the rupture displacement date is unknown, and 3) inactive if they are consistently overlain by unbroken geologic material older than 35,000 years.
- A fault that has no indication of Quaternary activity is presumed to be inactive by DSOD, except in regions of sparse Quaternary cover.

There are no faults that fall into Alquist-Priolo Act or Division of Safety of Dams activity classifications within the Proposed Project study area.

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<sup>41</sup> Quaternary is the most recent geologic time period which includes the Pleistocene (ice ages) and the Holocene (post-ice ages) epochs.



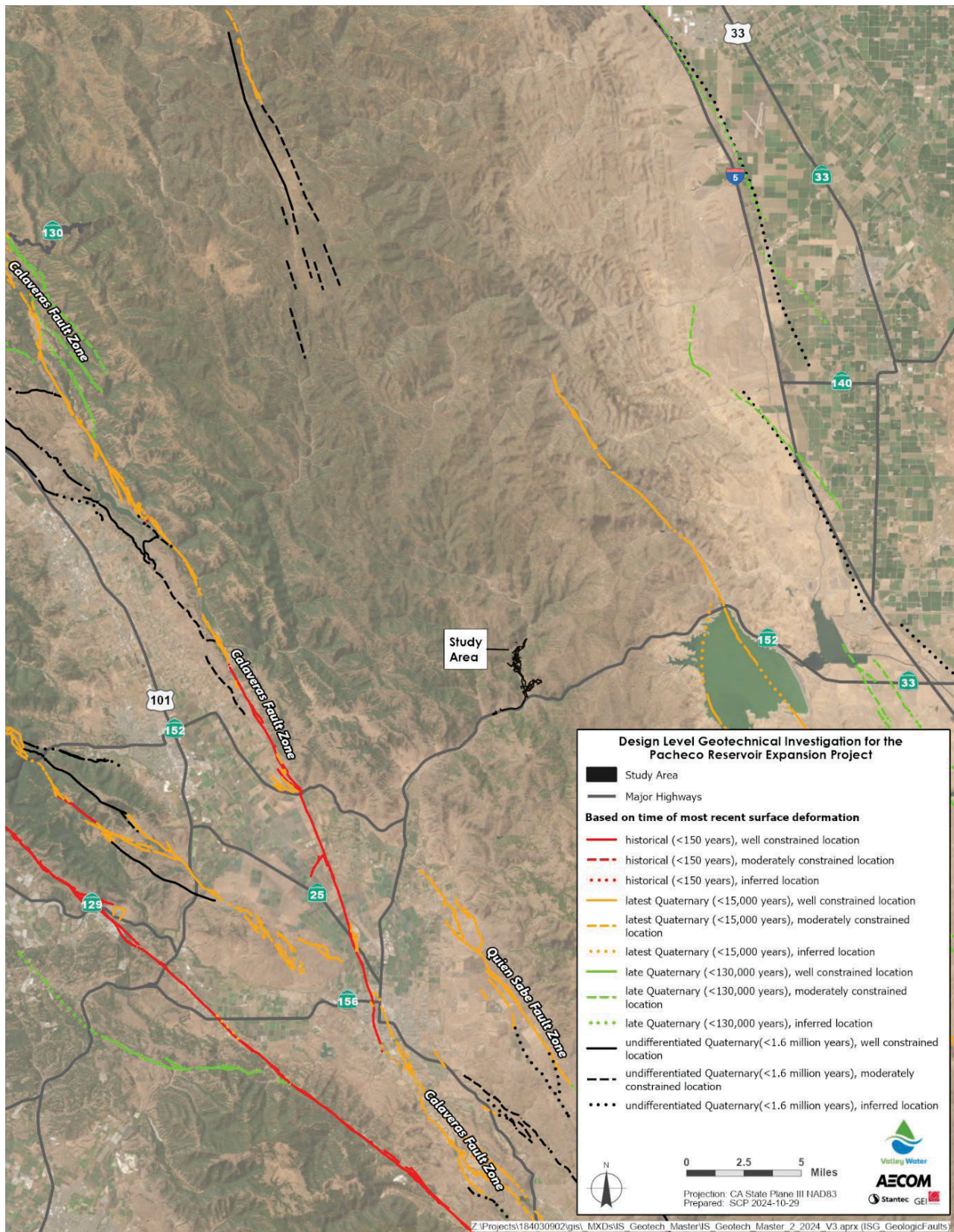


Figure 3.8-2. Regional Fault Locations



### ***Geologic Hazards***

Regionally, geologic hazards include rockfall, landslides, earth and debris flows, strong shaking, surface rupture, and secondary seismic effects from earthquakes, and seiches. Hillslopes within the Diablo Range have been subjected to a wide array of mass wasting events including various forms of landslides and large landslide complexes. Mass wasting events include rockfall and rock topple in bedrock, and rotational, translational, and slump landslides, debris slides and debris flows, and earthflows in soil and soil/rock mixtures. Landslides can be "nested" together to form large landslide complexes that have a combination of slope movement types. Slope instability is associated with low shear strength of the soil, steep slopes, increased soil moisture, and localized deeper weathering within rock. In many cases, the unstable slopes are found in the mélange material of the Franciscan Complex.<sup>42</sup> Earthquakes can produce surface rupture along an active fault and strong ground shaking that can produce secondary seismic effects such as liquefaction, lateral spreading, seismically induced landsliding, and waves on lakes and reservoirs known as seiches.

### ***Unique Geological Resources***

The Proposed Project study area is associated with an area generally referred to by geologists as Pacheco Pass. The Pacheco Pass area provides opportunities to the research community with respect to studying plate tectonics because of its physical evidence of tectonic plate activity (i.e., exhumed accretionary prisms of the eastern belt Franciscan Complex, mélange, Burnt Hills, and Yolla Bolly terranes). However, Franciscan Complex rocks are present throughout much of the Coast Ranges Geomorphic Province in California, so their occurrence throughout the region does not represent a unique occurrence. Many other parts of the Coast Ranges geomorphic province also display accretionary deposits. Therefore, there are no known unique geological resources within the Proposed Project study area.

## **Local Geologic Setting**

The geologic formations within the Proposed Project study area are presented in Figure 3.8-1 and include recent and Quaternary surface deposits and landslide features, Quien Sabe Volcanics,<sup>43</sup> the Franciscan Complex, and serpentinite of the Coast Ranges ophiolite. The Franciscan Complex eastern belt includes mélange and tectonic blocks of Yolla Bolly terrane (Dibblee and Minch 2007a and 2007b, Wentworth et al., 1999).

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<sup>42</sup> Mélange is a French word used by geologists to describe rocks that are mixed together and do not display organized sedimentary bedding or geologic contacts. Due to its inherent heterogeneity and internal shearing, mélange has low shear strength and hence is considered to be a source area for unstable slopes.

<sup>43</sup> Site -specific surface and subsurface geologic investigations conducted to-date within the Proposed Project study area have not confirmed volcanic rocks.





## ***Geologic Formations***

### Eastern Belt Franciscan Complex

The Franciscan rocks of the Hamilton structural block, unlike the volcanic-rich rocks of the central belt Franciscan Complex to the west, consist largely of metagraywacke with thin, locally preserved basal chert, and greenstone layers. The interleaved zones of Franciscan *mélange* are of equal importance in the block occurring as thin slices within the metagraywacke and as thicker slabs that separate the coherent units.

Two distinctive Franciscan terranes are present based on detailed mapping and age-dating studies. The *mélange* terrane (fm map symbol) consists largely of sheared shale *mélange* and arkosic metagraywacke,<sup>44</sup> whereas the Jurassic Yolla Bolly terrane (fy1 map symbol) consists largely of lithic, quartzofeldspathic metagraywacke.

In the Proposed Project study area, except for the erosionally resistant blueschist<sup>45</sup> rock blocks, the distribution of the various resistant blocks is generally random. The exposed blocks typically range from a few square feet to hundreds of square feet in size, with larger blocks of greenstone as large as several thousand square feet of exposed outcrop. Blueschist outcrops, in comparison, range in size from less than 100 square feet to more than 10,000 square feet with rock types that range from low-grade glaucophane schist<sup>46</sup> to garnet rich eclogites.<sup>47</sup> The *mélange* matrix's intensely sheared nature makes the Franciscan Complex *mélange* susceptible to unstable hillslopes.

### Coast Range Ophiolite

The Coast Range ophiolite formation includes isolated serpentinite outcrops that have been mapped in the North Fork Pacheco Creek watershed; however, extensive field surveys have not identified exposures of serpentinite on the surface or within areas subjected to subsurface investigations (e.g., exploratory borings and test pits) that have been performed by engineering geologists and geotechnical engineers within the Proposed Project study area (Valley Water 2021a and 2021b).

### Quaternary Geology

Colluvium, alluvium, and landslides are the common Quaternary<sup>48</sup> geologic units in the Proposed Project study area. River terraces, both bedrock strath and depositional terraces, are associated

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<sup>44</sup> Arkosic metagraywacke is a metamorphosed sandstone dominated by sand size material whereas lithic metagraywacke is dominated by sand size rock fragments (lithic). For the geologist this helps determine the depositional environment for these units.

<sup>45</sup> Blueschist is a metamorphic rock found in tectonic margins where subduction has occurred. These rocks, rich in iron and magnesium, are formed in a deeply subducted high pressure environment that is low in temperature.

<sup>46</sup> A blueschist rock with a high concentration of the mineral glaucophane.

<sup>47</sup> Eclogite is a metamorphic rock formed from igneous rocks rich in iron and magnesium. Eclogites form at higher pressures and temperatures than blueschist.

<sup>48</sup> Quaternary time is the most recent geologic time period and spans the last approximately 2.6 million years including the Pleistocene (ice ages) and Holocene (post-ice ages) epochs.



with North Fork Pacheco Creek and unnamed tributaries. Alluvial deposits are present along the North Fork and South Fork of Pacheco Creek and major tributaries. These units include alluvial fan deposits preserved on the older terraces adjacent to both the North Fork Pacheco Creek and South Fork Pacheco Creek channels within the Proposed Project study area. Colluvium is surficial soil that accumulates on the lower portion of a hill slope due to slow gravitational creep, as opposed to deposits moved by flowing water or by landsliding. Detailed landslide mapping indicates that the channel gradient of North Fork Pacheco Creek, and associated deposition of alluvial material (locally referred to as Turkey Flat) about two miles upstream from North Fork Dam, has been influenced periodically by landslides that dammed the creek for some period of time until sufficient stream power resulted in reestablishment of the channel through the affected reach (Valley Water 2021b).

### ***Geomorphology***

Most of the Proposed Project study area is within the North Fork of Pacheco Creek watershed. Several proposed activity areas (e.g., borings, access routes) are associated with floodplain (see Section 3.11 for a more detailed description of existing floodplain) and/or terrace features adjacent to this channel and South Fork Pacheco Creek while the majority of the Proposed Project activities are located on hillslopes and ridges above the stream channel. Fluvial and hillslope erosional and depositional processes dominate the geomorphic setting throughout the larger Pacheco Creek watershed. Hillslopes throughout the watershed have numerous landslides, many of which are inactive.

#### Fluvial Geomorphology

In general, the stream networks adjacent and directly tributary to North Fork Pacheco Creek (including the area directly draining into Pacheco Reservoir) and South Fork Pacheco Creek have steep gradients with dendritic drainage<sup>49</sup>reflecting the presence of the *mélange* rock units.<sup>50</sup>

#### Hillslope Geomorphology

The hillslope geomorphology within the Proposed Project study area is dominated by the dendritic drainage pattern in the watersheds that contribute water, sediment, and organic materials to Pacheco Reservoir and North Fork Pacheco Creek (including tributaries). As described above, most of the bedrock that underlies the watershed is *mélange* material that varies from mostly competent (hard) and erosion-resistant to not competent and susceptible to erosion. Generally, the more shaley and clayey *mélange* matrix has uniform surface erosion resistance that, when combined with the rugged topography and Mediterranean climate conditions, results in the

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<sup>49</sup> Dendritic drainage patterns develop in areas with rock units of similar erodibility and look like a branching pattern of hardwood tree leaf veins.

<sup>50</sup> When a watershed has one type of rock and similar topography (relief) that is drained by tributaries that flow into one mainstem stream channel, the resulting fluvial pattern is called dendritic because it appears like the veins in large hardwood leaves. The dominance of the *mélange* rock units controls the hill slope erosion mechanics in the Proposed Project study area.



dendritic drainage pattern. The more resistant metamorphic rock bodies within this weaker mélange matrix material tend to form topographically prominent knobs that extend up through the more easily eroded rocks.

## ***Geologic and Seismic Hazards***

### Landslide Hazards

Evidence of various types of mass wasting events (e.g., landslides, slumps, and earthflows) can be observed throughout the Proposed Project study area dating from millions of years old to as recently as the winter of 2023/2024. One of the key objectives of the Proposed Project as described in Chapter 2 is to better identify, characterize, and define these features for use in engineering siting, analysis, and design efforts. Many of these features are associated with Franciscan Complex Yolla Bolly sandstone, mélange, or blueschist rock units. Some of these bedrock failures are found where channel migration undercuts and over steepens the slopes. Rockfall deposits from these slopes are limited in extent and usually small in terms of both area and volume. Similarly, rock slumps and slides can be associated with slopes undercut by stream migration resulting in over steepened rock slopes. Steep slopes are also found in headscarps of historic landslide features.

The most common slope failures throughout the Proposed Project study area are associated with shallow weathered bedrock and soil materials. Deposits from these landslides include both rock and soil materials. These types of features are typically associated with conditions where intact sections of soil and weathered rock overlying more competent bedrock or previous landslide deposit of mixed soil and rock are disturbed in some manner (e.g., road cut, channel incision, heavy rains). Relative to the deeper landslides, the debris and earth slumps are typically shallow with small runouts. Landslide processes commonly initiate as debris slides or slumps that can transition to slow moving, complex debris/earth flows with long runouts. Earthflows of various ages and sizes are present in the Proposed Project study area and elsewhere throughout the North Fork Pacheco Creek watershed (Wentworth et al., 1999).

Valley Water's consultants (Valley Water 2021b) found that the spatial distribution of inactive landslide features along North Fork Pacheco Creek and larger tributaries within the Proposed Project study area indicates these landslides are a likely function of fluvial incision and the position of that incision relative to bedrock units and structure. These investigations also suggest that large landslide complexes throughout the Proposed Project study area are considered ancient and most likely initially active under wetter climatic conditions than the present. After review and detailed mapping, including hillshade relief maps generated by Light Detection and Ranging,<sup>51</sup> Valley Water's consultants interpreted that most large landslide complexes are comprised of numerous ancient landslides and a minority may be more recent. Determination of the age of historic

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<sup>51</sup> Light Detection and Ranging, an aerial method using radar in which vegetation can be "removed" by computer algorithms from the field data, thereby displaying "bare earth" topography from which landslides are easily inventoried.





movement for ancient landslides is difficult although Valley Water's consultants used several methods to increase the level of confidence in estimates of landslide age.<sup>52</sup> The older landslides, which are typically mapped as larger features, are less prominent than the younger landslides. These younger landslides have more "fresh features" than the older landslides due to their young age with less time to undergo erosional modification.

### Seismicity

The Proposed Project study area (Figure 3.8-2). The Proposed Project study area is between the Calaveras and Quien Sabe faults, approximately 11 miles west of North Fork Dam, and the Ortigalita fault, about 8 miles to the east of the dam. The portion of the Calaveras fault closest to North Fork Dam has been active historically (Figure 3.8-2). The Ortigalita and Quien Sabe faults are classified as latest Quaternary-active faults (USGS 2024). The historically active San Andreas Fault is approximately 20 miles southwest of North Fork Dam. These north-northwest trending faults control much of the regional geomorphology including creek drainage geometries, some landslide complex locations, and to varying degrees erosional processes.

Nine large historic earthquake events have occurred since 1838 that likely affected the Proposed Project study area. These events ranged in magnitude from 5.8 to 7.8. The largest of these events was the 1906 Great Earthquake of San Francisco with a magnitude of 7.8. There is no evidence that suggests that any physical impact has occurred to the North Fork Dam as a result of earthquakes since construction of the dam in 1939 (Valley Water 2021a).

### Surface Rupture and Seismic Shaking

There are no active faults mapped crossing the Proposed Project study area (Figure 3.8-2). Therefore, the potential for surface rupture to occur within the Proposed Project study area is considered to be extremely low. All active faults are located several miles to the west or east of the Proposed Project study area. The nearest active fault, the Ortigalita fault, is a right-lateral strike-slip fault within the San Andreas system that predominantly accommodates lateral movement between the North American and Pacific tectonic plates and is located about 8 miles from North Fork Dam and outside of the Proposed Project study area. Faults in general proximity to the Proposed Project study area that represent substantial potential seismic sources are presented Table 3.8-1.

Seismic shaking intensity, or strong ground motion, is dependent on the distance between an area and the earthquake epicenter, the earthquake magnitude, and the geologic conditions of the site. Faults in general proximity to the Proposed Project study area that have the potential for earthquakes that could generate the largest ground motions include the Calaveras, Quien Sabe, Ortigalita, and San Andreas strike-slip faults. Active blind and reverse thrust faulting outside of

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<sup>52</sup> Landslide age determination refers to the establishing the timing of the most recent movement of a landslide and can involve studying several methodologies, including soil development, stream course history, topography, soil geochemistry, and dendrochronology (of trees on the landslide mass).



the Proposed Project study area includes the Mount Diablo blind thrust fault, located northeast of the Proposed Project study area.

Traditionally, earthquakes have been classified by the amount of energy released, measured using the Richter scale. Seismologists, however, now use the Moment magnitude scale that provides a more accurate measurement of the size of major earthquakes. The Moment and Richter magnitude scales are nearly identical for earthquakes of less than 7.0. Moment magnitude scales are slightly greater than the corresponding Richter magnitude for earthquakes greater than 7.0.

**Table 3.8-1. Faults with Potential for Seismic Activity Near the Proposed Project Study Area**

Fault Name	Distance to Project Study Area (miles)	Estimated Maximum Earthquake Magnitude <sup>1,2</sup>	Approximate Fault Segment Length (miles) <sup>2</sup>	Average Recurrence Interval (years) <sup>3</sup>	Approximate Slip Rate (mm/year) <sup>2, 4</sup>
San Andreas (Peninsula)	20	7.3	62	229	17
San Andreas (North Coast South)	110	7.5	106	223	24
Calaveras (Northern)	11	6.9	30	187	6
Calaveras (Central)	16	6.9	32	54	15
Ortogonalita	8	7.2	63	Unknown	1.5
Quien Sabe	11	6.5	16	Unknown	0.4
Hayward (Southeast Extension)	25	7.2	48	Unknown	9.0

Source: (CGS 2003; USGS 2003)

Notes:

<sup>1</sup> Maximum Earthquake Magnitude – Moment Magnitude based on Magnitude-Area relationships of UCERF3.

<sup>2</sup> Fault parameters from the USGS (2023).

<sup>3</sup> Recurrence intervals from the USGS (2003).

<sup>4</sup> The slip rate of a fault is the average rate of fault movement (i.e., slip) during a certain period of time. A calculated slip rate incorporates movement over many individual earthquake events as well as slow aseismic creep, if occurring. It is simply a rate of total movement over a given time period.

Key: mm = millimeters

## Faults

During the initial Pacheco Reservoir Expansion Project design efforts, a technical investigation was conducted to evaluate faulting at locations within and adjacent to the Proposed Project study area (Valley Water 2021a). Findings from this work were:

- There are no historic, Holocene, or latest Quaternary active faults crossing the Proposed Project study area; the nearest active fault is about 8 miles away.
- Active faulting indicators are absent within the Proposed Project study area. These indicators that are absent include geologic, geomorphic, and seismologic features.
- North Fork Pacheco Creek stream terraces are reflective of normal fluvial activities absent of any Quaternary-aged faulting.
- Site-specific borehole and seismic refraction work at locations associated with construction of Project facilities support the absence of recent faulting.



### Liquefaction

Liquefaction is a geotechnical phenomenon in which saturated granular surficial sediments temporarily lose shear strength and become fluid-like during periods of strong earthquake ground shaking. The susceptibility of any site to liquefaction is a function of depth, density, particle size distribution, and water content of the surface deposits and the earthquake magnitude likely to affect the site. Soils most susceptible to liquefaction are saturated, unconsolidated granular sediments within 50 feet of the ground surface. Liquefaction hazards include vertical settlement from densification, lateral spreading, ground oscillation, flow failures, bearing strength loss, subsidence, and buoyancy effects.

Liquefaction is especially prone to alluvial sediments of Holocene (12,000 BC to 1850 AD) and Anthropocene (1850 AD to the present) age. These soils (i.e., loams) tend to be loose because they are geologically young. A small proportion of the Proposed Project study area has underlying alluvial soils high sand contents. Geologically young, loose sands can rapidly lose their shear strength during seismic shaking. This is the result of uplift forces caused by the shaking ending in liquefaction (Lambe and Whitman 1969). Geologically older soils, Pleistocene (2.5 million years to 12,000 BCE) age alluvial sediments, are generally non-liquefiable because they tend to be more consolidated than the younger sediments. The Holocene-Anthropocene aged alluvial sediment deposits found along the lower valley wall and floor adjacent to North Fork Pacheco Creek within the Proposed Project study area do not show evidence that liquefaction has occurred, nor is there any evidence that liquefaction has occurred in the past 80 years since Pacheco Reservoir was developed (Valley Water 2021a).

### Lateral Spreading

When lateral spreading occurs, large intact, non-liquified soil blocks move downslope on a liquified layer that is large in areal extent. As the mass moves downslope, it will move toward an unconfined area, such as a stream cut bluff or road cut. It can occur on very gentle slopes (i.e., one degree). Although these conditions may be present locally throughout the North Fork Pacheco Creek watershed, there is no evidence that this process has occurred within the Proposed Project study area (Valley Water 2021a).

### Seiches

Seiches are waves on bodies of standing water that are initiated by either earthquake shaking or large landslide deposits rapidly entering a water body. Seiches can adversely affect the built or natural environment adjacent to or downstream from the water body. Adverse effects can include damages to impoundment structures including dams. Due to the small size of the existing Pacheco Reservoir, the hazard from seiche activity is considered very low.

## **Soils**

There are eight soil units including series, complexes, and associations in the Proposed Project study area. The soil types were identified from the Soil Survey Geographic Database by the



National Cooperative Soil Survey from the U.S. Department of Agriculture, Natural Resources Conservation Service (NRCS 2021). A review of these eight soils units identified four soil units that are susceptible to erosion. Figure 3.8-3 illustrates the soil unit that underlies each activity area. There are no expansive soil units within the Proposed Project study area. The four soil units that are susceptible to erosion are all loams and are organized below as loam, clay loam, and gravelly loam:

- Loam
  - Vallecitos Loam: on 30 to 75 percent slopes
- Clay Loam
  - Gaviota Clay Loam: on 15 to 30 percent slopes; Major Land Resource Area 15
- Gravelly Loam
  - Argonaut Gravelly Loam: on 2 to 15 percent slopes
  - Red Bluff Gravelly Loam: on 0 to 3 percent slopes

## Unique Paleontological Resources and Geologic Features

### *Unique Paleontological Resources*

None of the geologic formations described in Section 3.8.1.2 that occur within the Proposed Project study area are known to contain fossils (Wakabayashi 2011, Wentworth et al., 1999, Ingersoll et al., 1999, and Ernst 1993 and 1965), and therefore no known paleontological resources are present.

### *Unique Geologic Features*

Geologists have recognized that the North Fork Pacheco Creek watershed and the area generally referred to as "Pacheco Pass" provides opportunities to the research community with respect to studying plate tectonics. The "exhumed"<sup>53</sup> accretionary prism<sup>54</sup> of the eastern belt Franciscan Complex (i.e., mélange, Burnt Hills and Yolla Bolly terranes) can be useful with respect to understanding plate tectonics. However, Franciscan Complex rocks are present throughout much of the Coast Ranges Geomorphic Province in California, so their occurrence throughout the watershed does not represent a unique occurrence. There are no known unique geologic features within or adjacent to the Proposed Project study area.

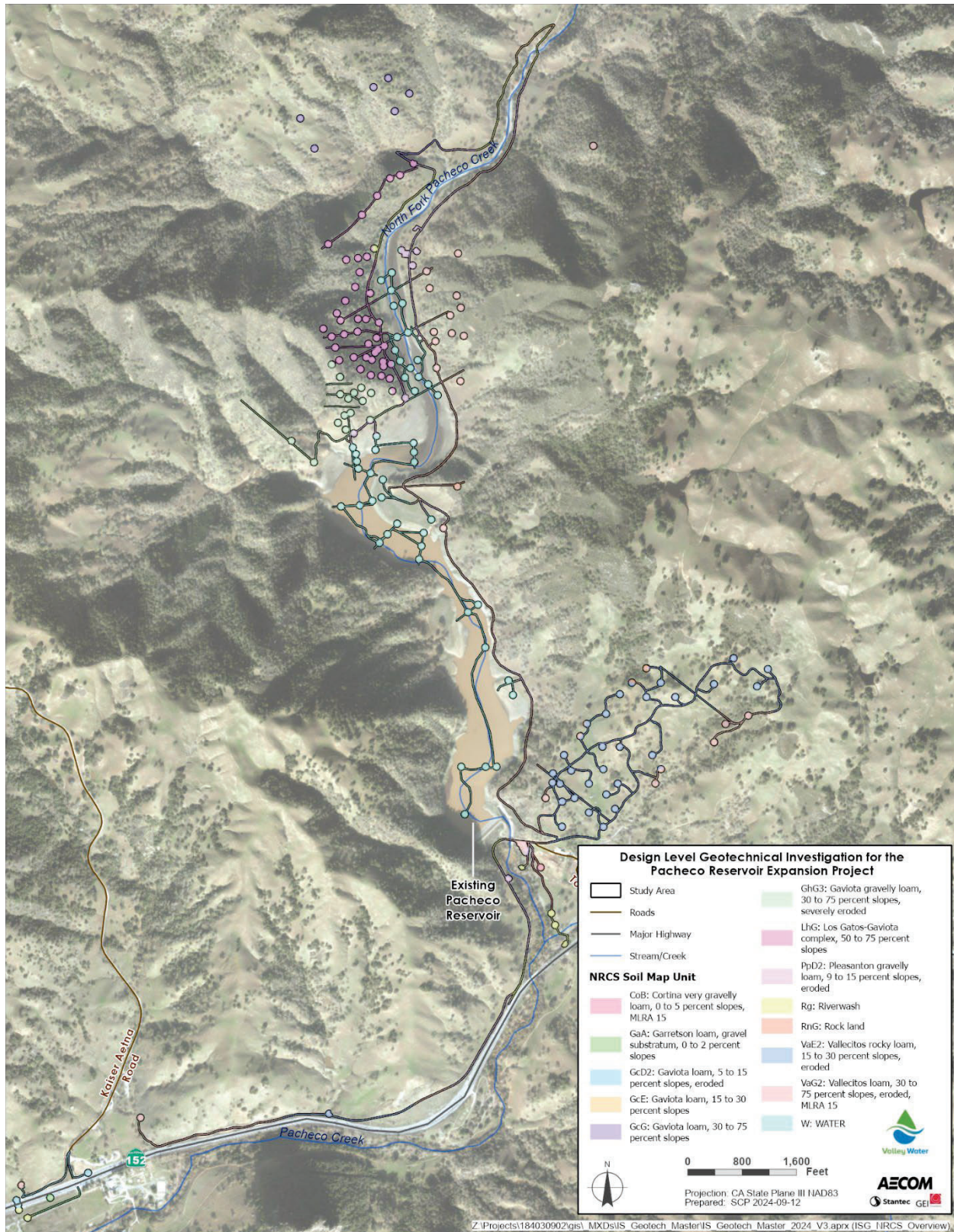
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<sup>53</sup> Exhumed in geology is the process in which an older geologic feature that was initially buried is uplifted and exposed through erosion.

<sup>54</sup> Accretionary prism in plate tectonics is the rock unit created where subduction occurs (one plate is pushed under a second plate) and geologic materials are scraped off of the subducting plate by the overriding plate. These materials accumulate in the downwarped zone where the two plates collide and are tightly folded. The mélange units found throughout the Franciscan Complex are accretionary prisms.







## **3.8.2 Regulatory Framework**

### **Federal Laws, Regulations, and Policies**

No federal laws, regulations, or policies related to geology and soils that apply to the Proposed Project.

### **State Laws, Regulations, and Policies**

#### ***Alquist-Priolo Earthquake Fault Zoning Map***

The Alquist-Priolo Earthquake Fault Zoning Act was passed in 1972 to mitigate the hazard of surface fault rupture to structures for human occupancy (CGS 2018). In accordance with the Alquist-Priolo Act, the State Geologist has established regulatory zones called Earthquake Fault Zones around the surface traces of active faults and has published maps showing these zones. No Earthquake Fault Zones are mapped on the Proposed Project study area. Also, the temporary, scientific nature of the Proposed Project would not result in the construction of any building that would be subject to human occupancy.

#### ***Seismic Hazards Mapping Act***

The Seismic Hazards Mapping Act was passed in 1990 following the Loma Prieta earthquake to reduce threats to public health and safety and to minimize property damage caused by earthquakes. This act requires the State Geologist to delineate Seismic Hazard Zones related to liquefaction and landsliding, and cities, counties, and other local permitting agencies are required to regulate certain development projects within these zones. Resources available for evaluating seismic hazard zones are available from the California Geological Survey (CGS 2004 and 2008). However, Seismic Hazard Zones have so far only been mapped in more urban developed areas of California and none have been mapped on the Pacheco Peak quadrangle, which includes the Proposed Project study area.

### **Regional and Local Laws, Regulations, and Policies**

#### ***Santa Clara County General Plan***

The Proposed Project as described in Chapter 2 of this EIR, would occur within unincorporated Santa Clara County and therefore be subject to the strategies and policies of the General Plan. The relevant goals, strategies, and policies related to sedimentation, erosion, and geologic hazards were considered in the development of the Proposed Project.

*Book A* in the General Plan (Santa Clara County 1994) describes the Goals for Responsible Resource Conservation, specifically Goal 5.1 related to protection and preservation of heritage resources, including paleontological resources. *Book B* in the General Plan (Santa Clara County 1994) in the Resource Conservation and the Safety and Noise chapters outlines the management of natural





hazards and resources pertaining to soil erosion and geologic hazards in unincorporated rural areas of the county.

General plan strategies and policies for erosion are included in the Resource Conservation chapter, Water Supply, Quality and Watershed Management section. Strategy #2 is to reduce water quality impacts to rural land use and development. Under that strategy, the plan includes the following policy:

**R-RC 13:** Sedimentation and erosion shall be minimized through controls over development, including grading, quarrying, vegetation removal, road and bridge construction, and other uses which pose such a threat to water quality.

General plan strategies and policy for geologic hazards are included in the Natural Hazard section of the Safety and Noise chapter. The General Plan's guiding principle related to geological hazards is that "no individual or public agency should be allowed to take actions which impose significant, demonstrable risks on neighboring properties or upon the community at large." Strategy #3 is to design, locate, and regulate development to avoid or withstand hazards. The policies related to geologic hazards includes:

**R-HS 14:** Critical structures and infrastructure vital to the public health, safety, and general welfare, such as water supply facilities, other utilities, police and fire stations, and communications facilities, shall not be located in areas subject to significant impacts from geologic or seismic hazards unless there is no feasible alternative site. Projects shall be designed to mitigate any seismic hazards associated with their sites.

**R-HS 19:** In areas of high potential for activation of landslides, there shall be no avoidable alteration of the land or hydrology which is likely to increase the hazard potential, including:

- a. saturation due to drainage or septic systems;
- b. removal of vegetative cover; and
- c. steepening of slopes or undercutting the base of a slope.

### ***Santa Clara County Grading Ordinance***

The proposed geotechnical investigations that are described in Chapter 2 of this Draft EIR are considered to be exempt from a grading permit, as stated in Sections C12-407(e) and (f) of the Santa Clara County Grading Ordinance.

Section C12-407(e), Geotechnical or geological investigations states:

*Excavations for soils or geological investigations by soils engineer or engineering geologist is exempt from a grading permit provided such work is backfilled, compacted to 90 percent and shaped to the original contour of the land under the direction of the soils engineer or engineering geologist immediately after the investigation, or within 45 days after the start of the work, whichever is sooner. Disturbed areas shall have adequate erosion prevention measures.*

Section C12-407(f), Temporary access states:



*Grading<sup>55</sup> necessary for the temporary access to a site for geotechnical engineering, geologic investigation, septic investigation, or the installation of temporary water tanks or story poles is not subject to a grading permit. This exemption shall allow up to 300 cubic yards of material on any site, and no cuts or fills shall create slopes greater than 5 feet in vertical depth at their deepest points measured from the natural ground surface or affect a watercourse. Written notice of the beginning of work shall be provided to the Grading Official at least 48 hours prior to the beginning of the work. Disturbed area shall have adequate erosion prevention measures.*

*Restoration shall include a keyway into the natural ground, backfill, compacted to 90 percent relative density, and shape to the original contour of the land under the direction of a soils engineer. Restoration work shall take place within 45 days after the start of the work, unless additional time is approved by the Grading Official, with the submittal of photo documentation, or other materials acceptable to the Grading Official, demonstrating completion of the restoration work.*

### **Santa Clara Valley Habitat Plan**

The Valley Habitat Plan identifies one applicable condition: Condition 3. Maintain Hydrologic Conditions and Protect Water Quality. It is discussed in Section 2.4 and fully described in Appendix C.

## **3.8.3 Environmental Impacts and Mitigation Measures**

The following sections discuss the methods and assumptions, criteria for determining the significance of impacts, environmental impacts, and mitigation measures if applicable.

### **Methods and Assumptions**

Potential physical impacts of the Proposed Project on geology, soils and unique paleontological and geological features were assessed with the aid of maps and technical reports (California Department of Natural Resources 1949, Ernst 1965 and 1993, Wentworth et al., 1999, Ingersoll et al., 1999, Dibblee and Minch 2007a and 2007b, and Wakabayashi 2011). Temporary impacts were evaluated qualitatively based on geotechnical investigation practices, locations and duration of investigations, and related activities. Due to the temporary nature of the Proposed Project, the Proposed Project would not result in any operational impacts.

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<sup>55</sup> The Proposed Project would not result in any grading of lands within the Proposed Project study area. Therefore, a grading permit would not be required.



### ***Applicable Conservation Measures***

Conservation measures applicable to geology and soils are listed below. Section 2.4 provides a full description of each BMP and VHP AMM.

- BMP WQ-4: Limit Impacts from Staging and Stockpiling Materials.
- BMP WQ-9: Use Seeding for Erosion Control, Weed Suppression, and Site Improvement.
- BMP WQ-11: Maintain Clean Conditions at Work Sites.
- BMP WQ-15: Prevent Water Pollution.
- BMP WQ-16: Prevent Stormwater Pollution.
- VHP AMM-21: To the extent that stream bed design changes are not part of the project, the stream bed will be returned to as close to pre-project condition as appropriate.
- VHP AMM-61: Minimize ground disturbance to the smallest area feasible
- VHP AMM-63: Prepare and implement sediment erosion control plans.
- VHP AMM-65: Control exposed soil by stabilizing slopes (e.g., with erosion control blankets) and protecting channels (e.g., using silt fences or straw wattles).
- VHP AMM-73: Avoid wet season construction.
- VHP AMM 84: Appropriate erosion control measures (e.g., fiber rolls, filter fences, vegetative buffer strips) will be used on site to reduce siltation and runoff of contaminants into wetlands, ponds, streams, or riparian vegetation.
- VHP AMM 85: Seed mixtures applied for erosion control will not contain invasive nonnative species and will be composed of native species or sterile nonnative species. If sterile nonnative species are used for temporary erosion control, native seed mixtures must be used in subsequent treatments to provide long-term erosion control and slow colonization by invasive nonnatives.
- VHP AMM 86: Topsoil removed during soil excavation will be preserved and used as topsoil during revegetation when it is necessary to conserve the natural seed bank and aid in revegetation of the site.
- VHP AMM 88: Vehicles and equipment will be parked on pavement, existing roads, and previously disturbed areas.
- VHP AMM 96: Isolate the construction area from flowing water until project materials are installed and erosion protection is in place.
- VHP AMM 97: Erosion control measures shall be in place at all times during construction. Do not start construction until all temporary control devices (straw bales, silt fences, etc.) are in place downstream of project site.



- VHP AMM 102: Immediately after project completion and before close of seasonal work window, stabilize all exposed soil with mulch, seeding, and/or placement of erosion control blankets.

These measures will be incorporated into the geotechnical investigation work plans, and all geotechnical contractors employed on the Proposed Project will be required to adhere to them. As such, they are considered part of the Proposed Project for purposes of analysis in this EIR.

## **Criteria for Determining Significance of Impacts**

Significance criteria are based on CEQA Guidelines Appendix G. Implementation of the Proposed Project would have significant impacts on geology and soils resources if it were to:

- Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:
  - Rupture of a known earthquake fault as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault,
  - Strong seismic ground shaking,
  - Seismic-related ground failure, including liquefaction, or landslides,
- Result in substantial soil erosion or loss of topsoil,
- Be located on a geologic unit or soil that is unstable, or that would become unstable as the result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse,
- Be located on expansive soil, as defined in Table 18-1-B of the Uniformed Building Code (1994), creating substantial direct or indirect risks to life or property,
- Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater, or
- Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.



## Environmental Impacts

### ***Impact GEO-1***

***Would the project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:***

- i. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault?**

Surface rupture occurs when the ground surface is broken due to fault movement during an earthquake. The location of surface rupture generally can be assumed to be along an active or potentially active major fault trace. There are no active earthquake faults mapped in the Proposed Project study area. As illustrated in Figure 3.8-2, the Proposed Project study area is located between the Calaveras and Quien Sabe faults, approximately 11 miles west of the Proposed Project study area, and the Ortigalita Fault, about 8 miles to the east of the Proposed Project study area. Segments of the Calaveras and Quien Sabe faults are historically active, whereas other segments display Holocene activity. The Ortigalita Fault is a latest Quaternary-active fault. The historically active Peninsula segment of the San Andreas Fault is approximately 20 miles west of the Proposed Project study area (Figure 3.8-2).

The Assessment of Local and Site-Specific Faulting for the Pacheco Reservoir Expansion Project (Valley Water 2021a) concluded the following:

- There are no historic, Holocene, or latest Quaternary active faults crossing the Proposed Project study area; the nearest mapped fault is about 8 miles away.
- Active faulting indicators are absent within the Proposed Project study area. These indicators include geologic, geomorphic, and seismologic features.
- North Fork Pacheco Creek stream terraces are reflective of normal fluvial activities absent of any Quaternary-aged faulting.
- Site-specific borehole and seismic refraction work at locations associated with construction of Project facilities support the absence of recent faulting.

Therefore, the Proposed Project would not directly or indirectly cause potential substantial adverse impacts, including the risk of loss, injury, or death involving rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Maps. **No impact** would occur. No mitigation is required.

- ii. Strong seismic ground shaking?**

The major faults in the region that could cause strong ground shaking within the Proposed Project study area during large earthquakes include the San Andreas, Hayward, and Calaveras, and Ortigalita faults, which are located about 20 miles, 28 miles, 11 miles, and 8 miles from the Proposed Project study area, respectively. In addition, there are no Quaternary-aged or younger faults crossing the Proposed Project study area, and active faulting indicators are absent within



the Proposed Project study area (Valley Water 2021a). Although, seismic ground shaking has the potential to occur within the Proposed Project study area, the proposed geotechnical investigations would not exacerbate the risk of seismic activity or cause potential substantial adverse effects, including the risk of loss, injury, or death involving seismic ground shaking. Therefore, **no impact** would occur. No mitigation is required.

### iii. Seismic-related ground failure, including liquefaction?

The phenomenon in which saturated granular sediments temporarily lose shear strength and become fluid-like during periods of strong earthquake ground shaking is called “liquefaction.” The site susceptibility to liquefaction is a function of depth, density and water content of the sediments, and the earthquake magnitude likely to affect the site. The surficial deposits most susceptible to liquefaction are the saturated, unconsolidated granular sediments within 50 feet of the ground surface.

The young alluvial sediment deposits found along the lower valley floor adjacent to North Fork Pacheco Creek within the Proposed Project study area could be susceptible to liquefaction if saturated during a strong shaking event. Although seismic-related ground failure, including liquefaction, has the potential to occur within the Proposed Project study area, the proposed geotechnical investigations would not exacerbate the risk of seismic activity or cause potential substantial adverse effects, including the risk of loss, injury, or death involving seismic-related ground failure, including liquefaction. Therefore, **no impact** would occur as a result of seismic-related ground failure, including liquefaction, from implementation of the Proposed Project. No mitigation is required.

### iv. Landslides?

The Proposed Project study area has been the subject of initial geotechnical engineering investigation work to assist in the selection of dam sites and inform the engineering and environmental processes related to PREP. The geotechnical and engineering investigations (AECOM 2020 and 2021) identified where landslides have occurred at the proposed new dam site and within the expanded reservoir. Implementation of the proposed surface and subsurface geotechnical investigations would not result in any changes to the slopes, drainage, or groundwater characteristics that influence the stability of these landslide features. Therefore, the Proposed Project would not cause potential substantial adverse effects, including the risk of loss, injury, or death involving landslides and **no impact** would occur. No mitigation is required.

## **Impact GEO-2**

### ***Would the project result in substantial soil erosion or loss of topsoil?***

Up to 119 initial geotechnical borings, 30 supplemental geotechnical borings, and 32 test pits are proposed under the Proposed Project. The geotechnical borings would require the placement of temporary drilling platforms at 46 planned locations and up to 18 supplemental locations to allow for helicopter mobilization of portable drills and equipment and supplies onto the hillslopes of the Proposed Project study area. Although surface geophysical surveys would be conducted (e.g., seismic refraction and electrical resistivity) at a number of locations, these temporary activities





would not result in substantial ground disturbance. All geotechnical investigations would occur during the dry season consistent with VHP AMM-73. Soil disturbance associated with each of the geotechnical borings would include an area of approximately 4 square feet. Each of the proposed 32 test pits would temporarily impact an average area of approximately 400 square feet. Hand contouring associated with each drilling platform location would result in minor, temporary ground disturbance of approximately 30 square feet ( $\frac{1}{2}$  cubic yard of soil) and would be completed with hand tools (e.g., shovel). Collectively, the temporary disturbance area of approximately 4 square feet for each proposed bore site would occur from geotechnical borings (0.01 acre), 12,600 square feet (0.29 acre) of temporary disturbance for the 32 proposed test pits, and 14,400 square feet (0.33 acre) of temporary disturbance for the 64 proposed drilling platforms. The Proposed Project also includes the implementation of the BMPs listed in Table 2-6. These include BMP WQ-4, which requires the protection of on-site vegetation and water quality, staging areas for equipment and materials must be located on disturbed, compacted surfaces, with all materials contained to prevent runoff and spills into waterways, and proper erosion controls implemented during both wet and dry season; BMP WQ-9, which requires that disturbed areas are seeded with native seed as soon as is appropriate after activities are complete; BMP WQ-11, which requires that the work sites and access roads are maintained in an orderly condition; BMP WQ-15, which requires oily, greasy, or sediment laden substances or other material that originates from Project operations to not be allowed to enter or be placed where it may enter a waterway; and BMP WQ-16, which requires that measures be implemented to prevent storm water pollution, including seeding and stabilizing soils exposed during project activities using hydroseeding, straw placement, mulching, and/or erosion control fabric. Implementation of these BMPs would avoid adverse impacts associated with soil erosion and loss of topsoil. Many of these BMPs are also similar to the VHP AMMs and Conditions associated with the Valley Habitat Plan described in Section 2.4. In addition, twelve VHP AMMs would be applicable to avoid or minimize impacts to soil resources resulting from erosional processes. These VHP AMMs are: 21, 61, 63, 65, 73, 84, 85, 86, 88, 96, 97, and 102, as listed in Table 2-8. As applicable, measures including minimizing ground disturbance, controlling exposed soil by stabilizing slopes and avoiding wet season construction would reduce the potential for soil erosion throughout the Proposed Project study area. Therefore, the Proposed Project would result in a **less than significant** impact on soil erosion and the loss of topsoil. No mitigation is required

### ***Impact GEO-3***

***Would the project be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?***

The Proposed Project study area has been the subject of extensive geotechnical engineering investigation work to assist in the selection of the potential dam sites and support the design and construction of the new dam for the Pacheco Reservoir Expansion Project (DWR 2018). The geotechnical and engineering investigations (i.e., Valley Water 2021a, Valley Water 2021b) included the identification of where landslides may occur as a result of construction associated



with a new dam, appurtenant works, or within an expanded reservoir. Although there are identified ancient inactive landslides and more recently active landslides within the Proposed Project study area near the existing Pacheco Reservoir, the proposed geotechnical investigations would not result in changes to the slopes, drainage or groundwater characteristics that influence the stability of these inactive or historic landslide features. Therefore, **no impact** associated with on- or off-site landslides, lateral spreading, subsidence, liquefaction or collapse would occur from implementation of the Proposed Project. No mitigation is required.

***Impact GEO-4***

***Would the project be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?***

Expansive soils expand and contract with changes in water content. Expansive soils swell upon wetting and shrink upon drying. During these cycles, the volume of the soil changes markedly. Expansive soils are common throughout California and can cause damage to structures unless the soils are properly treated or unless appropriate foundation design measures are incorporated during construction. According to the previous discussion under Section 3.8.1.3, no expansive soils are known to occur within the Proposed Project study area. In addition, the Proposed Project would not require the construction of any permanent structures. Therefore, **no impact** associated with expansive soils would occur. No mitigation is required.

***Impact GEO-5***

***Would the project have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?***

The Proposed Project does not include the installation of septic tanks or alternative wastewater disposal systems. Therefore, the Proposed Project would not result in soils incapable of adequately supporting the use of septic tanks or other wastewater disposal systems and would result in **no impact** from the Proposed Project. No mitigation is required.

It should be noted that although no septic tanks or other wastewater disposal systems would be installed as part of the Proposed Project, as described in Section 3.16, temporary portable sanitation stations would be available to project personnel at several locations throughout the Proposed Project study area.

***Impact GEO-6***

***Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?***

The Proposed Project study area is not known to contain paleontological resources. The exposed sedimentary rock outcrops have undergone metamorphism including those underlying the Proposed Project study area and none of the geologic formations mapped within the Proposed Project study area are considered fossiliferous (Wakabayashi 2011, Wentworth et al., 1999, Ingersoll et al., 1999, and Ernst 1993 and 1965). For the reasons stated above, implementation of



the Proposed Project would likely not result in the destruction of a paleontological or unique geologic resource, and impacts would be **less than significant**. No mitigation is required.

## Mitigation Measures

No mitigation measures are required.

## 3.9 Greenhouse Gas Emissions

### 3.9.1 Environmental Setting

#### Greenhouse Gas Emissions and Climate Change

##### *The Physical Scientific Basis of Greenhouse Gas Emissions and Climate Change*

Certain gases in the earth's atmosphere, classified as GHGs, play a critical role in determining the earth's surface temperature. Solar radiation enters the atmosphere from space. A portion of the radiation is absorbed by the earth's surface, and a smaller portion of this radiation is reflected toward space. The absorbed radiation is then emitted from the earth as low-frequency infrared radiation. Most solar radiation passes through GHGs; however, infrared radiation is absorbed by these gases. As a result, radiation that otherwise would have escaped back into space is instead "trapped," resulting in a warming of the atmosphere. This phenomenon, known as the greenhouse effect, is responsible for maintaining a habitable climate on earth.

Prominent GHGs contributing to the greenhouse effect are CO<sub>2</sub>, methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. Human-caused emissions of these GHGs in excess of natural ambient concentrations are found to be responsible for intensifying the greenhouse effect and leading to a trend of unnatural warming of the earth's climate, known as global climate change or global warming. It is "extremely likely" that more than half of the observed increase in global average surface temperature from 1951 to 2010 was caused by the anthropogenic increase in GHG concentrations and other anthropogenic forcing (IPCC 2014).

Whereas most pollutants with localized air quality effects have relatively short atmospheric lifetimes (approximately one day), GHGs have long atmospheric lifetimes (one year to several thousand years). GHGs persist in the atmosphere long enough to be dispersed around the globe. Although the lifetime of any GHG molecule depends on multiple variables and cannot be determined with any certainty, it is understood that more CO<sub>2</sub> is emitted into the atmosphere than is sequestered by ocean uptake, vegetation, and other forms of sequestration. The quantity of GHGs in the atmosphere responsible for climate change is not precisely known, but it is considered to be enormous. No single project alone would measurably contribute to an incremental change



in the global average temperature or to global or local climates or microclimates. From the standpoint of CEQA, GHG impacts relative to global climate change are inherently cumulative.

### ***Greenhouse Gas Emissions Sources and Sinks***

Emissions of CO<sub>2</sub> are byproducts of fossil fuel combustion. CH<sub>4</sub>, a highly potent GHG, primarily results from off-gassing (the release of chemicals from nonmetallic substances under ambient or greater pressure conditions) and is largely associated with agricultural practices, landfills, and forest fires. N<sub>2</sub>O is also largely attributable to agricultural practices and soil management. CO<sub>2</sub> sinks, or reservoirs, include vegetation and the ocean, which absorb CO<sub>2</sub> through sequestration and dissolution (CO<sub>2</sub> dissolving into the water) and are two of the most common processes for removing CO<sub>2</sub> from the atmosphere.

### ***Effects of Climate Change on the Environment***

According to the Intergovernmental Panel on Climate Change, which was established in 1988 by the World Meteorological Organization and the United Nations Environment Programme, global average temperature will increase by 3.7 to 4.8 degrees Celsius (°C) (6.7 to 8.6°F) by the end of the century unless additional efforts to reduce GHG emissions are made (IPCC 2014:10). According to *California's Fourth Climate Change Assessment*, with global GHGs reduced at a moderate rate, California will experience average daily high temperatures that are warmer than the historic average by 2.5°F from 2006 to 2039, by 4.4°F from 2040 to 2069, and by 5.6°F from 2070 to 2100. If GHG emissions continue at current rates, then California will experience average daily high temperatures that are warmer than the historic average by 2.7°F from 2006 to 2039, by 5.8°F from 2040 to 2069, and by 8.8°F from 2070 to 2100 (OPR et al., 2018).

As temperatures increase, the amount of precipitation falling as rain rather than snow also increases, which could lead to increased flooding because water that would normally be held in the snowpack of the Sierra Nevada and Cascade Range until spring would flow into the Central Valley during winter rainstorm events. This scenario would place more pressure on California's levee/flood control system (CNRA 2018). Furthermore, the sea level along California's coastline is expected to rise 54 inches by 2100 if GHG emissions continue at current rates (OPR et al. 2018). Changes in temperature, precipitation patterns, extreme weather events, wildfires, and sea-level rise have the potential to threaten transportation and energy infrastructure, crop production, forests and rangelands, and public health (CNRA 2018; OPR et al. 2018). The effects of climate change will also have an indirect adverse impact on the economy as more severe natural disasters cause expensive physical damage to communities and the state.



## 3.9.2 Regulatory Framework

### Federal Laws, Regulations, and Policies

#### *Supreme Court Ruling*

In *Massachusetts v. Environmental Protection Agency*, 549 U.S. 497 (2007), the Supreme Court of the United States ruled that CO<sub>2</sub> is an air pollutant as defined under the federal CAA and that the EPA has the authority to regulate GHG emissions. In 2010, the EPA started to address GHG emissions from stationary sources through its New Source Review permitting program, including operating permits for “major sources” issued under Title V of the CAA.

### State Laws, Regulations, and Policies

Plans, policies, regulations, and laws established by the state agencies are generally presented in the order they were established.

#### *Statewide GHG Emission Targets and Climate Change Scoping Plan*

Reducing GHG emissions in California has been the focus of the state government for approximately two decades. GHG emission targets established by the state legislature include reducing statewide GHG emissions to 1990 levels by 2020 (AB 32 of 2006) and reducing emissions to 40 percent below 1990 levels by 2030 (SB 32 of 2016). Executive Order S-3-05 calls for statewide GHG emissions to be reduced to 80 percent below 1990 levels by 2050. This target was superseded by AB 1279, which codifies a goal for carbon neutrality and to reduce emissions by 85 percent below 1990 levels by 2045. These targets are in line with the scientifically established levels needed in the United States to limit the rise in global temperature to no more than 2 degrees Celsius, the warming threshold at which major climate disruptions, such as super droughts and rising sea levels, are projected; these targets also pursue efforts to limit the temperature increase even further to 1.5 degrees Celsius (United Nations 2015).

The California Air Resources Board adopted the *Final 2022 Scoping Plan for Achieving Carbon Neutrality* (2022 Scoping Plan) on December 16, 2022, which outlines the state’s pathway to achieve its carbon neutrality and an 85 percent reduction in 1990 emissions goal by 2045. It identifies the reductions needed by each GHG emission sector (e.g., transportation (including off-road mobile source emissions), industry, electricity generation, agriculture, commercial and residential, pollutants with high global warming potential, and recycling and waste) to achieve these goals.

The state has also passed more detailed legislation addressing GHG emissions associated with transportation, electricity generation, and energy consumption, however, these policies do not relate to the Proposed Project and are not discussed further.



## Regional and Local Laws, Regulations, and Policies

### *Bay Area Air Quality Management District*

The BAAQMD 2017 Clean Air Plan defines a vision for achieving the ambitious GHG reduction targets for 2030 and 2050 and provides a regional climate protection strategy for the Bay Area to achieve the GHG reduction targets. The 2017 Clean Air Plan includes 85 source control measures, many of which are only applicable for regional or government implementation to typical land use development projects.

In 2023, BAAQMD adopted its 2022 CEQA Guidelines (BAAQMD 2022 CEQA Guidelines), which updated and superseded prior BAAQMD 2017 CEQA Guidelines. (BAAQMD 2023). The BAAQMD 2022 CEQA Guidelines provide recommended procedures for evaluating air quality and climate impacts in CEQA documents. The BAAQMD 2022 CEQA Guidelines recommend GHG thresholds of significance for land use plans and projects, but do not recommend GHG thresholds of significance directly relevant to the Proposed Project (i.e., for short-term geotechnical investigation activities). However, BAAQMD does recommend that the lead agency quantify and disclose GHG emissions that would occur during short-term GHG-generating activities. Further, the BAAQMD has established a list of recommended GHG best management practices to address short-term GHG emissions associated with projects. The list provided by BAAQMD is not exhaustive or necessarily applicable to all projects; rather, it provides a set of practices that BAAQMD recommends projects incorporate, representing a good-faith effort to reduce GHG emissions from all project emissions sources. For a complete list of the recommended GHG measures and the ones determined to be applicable to the project, see Appendix D.

### *County of Santa Clara*

#### Santa Clara County General Plan

The General Plan, 1995-2010, was first adopted in 1994 and was updated in 2015 to include the Health and Environmental Justice Update, which includes the Health Element of the General Plan. The Health Element includes several strategies and accompanying policies relating to GHGs. The strategies and policies applicable to the project include the following:

**Strategy #1:** Strive for air quality improvement through regional and local land use, transportation, and air quality planning.

**Policy HE-G.1 Air quality environmental review.** Continue to utilize and comply with the Air District's project- and plan-level thresholds of significance for air pollutants and greenhouse gas emissions.

**Policy HE-G.3 Fleet upgrades.** Promote Air District mobile source measures to reduce emissions by accelerating the replacement of older, dirtier vehicles and equipment, and by expanding the use of zero emission and plug-in vehicles.





**Policy HE-G.4 Off-road sources.** Encourage mobile source emission reduction from off-road equipment such as construction, farming, lawn and garden, and recreational vehicles by retrofitting, retiring and replacing equipment and by using alternate fuel vehicles.

#### County of Santa Clara Community Climate Roadmap 2035

The County of Santa Clara has embarked on the development of a regional roadmap to accelerate efforts to reduce GHG emissions from community activities and help contribute to GHG reduction on a statewide and national scale. The County of Santa Clara Community Climate Roadmap 2035 (Roadmap) was publicly released in the summer of 2024 and is currently anticipated to be adopted in early 2025. The Roadmap aims to achieve carbon neutrality by 2035 by addressing emissions sectors of waste, energy, transportation, and carbon sequestration (County of Santa Clara, 2024)

#### ***Santa Clara Valley Water District***

#### Santa Clara Valley Water District Climate Change Action Plan

Valley Water finalized its CCAP (Valley Water 2021) in July 2021. This plan builds on Valley Water's climate change response efforts and presents goals and strategies to continue and expand these efforts. The CCAP is both a plan to reduce GHG emissions and provide a framework to ensure a safe and resilient water supply in the future. It also provides a comprehensive guide to Valley Water's current and future climate change mitigation and adaptation efforts.

The CCAP contains the following goals and strategies relevant to GHG emissions:

#### **Goal 1: Reduce Direct GHG Emissions (Scope 1)**

- Strategy: Reduce GHG emissions associated with Valley Water fleet.
- Strategy: Reduce GHG emissions from trips between Valley Water offices and work sites.
- Strategy: Reduce GHG emissions associated with Valley Water-owned equipment.
- Strategy: Minimize GHG emissions associated with planning, design, construction, operation, and maintenance of capital projects.

Valley Water is currently in the process of updating their CCAP to include an updated GHG emissions inventory and GHG reduction strategies to align with current State-mandated GHG reduction goals (i.e., carbon neutrality by 2045); however, at the time of this Draft EIR preparation, Valley Water's GHG Reduction Plan (GHGRP) has not been publicly released or adopted.

### **3.9.3 Environmental Impacts and Mitigation Measures**

The following sections discuss the methods and assumptions, criteria for determining the significance of impacts, environmental impacts, and mitigation measures if applicable.



## Methods and Assumptions

Emissions associated with geotechnical investigations would result from the use of heavy-duty equipment (e.g., drill rigs), other off-road vehicles (e.g., water trucks, fuel trucks, ATVs), on-road vehicle (e.g., crew transport), and the use of boats and a helicopter. Using the same methods described above in Section 3.4, emissions factors for CO<sub>2</sub>, CH<sub>4</sub>, and N<sub>2</sub>O were derived from CalEEMod's Appendix G for offroad equipment and EMFAC 2021 for onroad equipment. Activity use data was applied to the emissions factors and based on the anticipated annual work schedule, total emissions of carbon dioxide equivalent (CO<sub>2</sub>e) per year were calculated. Refer to Section 3.4 Air Quality for more specific quantification methods and Appendix D for all model inputs and outputs. CO<sub>2</sub>e, or carbon dioxide equivalent, is a metric used to compare the emissions of different greenhouse gases based on their global warming potential. It expresses the impact of these gases in terms of the amount of CO<sub>2</sub> that would have the same warming effect over a specific timeframe, typically 100 years, and allows for a standardized way to assess and communicate the overall impact of various greenhouse gases on climate change.

### *Applicable Conservation Measures*

Valley Water has incorporated the BAAQMD BMP into the Proposed Project to avoid or reduce GHG emissions (see Section 2.4.5).

## Criteria for Determining Significance of Impacts

Significance criteria are based on CEQA Guidelines Appendix G. Implementation of the Proposed Project would have a significant impact on the environment if it were to:

- Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment, or
- Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

BAAQMD has developed qualitative thresholds to assess land use development projects' cumulative contribution to climate change. BAAQMD's thresholds are structured to provide projects with two options to demonstrate consistency with the goal of carbon neutrality by 2045: (a) incorporation of certain project design elements (e.g., no natural gas infrastructure, electric vehicle charging infrastructure above code requirements) and (b) incorporation of relevant GHG reduction measures from a qualified Climate Action Plan. The Proposed Project is not a land use development project and would have no operational emissions. Therefore, BAAQMD's option (a) to incorporate certain project design elements is not appropriate for this project. Moreover, as noted above, "Regulatory Setting," Valley Water is currently in the process of preparing a GHGRP to address current State GHG reduction goals therefore, BAAQMD's option (b) of demonstrating CAP consistency is not appropriate for the project's GHG emissions. Therefore, BAAQMD's operational thresholds are not applied in this analysis.



While BAAQMD does not have a recommended numerical threshold for evaluating emissions associated with the Proposed Project, a nearby air district, the Sacramento Metropolitan Air Quality Management District (SMAQMD) has developed a quantitative screening level for assessing short-term project-generated emissions. SMAQMD supports the use of a 1,100 metric tons of carbon dioxide equivalent (MTCO<sub>2</sub>e)/year screening level for all short-term temporary GHG emissions, based on substantial evidence (SMAQMD 2021). Therefore, this EIR uses 1,100 MTCO<sub>2</sub>e/year as a threshold to determine whether the project's GHG emissions would cause a significant environmental impact.

Regarding the second criteria for determining whether the Proposed Project would have significant impacts on greenhouse gas emissions, although Valley Water's 2021 CCAP was not specifically designed to account for emissions associated with project types like the Proposed Project or with current GHG reduction targets in mind, it is an adopted GHG reduction plan, and the project can be evaluated in light of this plan to ensure consistency. Further, the 2022 Scoping Plan is the current plan that lays out the State's strategy for achieving its GHG reduction targets in future years. Thus, the project would have a significant GHG impact if GHG emissions would directly or indirectly conflict with the 2022 Scoping Plan or Valley Water's CCAP. The analysis also considers whether the Proposed Project would conflict with the County of Santa Clara General Plan and Roadmap, described above.

## Environmental Impacts

### ***Impact GHG-1***

***Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?***

Implementation of the Proposed Project would generate GHG emissions from the combustion of fossil fuel used to power heavy-duty equipment; transport material, equipment, and workers; and power other equipment such as a helicopter, barge/boats, pumps, and chainsaws. Table 3.9-1 details the GHG emissions that would occur from various sources during the approximately eight-working-month period that Proposed Project activities would take place. See Appendix D for detailed summary of modeling inputs and outputs. Once completed, the Proposed Project would not have any resultant or long-term activities or facilities that would generate GHG emissions.

As shown, use of equipment for geotechnical investigations would result in total emissions of 951 MTCO<sub>2</sub>e, with 505 MTCO<sub>2</sub>e in 2025 and 445 MTCO<sub>2</sub>e in 2026. As previously discussed, BAAQMD has not developed a quantitative GHG emission threshold for short-term GHG emissions. However, other air districts in California have, including nearby SMAQMD, which has adopted a GHG emission threshold for short-term GHG emissions of 1,100 MTCO<sub>2</sub>e/year. Project-generated emissions would not exceed the 1,100 MTCO<sub>2</sub>e/year screening level established by SMAQMD, during any year of investigation activities.



**Table 3.9-1. Equipment Related Emissions of Greenhouse Gases**

Emission Source	Greenhouse Gas Emissions MTCO <sub>2</sub> e (Total)
<b>2025 Investigations</b>	
Heavy-Duty Equipment	156
Mobile Sources	31
Helicopter	317
Boat/Barge	1
<b>2025 Total</b>	<b>505</b>
<b>2026 Investigations</b>	
Heavy-Duty Equipment	138
Mobile Sources	27
Helicopter	279
Boat/Barge	1
<b>2026 Total</b>	<b>445</b>
<b>Project Total</b>	<b>950</b>

Source: Modeling performed by Ascent Environmental in 2023.

Notes: MTCO<sub>2</sub>e = metric tons of carbon dioxide equivalent; totals may not equal due to rounding.

Further, as described in Chapter 2 of this Draft EIR, Valley Water has incorporated all of the applicable measures BAAQMD recommends to reduce GHG emissions from short-term phases of projects (e.g., geotechnical investigation activities) that generate GHG emissions, as set forth in Table 6-1 of the BAAQMD 2022 CEQA Guidelines, into the Proposed Project. These measures include:

- Use zero-emission and hybrid-powered equipment to the extent such equipment is available at the time of project commencement, particularly if emissions are occurring near sensitive receptors.
- Require diesel-fueled offroad equipment to be equipped with EPA Tier 4 Final compliant engines or better, where such equipment is readily available at the time of project commencement.
- Minimize idling time either by shutting equipment off when not in use or reducing the time of idling to no more than two minutes. Provide clear signage that posts this requirement for crewmembers at entrances to the site to encourage compliance.
- Prohibit offroad diesel-powered equipment from being in the "on" position for more than 10 hours per day.
- Use California Air Resources Board-approved renewable diesel fuel in off-road equipment, including generators, and onroad diesel trucks, to the extent that the necessary amount of fuel is readily available at gasoline dispensing stations (or through previous delivery orders) conveniently located within the vicinity of the project area such that acquiring renewable diesel fuel does not result in increased vehicular miles traveled compared to not using it.



- Require all equipment to be maintained and properly tuned in accordance with manufacturer's specifications. Equipment should be checked by a certified mechanic and determined to be running in proper condition prior to operation.
- Encourage and provide carpools, shuttle vans, transit passes, and/or secure bicycle parking to construction workers and offer meal options onsite or shuttles to nearby meal destinations for daily crewmembers.
- Develop a plan to efficiently use water for adequate dust control since substantial amounts of energy can be consumed during pumping of water.

These measures would be required by all Valley Water's contractors and enforced through bid specifications and contracts, which are consistent with BAAQMD recommendations. The features were established based on a review of all recommended BAAQMD GHG reduction measures for short-term emissions associated with projects like the Proposed Project and revised as appropriate based on the specific proposed activities that would occur (See Appendix D for a detailed assessment of the applicability of BAAQMD's GHG Best Management Practices).

Because emissions would be below SMAQMD's 1,100 MTCO<sub>2</sub>e/year screening threshold and Valley Water would incorporate the aforementioned BAAQMD-recommended measures, the Proposed Project would not generate emissions either directly or indirectly that would have a significant effect on the environment. This impact would be **less than significant**. No mitigation is required.

### ***Impact GHG-2***

#### ***Would the project conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?***

As detailed above, various plans are in place which encompass the Proposed Project study area. These plans include the County of Santa Clara General Plan and Community Climate Roadmap 2035 (draft), Valley Water's CCAP, and the State's 2022 Scoping Plan. Each are discussed separately, below.

#### County of Santa Clara General Plan and Roadmap

The County of Santa Clara General Plan contains Policy HE-G.3 Fleet upgrade and Policy HE-G.4 Off-road sources that promote the use of zero emission/plug-in vehicles and replacement of fossil fuel with alternative fuels. As previously discussed under Impact GHG-1, all Proposed Project activities would adhere to the Proposed Project Conservation Measures described in Section 2.4 as required by all Valley Water's contractors and enforced through bid specifications and contracts, which would require the use of hybrid or alternative equipment (where available) and alternative renewable diesel fuel, consistent with these policies. Regarding the Roadmap, while it is still in draft form, it was reviewed and it is anticipated to be adopted with the overall objective of achieving carbon neutrality by 2035, countywide. Due to it being in draft form at the time of this EIR preparation, specific measures are not relied upon for plan consistency; nonetheless, the measures described above, that the activities of the Proposed Project would implement, are



consistent with measures applicable to Project-related sources (i.e., off-road equipment fuel combustion), and therefore objectives laid out in the Roadmap to achieve carbon neutrality by 2035. The Proposed Project would not conflict with adopted County General Plan Policies or future climate-related planning efforts.

#### Valley Water CCAP

The Valley Water CCAP provides goals, strategies, and possible actions to reduce its GHG emissions and address the ways that Valley Water is vulnerable to climate change impacts in each of Valley Water's mission areas, including water supply, flood protection, and ecosystem stewardship (Valley Water 2021). The CCAP sets seven goals to guide Valley Water's response to climate change. Specifically, equipment and fleets that would be used would reduce emissions through the use of engine electrification (including hybrid equipment), the use of renewable fuels where possible, and reduced idling time/equipment operation time. These actions would reduce GHG emissions from project equipment use, consistent with Goal 1: Reduce Direct GHG Emissions of Valley Water's CCAP. The Proposed Project would be consistent with and not conflict with the Valley Water CCAP.

#### California's 2022 Scoping Plan

The basis of the GHG reduction strategy in the 2022 Scoping Plan is the baseline GHG inventory conducted for statewide emissions for years 2000–2021 (CARB 2023), applicable to this analysis. The GHG inventory quantified statewide emissions from all relevant GHG emissions sectors including off-road equipment and found that this source represents less than one percent of statewide emissions (CARB 2023). Likewise, the 2022 Scoping Plan does not identify GHG reduction targets or strategies to address GHG reductions from the off-road sector of emissions.

The 2022 Scoping Plan outlines the main strategies California is implementing to achieve the 2045 statewide carbon neutrality goal and GHG target of 80 percent below 1990 levels by 2045. Appendix D of the 2022 Scoping Plan includes detailed GHG reduction measures and local actions that development projects and municipalities can implement to support the statewide targets. However, these measures pertain primarily to land use development projects and emissions sources typically associated with these (e.g., passenger vehicle exhaust emissions, building-related natural gas use, areawide emissions from landscape equipment and consumer products, waste and water treatment emissions). As described in the 2022 Scoping Plan, the combination of statewide GHG reduction strategies (e.g., Cap-and-Trade, Low Carbon Fuel Standard, Renewable Portfolio Standard, carbon capture/sequestration) and GHG reductions from local actions pertaining to land use development, would achieve the state's GHG reduction targets. In other words, the 2022 Scoping Plan does not identify necessary GHG reductions associated with off-road equipment as a means to achieving overall state GHG reduction targets. For these reasons, one-time finite emissions associated with investigation activities are not deemed to be significant or otherwise conflict with adopted plans (i.e., 2022 Scoping Plan) for the purpose of reducing GHG emissions. Nonetheless, as discussed above and under Impact GHG-1, the activities associated with the Proposed Project would include a number of measures designed to reduce GHG





emissions associated with short-term investigation activities. The Proposed Project would not conflict with the State's 2022 Scoping Plan and would contribute to long-term statewide emissions reductions with incorporation of GHG-reduction measures.

### Summary

Project activities would be consistent with County of Santa Clara General Plan GHG-related policies and the future carbon neutrality objectives of the county, the 2021 Valley Water CCAP, and the 2022 Scoping Plan. Implementation of GHG-reducing measures during investigation activities would further reduce short-term GHG emissions and estimated investigation-related GHG emissions would not be considered substantial. Therefore, the Proposed Project would not conflict with an applicable plan, policy or regulation adopted for the purpose of reducing GHG emissions. This impact would be **less than significant**. No mitigation is required.

## **Mitigation Measures**

No mitigation measures are required.

## **3.10 Hazards and Hazardous Materials**

This section describes the environmental setting of the Proposed Project study area as illustrated in Figures 2-2a through 2-2e with respect to hazards and hazardous materials. It describes the existing hazards and safety concerns within and adjacent to the Proposed Project study area. In addition to describing the environmental setting, this section also provides a discussion on the regulatory framework and an analysis of impacts associated with the transport, use, disposal, or accidental release of hazardous materials. It also provides an analysis of impacts related to adopted emergency response and/or emergency evacuation plans as well as impacts exposing people or structures to a significant risk involving wildland fires.

### **3.10.1 Environmental Setting**

Section 25501(n) of the California Health and Safety Code defines hazardous material as a material that, "because of its quantity, concentration, or physical or chemical characteristics, poses a significant present or potential hazard to human health and safety or to the environment if released into the workplace or the environment." The existing potential sources of hazardous materials or hazards in the Proposed Project study area are:

- Existing use of hazardous materials within the Proposed Project Study area;
- Naturally occurring asbestos (NOA) and naturally occurring metals associated with geologic formations in the Proposed Project study area, including the contributions from the North Fork Pacheco Creek watershed upstream;
- Soil-dwelling fungus (*Coccidioides*) associated with Valley Fever;



- Hazardous materials storage or release sites; and
- Temperatures that could result in heat-related illness.

## Existing Use of Hazardous Materials Within the Proposed Project Study Area

The predominant built environment feature in the Proposed Project study area is North Fork Dam. It was constructed in 1939, forming Pacheco Reservoir at the lower end of the North Fork Pacheco Creek watershed. The dam and associated reservoir are located in southeastern Santa Clara County and are surrounded on three sides by ranchlands that have been used for seasonal livestock grazing to varying degrees for more than a century.

In addition to the transport of hazardous materials on SR-152, the primary east-west corridor that connects I-5 and U.S. 101, and the occasional use of hazardous materials by Caltrans and various utilities within the SR-152 corridor, there is no evidence of use or storage of hazardous materials within the Proposed Project study area.<sup>56</sup>

The use of lead compounds as gasoline additives between the 1920s and 1970s has resulted in the accumulation of aerally deposited lead (ADL) in proximity to public roads. According to the California Environmental Protection Agency (CalEPA) (2016) Docket No. ESPO-SMA 15/16-001: Soil Management Agreement for Aerally Deposited Lead-Contaminated Soils (Health and Safety Code §25187[b][5]):

*ADL-contaminated soil still exists along roadsides and medians and can also be found underneath some existing road surfaces due to past construction activities. The highest lead concentrations are usually found within 10 feet of the edge of the pavement and within the top six inches of the soil. In some cases, lead is as deep as 2 to 3 feet below the surface and can extend 20 feet or more from the edge of pavement.*<sup>57</sup>

As part of an environmental hazards desktop review, a regulatory agency database report was obtained from Environmental Risk Information Services (ERIS), a third-party environmental database search firm that compiles data from federal, state, tribal, and county agencies. Data from this report includes hazardous materials use, spills, and cleanup reports for listed properties within a one-mile radius of the Proposed Project study area. This database report is provided in Appendix G of this DEIR. The database report provides records of a Hazardous Materials/Waste Registration Form for the Pacheco Pass Water District maintained by Santa Clara County Department of Environmental Health (SCCDEH)–Hazardous Materials Compliance Division. According to the form, the hazardous materials stored at the North Fork Dam did not exceed the minimum threshold that would otherwise require a Hazardous Materials Business Plan. The hazardous

<sup>56</sup> During controlled or emergency conditions, CAL FIRE or other public safety agencies may use vehicles, equipment and aircraft fueled by petroleum products for wildfire prevention, suppression and restoration activities.

<sup>57</sup> Valley Water is currently working with Caltrans to conduct an ADL study for that portion of SR-152 ROW within the larger PREP study area. No excavation of roadside or median would occur in conjunction with the Proposed Project.



materials maintained onsite comprised a lead-acid battery used to power instrumentation installed by Valley Water in the hydro-gauge blockhouse structure, located adjacent to the right abutment atop the existing embankment dam. SCCDEH records indicate that the 15-pound lead-acid battery was stored within adequate secondary containment, with a readily available battery acid neutralizer and emergency procedures posted nearby. Storage of this hazardous material was subject to a permit implemented by SCCDEH in December 2004. The permit was closed in November 2012 when the Pacheco Pass Water District no longer stored the hazardous materials onsite. Recent communication with Valley Water staff suggests that no leakage was evident during the time this battery was used and there is no evidence of hazardous materials at this structure (J. Micko, Personal Communication 2021).

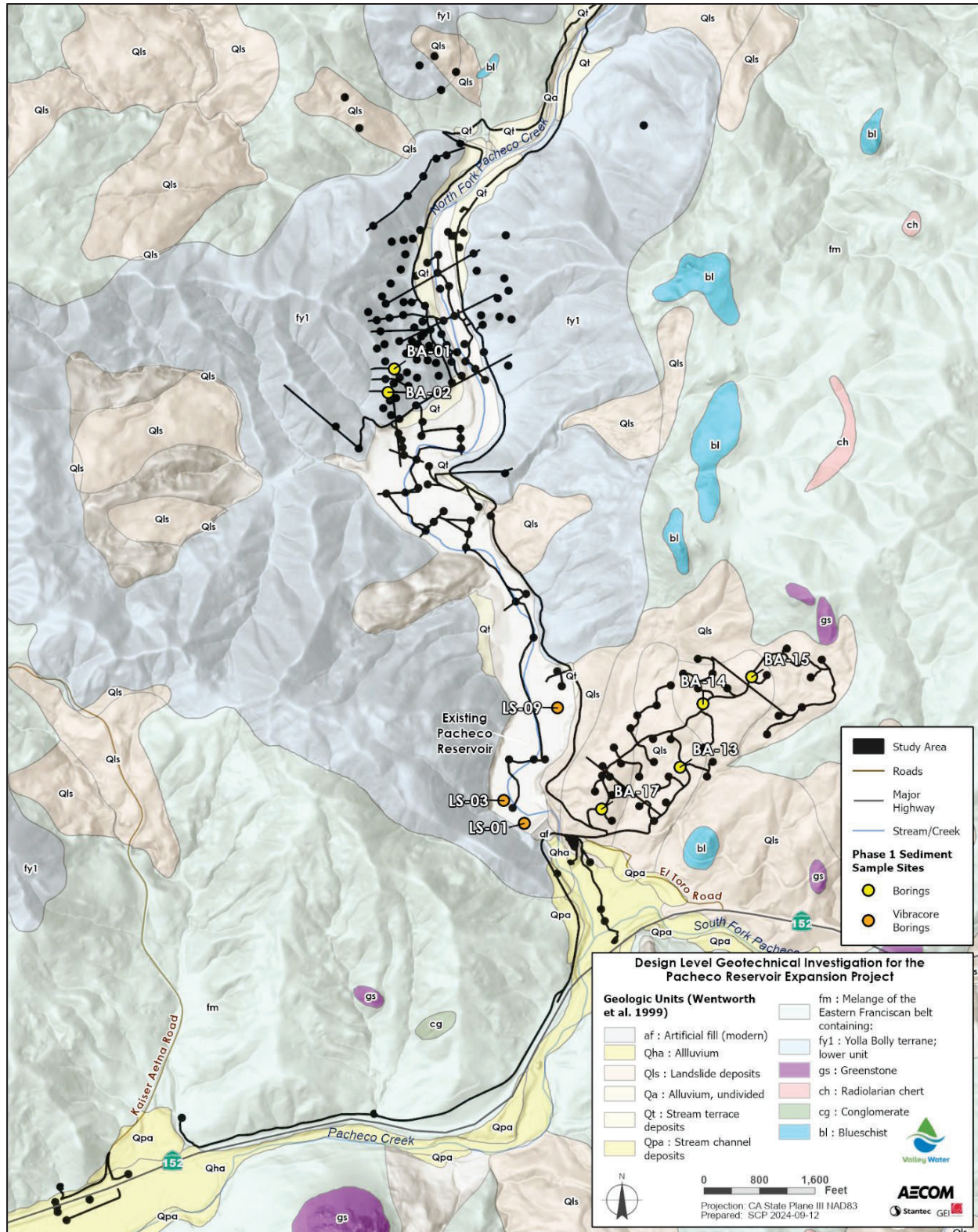
In addition, per the ERIS, there is no evidence that hazardous materials, other than petroleum products (e.g., diesel) used for vehicle fuel and generators have been used within the Proposed Project study area. Petroleum products are used for vehicles and equipment on a reoccurring basis throughout year, primarily associated with maintenance and operation of North Fork Dam (e.g., road maintenance) and various aspects of ranch operations (e.g., fence repair).

### **Existing Naturally Occurring Asbestos and Metals**

As described in Section 3.8, bedrock underlying most of the Proposed Project study area consists of two primary Franciscan Complex units: (1) *mélange* and (2) low-grade metasandstone and siltstone with lesser amounts of blueschist, greenstone, chert, conglomerate, and amphibolite of the Yolla Bolly terrane (Wentworth et al., 1999). Franciscan Complex *mélange* (illustrated on Figure 3.10-1) is a rock type known to occasionally contain asbestos and naturally occurring metals occurs throughout the Pacheco Creek watershed. The Franciscan *mélange* is composed of several rock types primarily including greywacke sandstone, siltstone, shale, with lesser amounts of serpentinite, siliceous schist, greenstone, and blueschist. In general, serpentinite has not been identified within the Proposed Project study area, and as discussed in Section 3.8, it is mapped as minimally present in the upper reaches of the North Fork Pacheco Creek watershed. Recent research has identified the potential for amphibole asbestos to be present in the alkali-amphibole group including glaucophane, the primary mineral in blueschist (Erskine and Bailey 2018). Limited blueschist outcrops and disassociated boulders have been identified within the Proposed Project study area. Franciscan Complex sandstones and rare conglomerates, which are potentially composed of detrital blueschist, are present within the Proposed Project study area.







**Figure 3.10-1. Soil and Rock Sample Locations in Proposed Project Study Area Relative to Geologic Units**



NOA, which was identified as a TAC in 1986 by CARB, is present in many parts of California and is commonly associated with serpentinite and ultramafic rock types. Chrysotile (a form of asbestos from the serpentinite mineral group) and amphibole asbestos (including crocidolite) are NOA minerals that may present a human health hazard by inhalation if they become airborne. Some occurrences of serpentinite and ultramafic rock are also known to have potentially elevated concentrations of naturally occurring metals such as chromium and nickel (Wilcke 2000) while a combination of anthropogenic sources, ore deposits, and the presence of organic-rich shales or coal may contribute to regionally elevated concentrations of arsenic (Duvergé 2011). These metals can also present a human health hazard through direct exposure and if inhaled when airborne. In areas with rock or soil containing NOA and naturally occurring metals, dust-generating activities such as road grading, test pit excavation and use of unpaved roads, may contribute to the presence of airborne NOA and naturally occurring metals. In addition, activities that result in surface disturbance may contribute to the direct exposure of naturally occurring metals to project personnel.

Hazards associated with the potential presence of NOA and metals could occur at two types of activity areas; borings in lakebed sediments associated with Pacheco Reservoir and test pit excavations associated with borrow site investigations. To-date, extensive biological investigations (i.e., floristic surveys) conducted over several years for most of the Proposed Project study area have not identified any evidence of plants endemic to soils derived from serpentine rocks (see Section 3.5 for more details). As described in Section 3.8, past surface and subsurface geotechnical investigations have not identified evidence of rock units with NOA or other metals (e.g., chromium, nickel, and arsenic) that could be considered a TAC within the Proposed Project study area.

The primary rock types and soils within the Proposed Project study area that may be minimally disturbed during geotechnical investigations were analyzed for concentrations of chrysotile asbestos, amphibole asbestos, and naturally occurring metals during the initial geotechnical investigations (Valley Water 2020 and 2021). The geologic materials analyzed include Franciscan sandstone (greywacke), siltstone, phyllite, siliceous schist, and greenschist, and soil and landslide deposits derived from these same Franciscan rocks. Additional soils were sampled and analyzed by the Valley Water's design team in 2021, consisting of Franciscan Complex-derived quaternary alluvium (sediment accumulated in Pacheco Reservoir). Figure 3.10-1 illustrates the locations where soil and/or rock samples were collected in the 2021 geotechnical investigations supporting PREP. The analytical samples consisted of: a) composite samples created from discrete soil and rock samples from test pits and b) discrete rock core samples.

All samples were submitted to State of California-accredited laboratories and analyzed for NOA and for metals listed in Title 22 of the California Administrative Code. This list of metals includes: antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, copper, lead, mercury, molybdenum, nickel, selenium, silver, thallium, vanadium, and zinc. NOA and Title 22 metals analyses were performed in accordance with methodology set forth by overseeing regulatory agencies. NOA was analyzed for Bulk Asbestos Material by transmission electron microscopy



according to method EPA 600/R-93/116 with CARB 435 sample preparation, and Title 22 metals were analyzed according to method EPA 6010B / 7471A.

The NOA results were compared to CARB's Airborne Toxic Control Measures (ATCM) background threshold values, and the metals results were compared to San Francisco Bay Regional Water Quality Control Board (SFBRWQCB) construction worker safety environmental screening levels (ESL) and to California thresholds for hazardous waste classification (Total Threshold Limit Concentrations (TTLC)<sup>58</sup>. SFBRWQCB ESLs are used by regulatory agencies throughout California to assess whether further action is necessary relative to cleaning up a given site even though many of these agencies are outside the jurisdictional boundary of the SFBRWQCB. TTLCs are used as acceptance criteria for landfills to determine whether a material is classified as hazardous or non-hazardous waste. Furthermore, a Soluble Limit Threshold Concentration (STLC) extraction is required for those metals that are reported at 10 times or greater than their STLC limit. TTLC and STLC thresholds and analytical methods are set forth according to Title 22 CCR Section 66261.24: Characteristic of Toxicity. The analytical results for NOA for all samples analyzed for chemical constituents indicated that no concentrations were detected above the laboratory reporting limit of 0.001 percent by weight. This reporting limit is orders of magnitude below the CARB ATCM background threshold level of 0.25 percent by weight.

The analytical results for metals indicated that arsenic, cobalt, and nickel in some samples exceeded their respective screening levels, indicating that further investigation and, if necessary, protection (e.g., dust control) may be required to protect workers during subsurface geotechnical investigations. Specifically, arsenic was reported in one sample (1530-2) at a concentration of 14 milligrams per kilogram (mg/kg), slightly exceeding the background threshold level of 11 mg/kg. Cobalt was reported in one sample (LS-01) at a concentration of 30 mg/kg, slightly exceeding the construction worker ESL of 28 mg/kg. Nickel was reported in seven samples (LAWLER, 1530-2, 1530-3, 1530-4, LS-01, LS-03 and LS-09) at concentrations ranging from 92 to 290 mg/kg, exceeding the construction worker ESL of 86 mg/kg. These elevated levels were only measured in a few of the lake sediment samples and no elevated levels occurred in the rock core samples from geotechnical borings or from bulk samples from the upland borrow areas. No test pits or grading are planned in the area where lake sediments are present, so the hazard to workers is considered to be very low.

None of the analytical results for metals exceeded their respective TTLCs. However, chromium and nickel were reported to be ten-times greater than their respective STLC limits in some of the samples analyzed. It should also be noted that additional sampling and testing would not be required for these metals since excavated samples would not be sent for offsite disposal.

Based on the results of the subsurface investigations to-date, none of the rock types or sediments analyzed within the Proposed Project study area contain NOA at levels above regulatory thresholds or allowable limits. In conjunction with ongoing geotechnical investigations, new

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<sup>58</sup> The CCRWQCB has not established ESLs or TTLC.





samples would be analyzed for total chromium. Based on previous geological and geotechnical investigations throughout the Proposed Project study area and subsequent laboratory testing for chromium levels, there is no indication that levels of chromium in new sampling efforts would exceed those described in Table 3.10-1. As described previously, extensive botanical surveys, coupled with previous surface and subsurface geologic investigations, suggest that the occurrence of rock or soil containing NOA and/or metals is unlikely to be present within the Proposed Project study area.

Naturally occurring metals are likely present at both a watershed scale and locally within the footprint of the Proposed Project activity areas associated with alluvial sediments deposited in Pacheco Reservoir that could have concentrations that would exceed the SFBWQCB Tier 1 ESLs. However, Tier 1 ESLs are based on the most stringent of the various potential exposure pathways assessed (including Direct Soil Exposure: Residential, Commercial/Industrial or Construction Worker, Terrestrial Habitat, Leaching to Groundwater, Gross Contamination, and Odor Nuisance). Of these potential exposure pathways, Construction Worker Safety is the most applicable to the Proposed Project. As noted in Table 3.10-1, an ESL for total chromium (trivalent and hexavalent chromium comprise total chromium) applicable to construction workers has not been established. In conjunction with ongoing geotechnical investigations, new samples would be analyzed for total chromium. Based on previous geological and geotechnical investigations throughout the Proposed Project study area and subsequent laboratory testing for chromium levels, there is no indication that levels of chromium in new sampling efforts would exceed those described in Table 3.10-1.

## **Hazardous Building Materials in Existing Structures**

Overall, the rural lands within and adjacent to the Proposed Project study area are minimally developed and much of the land is used for some degree of seasonal livestock grazing (see Section 3.12, Land Use and Planning). The primary existing infrastructure is located adjacent to the Proposed Project study area and includes the existing North Fork Dam and appurtenant structures and several small ranch/residential structures located along El Toro Road and south of SR-152 near the intersection with Kaiser-Aetna Road, including Bell Station. The Proposed Project study area was developed to avoid all existing infrastructure, with the exception of those within the SR-152 ROW.



**Table 3.10-1. 2021 Sediment Sample Analytical Results**

Sample ID	LAWLER	1530-20-1	1530-20-2	1530-20-3	1530-20-4	LS-01	LS-03	LS-09	Const. ESL <sup>1</sup>
<b>Metals analyzed according to EPA Method 6010B / 7471A</b>									
Antimony	<1.9	<1.9	<2.0	<2.0	<2.0	<5.7	4.0 J	<4.8	50
Arsenic	10	4.8	14	11	11	10	11	8.6	11 <sup>2</sup>
Barium	180	110	110	110	350	300	240	230	3,000
Beryllium	0.51	0.62	0.74	0.33	0.39	0.34 J	2.3	0.21 J	27
Cadmium	<0.24	<0.24	<0.26	<0.26	<0.26	<0.95	1.5	<0.80	51
Chromium (total)	250	26	44	180	140	220	170	140	NE <sup>3</sup>
Cobalt	25	7.5	18	25	21	30	27	23	28
Copper	47	22	76	59	60	60	51	44	14,000
Lead	9.6	8.8	17	11	13	17	17	14	160
Mercury	0.094 <sup>H</sup>	0.024	0.12	0.078	0.084	0.098 J	0.094 J	0.077 J	44
Molybdenum	4.2	14	17	5.9	5.8	<1.9	2.3	<1.6	1,800
Nickel	290	67	92	240	190	250	200	170	86
Selenium	<1.9	<1.9	<2.0	<2.0	<2.0	<5.7	<4.8	<4.8	1,700
Silver	<0.24	<0.24	<0.26	<0.26	<0.26	<0.95	<0.80	<0.80	1,800
Thallium	<0.47	<0.49	<0.51	<0.51	<0.52	<5.7	2.3 J	<4.8	3.5
Vanadium	57	27	41	44	47	75	63	56	470
Zinc	78	47	100	91	88	110	98	99	110,000
<b>Bulk Asbestos Material analyzed according to EPA Method 600/R-93/116 and CARB 435</b>									
TEM (% by weight)	<0.0001%	<0.001%	<0.001%	<0.001%	<0.001%	<0.001%	<0.001%	<0.001%	0.25% <sup>4</sup>

Source: Samples LAWLER, 1530-1, 1530-2, 1530-3 and 1530-4 from Geotechnical Data Report – Pacheco Reservoir Expansion Project, Volume 1: Phase 1 Dam Explorations and Volume 2: Phase 1 Other Explorations (Valley Water 2020, 2021). Samples LS-01, LS-03 and LS-09 collected and analyzed by the Valley Water design team in 2021. Other sample locations are illustrated on Figure 3.10-1 but proximity to proposed activity areas preclude labeling them. They are shown by color

Notes: All metals concentrations reported in milligrams per kilogram

<sup>1</sup> Environmental Screening Levels, San Francisco Bay Regional Water Quality Control Board, 2019 (Rev. 2): construction worker direct exposure screening level.

<sup>2</sup> Background Threshold Level for Arsenic, from "Establishing Background Arsenic in Soil of the Urbanized San Francisco Bay Region prepared by Dylan Jacques Duvergé (December 2011)."

<sup>3</sup> Construction worker ESL for total Chromium not established. Total Chromium comprised of Chromium III (trivalent) and Chromium VI (hexavalent).

<sup>4</sup> Background Threshold Levels of 0.25% by weight for naturally occurring asbestos, from California Air Resources Board Airborne Toxic Control Measures 17 CCR §93105: Asbestos ATCM for Construction, Grading, Quarrying and Surface Mining Operations

J: Concentration less than reporting limit, greater than method detection limit. Laboratory flagged result as an "estimated value."

H: Laboratory flagged the reported value with a H, indicating the holding time was exceeded.

< - Indicates the analyte was not detected at or above the indicated laboratory reporting limit.

BOLD indicates analyte was reported above the laboratory reporting limit.

**Greyed** value indicates concentration exceeded ESL.

Key:

% = percent

CCR = California Code of Regulations

ESL = environmental screening level

ATCM = Airborne Toxic Control Measure

EPA = Environmental Protection Agency

TEM = Transmission Electron Microscopy



## Hazardous Materials Storage and Releases

An environmental hazards desktop review, prepared in 2021, covers the Proposed Project study area and is included as Appendix G, ERIS Physical Setting Database Report. For the Proposed Project, this document was reviewed to identify any recognized environmental conditions (REC) associated with the Proposed Project study area or adjacent parcels of land that would require disclosure through the CEQA process. As part of this review, an ERIS Physical Setting Report (see Appendix G) was prepared that summarizes information available from federal, state, tribal, and county agencies for any listings within a 1+ mile radius of the Proposed Project study area. Table 3.10-2 presents the single disclosed parcel in the Proposed Project study area. Table 3.10-3 presents the disclosed listings within 1+ mile of the Proposed Project study area.

**Table 3.10-2. Database Report – Listings for Properties**

Listed Facility Name/Address <sup>1</sup>	Database Listing	Distance/Direction from Proposed Project Study Area	REC? (Yes/No)
PPWD – North Fork Dam 17610 Pacheco Pass Highway Hollister, CA 95023 APN: 898-49-002 (Santa Clara Co.)	Santa Clara CUPA	Within approximately 800 feet of the Proposed Project study area	No

The PPWD-North Fork Dam is listed as a Hazardous Materials Storage Facility with minimal storage. No additional information was provided in the environmental database report. This listing is within the Proposed Project study area; however, given the minimal quantities and no reported underground features or releases, it is not considered a parcel with a REC and no further assessment appears warranted at this time.

Notes:

<sup>1</sup> Listed facility address provided by environmental database report may not accurately reflect physical address of property. See Appendix G, ERIS Physical Setting Report, for additional information.

Key:

APN = Assessor Parcel Number

CUPA = Certified Unified Program Agency

PPWD = Pacheco Pass Water District

REC = Recognized Environmental Condition

**Table 3.10-3. Database Report – Listings for Sites in General Vicinity of Proposed Project Study Area with Potential to Impact Proposed Project Study Area**

Listed Facility Name/Address <sup>1</sup>	Database Listing	Distance/Direction from Proposed Project Study Area	REC? (Yes/No)
T-Mobile West Corporation 28890 Pacheco Pass Highway Gilroy, CA 95020 APN: 078-040-015-000 (Merced Co.)	GILROY CUPA	Approximately 6 miles or 31,600 feet southwest <sup>2</sup>	No

The T-Mobile West Corporation is listed with a CERS ID of 10720354. No additional information was provided in the environmental database report. Given the minimal quantities and no reported underground features or releases, this listing is not considered an environmental concern associated with the Proposed Project study area and no further assessment appears warranted at this time.



**Table 3.10-3. Database Report – Listings for Sites in General Vicinity of Proposed Project Study Area with Potential to Impact Proposed Project Study Area (cont.)**

Listed Facility Name/Address <sup>1</sup>	Database Listing	Distance/Direction from Proposed Project Study Area <sup>2</sup>	REC? (Yes/No)
Sprint PCS 38777 Dinosaur Point Road Hollister, CA 94023 APN: 898-46-002 (Santa Clara Co.)	GILROY CUPA	Approximately 4.3 miles or 22,500 feet east northeast	No
The Sprint PCS facility is listed as a Hazardous Materials Storage Facility with minimal storage. No additional information was provided in the environmental database report. Given the minimal quantities and no reported underground features or releases, this listing is not considered an environmental concern associated with the Proposed Project study area and no further assessment appears warranted at this time.			
NEXTEL-SITE CA 1511 38777 Dinosaur Point Road Hollister, CA 94023 APN: 898-46-002 (Santa Clara Co.)	SANTA CLARA CUPA	Approximately 4.3 miles or 22,500 feet east northeast	No
The Nextel-Site is listed as a Hazardous Materials Storage Facility with minimal storage. No additional information was provided in the environmental database report. Given the minimal quantities and no reported underground features or releases, this listing is not considered an environmental concern associated with the Proposed Project study area and no further assessment appears warranted at this time.			
Pacheco State Park 38778 Dinosaur Point Road Hollister, CA 95023 APN: 898-14-001 (Santa Clara Co.)	LUST	Approximately 4.3 miles or 22,500 feet east northeast	No
The Pacheco State Park listing is related to a gasoline leaking underground storage tank (LUST) release to soil which received closure from the Regional Water Quality Control Board (RWQCB) on January 31, 2006. According to the RWQCB closure letter, one 1,000-gallon gasoline underground storage tank (UST) was removed on April 1, 1998. Three groundwater monitoring wells were installed and showed no detections of petroleum constituents. Residual petroleum hydrocarbon contamination exists in soil in the former tank pit area (14 parts per million (ppm) of total petroleum hydrocarbons as gasoline; 0.12 ppm of benzene, 0.38 ppm of toluene, 0.83 ppm of xylenes, and 0.13 ppm of ethylbenzene). Given the distance to the Proposed Project study area, media involved, and regulatory status, this facility is not considered an environmental concern associated with the Proposed Project study area and no further assessment appears warranted at this time.			
California State Parks Pacheco Park 38787 Dinosaur Point Road Hollister, CA 95023 APN: 078-030-012-000 (Merced Co.)	RCRA NON-GEN	Approximately 4.3 miles or 22,700 feet east northeast	No
Listed Facility Name/Address <sup>1</sup>	Database Listing	Distance/Direction from Proposed Project Study Area	REC? (Yes/No)
The California State Parks Pacheco State Park listing stated there are no records and as of October 2020, there were no compliance monitoring/enforcement records associated. No additional information was provided in the environmental database report. Given there were no reported underground features or releases, this listing is not considered an environmental concern associated with the Proposed Project study area and no further assessment appears warranted at this time.			



**Table 3.10-3. Database Report – Listings for Sites in General Vicinity of Proposed Project Study Area with Potential to Impact Proposed Project Study Area (cont.)**

Listed Facility Name/Address <sup>1</sup>	Database Listing	Distance/Direction from Proposed Project Study Area <sup>2</sup>	REC? (Yes/No)
AT&T Mobility International Turbine Research 38787 Dinosaur Point Road Santa Nella, CA 95322 APN: 078-030-012-000 (Merced Co.)	MERCED CUPA	Approximately 4.3 miles or 22,700 feet east northeast	No
The AT&T Mobility Facility is listed as a having two permits for hazardous material storage. No additional information was provided in the environmental database report. Given there were no reported underground features or releases, this listing is not considered an environmental concern associated with the Proposed Project study area and no further assessment appears warranted at this time.			

Notes:

<sup>1</sup> Listed facility address provided by environmental database report may not accurately reflect physical address of property.

<sup>2</sup> Listed facility is not located within the 1-mile radius considered in regulatory agency database report. See Appendix G, ERIS Physical Setting Report, for additional information.

Key:

APN = Assessor Parcel Number

CERS = California Environmental Reporting System

CUPA = Certified Unified Program Agency

LUST = leaking underground storage tank

REC = Recognized Environmental Condition

The ERIS Physical Setting Report (see Appendix G) documents a search of local and regional environmental sources to obtain information pertaining to and/or indications of RECs in connection with the Proposed Project study area. As records for portions of the Proposed Project study area that had assessor parcel numbers only were not available, records requests were made for physical addresses associated with the Proposed Project study area. Table 3.10-4: summarizes information available from the local and regional agencies.

**Table 3.10-4. Environmental Records from Local and Regional Agencies**

Agency Name Contact Information	Finding
County of Santa Clara Department of Environmental Health 1555 Berger Drive Suite 300 San Jose, CA 95112	The County of Santa Clara Department of Environmental Health provided available records for the addresses associated with the Proposed Project study area on January 29, 2021. Records available consisted of CERS hazardous materials inventory summaries for the AT&T Mobility station at the Bell Town Pull Off which contains lead acid batteries, hazardous materials clearance forms for cell site, and official notices of inspection of cell sites. Notice of inspection forms for the North Fork Dam Facility indicated there was lead acid battery storage in a hydro-gauge blockhouse. According to the notice of inspection for HH Holding LLC located at 16110 Pacheco Pass Highway, Gilroy, CA there is a 500-gallon aboveground diesel tank, one 500-gallon aboveground gasoline tank, one 1,000-gallon propane tank, and 12 solar batteries. Given there were no violations or indication of a release, these records are not considered an environmental concern associated with the Proposed Project study area.



**Table 3.10-4. Environmental Records from Local and Regional Agencies**

Agency Name Contact Information	Finding
RWQCB, Central Coast Region 895 Aerovista Place, Suite 101 San Luis Obispo, CA 93401 Online Database: <a href="http://geotracker.waterboards.ca.gov">http://geotracker.waterboards.ca.gov</a>	The RWQCB's online database (Geotracker) was searched on September 27, 2024. No records were available for facilities within the Proposed Project study area.  The Pacheco State Park located at 38778 Dinosaur Point, Gilroy, California, had a closed LUST case dated January 31, 2006, for soil only. This facility is discussed in Table 3.10-3.
DTSC 700 Heinz Avenue, Unit 200 Berkeley, CA 94710 Online database:	According to a letter dated February 5, 2021, no records were available for facilities in the Proposed Project study area. Additionally, the DTSC online database (Envirostor) was searched on September 27, 2024, and no records were found for the Proposed Project study area or surrounding properties.
CalGEM 5816 Corporate Avenue, Suite 200 Cypress, CA 90630 Online database: <a href="http://www.conservation.ca.gov/calgem/Pages/Well-Search.aspx">http://www.conservation.ca.gov/calgem/Pages/Well-Search.aspx</a>	Stantec reviewed the CalGEM online well search database (Well Finder) on September 27, 2024. According to the database, there are no known current or former oil wells in the Proposed Project study area or within a one-mile radius of the Proposed Project study area.

Note: See ERS Physical Setting Report in the Hazards and Hazardous Materials Appendix G for additional information.

Key:

CA=California

CalGEM = California Geologic Energy Management Division

CERS = California Environmental Reporting System

DTSC = Department of Toxic Substances Control

RWQCB = Regional Water Quality Control Board

The listed addresses relative to publicly available aerial imagery and county assessor's maps indicate that the North Fork Dam listing in Table 3.10-2 is the only listing within the immediate vicinity of the Proposed Project study area. Based on information provided in ERS Physical Setting Report (see Appendix G) none of the properties listed in Table 3.10-3 would have any physical or environmental nexus to the Proposed Project study area.

## Soil-dwelling Fungus (*Coccidioides*) Associated with Valley Fever

Valley Fever—sometimes called “San Joaquin Valley Fever” or “desert rheumatism”—is an infection caused by a soil-dwelling fungus (*Coccidioides*) that, when inhaled, can affect the lungs, causing respiratory symptoms including cough, fever, chest pain, and tiredness. Valley fever can be contracted as a result of ground disturbing activities and may be common in soil types throughout the Proposed Project study area. There are no commercially available tests to detect this fungus in soil (CDC 2024). In 2021, Santa Clara County reported 84 cases (equivalent to rates of 4.5 cases per 100,000 population) (CDPH 2024).

## Climatic Conditions Hazardous to the Human Environment

Two climatic conditions within the Proposed Project study area have been identified as potential hazards to the human environment in association with the proposed geotechnical investigations:





high temperatures and wildfire smoke. As illustrated Figures 2-1 and 2-2a, the Proposed Project study area is located several miles west of Pacheco Pass and the climatic conditions are typical of those described in Section 3.4.1.1 for the Diablo Range with respect to summer air temperatures and air quality conditions. According to National Weather Service records for Gilroy, California maximum summer temperatures applicable to the Proposed Project study area range from as high as 88 in March to 113 in September, with mean temperatures ranging from 82 to 101 for those months (NOAA 2024). Temperatures during any of these months, combined with other internal or external factors could result in heat-related illness.

As described in Section 3.21, wildfires periodically occur within the North Fork Pacheco Creek watershed that, dependent on the location, climatic conditions, fire intensity, and fuel type can result in degraded air quality within and adjacent to the Proposed Project study area. Under certain conditions, smoke and particulate matter associated with wildfire prevention and suppression efforts could result in respiratory effects.

### **3.10.2 Regulatory Framework**

#### **Federal Laws, Regulations, and Policies**

##### ***Resources Conservation and Recovery Act 42 USC 6901 et seq.***

The Resources Conservation and Recovery Act (RCRA) is a federal statute designed to provide “cradle to grave” control of hazardous waste by imposing management requirements on generators and transporters of hazardous wastes and on owners and operators of treatment, storage, and disposal facilities. The EPA is responsible for administering the RCRA. RCRA has been amended and strengthened by Congress numerous times. In November 1984, the Federal Hazardous and Solid Waste Amendments were passed. In 1992, the Federal Facility Compliance Act strengthened the enforcement of RCRA at federal facilities. Most recently, in 1996, the Land Disposal Program Flexibility Act was added to provide regulatory flexibility for land disposal of certain kinds of wastes. Unless exempted by RCRA, RCRA would apply to the transportation of hazardous materials to or from the Proposed Project study area if the Proposed Project involves the transportation of such materials.

##### ***Hazardous Materials Transportation Act (49 USC 5101)***

The Hazardous Materials Transportation Act regulates interstate transport of hazardous materials and wastes. This act specifies driver training requirements, load labeling procedures, and container design and safety requirements. Transporters of hazardous wastes must also meet the requirements of other statutes, such as the RCRA. The Hazardous Materials Transportation Act requires that carriers report accidental releases of hazardous materials to the U.S. Department of Transportation as soon as is practical, but no later than 12 hours of the incidents (49 Code of Federal Regulations, Subtitle B, Chapter I, Subchapter C). Some of the incidents that must be reported include deaths, injuries requiring hospitalization, and closure of a major transportation



artery or facility for one hour or more. The U.S. Department of Transportation, the Federal Highway Administration, and the Federal Railroad Administration are some of the agencies responsible for administering the Hazardous Materials Transportation Act. This law may apply to the transportation of hazardous materials to or from the Proposed Project study area if such materials are identified or required as part of the proposed geotechnical investigation activities.

***The Federal Motor Carrier Safety Administration Regulations (49 Code of Federal Regulations Part 382)***

The Federal Motor Carrier Safety Administration, a part of the U.S. Department of Transportation, issues regulations concerning highway routing of hazardous materials, the hazardous materials endorsement for a commercial driver's license, highway hazardous material safety permits, and financial responsibility requirements for motor carriers of hazardous materials. These regulations may apply to the storage and transportation of hazardous materials to or from the Proposed Project study area to reduce the possibility of spills.

***Occupational Safety and Health Administration Regulations (29 USC 15)***

The Occupational Safety and Health Act (OSHA) defines occupational health and safety standards, with the goal of providing employees with a safe working environment. Cal/OSHA is the agency responsible for administering this federal act in California. The OSHA regulations apply to workplaces and cover activities ranging from confined space entry to toxic chemical exposure. Employers are required to provide a workplace free of recognized hazards that could cause serious physical harm. Cal/OSHA regulates workplace exposure to hazardous chemicals and activities through workplace procedures and equipment requirements (29 U.S. Code 651–678). Cal/OSHA regulations would apply to construction activities and long-term operations and maintenance activities.

***Clean Air Act***

The CAA protects the general public from exposure to airborne contaminants that are known to be hazardous to human health. Under the CAA, the EPA established NESHAP, which are emissions standards for air pollutants that may cause an increase in fatalities or in serious, irreversible, or incapacitating illness. Asbestos is one of the hazardous air pollutants regulated by NESHAPs. Compliance with the asbestos NESHAP regulations protects the public by minimizing the release of asbestos fibers during activities involving the processing, handling, and disposal of asbestos-containing material (e.g., NOA).

**State Laws, Regulations, and Policies**

***Caltrans Processes and Procedures***

Although the Proposed Project is not a transportation project, it is subject to the Caltrans requirements for projects that would encroach on a Caltrans easement or ROW (e.g., SR-152). The



process of compiling accurate information regarding hazardous materials, hazardous waste, and contamination includes performing a project screening and initial site assessment (ISA), performing a preliminary site investigation in the event the ISA identifies a potentially contaminated site, and performing a detailed site investigation if applicable (Caltrans 2014). The outcome of this process would be documented in the Preliminary Environmental Analysis Report required by Caltrans to support Caltrans' issuance of an encroachment permit.

### ***CCR, Title 13, Vehicle Code***

In addition to the RCRA hazardous waste transportation standards, California regulates the transportation of hazardous waste originating or passing through the state. State regulations are contained in the CCR, Title 13, Vehicle Code. Hazardous waste must be regularly removed from generating sites by licensed hazardous waste transporters. Transported materials must be accompanied by hazardous waste manifests.

CHP and Caltrans are responsible for enforcing federal and state regulations pertaining to the transport of hazardous materials through California. The CHP enforces materials and hazardous waste labeling and packaging regulations that prevent leakage and spills of material in transit and provides information to cleanup crews in the event of an incident. Vehicle and equipment inspection, shipment preparation, container identification, and shipping documentation are all part of the responsibility of the CHP. The CHP conducts regular inspections of licensed transporters to assure regulatory compliance. The CHP and Caltrans also respond to hazardous materials transportation emergencies. Caltrans has emergency chemical spill identification teams at locations throughout the state. CCR Title 13 and additional policies from Caltrans and CHP may apply to the transportation of hazardous materials to or from the Proposed Project study area if such materials are identified or required as part of the proposed geotechnical investigation activities.

### ***California Department of Toxic Substances Control Regulations***

The mission of the Department of Toxic Substances Control (DTSC) is to protect California's people and environment from harmful effects of toxic substances by restoring contaminated resources, enforcing hazardous waste laws, reducing hazardous waste generation, and encouraging the manufacture of chemically safer products. The DTSC establishes standards for the management of hazardous waste, including regulation of the generation, transportation, and disposal of hazardous waste. The California DTSC, part of the CalEPA, regulates the generation, transportation, treatment, storage, and disposal of hazardous waste under the RCRA and the State Hazardous Waste Control Act. Standards or regulations from the California DTSC may apply to the transportation, storage, or handling of hazardous materials to or from the Proposed Project study area if such materials are identified or required as part of the proposed geotechnical investigation activities.



### ***California Environmental Protection Agency Unified Program***

The CalEPA Unified Program was created to protect California's citizens from hazardous waste and materials. CalEPA has certified 83 local government agencies as California Unified Program Agencies including SCCDEH, which is responsible for implementing the hazardous waste and materials standards throughout Santa Clara County for five different state agencies including CalEPA, DTSC, California Governor's Office of Emergency Services (Cal OES), CAL FIRE, and the SWRCB (CalEPA 2024). Under the Unified Program, the administration, permit, inspection, and enforcement activities are consolidated for the following environmental and emergency management programs (CalEPA 2024):

- Aboveground Petroleum Storage Act
- Area Plans for Hazardous Materials Emergencies
- California Accidental Release Prevention Program
- Hazardous Materials Release Response Plans and Inventories (Business Plans)
- Hazardous Material Management Plan and Hazardous Material Inventory Statements
- Hazardous Waste Generator and Onsite Hazardous Waste Treatment (tiered permitting) Programs
- Underground Storage Tank Program

These standards may apply to the transportation, storage, or handling of hazardous materials to or from the Proposed Project study area if such materials are identified or required as part of Proposed Project implementation.

### ***San Francisco Bay Regional Water Quality Control Board Screening Levels***

In 2000, the SFBRWQCB first published human health risk-based screening levels (RSL) for over 100 commonly detected contaminants at sites with impacted soil and groundwater. The RSLs were revised in 2003 to become ESLs and their scope broadened to include direct exposure screening levels for construction and trench workers (SFBRWQCB 2007 User's Guide), ecological risk and nuisance/gross contamination concerns (SFBRWQCB 2019a User's Guide, Revision 1, 2019b Revision 2). The ESLs are conservative risk-based screening levels initially informed by EPA Region 9 Preliminary Remediation Goals and CalEPA California Human Health Screening Levels.

Although initially developed to regulate water quality for the San Francisco Bay Basin Water Quality Control Plan, the conservative, risk-based ESLs have been adopted by many California regulatory agencies as default screening levels. The Proposed Project study area site is outside the jurisdictional boundary of the SFBRWQCB; however, SCCDEH relies on the SFBRWQCB ESLs to



evaluate risk to human health and the environment at sites throughout Santa Clara County enrolled in their Site Cleanup Program (SCCDEH 2019).<sup>59</sup>

### ***California Emergency Plan***

The 2017 California Emergency Plan was updated in 2023 (and additional updates are ongoing) to reflect new information on wildfires, earthquakes, pandemics and severe weather. It also added a section on science and technology in emergency management; updated state agency roles and responsibilities; and added Recovery Support Functions and the California Disaster Recovery Framework (Cal OES 2023). Emergency prevention and response to hazardous materials incidents are part of the State plan that is administered by the Cal OES (formerly California Emergency Management Agency). In 2017, the 2009 Emergency Response Plan was updated and retitled, and the Emergency Management Agency was merged with the Public Safety Communications Office and renamed the California Governor's Office of Emergency Services. Coordinating agencies include CalEPA, CHP, CAL FIRE, local fire departments, the California National Guard, Caltrans, CDFW, RWQCBs, and other emergency service providers. These plans may apply in the unlikely event that hazardous materials are released during Proposed Project implementation.

### ***CCR, Title 8, Industrial Relations, Worker Safety Requirements***

Regulations pertaining to the use of hazardous materials in California workplaces are provided in CCR Title 8 and include requirements for safety training, availability of safety equipment, accident and illness prevention programs, hazardous substance exposure warnings, heat illness prevention, respiratory prevention from wildfire smoke, and emergency action and fire prevention plan preparation. Cal/OSHA standards are more stringent than federal OSHA regulations. Cal/OSHA assumes primary responsibility for developing and enforcing workplace safety regulations in the state. Cal/OSHA also enforces hazard communication program regulations that contain training and information requirements, including procedures for identifying and labeling hazardous substances, communicating information related to hazardous substances and their handling, and preparing health and safety plans to protect workers and employees at hazardous waste sites. Cal/OSHA requirements would apply if hazardous materials were stored, handled, or transported as part of the Proposed Project implementation.

Heat Illness Prevention Title 8, Section 3395 is a regulation designed to protect outdoor workers from heat-related illnesses. It mandates that employers implement specific measures to prevent heat stress, including providing water, rest breaks, and shade. The regulation requires training for employees on recognizing the signs of heat illness and establishing a heat illness prevention plan tailored to the work environment.

Respiratory Protection from Wildfire Smoke Title 8, Section 5141.1 is designed to safeguard workers from the harmful effects of smoke exposure during wildfires. It requires employers to

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<sup>59</sup> Neither the CCRWQCB nor the Sacramento Valley RWQCB have established ESLs for their respective jurisdictions.



assess air quality and implement protective measures, including providing N95 respirators or higher-level protection when smoke levels pose a health risk. Employers must also ensure proper training for employees on the use and maintenance of respiratory protection equipment. By establishing these guidelines, the regulation seeks to minimize respiratory hazards and promote the safety and well-being of workers exposed to wildfire smoke.

## **Regional and Local Laws, Regulations, and Policies**

### ***County of Santa Clara Department of Environmental Health***

The SCCDEH oversees assessment and mitigation of contaminated sites to protect groundwater resources, human health, safety, and the environment. Since July 1, 2004, the SCCDEH has served as the local oversight agency for investigations and cleanup of petroleum releases from underground storage tanks through implementation of the Local Oversight Program contract with the SWRCB.

### ***County of Santa Clara DEH Hazardous Materials Compliance Division***

The Hazardous Materials Compliance Division was established in 1983 with the adoption of the local Hazardous Materials Storage Ordinance, which regulates the storage of hazardous materials both above and below ground. Passage of Senate Bill 1082 in 1993 required consolidation of state-mandated hazardous waste and hazardous materials management programs within a single unified program, to be administered by a Certified Unified Program Agency (CUPA). Hazardous Materials Compliance Division has been certified by the state to be the CUPA to administer the six CUPA programs throughout Santa Clara County, except in the cities of Santa Clara, Gilroy, and Sunnyvale, which are themselves CUPAs. The Proposed Project would require the use, transport, and disposal of hazardous materials and hazardous waste within Santa Clara County that would be subject to county requirements.

### ***Santa Clara County Office of Emergency Services Emergency Operations Plan***

The Santa Clara County Office of Emergency Services (OES) is the county agency responsible for preparation of the County of Santa Clara Emergency Operations Plan (EOP) and all supporting documentation (Santa Clara OES 2024).

The EOP is an all-hazards document that describes the County's incident management organization, compliance with relevant legal statutes, other relevant guidelines, whole community engagement, and critical components of the incident management structure. The EOP is intended to describe the County's emergency organization, concepts, systems, roles, and responsibilities developed for and implemented in the unincorporated areas of Santa Clara County. The EOP is not intended to address specific emergency responses, scenarios, hazards, or threats, but to outline specific response activities for response organizations (OES 2022). The Proposed Project would be subject to the requirements of the EOP, and the North Fork Dam is considered a High-





Hazard Dam <sup>60</sup>(OES 2022). Valley Water contributed to the EOP as a special district and is assigned the following responsibilities: Emergency Support Function Support, Recovery Support Functions Support, EOP Annex Contributor, and Emergency Operations Center Requirement. There are no specific guidelines for emergencies in the Proposed Project study area.

### ***Santa Clara County General Plan Safety and Noise Chapter***

The Safety and Noise chapter of the General Plan (1994) identifies strategies and policies to manage hazards and hazardous materials in the County. The General Plan identifies the following policy applicable to the Proposed Project to manage hazards and hazardous materials:

**Policy C-HS 14:** All feasible measures to safely and effectively manage hazardous materials and site hazardous materials treatment facilities should be used, including complying with all Federal and State mandates.

This policy may apply to the transportation, storage, or handling of hazardous materials to or from the Proposed Project study area if such materials are identified or required as part of the Proposed Project activities.

### ***Santa Clara Valley Habitat Plan***

The Valley Habitat Plan identifies two conditions that are relevant to Hazards and Hazardous Materials as they apply to protection of riparian areas and aquatic resources: Condition 3. Maintain Hydrologic Conditions and Protect Water Quality and Condition 5. Avoidance and Minimization Measures for In Stream Operations and Maintenance. These are discussed in Section 2.4 and fully described in Appendix C.

## **3.10.3 Environmental Impacts and Mitigation Measures**

The following sections discuss the methods and assumptions, criteria for determining the significance of impacts, environmental impacts, and mitigation measures if applicable.

### **Methods and Assumptions**

This section provides a general discussion related to methods and analytical criteria used to analyze potential hazards and hazardous materials described in Section 3.10.1 for the Proposed Project. This qualitative analysis focuses on the potential to encounter hazardous materials and the potential for their accidental release during transportation to and from the Proposed Project study area. Hazardous materials include petroleum products, NOA and metals, and contaminated soil or groundwater.<sup>61</sup> The Proposed Project's short-term impacts of exposure or release of

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<sup>60</sup> California Governor's Office of Emergency Services defines a high hazard dam as: a dam that is expected to cause the loss of at least one human life.

<sup>61</sup> There is no evidence of contaminated groundwater within or adjacent to the Proposed Project study area, nor was this issued identified in scoping. An in-depth discussion of groundwater quality is provided in Section 3.11.



hazardous materials, if any, would be limited to the period of time it takes to complete geotechnical investigation activities.

Because they are both conservative and widely used as the standard throughout California (and in Santa Clara County), SFBRWQCB Tier 1 ESLs were initially selected as the baseline threshold for evaluating the presence of naturally occurring metals within, or upstream of the Proposed Project study area. However, some of the exposure pathways listed in the Tier 1 ESL tables (e.g., residential and commercial developments) are not applicable to the Proposed Project (i.e., engineering and scientific investigations). The selection of equipment operator (a type of construction worker) as the primary exposure pathway receptor related to this Project is based on the following information in the SFBRWQCB 2019 User Guide:

*The activities for this receptor typically include intensive exposures to surface and subsurface soil during excavation, maintenance, and building construction projects. A construction worker<sup>62</sup> is assumed to be exposed to contaminated soil during the work day for the duration of a single on-site construction project, lasting one year. Even though work durations are typically of shorter length due to the short-term nature of typical construction projects, chronic toxicity information was used when developing screening levels for the construction worker receptor. This approach is more conservative than using subchronic toxicity values since it combines relatively short exposure duration with a chronic toxicity value).*

The locations of known existing hazardous materials sites or areas where there is potential for undiscovered NOA or metals in relation to the Proposed Project study area were taken into consideration when establishing the activity areas. Where surface disturbance associated with drilling or excavation is proposed, there is the potential for encountering contaminated soil or groundwater that could result in a release of hazardous materials and a potential threat to public health and safety.

Emergency evacuation plans for the various state and local emergency management jurisdictions were evaluated to determine specific requirements that would be applicable to the Proposed Project. This information was used to determine what, if any elements of the Proposed Project would conflict with emergency evacuation procedures and construction controls, and mitigation measures were identified where necessary.

The Proposed Project study area is located in Santa Clara County, with commuter and haul truck vehicles traveling west through San Benito County and east through Merced County.

Exposure of people or structures to a significant risk of loss, injury, or death involving wildfires (including smoke) focuses on the use and occupancy of ranchlands within the Proposed Project study area, as well the temporary workforce necessary to implement the Proposed Project.

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<sup>62</sup> While equipment described in Table 2-5 is often used for construction, there are no construction activities incorporated in the Proposed Project.



### ***Applicable Conservation Measures***

Conservation measures applicable to hazards and hazardous materials are listed below. Section 2.4 provides a full description of each BMP and VHP AMM.

- BMP AQ-1: Use Dust Control Measures.
- BMP HM-7: Restrict Vehicle and Equipment Cleaning to Appropriate Locations.
- BMP HM-8: Ensure Proper Vehicle and Equipment Fueling and Maintenance which would require that vehicles and equipment are washed only at approved areas and that no fueling or servicing of vehicles is done in a waterway or immediate floodplain.
- BMP HM-9: Ensure Proper Hazardous Materials Management which includes BMPs to ensure that hazardous materials are properly handled and the quality of water resources is protected.
- BMP HM-10: Utilize Spill Prevention Measures which includes measures to prevent the accidental release of chemicals, lubricants, and non-storm drainage water measures as noted in the Proposed Project description in Section 2.4 to minimize the potential of geotechnical investigation-related fuel hazards.
- BMP HM-12: Incorporate Fire Prevention Measures to reduce the likelihood of a fire, and to provide quick response in the event of a fire.
- BMP TR-1: Incorporate Public Safety Measures.
- VHP AMM-2: Reduce stream pollution by removing pollutants from surface runoff before the polluted surface runoff reaches local streams.
- VHP AMM-7: Personnel shall prevent the accidental release of chemicals, fuels, lubricants, and non-storm drainage water into channels.
- VHP AMM-8: Spill prevention kits shall always be in close proximity when using hazardous materials (e.g., crew trucks and other logical locations).
- VHP AMM-9: Personnel shall implement measures to ensure that hazardous materials are properly handled and the quality of water resources is protected by all reasonable means when removing sediments from the streams.
- VHP AMM-11: Vehicles shall be washed only at approved areas. No washing of vehicles shall occur at job sites.
- VHP AMM-12: No equipment servicing shall be done in the stream channel or immediate flood plain, unless equipment stationed in these locations cannot be readily relocated (i.e., pumps, generators).
- VHP AMM-72: Equipment storage, fueling and staging areas will be sited on disturbed areas or non-sensitive habitat outside of a stream channel.



- VHP AMM-75: Dispose of all construction waste in designated areas and prevent stormwater from flowing onto or off of these areas.
- VHP AMM-76: Prevent spills and clean up spilled materials.
- VHP AMM-87: Vehicles operated within and adjacent to streams will be checked and maintained daily to prevent leaks of materials that, if introduced to the water, could be deleterious to aquatic life.
- VHP AMM-88: Vehicles and equipment will be parked on pavement, existing roads, and previously disturbed areas.
- VHP AMM-90: All trash will be removed from the site daily to avoid attracting potential predators to the site. Personnel will clean the work site before leaving each day by removing all litter and construction-related materials.
- VHP AMM-100: Potential contaminating materials must be stored in covered storage areas or secondary containment that is impervious to leaks and spills.

These measures would be incorporated into the geotechnical investigation work plans, and all geotechnical contractors employed on the Proposed Project would be required to adhere to them. As such, they are considered part of the Proposed Project for purposes of analysis in this EIR.

## **Criteria for Determining Significance of Impacts**

Significance criteria are based on CEQA Guidelines Appendix G. Implementation of the Proposed Project would have significant impacts on hazards and hazardous materials if it were to:

- Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials;
- Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment;
- Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment;
- Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan; Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires;
- Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within ¼ mile of an existing or proposed school; or



- Within an airport land use plan, or where such a plan has not been adopted, within two miles of a public airport or public use airport, result in a safety hazard or excessive noise for people residing or working in the project area.

## Environmental Impacts

### ***Impact HAZ-1***

#### ***Would the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?***

The Proposed Project would include geotechnical investigations consisting of up to 119 exploratory borings, 30 supplemental borings, 32 test pits, 19 seismic refraction survey lines totaling approximately 16,890 linear feet, and one 1,520-foot-long electrical resistivity survey line. Following completion of the Proposed Project, there would be no transportation or use of hazardous materials. Gasoline and diesel fuel would typically be used by vehicles and equipment associated with the Proposed Project, and in accordance with BMP AQ-1 (Use Dust Control Measures). Per the legal agreements for permission to enter with private landowners, all vehicles associated with the Proposed Project would be restricted to 15 miles per hour or less on all access routes within and adjacent to the Proposed Project study area. Fuel and maintenance activities necessary to support equipment, boats and barges, and aircraft operations would be consistent with BMP HM-7, BMP HM-8, BMP HM-9, and BMP HM-10. BMP HM-12 would reduce the likelihood of a fire and provide quick response in the event of a fire.

In addition, use, temporary storage, transport, and disposal of hazardous materials (including any hazardous wastes) during the proposed geotechnical investigations would be conducted in accordance with existing local, state, and federal hazardous materials regulations that are discussed in Section 3.10.2. Many of the BMPs that would be implemented as part of the Proposed Project are similar to the VHP Conditions and VHP AMMs associated with the Valley Habitat Plan described in Chapter 2. As described in the regulatory section, two Conditions (3 and 5) would apply to the Proposed Project that would reduce the potential for exposure to hazardous materials by protecting riparian areas and aquatic resources from potential pollutants. In addition, 13 VHP AMMs would be applicable to avoid or minimize impacts related to exposure to hazardous conditions or materials. These VHP AMMs are 2, 7, 8, 9, 11, 12, 72, 75, 76, 87, 88, 90, and 100, as listed in Table 2-8. As applicable, measures including prevention of accidental release of chemicals, fuels, lubricants, and non-storm drainage water into channels, restricting equipment storage, fueling, and staging areas to disturbed areas outside stream or riparian areas, and temporary storage of waste (e.g., paper, plastic, metal, wood) at designated areas prior to disposal off-site would reduce the potential for discharge or accidental release of materials hazardous to the environment throughout the Proposed Project study area. Therefore, implementation of the Proposed Project would not create a significant hazard to the public or the environment through routine transport, use, temporary storage or disposal of hazardous materials. Therefore, this impact would be **less than significant**. No mitigation is required.



### ***Impact HAZ-2***

***Would the project create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?***

As described under Impact HAZ-1, implementation of the Proposed Project implementation would only require use of hazardous materials (e.g., petroleum products) for the duration of the proposed geotechnical investigation activities. These materials would not be used in sufficient quantities to pose a substantial threat to human or environmental health. An onsite aviation fuel/maintenance truck based out of the Hollister Airport would be used to provide fuel for the proposed helicopter operations. The aviation fuel truck would only occur onsite on days with scheduled helicopter operations. Fuel for vehicles, boats, barges, and equipment would be transported to the Proposed Project study area daily in conjunction with transporting equipment operators and other project personnel. Once fuel is onsite, all fuel necessary to transport via helicopter would be placed in double-walled steel containers. All fuels that would be transported from fuel trucks to fuel drill rigs and/or excavators would be stored in approved, double-walled metal containers for transfer by helicopter or vehicle to activity areas on a daily basis. No fuel would be stored on-site overnight. Spill kits would be kept at all locations where fuel is used and/or temporarily stored within the Proposed Project study area. As described under Impact HAZ-1, to avoid or minimize potential of reasonably foreseeable upset or accident condition that could result in a release of hazardous materials into the environment, the designated contractor would implement BMP HM-7, BMP HM-8, BMP HM-9, and BMP HM-10. In addition, 13 VHP AMMs would be applicable to avoid or minimize impacts related to the release of hazardous materials to the environment. These VHP AMMs are 2, 7, 8, 9, 11, 12, 72, 75, 76, 87, 88, 90, and 100, as listed in Table 2-8. In the unlikely event of a spill, fuels and or fluids would be controlled using approved spill kits and disposed of in accordance with applicable regulatory requirements described in Section 3.10.2. Therefore, the Proposed Project would not create a significant hazard to the public or environment. This impact would be **less than significant**. No mitigation is required.

### ***Impact HAZ-3***

***Would the project be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?***

As described in Table 3.10-3, no known hazardous material sites were identified within the Proposed Project study area or immediate vicinity, with the exception of the Pacheco Pass Water District-North Fork Dam. The small building on the east abutment of North Fork Dam is listed as a Hazardous Materials Storage Facility that historically contained lead batteries used to supply power to instrumentation measuring reservoir outflow; these batteries were removed from the Proposed Project study area. No additional information was provided in the environmental database report. Although this listing is within the Proposed Project study area, given the minimal





quantities and no reported underground features or releases, it is not considered a parcel with an REC. Therefore, no further assessment is warranted at this time.

No other Hazardous material sites were identified to occur within a one-mile radius of the Proposed Project study area. As provided in Table 3.10-4, the closest sites are located beyond a 4-mile radius of the Proposed Project study area. Because there are no hazardous materials sites, including sites compiled pursuant to Government Code §65962.5, in, or in close proximity to the Proposed Project study area, implementation of the Proposed Project would not create a significant hazard to the public or the environment. This impact would be **less than significant**. No mitigation is required.

#### ***Impact HAZ-4***

##### ***Would the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?***

The 2022 EOP does not identify any specific requirements for emergency response or emergency evacuation plans within the Proposed Project study area. Thus, the Proposed Project would not impair implementation of or physically interfere with the 2022 EOP.

Emergency access to and evacuation from the Proposed Project study area would be via the existing paved unnamed access road on the north side of SR-152. SR-152 is the main access route from both directions and would be the main evacuation route from the Proposed Project study area in case of an emergency. Implementation of BMP TR-1 (Incorporate Public Safety Measures) would require Valley Water to provide adequate warning to the public for the proposed geotechnical investigations and of any dangerous condition to be encountered.

Potential conflicts with emergency vehicles could still occur in the form of traffic slowdowns at the locations where lane closures would be in effect for nighttime borings at four activity areas (PB-01, PB-02, R-20-001, and R-20-003). The proposed nighttime work at these four activity areas would occur between the hours of 8 p.m. and 4 a.m. and 10 p.m. and 7 a.m. respectively, for a period of up to four nights each, and require the use of lighting for both traffic and worker safety. Nighttime lighting would be installed in accordance with CCR Title 8, Section 1523 and Caltrans Standard Specifications Section 87-20.02I Temporary Lighting Systems, as described in Section 2.3.5. nighttime borings would occur within the SR-152 ROW. This would result in a temporary, but significant impact during the timeframe these lane closures would be in effect over the course of several weeks.

Valley Water will implement mitigation measure TR-1 (Traffic Control Plan), which would minimize conflicts with emergency vehicles and/or evacuation traffic for SR-152 at Kaiser-Aetna Road when lane and/or shoulder restrictions or closures are in effect. The notification and communication requirements in the Traffic Control Plan required by mitigation measure TR-1 would ensure that local emergency managers such as CAL FIRE, CHP, Santa Clara County Fire Department, and the Santa Clara County Sheriff would be aware of any traffic management issues and would be able



to share that information with first responders. Therefore, this impact would be **less than significant with mitigation incorporated**.

***Impact HAZ-5***

***Would the project expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires?***

The Proposed Project would have a duration of up to two fire seasons and would have the potential to expose people to existing risks associated with natural or human-caused wildfires that may start or spread into the Proposed Project study area, similar to the 2020 Santa Clara Unit (SCU) Lightning Complex fires that burned a substantial portion of the North Fork Pacheco Creek watershed. The majority of the Proposed Project study area is located within the high fire hazard severity zone (see Figure 3.21-1 in Section 3.21). While most of the watershed is uninhabited, during the implementation of the Proposed Project, approximately five to 20 project personnel could be working within the Proposed Project study area and be subjected to existing wildfire risk while conducting the proposed geotechnical investigations. As described in Chapter 2, the Proposed Project does not propose any new development, however the risk of a wildfire persists during the proposed geotechnical investigations. The Proposed Project activities (e.g., excavation, drilling) are not high potential activities for wildfire ignition and, with implementation of BMP HM-12 are not likely to exacerbate wildfire risks. However, in the event of a wildfire that requires evacuation of workers and/or residents from the Proposed Project study area the Santa Clara County Sheriff has the authority and responsibility to issue evacuation warnings or orders to people (including nearby residents, visitors and project personnel) based on input from Cal Fire or other agencies in the event of wildfire threats. If such a situation arises during Proposed Project activities, all project personnel would comply with local evacuation orders related to wildfire threats. Nearby residents, project personnel and occupants of other structures within or in close proximity to the Proposed Project study area would all receive evacuation warnings or orders via existing plans and processes used by the Santa Clara County Sheriff's Office for emergency purposes. No people or structures would be subject to significant risks. This impact would be **less than significant**. No mitigation is required.

***Impact HAZ-6***

***Would the project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within ¼ mile of an existing or proposed school?***

There are no schools within the Proposed Project study area. The closest school is Eliot Elementary School in Gilroy, more than 20 miles away, therefore there would be **no impact**. No mitigation is required.



**Impact HAZ-7**

***For a project located within an airport land use plan, or where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?***

The Proposed Project study area is not within two miles of a public or private use airport. The closest airport is Frazier Lake Airpark, located approximately 10.5 miles west of the Proposed Project study area in Hollister, therefore there would be **no impact**. No mitigation is required.

**Mitigation Measures**

**MM TR-1: Traffic Control Plan.** Valley Water shall prepare and implement a Traffic Control Plan to minimize traffic delays and safety hazards that may result from lane restrictions or closures in the work zone within and adjacent to the SR-152 Caltrans ROW. The Traffic Control Plan shall comply with Caltrans' standard lane restriction/closure and notification requirements and shall be submitted to Caltrans for review and approval prior to commencement of investigations that require shoulder or lane closure within Caltrans' ROW. This mitigation is fully described in Section 3.18.3.5.

## **3.11 Hydrology and Water Quality**

This section describes the environmental setting and regulatory framework for hydrology and water quality and analyzes the environmental impacts of the Proposed Project

### **3.11.1 Environmental Setting**

The following discussion describes the environmental setting related to hydrology and water quality for the Proposed Project.

#### **Hydrology**

The Proposed Project study area encompasses small portions of the Pacheco Creek, North Fork Pacheco Creek and South Fork Pacheco Creek watersheds as illustrated in Figure 3.11-1.



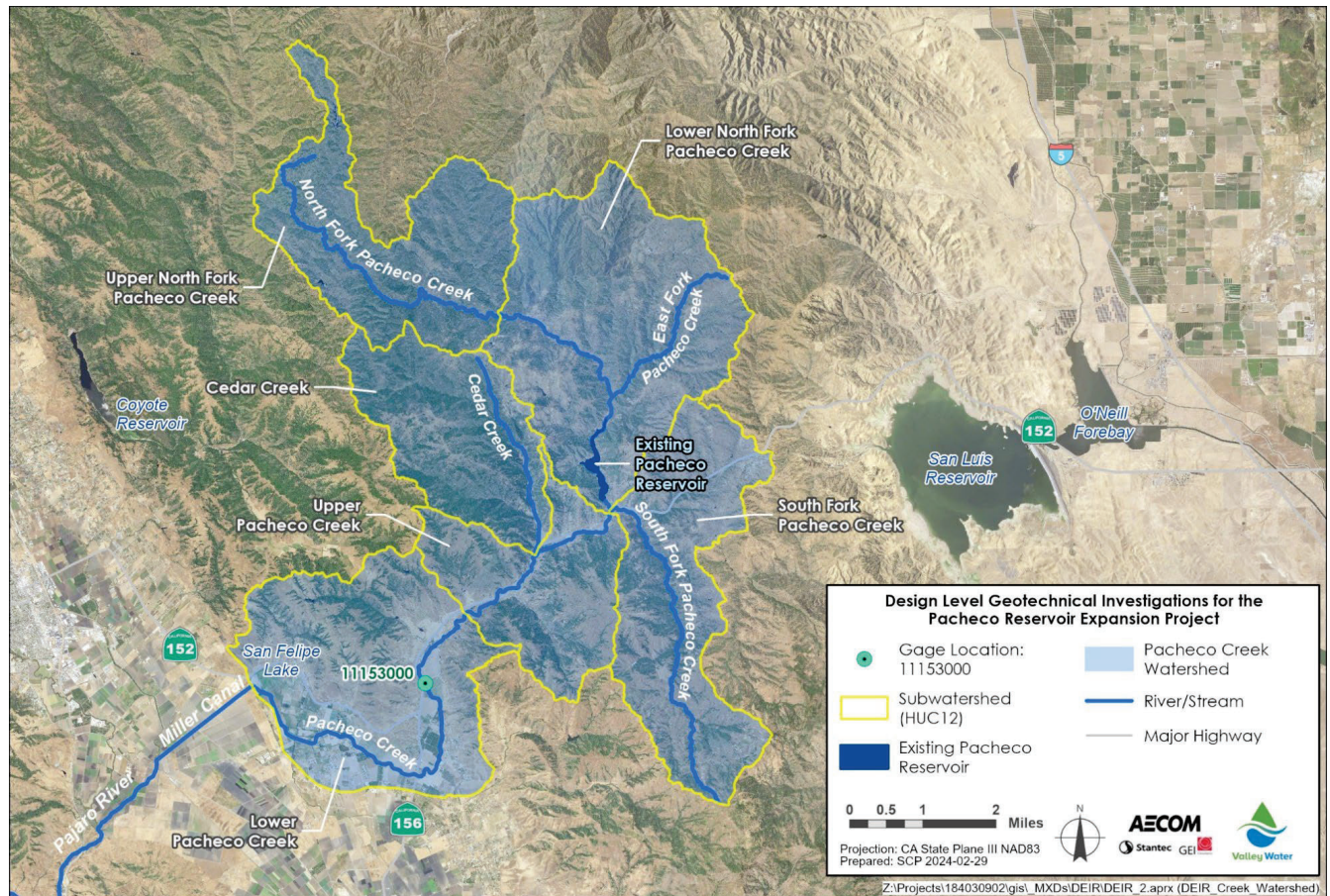


Figure 3.11-1. Pacheco Creek Watersheds





## ***Surface Water***

### North Fork Pacheco Creek and Pacheco Reservoir

The existing Pacheco Reservoir and a reach of North Fork Pacheco Creek are located in the Proposed Project study area. The North Fork Pacheco Creek watershed encompasses a drainage area of 67 square miles with elevations ranging from 325 feet to 2,600 feet above mean sea level. The watershed is characterized as steep and mountainous, with narrow valleys and canyons typical of dendritic landscapes found throughout the Diablo Range. Most of the upper watershed contains rugged, sparsely populated areas dominated by oak forests and grazing lands. The mountainous portion of the watershed is classified almost entirely as either grassland/herbaceous, shrub/scrub, or mixed hardwoods (MRLC 2021). The creek is characterized by high interannual flow variance, with high flows occurring during the rainy season of wet years, driven by winter rainstorms, and very low base flows during summer and periodic drought conditions. The U.S. Geologic Survey National Hydrology Dataset (USGS 2021a) indicates that 94 percent of the 517 miles of channel upstream from the existing Pacheco Reservoir is classified as intermittent or ephemeral. Flow in intermittent and ephemeral channels is seasonal, with the majority of flow transported downstream episodically during storm events. Under certain seasonal or climatic conditions, North Fork Pacheco Creek and its larger tributaries may flow year-round upstream from Pacheco Reservoir. Historical mean annual unimpaired inflows are estimated to be approximately 13,104 acre-feet, varying from a mean of 24,800 acre-feet in Wet water years to a mean of 1,500 acre-feet in Critical water years, as defined by the Sacramento Valley Year Index<sup>63</sup> and modeled mean monthly inflows to the reservoir by water-year type.<sup>64</sup>

Constructed by PPWD in 1939, North Fork Dam impounded North Fork Pacheco Creek resulting in the existing Pacheco Reservoir. This dam captures seasonal runoff from a 66.5 square-mile drainage area in the upper North Fork Pacheco Creek watershed.<sup>65</sup> When constructed, it provided 5,500 acre-feet of water storage capacity. Based on recent geological investigations associated with Valley Water's PREP planning and design efforts, approximately one million cubic yards of sediment has been captured behind the dam over the past 85 years with a corresponding reduction in overall water storage capacity.

Pacheco Reservoir releases flow intermittently into North Fork Pacheco Creek where it flows approximately 0.4 miles until it joins South Fork Pacheco Creek and forms mainstem Pacheco Creek just upstream from SR-152.

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<sup>63</sup> The Sacramento Valley Year Index is based on the measured unimpaired runoff of the Sacramento River, Feather River, Yuba River, and the American River. The index is calculated as  $0.4 \times \text{Current April July Runoff Forecast (in million acre-feet)} + 0.3 \times \text{Current October-March Runoff (in million acre-feet)} + 0.3 \times \text{Previous Water Year's Index}$  (if the Previous Water Year's Index exceeds 10.0, then 10.0 is used). The index includes five water year classifications: Wet (index equal to or greater than 9.2), Above Normal (Index greater than 7.8, and less than 9.2), Below Normal (Index greater than 6.5, and equal to or less than 7.8), Dry (Index greater than 5.4, and equal to or less than 6.5), and Critical (Index equal to or less than 5.4).

<sup>64</sup> Simulation period: 1922-2003.

<sup>65</sup> A small portion of the North Fork Pacheco Creek watershed drains into the creek downstream of North Fork Dam.



Pacheco Reservoir is operated by PPWD to capture wet season flows and store them for later release in summer months for the purpose of recharging groundwater aquifers underlying Pacheco Creek in downstream reaches. Due to significant annual variation in inflows and annual groundwater recharge operations, the reservoir is often filled and emptied within a single water year. This operation results in spill in above-average water years when the reservoir is full, and both seasonal and annual periods with no water in storage during dry periods when the reservoir has been drained and there are no inflows. Historic operational records are limited with respect to Pacheco Reservoir and do not provide definitive documentation of any operational changes that may have occurred since 1939.

Since 2017, the North Fork Dam has been under restricted operation criteria due to existing spillway deficiencies (e.g., damage to the spillway). PPWD, in coordination with DSOD has developed a plan to perform repairs of the existing spillway consistent with DSOD requirements. Repairs to the existing spillway are anticipated to be completed at some point in the future when funding becomes available.<sup>66</sup>

#### South Fork Pacheco Creek

A small segment of South Fork Pacheco Creek flows through the Proposed Project study area, parallel to the west-bound lanes of SR-152. With hydrology and topography similar to North Fork Pacheco Creek, it is largely intermittent with a watershed area of 27.7 square miles.

#### Pacheco Creek

About 1.5 miles of Pacheco Creek flows through or adjacent to the Proposed Project study area downstream of the confluence of South Fork Pacheco Creek and North Fork Pacheco Creek. Pacheco Creek drains a combined 165 square miles in Santa Clara and San Benito Counties through several tributaries before emptying into San Felipe Lake, the headwaters of the Pajaro River.

Flows in Pacheco Creek from 1939 through 1982, and from 2007 through the present were measured at USGS gage 11153000 Pacheco Creek Near Dunneville, California, also known as the Walnut Avenue Gage. The USGS gage is located approximately 8 miles downstream from the confluence of North Fork and South Fork Pacheco Creek, and it measures the flow contributions from North Fork Pacheco Creek (including spills and releases from North Fork Dam), South Fork Pacheco Creek, Cedar Creek, and other small tributaries to Pacheco Creek. Wet years see significant flow volumes averaging greater than 40,000 acre-feet, while dry years generally see flow volumes averaging less than 2,000 acre-feet.

Pacheco Creek hydrology is primarily influenced by releases from North Fork Dam, unregulated flows<sup>67</sup> from major Pacheco Creek tributaries (e.g., Cedar Creek), and surface-groundwater

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<sup>66</sup> Additional information on PPWD Spillway Repair Project is provided in Chapter 5 (Cumulative Impacts).

<sup>67</sup> Unregulated flow refers to streamflow that is naturally occurring in a waterway and not the result of a regulated release or discharge from a water impoundment or storage facility.





interactions. Figure 3.11-2 shows key features that influence Pacheco Creek hydrology, including tributaries and groundwater reaches that receive percolated streamflow.

In wet winter and spring months, flow from unregulated tributaries and spill<sup>68</sup> from existing Pacheco Reservoir are the primary source of flow in Pacheco Creek. In winter and spring months of Average to Critical water-year types, unregulated tributaries are the primary source of flow in Pacheco Creek, as Pacheco Reservoir captures and stores inflow. In summer and fall months of all water-year types, PPWD releases from Pacheco Reservoir for groundwater recharge are the primary source of flows in Pacheco Creek. These summer releases often percolate entirely into the streambed before reaching the Walnut Avenue Gage. From May through November, releases of 2 to 15 cubic feet per second (cfs) made from Pacheco Reservoir can percolate entirely into the streambed of Pacheco Creek, as indicated by measured flow of 0 cfs in the same month at the USGS gage (SBCWD 2009).

Historically, flooding has occurred in portions of Pacheco Creek. A flood study conducted by the USACE on lower Pacheco Creek identified flooding around San Felipe Lake,<sup>69</sup> a natural lake during high-flow events (USACE 1973). The study noted that during floods, trees, brush, and other vegetation growing in floodways impeded flood flows, resulting in overbank flows and unpredictable areas of flooding, destruction of or damage to bridges and culverts, and increased velocity of flow. Eight events from 1940 through 1973 were reported to result in property damage in the San Felipe Lake area, with all peak flows measuring greater than 3,600 cfs at the USGS gage upstream, equating to a flow event between a 5- and 10-year return period.

Flooding was reported in 2017 near San Felipe Lake where the banks of Pacheco Creek were overtopped at various locations upstream from the lake during multiple high flow events during that water year (Chadwell 2017). The peak flow measured in early 2017 at the USGS gage 11153000 was 11,700 cfs, somewhere between a 15- and 50-year event depending on the method used for estimating peak flows.

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<sup>68</sup> Spill refers to excess flow from Pacheco Reservoir when inflow exceeds capacity and uncontrolled flow from the spillway is discharged into North Fork Pacheco Creek.

<sup>69</sup> San Felipe Lake is a natural shallow lake that was modified by the construction of the Miller Canal in 1874 which reduced the size of the lake.



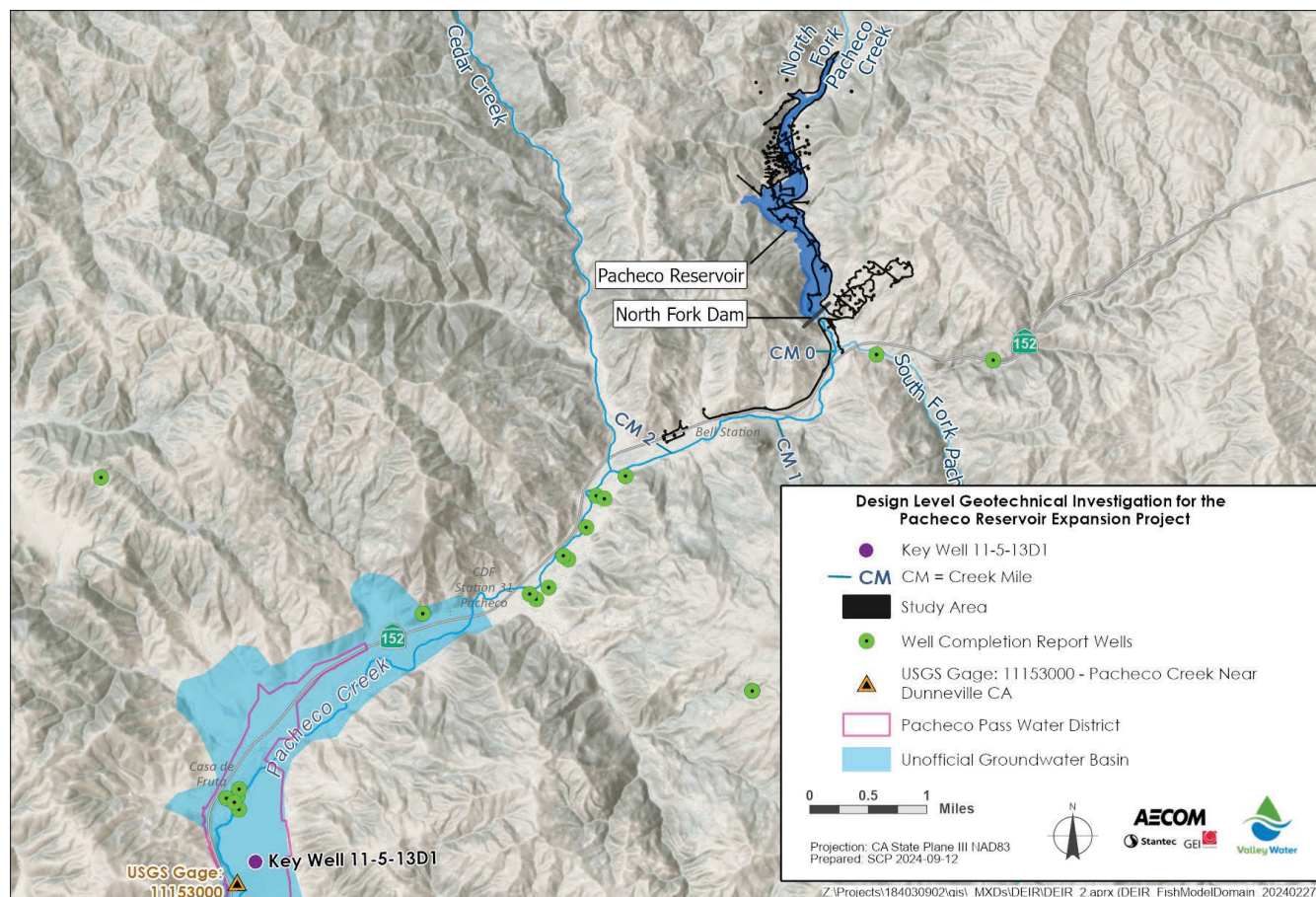


Figure 3.11-2. Key Locations, Creeks, Creek Mile Markers, and Physical Features of Pacheco Creek and its Tributaries



The Federal Emergency Management Agency (FEMA) provides information on flood hazard and frequency for cities and counties on its Flood Insurance Rate Maps (FIRM). FEMA identifies designated zones to indicate flood hazard potential. In general, flooding occurs along waterways, with infrequent localized flooding also occurring due to constrictions of storm drain systems or surface water ponding. The FIRM for Pacheco Creek includes the existing Pacheco Reservoir (FEMA 2009). The existing reservoir inundation area, the North Fork Pacheco Creek channel below the dam, and the Pacheco Creek channel are designated as Zone A (100-year floodplain).<sup>70</sup> Areas outside of the reservoir inundation area and outside the primary channels of North Fork Pacheco Creek and Pacheco Creek are designated as Zone D (areas in which the flood hazard is undetermined, but possible).

### ***Groundwater***

The water released from Pacheco Reservoir flows through the lower reach of North Fork Pacheco Creek into Pacheco Creek where it percolates through the streambed to recharge groundwater aquifers. Pacheco Reservoir and the upstream portion of Pacheco Creek are located outside of any groundwater basins defined by DWR, as shown in Figure 3.11-3.

Water users within and adjacent to the Proposed Project study area generally receive their water supply as groundwater from wells. Valley Water regulates the construction, modification, and destruction of all groundwater wells through a well permitting process,<sup>71</sup> and locations and classifications of wells are publicly available on the Valley Water Well Information Map (Valley Water 2021b).

Based upon information from Valley Water and DWR, approximately 70 unique wells are reported to be located downstream of the Proposed Project study area near Pacheco Creek. However, no wells are documented within the Proposed Project study area.

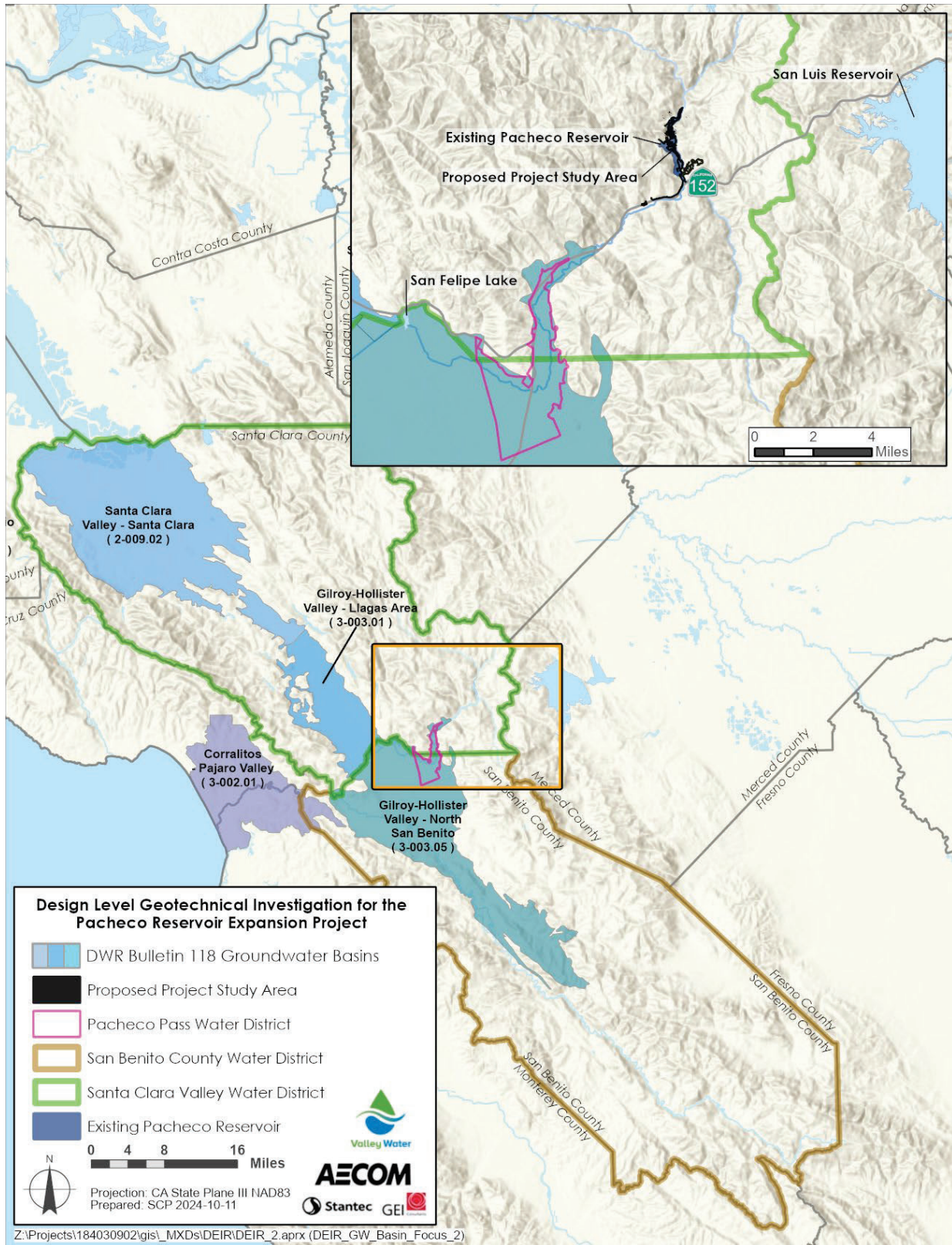
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<sup>70</sup> FEMA defines a 100-year floodplain as the area that will be inundated by the flood event having a 1-percent chance of being equaled or exceeded in any given year. The 1-percent annual chance flood is also referred to as the base flood or 100-year flood.

<sup>71</sup> Valley Water initiated the well permitting program in the mid-1970s; it is possible that wells currently functioning within Santa Clara County do not have a permit and are not included in the well registration program.







**Figure 3.11-31. California Department of Water Resources Defined Groundwater Basins in the Vicinity of the Proposed Project Study Area**



Pacheco Creek surface flows eventually percolate through the alluvial sediments floor into the North San Benito Subbasin (DWR Bulletin 118 Basin Number 3-003.05) of the Gilroy-Hollister Valley Groundwater Basin. The North San Benito Subbasin begins in Santa Clara County and extends southwards into San Benito County (SBCWD and Valley Water 2021). The service areas of Valley Water, San Benito County Water District (SBCWD), and PPWD overlay the subbasin, which is used by both agricultural and municipal well operators. SBCWD primarily manages and is the exclusive Groundwater Sustainability Agency (GSA)<sup>72</sup> for the San Benito County portion of the subbasin.<sup>73</sup> Valley Water is the GSA for Santa Clara County portions. The Proposed Project study area is not within any groundwater basin mapped by DWR. Therefore, no Groundwater Sustainability Plan (GSP) has been prepared or adopted by Valley Water, SCBWD or PPWD that would be applicable (DWR 2023).

## Water Quality

The following discussion describes the environmental setting and regulatory framework for water quality. Water quality in North Fork Pacheco Creek as well as Pacheco Reservoir is primarily affected by natural runoff and agriculture (i.e., grazing). Although South Fork Pacheco Creek is unregulated, water quality conditions are similarly affected by natural runoff and agriculture. Downstream in Pacheco Creek the addition of agricultural return flows, releases from North Fork Dam, and localized rural development and agricultural practices contribute to existing water quality conditions. To protect water quality, both the federal (Clean Water Act; described under 3.11.2, Regulatory Framework) and the state (Porter-Cologne Water Quality Control Act of 1969; described under 3.11.2, Regulatory Framework) governments use water quality standards or objectives that consist of the designated beneficial use or uses (e.g., recreation, drinking water, industrial, other) of a water body, plus a numerical or narrative statement identifying maximum concentrations of various pollutants that would not interfere with the designated use. This discussion lists beneficial uses and water quality objectives of surface water and groundwater in the Proposed Project study area, then describes current water quality conditions of surface waters and groundwater.

### *Beneficial Uses and Water Quality Objectives*

The CCRWQCB has established 13 beneficial uses, as documented in the Water Quality Control Plan for the Central Coast Basin (CC Basin Plan), for Pacheco Reservoir (referred to as Pacheco Lake in the CC Basin Plan) and 14 beneficial uses for Pacheco Creek, which also applies to South Fork Pacheco Creek (Table 3.11-1). The CC Basin Plan also describes the water quality objectives

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<sup>72</sup> Groundwater Sustainability Agencies are the local public agencies tasked with developing and implementing Groundwater Sustainability Plans under the Sustainable Groundwater Management Act.

<sup>73</sup> The geographic boundaries of groundwater basins near the Proposed Project study area defined by SBCWD in their historical Annual Groundwater Reports differ from those defined by the DWR. The Hollister Management Area, as defined by SBCWD, falls within the San Benito County portion of the Gilroy-Hollister Groundwater Basin and includes the SBCWD-defined subbasins of Pacheco, Bolsa SE, Hollister East and West, and Tres Pinos. The Pacheco subbasin is within the vicinity of Pacheco Creek.



that must be maintained to allow those uses. The most recent edition of the CC Basin Plan was adopted on June 14, 2019 (CCRWQCB 2019). However, several amendments to the 2019 CC Basin Plan have been approved that are in effect but not included in the CC Basin Plan. These amendments can be accessed on the CCRWQCB website (CCRWQCB 2024). None of these amendments are applicable to the Proposed Project study area, or the Proposed Project.

### Inland Surface Waters

General objectives for all inland surface waters in the CC Basin Plan aim to protect water quality conditions resulting from human activities that may impact current and probable future beneficial uses for surface waters. The goal of these water quality objectives is to prevent constituents causing nuisances or adversely affecting beneficial uses. Constituents described in the general objectives include color, tastes and odors, floating material, suspended material, settleable material, oil and grease, biostimulatory substances,<sup>74</sup> sediment, turbidity, pH, dissolved oxygen, temperature, toxicity, pesticides, chemical constituents, other organics, and radioactivity. Water quality in the Proposed Project study area generally meets the general objectives. Key water quality conditions and constituents of concern are discussed under Water Quality Conditions below.

In addition to general objectives for all inland surface water, the CC Basin Plan has water quality objectives for specific beneficial uses. The water quality objectives for the specific beneficial uses identified for Pacheco Creek and Pacheco Reservoir are shown in Table 3.11-2.

Under Section 303(d) of the CWA (see 3.10.2, Regulatory Framework), states must analyze readily available water-quality related data and information and identify waters for which a water quality standard has not been met for individual pollutants. Such waters are considered impaired waters for that specific pollutant. Pacheco Creek is listed as impaired under Section 303(d) due to high concentrations of fecal coliforms (affecting contact and non-contact recreation beneficial uses), low dissolved oxygen (affecting cold and warm freshwater habitat beneficial uses), and high turbidity (affecting cold and warm freshwater habitat beneficial uses) (SWRCB 2018a). Sources of turbidity and dissolved oxygen impairments in Pacheco Creek are listed as unknown in the 303(d) analysis. Sources of fecal coliform impairments are listed as domestic animals and livestock, collection system failure, and urban runoff and storm sewers (SWRCB 2018a). Releases from the existing Pacheco Reservoir are not listed as a source of the identified impairments.

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<sup>74</sup> Substances that can cause eutrophication, such as nitrogen, phosphorous, or organic matter.





**Table 3.11-1. Beneficial Uses of Pacheco Creek and Pacheco Reservoir**

Beneficial Use	Pacheco Creek	Pacheco Reservoir <sup>1</sup>
Municipal and Domestic Supply	x	x
Agricultural Supply	x	x
Groundwater Recharge	x	x
Water Contact Recreation	x	x <sup>2</sup>
Non-Contact Water Recreation	x	x <sup>2</sup>
Wildlife Habitat	x	x
Cold Fresh Water Habitat	x	x
Warm Fresh Water Habitat	x	x
Migration of Aquatic Organisms	x	
Spawning, Reproduction, and/or Early Development	x	x
Preservation of Biological Habitats of Special Significance	x	
Rare, Threatened, or Endangered Species	x	x
Fresh Water Replenishment	x	x
Navigation		x <sup>2</sup>
Commercial and Sport Fishing	x	x <sup>2</sup>

Source: Central Coast Regional Water Quality Control Board, 2019.

Notes:

<sup>1</sup> The existing Pacheco Reservoir is referred to as Pacheco Lake in the Basin Plan for the Central Coast Basin and includes North Fork Pacheco Creek and its tributaries upstream of Pacheco Reservoir.

<sup>2</sup> The Basin Plan for the Central Coast Basin identifies water contact recreation, non-contact water recreation, navigation, and commercial and sporting fishing as beneficial uses; however, no public access is provided for Pacheco Reservoir. Therefore, water contact recreation, non-contact water recreation, navigation and commercial and sport fishing are potential beneficial uses but do not currently occur at the reservoir.

**Table 3.11-2. Water Quality Objectives for Specific Beneficial Uses for Pacheco Creek and Pacheco Reservoir**

Beneficial Use	Constituent	Water Quality Objective <sup>1</sup>
Municipal and Domestic Supply	Phenol	Concentrations of less than 1.0 µg/L
	Organic and Inorganic Chemicals	Shall not contain concentrations of organic chemicals in excess of the maximum contaminant levels for California primary drinking water standards
	pH	Greater than 6.5 and less than 8.3
	Radioactivity	Shall not exceed listed <sup>2</sup> concentration limits for radionuclides



**Table 3.11-2. Water Quality Objectives for Specific Beneficial Uses for Pacheco Creek and Pacheco Reservoir (cont.)**

Beneficial Use	Constituent	Water Quality Objective <sup>1</sup>
Agricultural Supply	pH	Greater than 6.5 and less than 8.3
	Dissolved Oxygen	Not reduced below 2.0 mg/L at any time
	Chemical Constituents	Shall not exceed concentration limits for listed chemicals
Water Contact Recreation <sup>3</sup>	pH	Greater than 6.5 and less than 8.3
	Bacteria	Fecal coliform shall not exceed a log mean of 200/100 mL based on a minimum of five samples in a 30-day period
Non-Contact Water Recreation <sup>3</sup>	pH	Greater than 6.5 and less than 8.3
	Bacteria	Fecal coliform shall not exceed a log mean of 2,000/100 mL based on a minimum of five samples in a 30-day period
Cold Fresh Water Habitat	pH	Greater than 7.0 and less than 8.5
	Dissolved Oxygen	Not reduced below 7.0 mg/L at any time
	Temperature	Not increased by more than 5°F above natural receiving water temperature
	Chemical Constituents	Shall not exceed concentration limits for listed chemicals
	Turbidity <sup>4</sup>	Water shall be free of changes in turbidity that cause a nuisance or adversely affect beneficial uses <sup>5</sup>
Warm Fresh Water Habitat	pH	Greater than 7.0 and less than 8.5
	Dissolved Oxygen	Not reduced below 5.0 mg/L at any time
	Temperature	Not increased by more than 5°F above natural receiving water temperature
	Chemical constituents	Shall not exceed concentration limits for listed chemicals
	Turbidity <sup>4</sup>	Water shall be free of changes in turbidity that cause a nuisance or adversely affect beneficial uses <sup>5</sup>

Source: Central Coast Regional Water Quality Control Board, 2019.

Notes:

<sup>1</sup> Some of these objectives have different ranges for the same waterbody if multiple beneficial uses are designated. In such cases, the most conservative objective is applied for analysis (e.g., the higher pH threshold of 7.0 is used rather than 6.5 in waters that contain both water contact recreation and cold freshwater habitat beneficial uses).

<sup>2</sup> Radionuclide maximum contaminant levels are specified in California Code of Regulations, Title 22, Division 4, Chapter 15, Article 5, Section 64443.

<sup>3</sup> The Basin Plan for the Central Coast Basin identifies water contact recreation and non-contact water recreation as beneficial uses; however, no public access is provided for Pacheco Reservoir. Therefore, water contact recreation and non-contact water recreation are potential beneficial uses but do not currently occur at the reservoir.

<sup>4</sup> The basin plan does not identify specific turbidity water quality objectives or numeric criteria for cold and warm freshwater habitat, but turbidity impairments in Pacheco Creek have been identified in the 303(d) listing with a criterion of 25 NTU or less used as an evaluation guide for impairment.

<sup>5</sup> Increases in turbidity attributable to controllable water quality factors shall not exceed the following limits:

1. Where natural turbidity is between 0 and 50 NTU, increases shall not exceed 20 percent.
2. Where natural turbidity is between 50 and 100 NTU, increases shall not exceed 10 NTU.
3. Where natural turbidity is greater than 100 NTU, increases shall not exceed 10 percent.

Allowable zones of dilution within which higher concentrations would be tolerated would be defined for each discharge in discharge permits.th

Key:

°F = Degrees Fahrenheit

µg/L = micrograms per liter

mg/L = milligrams per liter

mL = milliliter

NTU = Nephelometric Turbidity Unit



## Groundwater

The CC Basin Plan includes two narrative water quality objectives applicable to all groundwaters under the jurisdiction of the CCRWQCB, objectives for specific beneficial uses, and objectives specific to groundwater quality (CCRWQCB 2019). The first narrative objective states "groundwaters shall not contain taste or odor producing substances in concentrations that adversely affect beneficial uses." The second objective states radionuclides<sup>75</sup> shall not be present in concentrations that are deleterious to human, plant, animal, or aquatic life, or result in the accumulation of radionuclides in the food web to an extent which presents a hazard to human, plant, animal, or aquatic life." The water quality objectives for specific groundwater beneficial uses are shown in Table 3.11-3, and the median groundwater quality objectives for the Hollister Sub-area, the only specific local groundwater near the Proposed Project study area identified in CC Basin Plan, are shown in Table 3.11-4.

**Table 3.11-3. Water Quality Objectives for Specific Groundwater Beneficial Uses**

Beneficial Use	Constituent	Water Quality Objective
Municipal and Domestic Supply	Bacteria	Median concentration of coliform organisms over any seven-day period shall be less than 2.2/100 mL
	Organic and Inorganic Chemicals	Shall not contain concentrations in excess of the maximum contaminant levels for California primary drinking water standards for organic <sup>1</sup> or inorganic <sup>2</sup> chemicals
Agricultural Supply	Radioactivity	Shall not exceed listed <sup>3</sup> concentration limits for radionuclides
	Chemical Constituents	Shall not exceed concentration limits for listed <sup>4</sup> chemicals

Source: Central Coast Regional Water Quality Control Board, 2019

Notes: <sup>1</sup> Maximum contaminant levels for California primary drinking water standards are found in California Code of Regulations, Title 22, Division 4, Chapter 15, Article 5.5, Section 64444, Table 64444-A.

<sup>2</sup> Maximum contaminant levels for California primary drinking water standards are found in California Code of Regulations, Title 22, Division 4, Chapter 15, Article 5.5, Section 64431 and 64433.2.

<sup>3</sup> Limits specific in California Code of Regulations, Title 22, Division 4, Chapter 15, Article 5.5, Section 64443.

<sup>4</sup> See Table 3-1 and Table 3-2 in CCRWQB 2019.

Key: mL - milliliter

**Table 3.11-4. Median Groundwater Objectives for the Hollister Sub-area**

Constituent	Water Quality Objective (mg/L)
Total Dissolved Solids	1,200
Chlorine (Cl)	150
Sulfate (SO <sub>4</sub> )	250
Boron (B)	1.0
Sodium (Na)	200
Nitrogen (N)	5

Source: Central Coast Regional Water Quality Control Board, 2019

Key:

mg/L – milligram per liter

<sup>75</sup> Radionuclides are radioactive forms of elements that can either occur naturally in the environment or unnaturally through direct release or as a byproduct of nuclear reactions.



## ***Water Quality Conditions***

This section discusses key water quality conditions, constituents of concern, the factors influencing their numeric values, and the regulatory objectives associated with maintaining beneficial uses for the Proposed Project study area as outlined in the CC Basin Plan, as applicable. The focus of the following discussion is water quality conditions under the CC Basin Plan and water quality parameters or constituents that may be influenced by the Proposed Project.

### Temperature

The CC Basin Plan established specific water temperature objectives for cold and warm freshwater habitat: at no time or place shall the temperature of any water be increased by more than 5°F above natural receiving water temperature for these beneficial uses (CCRWQCB 2019). The CC Basin Plan also includes a narrative objective that receiving surface water temperature of intrastate waters shall not be altered unless it can be demonstrated to the satisfaction of the CCRWQCB that such alteration in temperature does not adversely affect beneficial uses. To implement this objective in the 303(d) analysis, the CCRWQCB has applied an evaluation guideline for water temperature based on Moyle (1976), which states that for rainbow trout (i.e., *Oncorhynchus mykiss*, which includes the SCCC steelhead present in the Pacheco Creek watershed), the optimum range for growth and completion of most life stages is 55.4 to 69.8°F (13 to 21°C). The maximum water temperature threshold is rounded to 70°F for ease of discussion in the remainder of this section. Pacheco Creek, including all tributaries is not currently on the 303(d) list for impairment for water temperature.

### Sediment and Turbidity

This section focuses on sediment currently stored in Pacheco Reservoir and turbidity in surface waters downstream.<sup>76</sup> Turbidity is the amount of particulate matter suspended in water, generally measured in nephelometric turbidity units (NTU), which signifies the opaqueness of water due to the presence of suspended solids. The CC Basin Plan does not identify specific objectives for sediment or turbidity for any beneficial use in Pacheco Creek or Pacheco Reservoir. General objectives for all inland surface waters within, and downstream of the Proposed Project study area state that 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, and waters shall be free of changes in turbidity that cause nuisance or adversely affect beneficial uses.

As stated in the CC Basin Plan, increases in turbidity attributable to controllable water quality factors shall not exceed the following limits: Where natural turbidity is between 0 and 50 NTUs, increases shall not exceed 20 percent. Where natural turbidity is between 50 and 100 NTUs, increases shall not exceed 10 NTUs. Where natural turbidity is greater than 100 NTUs, increases shall not exceed 10 percent. The CC Basin Plan also states that all waters shall be maintained free of toxic substances in concentrations which are toxic to, or which produce detrimental

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<sup>76</sup> Currently, no information on levels of turbidity or other water quality constituents is readily available for North Fork Pacheco Creek or South Fork Pacheco Creek.



physiological responses in, human, plant, animal, or aquatic life. Water quality conditions related to sediment and turbidity in the Proposed Project study area include fine grained sediment deposited and stored behind North Fork Dam, high turbidity (greater than 50 NTUs) in the existing reservoir (based on visual estimates), and Pacheco Creek (based on measured data). No data are available to characterize the turbidity or suspended sediment concentrations in inflows to Pacheco Reservoir.<sup>77</sup> A 1951 survey of Pacheco Reservoir by the U.S. Department of Agriculture estimated annual sediment loading into the reservoir of 0.12 acre-feet per square mile per year (118 tons per square mile per year) (USDA 1954). This value is consistent with recent estimates of suspended sediment loads for watersheds in the South Bay near Pacheco Reservoir (McKee et al. 2013) that range from 71 and 217 tons per square mile per year. These values are between three and 10 times less than annual suspended sediment loads in the East Bay and North Bay. Using an estimated sediment load of 0.12 acre-feet per square mile per year, the existing Pacheco Reservoir is estimated to have lost approximately 600 acre-feet of storage capacity due to sedimentation from when the dam was built in 1939 to 2014 (Valley Water 2021a) These estimates suggest the watershed may have produced between 500 and 1,000 acre-feet of sediment (800,000 to 1,600,000 cubic yards) since North Fork Dam was built in 1939. Due to the flashy nature of North Fork Pacheco Creek (i.e., infrequent, high magnitude flow events), the majority of sediment is assumed to be transported and deposited into Pacheco Reservoir during high flow events. However, because the reservoir was frequently operated to be emptied before the wet season, high magnitude flows may have carried the sediment downstream to the dam before the sediment settled out.

#### Bacteria (Fecal Coliform)

The beneficial use of water contact recreation is not being protected in the Pajaro River watershed, including in Pacheco Creek, because fecal coliform concentrations exceed CC Basin Plan numeric water quality objectives (SWRCB 2018a). The total maximum daily load (TMDL) for the impaired waters of Pacheco Creek are concentration-based TMDLs applicable to each day of all seasons. As discussed below, a TMDL is a plan to restore the beneficial uses of a stream or to otherwise correct an impairment. It establishes the allowable pollutant loadings or other quantifiable parameters (e.g., pH or temperature) for a water body and thereby provides the basis for the establishment of water quality-based controls. A total of 11 of 27 samples tested from 1997 to 2006 from Pacheco Creek at San Felipe Road exceeded the criterion for fecal coliform. Pacheco Reservoir and the upper portions of Pacheco Creek are characterized as rural with no municipally owned storm sewers or sanitary sewer collection systems, as most private and public properties in the upper reaches of the Pacheco Creek watershed are on septic systems.<sup>78</sup> Grazing cattle and wildlife (e.g., feral pigs) throughout the Pacheco Creek watershed are the predominant likely source of animal-related contamination, and these sources are uncontrolled, and dispersed. There is limited data to suggest

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<sup>77</sup>A fundamental objective of the Proposed Project is to characterize the volume, nature and extent of sediment stored in Pacheco Reservoir.

<sup>78</sup> Section 3.20 Utilities-Service Systems provides additional information on this topic.



controllable sources of fecal coliform are within the vicinity of Pacheco Reservoir and upper Pacheco Creek or its tributaries. Data supporting the fecal coliform impairment of Pacheco Creek was collected at San Felipe Road, near the most downstream portion of Pacheco Creek where more rural development, agricultural use, and infrastructure occur. These sources have been identified in the CC Basin Plan as the major controllable sources contributing fecal coliform to the Pajaro River watershed

### Dissolved Oxygen

The cold freshwater habitat beneficial use for both Pacheco Creek and Pacheco Reservoir provides the most restrictive numeric criteria for dissolved oxygen in the CC Basin Plan that concentrations shall not be reduced below 7.0 milligrams per liter (mg/L) at any time. As a general objective for inland surface waters subject to the CC Basin Plan, median values of dissolved oxygen should not fall below 85 percent saturation as a result of controllable water quality conditions. Limited historical measured dissolved oxygen data are available in Pacheco Creek. Data collected by the Monterey Area Research Consortium (MARC) from October 2002 through January 2007 (SWRCB 2018b) at five locations along Pacheco Creek, from North Fork Pacheco Creek downstream to San Felipe Lake, was used to support placement of Pacheco Creek on the 303(d) list for dissolved oxygen impairment in 2018. Out of 377 total samples, 229 did not exceed the minimum dissolved oxygen water quality objective of 7.0 mg/L. Potential sources of impairment were not specifically identified, but low dissolved oxygen concentrations may be due to low streamflow, warm water temperatures, possible fecal coliform impairment and organic nutrient loading due to the presence of livestock, nutrient loading from agricultural runoff, anoxic releases from the existing Pacheco Reservoir, and/or ponding of streamflow in Pacheco Creek. The maximum, mean, and minimum values of dissolved oxygen concentration and the number of samples taken at each location are shown in Table 3.11-5: for 345 available measurements. Mean values were below the minimum dissolved oxygen criteria of 7 mg/L at North Fork Pacheco Creek (only one measurement available) and San Felipe Road. Minimum measured values were below the minimum dissolved oxygen criteria of 7 mg/L at all locations. Mean monthly measured values are shown in Table 3.11-6.

**Table 3.11-5. Maximum, Mean, and Minimum Dissolved Oxygen Concentrations Measured in Pacheco Creek between 2002 and 2007**

Location	Maximum Value (mg/L)	Mean Value (mg/L)	Minimum Value (mg/L)	# of Samples
Location Along Pacheco Creek	6.7	6.7	6.7	1
Walnut Avenue	14.3	9.6	5.4	41
Highway 156	11.6	7.5	2.5	114
San Felipe Road	10.7	6.4	0.8	102
Lovers Lane	9.7	7.1	3.6	87

Source: Data obtained from the Monterey Area Research Consortium as reported in the Final California 2018 Integrated Report (303(d) List/305(b) Report) for Pacheco Creek.

Key: mg/L = milligram per liter





**Table 3.11-6. Mean Monthly Dissolved Oxygen Concentrations Measured in Pacheco Creek Between 2002 and 2007**

Month	At North Fork Pacheco Creek (mg/L)	Walnut Avenue (mg/L)	Highway 156 (mg/L)	San Felipe Road (mg/L)	Lovers Lane (mg/L)
January	NM	9.9	9.6	8.8	8.7
February	NM	11.2	9.3	6.1	8.5
March	NM	9.2	9.2	8.4	8.3
April	NM	9.4	8.1	7.1	7.0
May	NM	7.9	6.8	6.1	6.1
June	NM	9.9	6.3	5.6	6.1
July	6.7	NM	6.2	4.9	6.5
August	NM	8.7	6.2	5.0	6.1
September	NM	9.3	6.4	4.8	5.1
October	NM	9.0	7.9	6.4	6.9
November	NM	9.5	7.2	6.9	7.5
December	NM	9.7	7.3	7.2	7.7

Source: Data obtained from the Monterey Area Research Consortium as reported in the Final California 2018 Integrated Report (303(d) List/305(b) Report) for Pacheco Creek.

Key: mg/L = milligram per liter

NM = no measurement

As a measure of hydrogen ion concentration, pH indicates how acidic or basic water is. A pH less than 7.0 indicating acidity, a pH of greater than 7.0 indicating a base, and a pH of 7.0 representing neutral conditions. In the CC Basin Plan, the water contact and non-contact water recreation beneficial uses provide the most restrictive maximum numerical criteria for pH of 8.3. The warm and cold freshwater habitat beneficial uses provide the most restrictive minimum numeric criteria for pH of 7.0. These beneficial uses also include the CC Basin Plan objective that changes in normal ambient pH levels shall not exceed 0.5 in fresh waters. The CC Basin Plan includes a pH objective of between 6.5 and 8.5.

Data collected by MARC (SWRCB 2018b) from October 2002 through January 2007 at five locations along Pacheco Creek, from North Fork Pacheco Creek down to Lover's Lane near San Felipe Lake, shows a range of maximum, mean, and minimum pH values. The mean values at all locations met the pH criteria. Out of 386 total measurements, minimum criteria were not met for two total measurements at two locations, and maximum numeric criteria were not met for 19 total measurements across four locations. These frequencies were not high enough to list Pacheco Creek as impaired for pH.

#### Other Constituents

**Toxicity.** The CC Basin Plan includes a narrative objective for toxicity in surface waters that states the following: "All waters shall be maintained free of toxic substances in concentrations which are toxic to, or which produce detrimental physiological responses in human, plant, animal or aquatic



life designated as a beneficial use.” There are no data or measurements available to characterize toxicity within the Proposed Project study area.

**Oil and Grease.** The CC Basin Plan includes a narrative objective for oil and grease that states the following: “Waters shall not contain oils, greases, waxes or other similar materials in concentrations that result in a visible film or coating on the surface of the water or objects in the water, that cause nuisance, or that otherwise adversely affect beneficial uses.” There are no data or measurements available to characterize oil and grease within the Proposed Project study area.

**All Other Constituents.** Other narrative water quality objectives in the CC Basin Plan not described in the previous paragraphs relate to color, tastes and odors, floating material, suspended material, settleable material, biostimulatory substances, pesticides, chemical constituents, other organics, and radioactivity. The 303(d) analysis evaluated Pacheco Creek for the following specific pollutants and did not find any evidence of impairment or contributing sources: ammonia, boron, chloride, chlorophylla, Chlorpyrifos, Diazinon, E. coli, and sodium. The specific pollutants and narrative water quality objectives listed in this paragraph are excluded from further analysis due to the lack of evidence they currently contribute to degradation of water quality.

### 3.11.2 Regulatory Framework

#### Federal Laws, Regulations, and Policies

##### *Clean Water Act*

The objective of the CWA is “to restore and maintain the chemical, physical, and biological integrity of the nation’s waters.” The CWA establishes the regulatory framework regulating discharge of pollutants into the waters of the United States and gives the EPA the authority to implement pollution control programs (e.g., setting wastewater standards for industries). In certain states such as California, the EPA has delegated authority to state agencies.

##### Section 303

This section of the CWA requires states to adopt water quality standards for all surface waters of the United States. There are three major components of water quality standards: designated users, water quality criteria, and antidegradation policy. In California, the EPA gave the SWRCB and its nine RWQCBs the authority to identify beneficial uses and adopt applicable water quality objectives. The CCRWQB is responsible for identifying water quality objectives in the Proposed Project study area.

Section 303(d) of the CWA requires states and authorized Native American tribes to develop a list of water quality-impaired segments of waterways. The list includes waters that do not meet water quality standards necessary to support the beneficial uses of that waterway, even after point sources of pollution have installed the minimum required levels of pollution control technology, and the pollutants that impair them. Only waters impaired by “pollutants,” not those impaired by



other types of “pollution” (e.g., altered flow and/or channel modification), are to be included on the list. (Pollutants include clean sediments, nutrients [e.g., nitrogen and phosphorus], pathogens, acids/bases, temperature, metals, cyanide, and synthetic organic chemicals. Pacheco Creek, including tributaries within the Proposed Project study area, is listed as impaired due to high turbidity. It is also due to high concentrations of fecal coliforms and low dissolved oxygen.

Section 303(d) of the CWA also requires states to maintain a listing of impaired water bodies so that a TMDL can be established. A TMDL is a plan to restore the beneficial uses of a stream or to otherwise correct an impairment. It establishes the allowable pollutant loadings or other quantifiable parameters (e.g., pH or temperature) for a water body and thereby provides the basis for the establishment of water quality-based controls. The calculation for establishment of TMDLs for each water body must include a margin of safety to ensure that the water body can be used for the purposes the state has designated. Additionally, the calculation also must account for seasonal variation in water quality.

#### Section 401

Section 401 of the CWA requires an applicant for any federal license or permit that may result in discharge into waters of the United States to obtain a certification from the state that discharge would comply with state water quality standards. Section 401 certifications in California are issued either by the SWRCB or the RWQCBs.

#### Section 402

Section 402 of the CWA created the NPDES permit program. This program authorizes point sources of pollution discharging into a surface water body. In California, the NPDES program is administered at the state level through the Construction General Permit, and the CCRWQCB administers the program in the Proposed Project study area. With less than an acre of disturbance, a Construction General Permit would not be required for the Proposed Project.

## **State Laws, Regulations, and Policies**

### ***California State Water Resources Control Board***

The SWRCB allocates water rights, adjudicates water right disputes, develops statewide water protection plans, and establishes water quality standards. The SWRCB also oversees nine RWQCBs located in the major watersheds of the state. The Project is located within the jurisdiction of the CCRWQCB.

### ***Porter-Cologne Water Quality Control Act***

The Porter-Cologne Act, enacted in 1969, established a comprehensive program to govern water quality and beneficial uses of water in California. The Porter-Cologne Act applies to surface waters, wetlands, and groundwater, as well as to point and nonpoint sources of pollution; it also established nine RWQCBs and the SWRCB, which are charged with implementing the Act’s provisions and protecting water quality in California. Discharges are regulated by RWQCBs



primarily through issuances of NPDES permits/waste discharge requirements for point source discharges and waste discharge requirements for non-point source discharges.

The Porter-Cologne Act also requires adoption of water quality control plans to guide water pollution management in California. These include both statewide water quality control plans, as well as regional water quality control plans, also known as basin plans. These plans identify existing and potential beneficial uses of waters of the United States, establish water quality objectives to protect these uses and identify implementation, surveillance, and monitoring plans.

Actions within the Proposed Project study area are subject to the requirements of the 2019 CC Basin Plan. The CC Basin Plan includes water quality objectives for the Proposed Project study area as previously discussed.

### ***Sustainable Groundwater Management Act***

Passed in 2014, Sustainable Groundwater Management Act was established to protect groundwater resources. It requires local agencies to form Groundwater Sustainability Agencies and develop Groundwater Sustainability Plan (GSPs) to manage groundwater sustainability. As described in Section 3.11.1, the Proposed Project study area is not within a designated groundwater basin and the Proposed Project is not subject to a GSP (DWR 2024).

### ***Water Quality Control Plan for the Central Coast Basin***

The CC Basin Plan developed by the CCRWQCB (CCRWQCB 2019) describes how the quality of surface water and groundwater in the Central Coast Region should be managed to provide the highest water quality reasonably possible. The CC Basin Plan identifies beneficial uses for specific surface water, describes the water quality which must be maintained to allow those uses. Programs, projects, and other actions that are necessary to achieve the standards established in the plan are also identified. The CC Basin Plan would apply to the Proposed Project.

## **Regional and Local Laws, Regulations, and Policies**

### ***Santa Clara County General Plan***

The Resource Conservation section of the General Plan (1994) identifies strategies, policies, and implementation actions for the protection of the County's water resources. This includes the following applicable policies regarding water quality:

**R-RC 10:** For lands designated as Resource Conservation Areas (Hillsides, Ranchlands, Agriculture, and Baylands) and for Rural Residential areas, water resources shall be protected by encouraging land uses compatible and consistent with maintenance of surface and ground water quality. Uses that pose a significant potential hazard to water quality should not be allowed unless the potential impacts can be adequately mitigated. The amounts of impervious surfaces in the immediate vicinity of water courses or reservoirs should be minimized.



**R-RC 13:** Sedimentation and erosion shall be minimized through controls over development, including grading, quarrying, vegetation removal, road and bridge construction, and other uses which pose such a threat to water quality.

### ***Santa Clara Valley Habitat Plan***

The Valley Habitat Plan identifies three Conditions that are applicable to Hydrology and Water Quality:

- Condition 3. Maintain Hydrologic Conditions and Protect Water Quality;
- Condition 5. Avoidance and Minimization Measures for In-Stream Operations and Maintenance;
- Condition 12. Wetland and Pond Avoidance and Minimization.

These are discussed in Section 2.6. and fully described in Appendix C.

### **3.11.3 Environmental Impacts and Mitigation Measures**

The following sections discuss the methods and assumptions, criteria for determining the significance of impacts, environmental impacts, and mitigation measures related to hydrology and water quality.

#### **Methods and Assumptions**

Potential physical impacts of the Proposed Project on hydrology and water quality were assessed using information presented in Section 3.5.1 (e.g., aquatic resources) and Section 3.8.1 (e.g., surface water, water quality). Temporary impacts were evaluated qualitatively based on hydrologic and geomorphic processes and information provided CC Basin Plan related to the types of proposed geotechnical investigation activities, locations and duration of investigations. Due to the temporary nature of the Proposed Project, the Proposed Project would not result in any operational impacts.

#### ***Applicable Conservation Measures***

Conservation measures applicable to the analysis of impacts on hydrology and water quality are listed below. Section 2.4 provides a full description of each BMP and Valley Habitat Plan Conditions and AMM.

- BMP WQ-4: Limit Impacts from Staging and Stockpiling Materials
- BMP WQ-9: Use Seeding for Erosion Control, Weed Suppression, and Site Improvement
- BMP WQ-11: Maintain Clean Conditions at Work Sites
- BMP WQ-12: Manage Well or Exploratory Boring Materials



- BMP WQ-13: Protect Groundwater from Contaminates Via Wells or Exploratory Borings
- BMP WQ-14: Backfill Completed Exploratory Borings
- BMP WQ-15: Prevent Water Pollution
- BMP WQ-16: Prevent Stormwater Pollution
- BMP WQ-17: Manage Sanitary and Septic Waste
- BMP AQ-1: Use Dust Control Measures
- BMP HM-7: Restrict Vehicle and Equipment Cleaning to Appropriate Locations
- BMP HM-8: Ensure Proper Vehicle and Equipment Fueling and Maintenance
- BMP HM-9: Ensure Proper Hazardous Materials Management
- BMP HM-10: Utilize Spill Prevention Measures
- VHP AMM-1: Minimize the potential impacts on covered species most likely to be affected by changes in hydrology and water quality
- VHP AMM-2: Reduce stream pollution by removing pollutants from surface runoff before the polluted surface runoff reaches local streams
- VHP AMM-3: Maintain the current hydrograph and, to the extent possible, restore the hydrograph to more closely resemble predevelopment conditions
- VHP AMM-6: Activities in the active (i.e., flowing) channel would be avoided. If activities must be conducted in the active channel, avoidance and minimization measures identified in this table would be applied
- VHP AMM-7: Personnel shall prevent the accidental release of chemicals, fuels, lubricants, and non-storm drainage water into channels
- VHP AMM-8: Spill prevention kits shall always be in close proximity when using hazardous materials (e.g., crew trucks and other logical locations)
- VHP AMM-9: Personnel shall implement measures to ensure that hazardous materials are properly handled and the quality of water resources is protected by all reasonable means when removing sediments from the streams
- VHP AMM-11: Vehicles shall be washed only at approved areas. No washing of vehicles shall occur at job sites
- VHP AMM-12: No equipment servicing shall be done in the stream channel or immediate flood plain, unless equipment stationed in these locations cannot be readily relocated (i.e., pumps, generators)





- VHP AMM-13: Personnel shall use the appropriate equipment for the job that minimizes disturbance to the stream bottom. Appropriately tired vehicles, either tracked or wheeled, shall be used depending on the situation
- VHP AMM-14: If high levels of groundwater in a work area are encountered, the water is pumped out of the work site. If necessary to protect water quality, the water shall be directed into specifically constructed infiltration basins, into holding ponds, or onto areas with vegetation to remove sediment prior to the water re-entering a creek.
- VHP AMM-16: When work in a flowing stream is unavoidable, the entire streamflow shall be diverted around the work area by a barrier, except where it has been determined by a qualified biologist that the least environmentally disruptive approach is to work in a flowing stream. Where feasible, water diversion techniques shall allow stream flows to gravity flow around or through the work site.
- VHP AMM-21: To the extent that stream bed design changes are not part of the project, the stream bed would be returned to as close to pre-project condition as appropriate.
- VHP AMM-26: Any sediment removed from a project site shall be stored and transported in a manner that minimizes water quality impacts.
- VHP AMM-63: Prepare and implement sediment erosion control plans.
- VHP AMM-65: Control exposed soil by stabilizing slopes (e.g., with erosion control blankets) and protecting channels (e.g., using silt fences or straw wattles).
- VHP AMM-66: Control sediment runoff using sandbag barriers or straw wattles.
- VHP AMM-67: No stockpiling or placement of erodible materials in waterways or along areas of natural stormwater flow where materials could be washed into waterways.
- VHP AMM-68: Stabilize stockpiled soil with geotextile or plastic covers.
- VHP AMM-69: Maintain construction work activities within a defined project area to reduce the amount of disturbed area.

These BMPs and AMMs would be incorporated into the geotechnical investigation work plans, and all geotechnical contractors employed on the Proposed Project would be required to adhere to them. As such, they are considered part of the Proposed Project for purposes of analysis in this EIR.

### ***Criteria for Determining Significance of Impacts***

Based on guidance from CEQA Guidelines Appendix G, implementation of the Proposed Project would have significant impacts on hydrology and water quality if it were to:

- Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality;



- Project substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin;
- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would result in substantial erosion or siltation on or off site;
- Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite; create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or impede or redirect flood flows.
- In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation;
- Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.

## Impacts

### ***Impact HYD-1***

#### ***Would the project violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?***

Activities required to complete the Proposed Project would include both surface and subsurface investigations. Surface investigations would include placement of 19 seismic refraction lines, and one electrical resistivity survey with minimal surface disturbance and no use of mechanized equipment other than for vehicular access. For subsurface investigations, some minor vegetation removal for equipment access, drilling of up to 149 geotechnical borings, excavation of 32 test pits would occur. Some of these activities have the potential to expose soils and mobilize sediments in stormwater. Additionally, hazardous materials such as fuels, oils, grease, and lubricants necessary to perform excavation and drilling investigations could be accidentally released during implementation of subsurface investigations (e.g., drilling) proposed within and adjacent to Pacheco Reservoir. It should be noted that all work would occur during the dry season.<sup>79</sup>

The Proposed Project would incorporate the following Conservation Measures to avoid or minimize the potential for accidental discharge or release of substance into a water body subject to federal or state jurisdiction that would degrade surface or subsurface water quality. In addition, incorporation of these measures would also provide assurance that the Proposed Project would

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<sup>79</sup> The dry season is generally described as April 1 to November 15 but may be compressed due to wet weather, work delays to avoid sensitive biological resources, and persisting wet site conditions.



be consistent the water quality standards established in the CC Basin Plan and the other federal, state and regional/local requirements discussed Section 3.11.2.

BMPs HM-7 and HM-8 would require that vehicles and equipment are washed only in approved areas and that no fueling or servicing of vehicles occurs in a waterway or immediate floodplain would be implemented. BMPs HM-9 and HM-10 are measures that would ensure that hazardous materials are properly handled, and the quality of water resources are protected. In addition, spill prevention measures are incorporated to prevent the accidental release of chemicals, fuels, lubricants, and non-storm drainage water.

The Proposed Project also incorporates the following water quality BMPs: WQ-4, which would require implementation of measures to minimize soil from being tracked onto roadways (e.g., SR-152) near work sites; WQ-9 which would require disturbed areas to be seeded with native seed as soon as it is appropriate after activities are complete; WQ-11 which would require that the work sites and access roads are maintained in an orderly condition; WQ-12 which would require all materials or waters generated during drilling would be safely handled, properly managed, and disposed of according to all applicable federal, state, and local statutes; WQ-13, which would require that substances or materials that may degrade groundwater quality be prevented from entering any well or boring and that well openings or entrances be sealed or secured in such a way as to prevent the introduction of contaminants; WQ-14 which would require all borings to be backfilled within 24 hours of termination of testing and not left in such a condition as to allow for the introduction of surface waters or foreign materials into them; WQ-15, which would require that oily, greasy, or sediment-laden substances or other material that originate from Proposed Project operations be prevented from entering or being placed where they may enter a waterway; WQ-16 which requires that measures be implemented to prevent storm water pollution by restricting wet weather operations and ensuring erosion control measures are in place prior to predicted rainfall events; and WQ-17, which would require that all onsite portable restrooms for workers be placed outside of waterways or wetlands and routinely serviced to prevent spills.

Many of these BMPs are also similar to the Conditions and AMMs associated with the Valley Habitat Plan described in Section 2.4. As described in Section 3.11.2, three Conditions apply to the Proposed Project that would reduce the potential for violating water quality standards or degrading water quality. In addition, twenty VHP AMMs would be applicable to avoid or minimize impacts related to exposure to hazardous conditions or materials. These AMMs are: 1, 2, 3, 6, 7, 8, 9, 11, 12, 13, 14, 16, 21, 26, 63, 65, 66, 67, 68, and 69 as listed in Table 2-8. As applicable, measures including prevention of accidental release of chemicals, fuels into channel, restricting equipment storage, fueling and staging areas to disturbed areas outside stream or riparian areas, and disposal of all construction waste in designated areas would reduce the potential for discharge or accidental release of materials hazardous to the environment throughout the Proposed Project study area.

The designated contractor would be responsible for implementing all applicable Conservation Measures within the Proposed Project study area.



Therefore, implementation of the Proposed Project would not violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality and impacts would be **less than significant**. No mitigation is required.

***Impact HYD-2***

***Would the project substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?***

No groundwater supplies would be used or impacted by the Proposed Project. All water used for Proposed Project activities would be provided from existing municipal or commercial sources. Pacheco Reservoir releases water downstream into Pacheco Creek during the dry season for groundwater recharge, despite not having a GSP. Further, the Proposed Project would not interfere with the PPWD's ability to store and release water for the purposes of groundwater recharge. Therefore, implementation of the Proposed Project would not decrease groundwater supplies or interfere substantially with groundwater recharge. **No impact** would occur from implementation of the Proposed Project. No mitigation is required.

***Impact HYD-3***

***Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:***

***a. result in substantial erosion or siltation on- or off-site***

Geotechnical investigations (e.g., geotechnical borings and test pits) associated with the Proposed Project would not substantially alter the existing drainage pattern at any location within, or downstream of the Proposed Project study area. The Proposed Project could temporarily increase the potential for erosion or siltation. However, disturbed areas would be returned to their original condition immediately after boring and test pit activities are completed and reseeded with native seed mix prior to the start of the rainy season for maximum likelihood of germination and growth. Additionally, implementation of BMPs and AMMs outlined in the discussion under Impact HYD-1 would be implemented during Proposed Project activities. For example, BMP WQ-4 would limit the area subject to impacts from staging and stockpiling materials; BMP WQ-9 requires disturbed areas to be seeded with native seed as soon as is appropriate after activities have been completed and that erosion control seed mix to be applied to exposed soils; and BMP WQ-16 requires that measures be implemented to prevent storm water pollution (e.g., straw wattles, temporary covering of exposed surfaces). The Proposed Project would not result in substantial erosion or siltation on- or off-site and any impacts would be **less than significant**. No mitigation is required.

***b. substantially increase the rate or amount of surface runoff in a manner which would result in flooding on or offsite;***



The investigative nature of the Proposed Project would not result in a substantial increase in the amount of surface runoff and therefore would not result in changes to on- or off-site flooding. Therefore, impacts **would be less than significant**. No mitigation is required.

***c. create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or***

The Proposed Project entails geotechnical investigations and would not substantially increase the amount of impervious surface area, increase runoff, or provide additional sources of polluted runoff. All disturbed areas within each work activity area would be immediately backfilled to their pre-investigation condition immediately after investigation activities are completed at each boring or test pit activity area. Therefore, **less than significant impacts** would occur from implementation of the Proposed Project. No mitigation is required.

***d. impede or redirect flood flows?***

As described in Section 3.11.1, the existing reservoir inundation area, the North Fork Pacheco Creek channel below the dam, and the Pacheco Creek channel are designated as Zone A (100-year floodplain). Areas outside of the reservoir inundation area and outside the primary channels of North Fork Pacheco Creek and Pacheco Creek are designated as Zone D. No permanent or temporary fill would be placed within Pacheco Reservoir, within the North Fork Pacheco Creek, within the Pacheco Creek mainstem, or within any other waterway as a result of Project implementation. All exploratory borings would be properly sealed, and test pit excavation areas would be backfilled to the pre-existing grade. In addition, all work would occur during the dry season, which is generally described as April 1 to November 15, but may be compressed due to wet weather, work delays to avoid sensitive biological resources, and persisting wet site conditions. As a result, the Proposed Project would not substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would impede or redirect flood flows. Therefore, **no impact** to flood flows would occur. No mitigation is required.

***Impact HYD-4***

***Would the project in flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?***

The Proposed Project includes some activity areas located within flood hazard designations Zone A and Zone D. All geotechnical investigations are proposed to occur during the dry season. For this reason, there is low potential for impacts associated with a flood hazard that could result in the release of pollutants as a result of these investigations. In addition, because work would be conducted during the dry season when the reservoir is dry or low, there is a low potential for impacts associated with an earthquake generated seiche during the approximately 8-month project schedule. In addition, the Proposed Project study area would not be exposed to inundation by a tsunami given the nearest mapped tsunami inundation area is about 30-miles from the project site (Department of Conservation 2024). Therefore, potential pollutants used during



geotechnical investigations within the Proposed Project study area would not be subject to inundation by a flood hazard, seiche, or tsunami; therefore, impacts would be **less than significant**. No mitigation is required.

**Impact HYD-5**

***Would the project conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?***

The Proposed Project includes minor vegetation removal for equipment access, drilling of up to 149 geotechnical borings, excavation of 32 test pits, placement of 19 seismic refraction lines, and one electrical resistivity survey line. The Proposed Project would include numerous Conservation Measures previously discussed under impacts HYD-1, HYD-2 and HYD-3 to avoid and minimize any water quality related impacts. the Proposed Project would not conflict with or obstruct implementation of the CC Basin Plan, and impacts would be **less than significant**. Additionally, because there is not a GSP applicable to the Proposed Project study area, there would be **no impacts** relative to a sustainable groundwater management plan, as described previously under Impact HYD-2. No mitigation is required.

**Mitigation Measures**

No mitigation measures required.

## **3.12 Land Use and Planning**

This section describes the environmental setting and regulatory framework for land use and planning. It analyzes the environmental impacts of the Proposed Project related to land use and planning.

### **3.12.1 Environmental Setting**

The Proposed Project study area is located within, adjacent to, and in the vicinity of the existing Pacheco Reservoir, and along SR-152 from Kaiser-Aetna Road to the site entrance located, approximately one mile east of Kaiser-Aetna Road on the north side of SR-152 (Figure 2-1). Pacheco Reservoir is located along North Fork Pacheco Creek upstream of North Fork Dam equidistant between the cities of Gilroy and Los Banos.

This section addresses land ownership within the Proposed Project study area and the applicable provisions in the General Plan. County ordinances related to land use that would apply to the Proposed Project are also discussed. The regulatory aspects of land use designations and zoning are discussed under Section 3.12.2.





## Land Ownership

Most of the Proposed Project study area is located on private lands within unincorporated Santa Clara County, as shown on Figure 3.12-1. However, property encompassing Pacheco Reservoir and North Fork Dam has been owned and operated by the PPWD for more than eighty years. Water released from North Fork Dam into North Fork Pacheco Creek flows into Pacheco Creek just downstream from the confluence with the South Fork Pacheco Creek.

Caltrans owns SR-152 ROW, which is located in the southern portion of the Proposed Project study area. In addition, SCVHA acquired the Pacheco Creek Reserve in 2017 for the purposes of habitat conservation and restoration, consistent with the goals and objectives of the Valley Habitat Plan. The Pacheco Creek Reserve is a 55.4-acre property comprised of three parcels adjacent to SR-152 and located outside of the Proposed Project study area. A 0.7-mile reach of Pacheco Creek flows through this reserve (Santa Clara Valley Habitat Agency 2019).

## Santa Clara County General Plan Land Use Designations

The General Plan can be described as the County's "blueprint" for future development. It represents the community's view of its future and comprises the goals and policies upon which the County's Board of Supervisors will base its land use decisions. With a long-term outlook, the General Plan and its accompanying figures identify the types of development that will be allowed, the spatial relationships among land uses, and the general pattern of future development. Consistent with that approach, the General Plan designates the land use for areas within its jurisdiction. Figure 3.12-2 shows the land use designations in the Proposed Project study area, which include Ranchlands and Roadside Services. In this figure, while the SR-152 ROW is not specifically excluded from the designated ranchlands, it is not considered ranchlands in this EIR.

## Santa Clara County Zoning

Zoning implements the policies of the General Plan through specific standards such as lot size, building setback, and a list of allowable uses. The land uses shown on the County's General Plan maps are reflected in the local zoning ordinances and maps. Figure 3.12-3 shows the Santa Clara County zoning designations for the Proposed Project study area. The primary zoning associated with the Proposed Project study area is Agricultural Ranchland. One small area adjacent to SR-152 near Kaiser-Aetna Road is zoned Roadside Services to accommodate the Bell Station Farmers Market. In this figure, while the SR-152 ROW is not specifically zoned, the overlying zoning designations are used in this EIR.



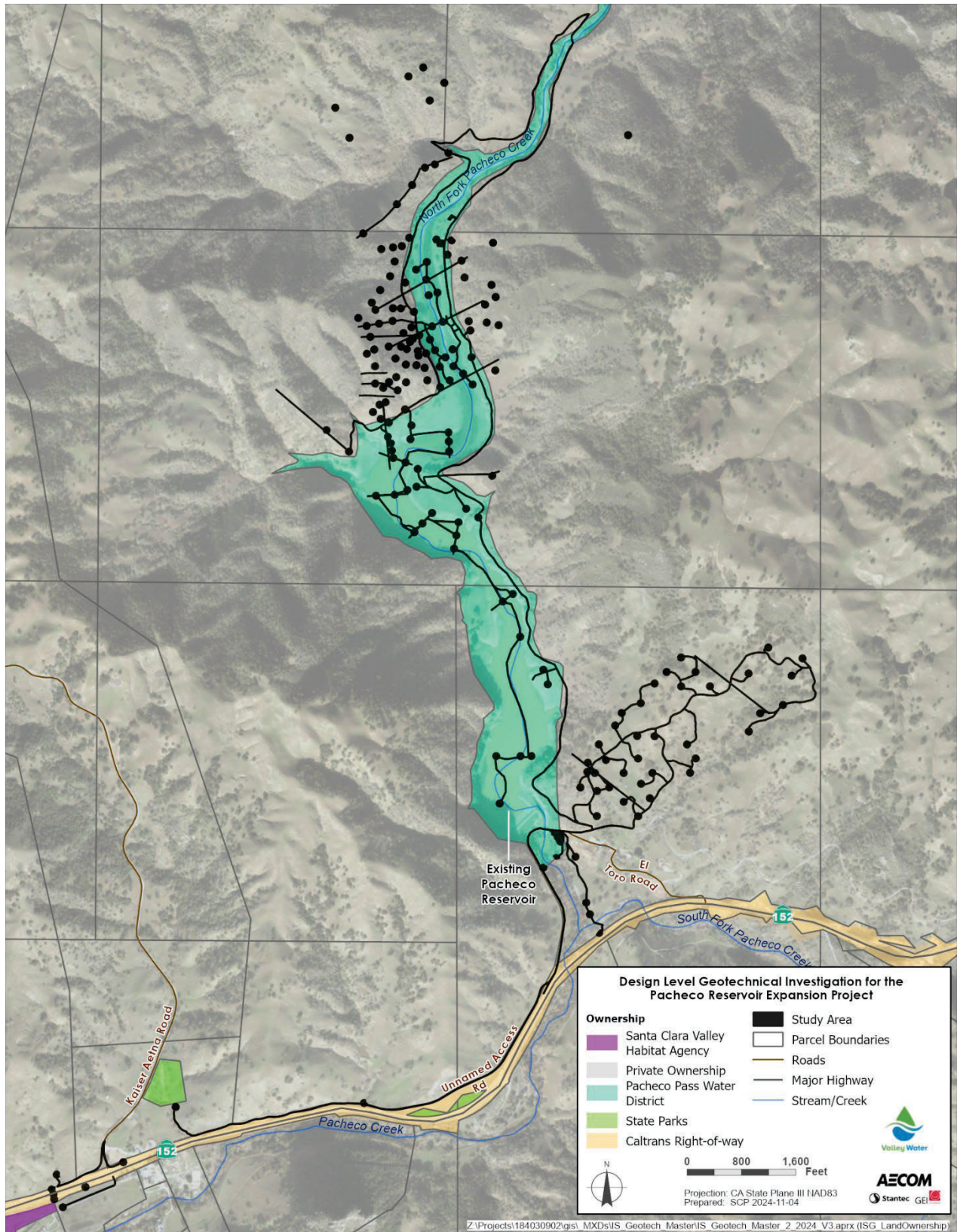


Figure 3.12-1. Land Ownership





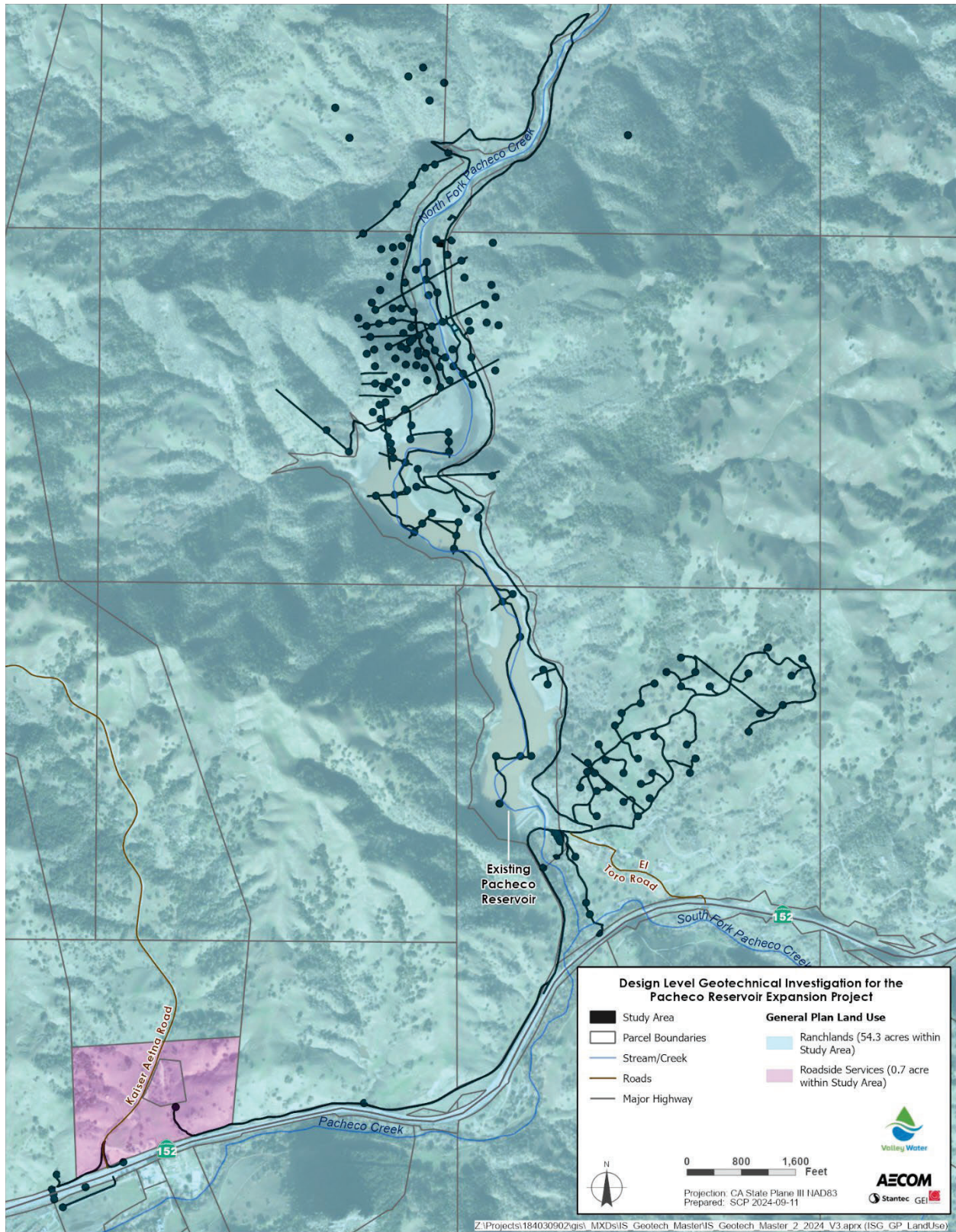


Figure 3.12-2. General Plan Land Use Designations





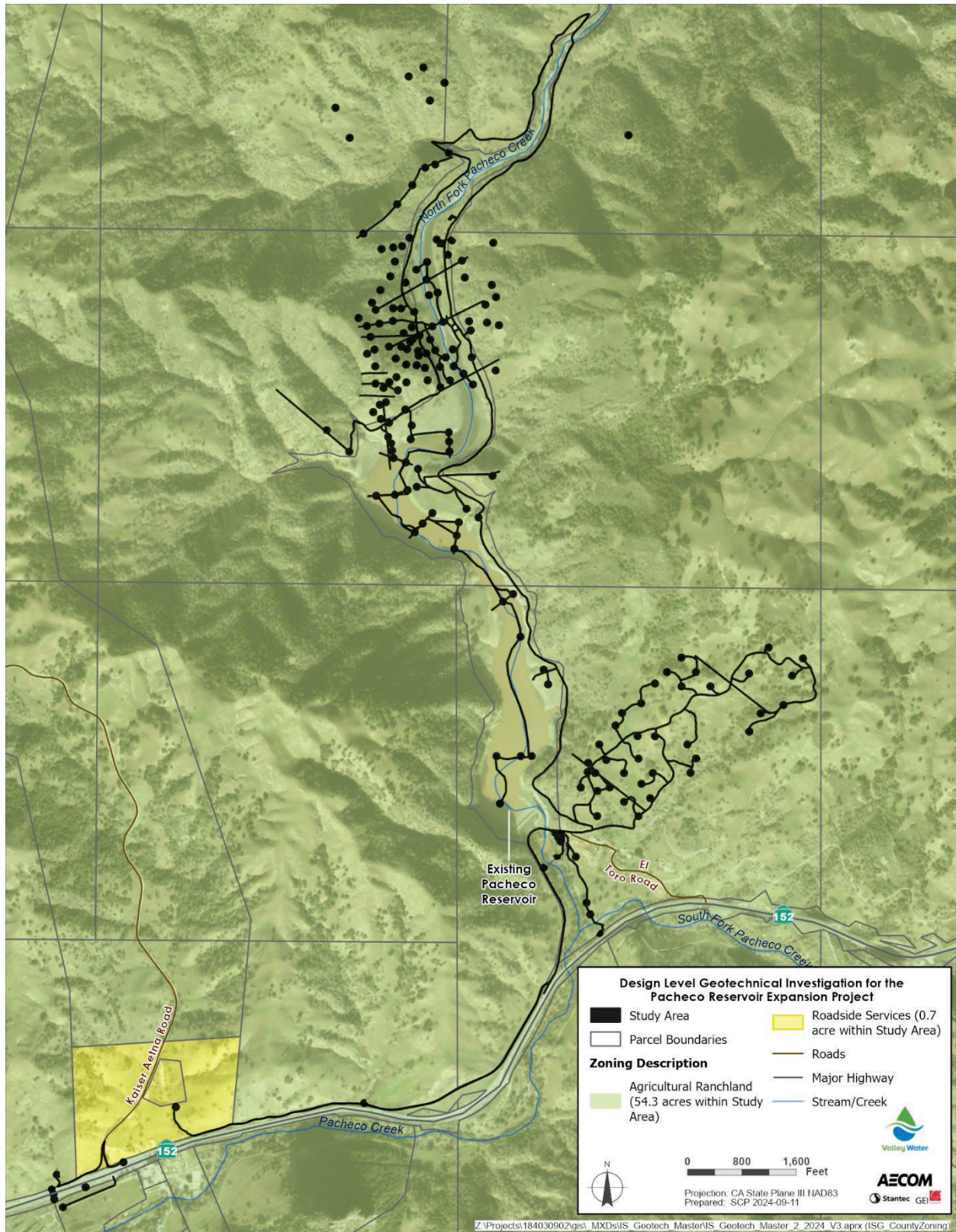


Figure 3.12-3. Santa Clara County Zoning



### 3.12.2 Regulatory Framework

#### Federal Laws, Regulations, and Policies

No federal laws, regulations, or policies related to land use and planning apply to the Proposed Project.

#### State Laws, Regulations, and Policies

The California Government Code Title 5, Division 2, Part 1, Chapter 1, Article 5 establishes the relationship between local agencies such as Valley Water and Counties. Pursuant to Section 53091(a), local agencies such as Valley Water “shall comply with all applicable building ordinances and zoning ordinances of the county or city in which the territory of the local agency is situated.”<sup>80</sup>

#### Regional and Local Laws, Regulations, and Policies

##### *County of Santa Clara*

##### Santa Clara County General Plan

As illustrated on Figure 3.12-2, the majority of the privately owned lands within the Proposed Project study area are designated as Ranchlands under the General Plan (Santa Clara County 1994). Ranchlands are defined by the General Plan as lands predominantly used as ranches in rural unincorporated areas of the county, remote from urbanized areas and generally less accessible than other mountain lands. Important resources include reservoir watersheds for regional water supply, grazing lands, mineral resources, forests and wildlife habitat, rare or locally unique plant and animal communities, historic and archeological sites, and recreational and scenic areas of importance that also serve to define the setting for the urban areas.

The General Plan policies related to the Ranchlands designation that would apply to the Proposed Project include:

**R-LU 36:** The general intent of the Ranchlands designation is to maintain the existing conditions of very low intensity uses, rural lifestyle, and limited public access. Development policies shall protect and enhance the continued use of the land for ranching.

**R-LU 39:** The primary use shall be ranching. Other allowable uses shall be:

- a. Agriculture
- b. Low intensity recreational uses

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<sup>80</sup> The Proposed Project is not subject to the exemption to this general rule, set forth in California Government Code Section 53091(e), because it would not locate or construct facilities for the production, generation, storage, treatment, or transmission of water.



- c. Mineral extraction
- d. Land in its natural state
- e. Hunting
- f. Wildlife refuges
- g. Very low-density residential development
- h. Very low-intensity commercial, industrial, or institutional uses, provided that they primarily support ranching activities or the enhancement, protection, study or appreciation of the natural resources of the area

Roadside Services are defined by the General Plan as a limited number of private facilities and businesses serving the motoring public in dispersed locations. There is one parcel within the Proposed Project study area designated as Roadside Services that is locally referred to as "Bell Station." Bell Station is the location of a business that advertises itself as a farmers market just north of SR-152 and is accessed via a driveway from Kaiser-Aetna Road.

With the exception of Bell Station, all of the lands within the Proposed Project study area along Pacheco Creek downstream from its confluence with the North Fork Pacheco Creek are designated as Ranchlands.

The General Plan policy on Water Supply Resources acknowledges the role of Valley Water as "the county's multi-purpose agency known today with responsibilities for countywide water management, including flood control, conservation, and wholesale water supplier for most of county's water retailing services" (Santa Clara County 1994).

**SC-15.13:** Geotechnical investigations should be required on all projects in unstable areas, including areas of expansive soils, prior to construction to ensure that the potential hazards are identified and can be properly mitigated.

**R-HS 10:** In all hazard areas, projects shall be designed and conditioned to avoid placement of structures and improvements where they would:

- a. Be directly jeopardized by hazards
- b. Increase the hazard potential; and/or
- c. Increase risks to neighboring properties

**R-HS 13:** Where needed to adequately assess the hazards of a proposal, the County shall require on-site investigations and analysis by certified professionals.

#### Santa Clara County Zoning Ordinance

Most of the Proposed Project study area in Santa Clara County is zoned Agricultural Ranchlands (AR) as part of a Rural Base District. The purpose of the AR zone district is to preserve ranching, the natural resources, and the rural character of the areas to which it applies. Permitted uses





include ranching or agriculture, low-intensity recreation, mineral extraction, residences, and land in its natural state (Santa Clara County 2024).

The AR district is modified by the Scenic Roads combining district along SR-152. The purpose of the Scenic Roads combining district is to prevent strip commercial development and protect the visual character of scenic roads in Santa Clara County through special development and sign regulations (Santa Clara County 2024).

One parcel located adjacent to SR-152 at Bell Station is zoned Roadside Services. The purpose of the Roadside Services district is to allow specific and necessary highway uses and services within clusters at appropriate locations necessary to serve the motoring public. Such uses are to be located a sufficient distance from other Roadside Services districts to prevent strip commercial development and protect the existing scenic features, landscape, and open space character along certain scenic roads such as SR-152 (Santa Clara County 2024).

#### Santa Clara County Grading Ordinance

The proposed geotechnical investigations that are described in Chapter 2 of this Draft EIR are considered exempt from a grading permit, as stated in Sections C12-407(e) and (f) of the Santa Clara County Grading Ordinance.

#### ***Santa Clara Valley Habitat Agency***

##### Santa Clara Valley Habitat Plan

The SCVHA was formed in 2013 to implement the Valley Habitat Plan. The Valley Habitat Plan provides streamlined state and federal permitting for public and private projects by pre-identifying mitigation obligations for impacts on species habitat (Santa Clara Valley Habitat Agency 2013). The Valley Habitat Plan also offers a comprehensive and effective way to address impacts of those projects on endangered and threatened species and their habitats.

### **3.12.3 Environmental Impacts and Mitigation Measures**

The following sections discuss the methods and assumptions, criteria for determining the significance of impacts, environmental impacts, and mitigation measures if applicable.

#### **Methods and Assumptions**

The land use analysis in this section evaluates the potential for the Proposed Project to cause a significant environmental impact due to a conflict with any applicable plans and policies, including whether the Proposed Project would introduce incompatible land uses relative to existing surrounding land uses, which could result in significant environmental impacts. Specifically, the Proposed Project was evaluated against the goals, policies and standards of the relevant General Plan policies, Zoning Ordinance, Grading Ordinance, and Valley Habitat Plan to determine whether



land use conflicts or inconsistencies would result, and whether those conflicts or inconsistencies would create significant physical environmental impacts.

### ***Applicable Conservation Measures***

There are no Conservation Measures applicable to land use and planning.

## **Criteria for Determining Significance of Impacts**

Based on guidance from CEQA Guidelines Appendix G, implementation of the Proposed Project would have significant impacts on land uses and planning if it were to:

- physically divide an established community, or
- cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect.

## **Environmental Impacts**

### ***Impact LU-1***

#### ***Would the project physically divide an established community?***

The physical division of an established community typically refers to the construction of a physical feature (such as an interstate highway or railroad tracks) or removal of a means of access (such as a local road or bridge) that would impair mobility within an existing community or between a community and an outlying area. The Proposed Project study area is located in a rural area within the unincorporated area of Santa Clara County. The proposed geotechnical investigations would be temporary, take place over a period of approximately eight working months and could extend through 2026. The Proposed Project would have no impact on mobility within an existing community or between a community and an outlying area. Therefore, the Proposed Project would not divide an established community and would have **no impact** on land use and planning. No mitigation is required.

### ***Impact LU-2***

#### ***Would the project cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?***

The Proposed Project would not conflict with General Plan policies R-LU 36 or R-LU 39 because the Proposed Project is temporary (over a period of approximately eight working months) and does not propose any uses that would restrict the current and ongoing use of ranching. Also, the Proposed Project would be consistent with General Plan policies SC-15 13, R-HS 10, and R-HS 13 because the Proposed Project is intended to collect geotechnical data to identify potential onsite geologic hazards that would be used to inform the design of PREP to avoid or mitigate those potential hazards. Also, the proposed geotechnical investigations would not conflict with the



Santa Clara County Zoning Ordinance because they would be temporary and not restrict ongoing ranching activities or roadside services. The Proposed Project would not conflict with Santa Clara County Zoning Ordinance section C12-407(e) or C12-407(f), and no grading permits for the proposed geotechnical investigations would be required by Santa Clara County. Finally, the Proposed Project would be consistent with the Valley Habitat Plan as described in Section 3.5 (Biological Resources) and would not encroach into the Pacheco Creek Reserve. Therefore, the Proposed Project would not cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect. The Proposed Project would result in **no impact** on land use and planning. No mitigation is required.

### **Mitigation Measures**

No mitigation measures are required.

## **3.13 Mineral Resources**

This section describes the mineral resources setting within the vicinity of the Proposed Project study area and assesses impacts to mineral resources resulting from the Proposed Project.

### **3.13.1 Environmental Setting**

Minerals are any naturally occurring chemical element or compound, or groups of elements and compounds, formed from inorganic processes and organic substances including, but not limited to, coal, peat and oil-bearing rock but excluding geothermal resources, natural gas, and petroleum. Rock, sand, gravel, and earth are also considered minerals by the Department of Conservation when extracted by surface mining operations (CDC 2000).

The Proposed Project study area is located within USGS Pacheco Peak 7.5-Minute Quadrangle. Site topography is foothills, with elevations within the Proposed Project study area ranging from approximately 400 feet to 1,400 feet above msl.

There are several mineral resource deposits in Santa Clara County that are of regional or state-wide significance. Mineral resources of significance found and extracted in Santa Clara County include construction aggregate deposits, limestone, and, to a lesser extent, salts derived from evaporation ponds at the edge of San Francisco Bay (Santa Clara County 1994). Construction of North Fork Dam, SR-152 access improvements, and other infrastructure used local sources of common mineral materials (e.g., sand, gravel, aggregate) for fill material from within and adjacent to the Proposed Project study area; however extensive geological and geotechnical investigations within and surrounding the Proposed Project study area have not observed any evidence of commercial sources of mineral resources that have been mined or processed within the Proposed Project study area (AECOM 2020 and 2021).



The Guidelines for Classification and Designation of Mineral Lands (CDC n.d.) designates areas with four Mineral Resource Zone (MRZ) sensitivity types (PRC, Sections 2710–2796):

- **MRZ-1:** Areas where adequate information indicates that no significant mineral deposits are present or where it is judged that little likelihood exists for their presence.
- **MRZ-2:** Areas where adequate information indicates that significant mineral deposits are present or where it is judged that there is a high likelihood for their presence.
- **MRZ-3:** Areas containing mineral deposits, the significance of which cannot be evaluated from available data.
- **MRZ-4:** Areas where available information is inadequate for assignment to any other MR zone.

The Geologic Map of Santa Clara County, which shows mineral deposits within the County, does not identify any MRZs within the Proposed Project study area. However, according to the CDC records, designated mineral resources have been identified within and adjacent to Pacheco Creek, immediately downstream of the Proposed Project study area. These mineral resources consist of MRZ-2 resources that include Holocene stream channel and terrace deposits of Pacheco Creek, suitable for asphalt concrete aggregate (CDC 2021a and 2021b). Following a review of aerial imagery, it appears that these downstream resources were mined and processed consistent with the timeframe Caltrans reconstructed a portion of SR-152 in the general vicinity of the Proposed Project study area.

### 3.13.2 Regulatory Framework

#### Federal Laws, Regulations, and Policies

As there are no federal lands within the Proposed Project study area, there are no applicable federal laws, regulations, or policies pertaining to mineral resources that regulate the Proposed Project.

#### State Laws, Regulations, and Policies

##### *Surface Mining and Reclamation Act of 1975*

The California Surface Mining and Reclamation Act of 1975 (SMARA) was enacted in response to land use conflicts between urban growth and essential mineral production. SMARA (PRC § 2710 et seq., subsequently amended) is the primary regulation for onshore surface mining in the state. SMARA mandates that aggregate resources throughout the state be identified, mapped, and classified by the state geologist so that local governments can make land use decisions in light of the presence of aggregate resources and the need to preserve access to those resources. Local jurisdictions are required to enact specific plan procedures to guide mineral conservation and



extraction at particular sites and to incorporate mineral resource management policies into their general plans.

## **Regional and Local Laws, Regulations, and Policies**

### ***Santa Clara County General Plan***

Several mineral resource deposits in Santa Clara County are of regional or state-wide significance, as determined by state agencies (Santa Clara County 1994). However, there are no designated mineral resources zones within the Proposed Project study area (CDC 2021).

### **3.13.3 Environmental Impacts and Mitigation Measures**

The following sections discuss the methods and assumptions, criteria for determining the significance of impacts, environmental impacts, and mitigation measures if applicable.

#### **Methods and Assumptions**

Potential impacts of the Proposed Project on mineral resources were assessed with the aid of maps and technical reports (CDC 2000, 2021a, 2021b; California Geological Survey 2002; and Santa Clara County 1994). The impacts were evaluated qualitatively based on the type, intensity, equipment and materials used, locations and duration of Proposed Project activities.

#### ***Applicable Conservation Measures***

There are no Conservation Measures applicable to mineral resources.

#### **Criteria for Determining Significance of Impacts**

Significance criteria are based on CEQA Guidelines Appendix G. Implementation of the Proposed Project would have significant impacts on mineral resources if it were to:

- Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state, or
- Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan.



## Environmental Impacts

### ***Impact MIN-1***

***Would the project result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?***

The Geologic Map of Santa Clara County, which shows mineral deposits within the region, does not identify any MRZs within the Proposed Project study area. Therefore, Policies R-RC 67 and 69 would not be applicable to the Proposed Project. In addition, Proposed Project activities would not result in the loss of availability of any mineral resource. As a result, there would be no loss of availability of valuable or rare resources from Proposed Project implementation. Therefore, the Proposed Project would have **no impact** on mineral resources of value to the region or residents of the state. No mitigation is required.

### ***Impact MIN-2***

***Would the project result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?***

Neither the County's General Plan nor any other specific plans nor other relevant land use plans identify any locally important mineral resource recovery sites within the Proposed Project study area. Therefore, Policies R-RC 67 and 69 would not be applicable to the Proposed Project. In addition, each bore hole and test pit excavated within a designated work activity area, would be backfilled with excavated material upon completion of that work. Therefore, implementation of the Proposed Project would not preclude the availability of locally available mineral resource recovery sites, and **no impact** would occur. No mitigation is required.

## Mitigation Measures

No mitigation measures are required.

## 3.14 Noise

### 3.14.1 Environmental Setting

#### Acoustic Fundamentals

Acoustics is the scientific study that evaluates perception, propagation, absorption, and reflection of sound waves. Sound is a mechanical form of radiant energy, transmitted by a pressure wave through a solid, liquid, or gaseous medium. Sound that is loud, disagreeable, unexpected, or unwanted is generally defined as "noise." Noise is typically expressed in decibels (dB), which is a common measurement in sound energy. The following background information about sound,





noise, and vibration provides context to facilitate understanding of the technical terms referenced throughout this section.

### Common Noise Descriptors

**Equivalent Continuous Sound Level ( $L_{eq}$ ):**  $L_{eq}$  represents an average of the sound energy occurring over a specified period. In effect,  $L_{eq}$  is the steady-state sound level containing the same acoustical energy as the time-varying sound level that occurs during the same period (Caltrans 2013: 2-48). For instance, the 1-hour equivalent sound level, also referred to as the hourly  $L_{eq}$ , is the energy average of sound levels occurring during a 1-hour period and is the basis for noise abatement criteria used by Caltrans and the FTA (Caltrans 2013: 2-47; FTA 2018).

**Maximum Sound Level ( $L_{max}$ ):**  $L_{max}$  is the highest instantaneous sound level measured during a specific period (Caltrans 2013: 2-48; FTA 2018).

**Day-Night Level ( $L_{dn}$ ):**  $L_{dn}$  is the energy average of A-weighted sound levels occurring over a 24-hour period, with a 10-dBA “penalty” applied to sound levels occurring during the nighttime hours between 10 p.m. and 7 a.m. because this time is normally used for sleep (Caltrans 2013: 2-48).

**Community Noise Equivalent Level:** Same as  $L_{dn}$  with an additional penalty of 4.77 dBA for the hours 7 p.m. to 10 p.m., which are reserved for relaxation, television, reading, and conversation (Caltrans 2013: 2-48).

**Vibration Decibels:** VdB is the vibration velocity level in decibel scale (FTA 2018: Table 3.14-1).

**Peak Particle Velocity:** PPV is the peak signal value of an oscillating vibration waveform. Usually expressed in in/sec (FTA 2018: Table 3.14-1).

**Table 3.14-1. Summary of Existing Ambient Noise Measurements**

Measurement Location <sup>1</sup>	Date	Start Time/Duration	Primary Noise Source	Noise Levels		
Short-Term (ST) Measurements				(dBA) $L_{eq}$	(dBA) $L_{min}$	(dBA) $L_{max}$
ST 2	2/4/2021	12:20 p.m./ 15 min	SR-152	69.6	51.4	79.0
Long-Term (LT) Measurement				CNEL/ $L_{dn}$		
LT 1	2/3/2021 – 2/4/2021	3:00 p.m./ 24-hour	SR-152	49.9/49.5		
LT 2	4/25/2024 – 4/26/2024	2:00 p.m./ 24-hour	SR-152	66.6/66.3		

Source: Data collected by Ascent in 2021

Note: <sup>1</sup> Refer to Figure 3.14 1 for ambient noise level measurement locations.

Key: CNEL = Community Noise Equivalent Level;  $L_{eq}$  = hourly average noise level;  $L_{max}$  = the highest sound level measured during a single noise event;  $L_{min}$  = the lowest sound pressure level within the measuring period; LT = long-term; ST = short-term

### Sound Propagation

When sound propagates over a distance, it changes in level and frequency content. The manner in which a noise level decreases with distance depends on the following factors:



### Geometric Spreading

Sound from a localized source (i.e., a point source) propagates uniformly outward in a spherical pattern. The sound level attenuates (or decreases) at a rate of 6 dB for each doubling of distance from a point source. Roads and highways consist of several localized noise sources on a defined path and hence can be treated as a line source, which approximates the effect of several point sources, thus propagating at a slower rate in comparison to a point source. Noise from a line source propagates outward in a cylindrical pattern, often referred to as cylindrical spreading. Sound levels attenuate at a rate of 3 dB for each doubling of distance from a line source.

### Ground Absorption

The propagation path of noise from a source to a receiver is usually very close to the ground. Noise attenuation from ground absorption and reflective wave canceling provides additional attenuation associated with geometric spreading. Traditionally, this additional attenuation has also been expressed in terms of attenuation per doubling of distance. This approximation is usually sufficiently accurate for distances of less than 200 feet. For acoustically hard sites (i.e., sites with a reflective surface between the source and the receiver, such as a parking lot or body of water), no excess ground attenuation is assumed. For acoustically absorptive or soft sites (i.e., those sites with an absorptive ground surface between the source and the receiver, such as soft dirt, grass, or scattered bushes and trees), additional ground-attenuation value of 1.5 dB per doubling of distance is normally assumed. When added to the attenuate rate associated with cylindrical spreading, the additional ground attenuation results in an overall drop-off rate of 4.5 dB per doubling of distance. This would hold true for point sources, resulting in an overall drop-off rate of up to 7.5 dB per doubling of distance.

### Atmospheric Effects

Receivers located downwind from a source can be exposed to increased noise levels relative to calm conditions, whereas locations upwind can have lowered noise levels, as wind can carry sound. Sound levels can be increased over large distances (e.g., more than 500 feet) from the source because of atmospheric temperature inversion (i.e., increasing temperature with elevation). Other factors such as air temperature, humidity, and turbulence can also affect sound attenuation.

### Shielding by Natural or Human-Made Features

A large object or barrier in the path between a noise source and a receiver attenuate noise levels at the receiver. The amount of attenuation provided by shielding depends on the size of the object and the frequency content of the noise source. Natural terrain features (e.g., hills and dense woods) and human-made features (e.g., buildings and walls) can substantially reduce noise levels. A barrier that breaks the line of sight between a source and a receiver would typically result in at least 5 dB of noise reduction (Caltrans 2013:2-41; FTA 2018:16).



## ***Vibration***

Vibration is the periodic oscillation of a medium or object for a given reference point. Sources of vibration include natural phenomena (e.g., earthquakes, landslides) and those introduced by human activity (e.g., drill rigs, excavators, traffic). Vibration sources may be continuous, (e.g., operating heavy equipment) or transient (e.g., traffic). Vibration levels can be depicted in terms of amplitude and frequency relative to displacement, velocity, or acceleration.

Vibration amplitudes are commonly expressed in PPV or root mean square (RMS) vibration velocity. PPV and RMS vibration velocity are normally described in in/sec or in millimeters per second. PPV is defined as the maximum instantaneous positive or negative peak of a vibration signal. PPV is typically used in the monitoring of transient and impact vibration and has been found to correlate well with the stresses experienced by buildings (FTA 2018, Caltrans 2020).

Although PPV is appropriate for evaluating the potential for building damage, it is not always suitable for evaluating human or wildlife response. It takes some time for the organism to respond to vibration signals. In a sense, the organism responds to average vibration amplitude. The RMS of a signal is the average of the squared amplitude of the signal, typically calculated over a 1-second period. As with airborne sound, the RMS velocity is often expressed in decibel notation VdB, which serves to compress the range of numbers required to describe vibration (FTA 2018, Caltrans 2020). This is based on a reference value of 1 micro inch per second.

The typical background vibration-velocity level in residential areas is approximately 50 VdB. Ground vibration is normally perceptible to humans at approximately 65 VdB. For most people, a vibration-velocity level of 75 VdB is the approximate dividing line between barely perceptible and distinctly perceptible levels (FTA 2018, Caltrans 2020).

Typical outdoor sources of perceptible ground vibration are heavy-duty equipment, and traffic on rough roads. If a roadway is smooth, the ground vibration from traffic is rarely perceptible. The range of interest is from approximately 50 VdB, which is the typical background vibration-velocity level, to 100 VdB, which is the general threshold where minor damage can occur to fragile buildings.

Vibrations generated by heavy-duty equipment use can be transient, random, or continuous. Transient vibrations are generated traffic and heavy equipment moving over uneven ground. Continuous vibrations are generated by drill rigs, excavation equipment, large pumps, and compressors. Random vibration can result from hand-held jack hammers and small pumps.

## **Existing Noise and Vibration Environment**

### ***Existing Noise and Vibration Sources***

The Proposed Project study area is located within a rural, primarily undeveloped area with few existing noise and vibration sources. Ambient noise levels within the southern portion of the Proposed Project study area are most affected by proximity to transportation noise sources, such



as SR-152 or to a much lesser degree Kaiser-Aetna Road. Major roadways and highways are also sources of vibration, specifically associated with large trucks or buses. Background noise sources throughout the Proposed Project study area include aircraft overflights (including CHP and CAL FIRE aircraft), rural residences (e.g., people talking, dogs barking), and nature (e.g., birds chirping, wind). Given the rural nature of the site, existing vibration sources are minimal and limited to intermittent events associated with trucks or other large vehicles traveling on SR-152.

An ambient noise survey was conducted on February 3 and 4, 2021, to establish existing noise conditions for the PREP study area which encompasses the study area of the Proposed Project. One long-term (LT) 24-hour noise measurement and two short-term (ST) 15-minute measurements were conducted at three different locations, as shown in Figure 3.14-1. However, only the measurements at ST 2 and LT 1 are pertinent to the Proposed Project study area described in Chapter 2. The LT 1 noise measurement was taken near the existing North Fork Dam (approximately 0.3 miles north of SR-152), near where the majority of test pits, borings, and the main staging area would be located. The ST 2 noise measurement was taken near the intersection of Kaiser-Aetna Road and SR-152 where several borings are proposed within the Caltrans ROW. In addition, on April 24, 2024, one additional 24-hour measurement (LT 2) was taken at the edge of the Caltrans ROW just south of ST 2.

Measurements were taken at non-specific times of the day to represent typical daily activity levels. A Larson Davis Laboratories Model 820 precision integrating sound level meter was used for the ambient noise level measurement surveys. The noise level measurements were taken in accordance with the standards of the American National Standards Institute using a Larson Davis Laboratories Model 820 precision integrating sound level meter for the LT measurement and an LDL SoundTrack LxT for the ST measurements. The results of the ST and LT measurement surveys are summarized in Table 3.14-1.

#### Noise-and Vibration-Sensitive Land Uses and Receptors

There are several existing sensitive receptors near the Proposed Project study area (see Figure 3.14-1). Two residences (i.e., SR-1 and SR-2) are located along El Toro Road, southeast of North Fork Dam, and two residences (i.e., SR-3 and SR-5) are located south of SR-152, near the intersection with Kaiser-Aetna Road. Additionally, Bell Station Farmers Market (a commercial property) east of the SR-152 and Kaiser-Aetna Road intersection is treated as a sensitive receptor (i.e., SR-4) in this analysis.

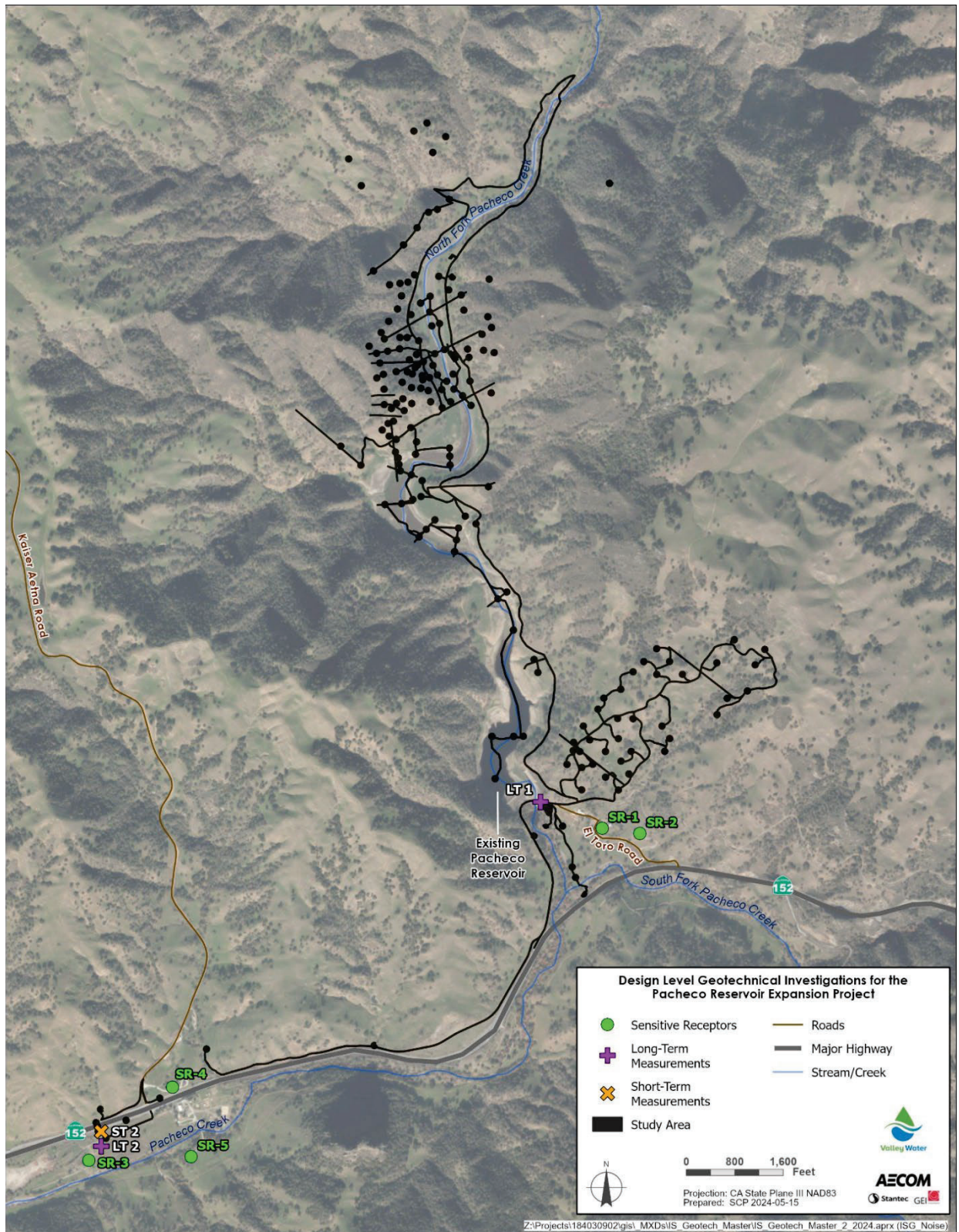
#### Airports and Private Airstrips

Airport noise is applicable for a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, and that could expose people residing or working in the vicinity of a proposed project study area to excessive noise levels. The Proposed Project study area is not located within the vicinity of a private airstrip or an airport land use plan. There are no public airports within two





miles of the Proposed Project study area. The nearest airport is the Frazier Lake Airpark, which is located approximately 10 miles southwest of the Proposed Project study area.



## Figure 3.14-1. Project Features, Noise Measurement Location, and Sensitive Receptors

### 3.14.2 Regulatory Framework

#### Federal Laws, Regulations, and Policies

##### *Federal Transit Administration*

To address the human response to ground vibration, the FTA has set forth guidelines for maximum-acceptable vibration criteria for different types of land uses.<sup>81</sup> These guidelines are presented in Table 3.14-2. FTA has also established construction vibration damage criteria, shown below in Table 3.14-3.

**Table 3.14-2. Ground-Borne Vibration (GBV) Impact Criteria for General Assessment**

Land Use Category	GBV Impact Levels (VdB re 1 micro-inch/second)	GBV Impact Levels (VdB re 1 micro-inch/second)	GBV Impact Levels (VdB re 1 micro-inch/second)
	Frequent Events <sup>1</sup>	Occasional Events <sup>2</sup>	Infrequent Events <sup>3</sup>
<b>Category 1:</b> Buildings where vibration would interfere with interior operations.	65 <sup>4</sup>	65 <sup>4</sup>	65 <sup>4</sup>
<b>Category 2:</b> Residences and buildings where people normally sleep.	72	75	80
<b>Category 3:</b> Institutional land uses with primarily daytime uses.	75	78	83

Source: FTA 2018: 186.

Notes: VdB = vibration decibels referenced to 1  $\mu$  inch/second and based on the root mean square (RMS) velocity amplitude.

<sup>1</sup> "Frequent Events" is defined as more than 70 vibration events of the same source per day.

<sup>2</sup> "Occasional Events" is defined as between 30 and 70 vibration events of the same source per day.

<sup>3</sup> "Infrequent Events" is defined as fewer than 30 vibration events of the same source per day.

<sup>4</sup> This criterion is based on levels that are acceptable for most moderately sensitive equipment such as optical microscopes.

Vibration-sensitive manufacturing or research would require detailed evaluation to define acceptable vibration levels.

**Table 3.14-3. FTA Construction Damage Vibration Criteria**

Land Use Category	PPV, in/sec
Reinforced-concrete, steel, or timber (no plaster)	0.5
Engineered concrete and masonry (no plaster)	0.3
Non-engineered timber and masonry buildings	0.2
Buildings extremely susceptible to vibration damage	0.12

Source: FTA 2018: 186.

Key:

PPV = Peak particle velocity in inches per second

In addition, FTA provides guidance for acceptable noise levels and when impacts to sensitive receptors are likely to occur. Based on this guidance, the maximum noise generated by a source

<sup>81</sup> There are no federal, state or local/regional guidelines for noise or vibration effects on wildlife.





(regardless of the existing noise level) where no impact would likely occur to people is 65 dBA ( $L_{eq}$  or  $L_{dn}$ ), which is the level considered to be an acceptable living environment. Further, as existing noise levels increase, people become more sensitive to incremental increases in noise (FTA 2018).

## State Laws, Regulations and Policies

Noise is generally regulated at the local level. While the State does provide guidance for developing local noise standards, none are available that pertain to the Proposed Project. Regarding vibration, while Caltrans does provide guidance on assessing vibration levels, FTA's procedure is used in this analysis, as described above.

## Regional and Local Laws, Regulations, and Policies

### *Santa Clara County General Plan*

The General Plan provides two separate safety and noise elements, one for Countywide issues (*Book A*) and one for rural unincorporated areas (*Book B*). Although the Proposed Project is located in a rural area, both elements are considered to provide a comprehensive understanding of the County's noise policies. The General Plan includes the following noise policies that are applicable to the Proposed Project:

- **Policy C-HS-24:** Environments for all residents of Santa Clara County free from noises that jeopardize their health and well-being should be provided through measures which promote noise and land use compatibility.
- **Policy C-HS-25:** Noise impacts from public or private projects should be mitigated.
- **Policy R-HS-1:** Significant noise impacts from either public or private projects should be mitigated.

### *Santa Clara County Code of Ordinances*

The County Code establishes specific exterior and interior noise standards for noise at residential receptors, as well as specific noise standards for mobile and stationary work activities. These standards are used as thresholds of significance in this analysis as they represent noise and vibration levels acceptable to the local community, consistent with *Appendix G of the CEQA Guidelines*.

The noise standards for the various receiving land uses as presented in County Code Table B11-152 (presented in this EIR as Table 3.14-4) would apply to all property within any zoning district in the County.<sup>82</sup> Section B11-152 of the County Code provides:

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<sup>82</sup> These standards are used as thresholds of significance in this Draft EIR since they represent noise and vibration levels acceptable to the local community, consistent with *CEQA Guidelines Appendix G* (Question XIII(a)). However,



1. No person may operate or cause to be operated any source of sound at any location within the unincorporated territory of the County or allow the creation of any noise on property owned, leased, occupied or otherwise controlled by the person, which causes the noise level when measured on any other property either incorporated or unincorporated, to exceed:
  - a. The noise standard for that land use as specified in Table 3.14-3 for a cumulative period of more than 30 minutes in any hour; or the noise standard plus 5 dB for a cumulative period of more than 15 minutes in any hour;
  - b. The noise standard plus 10 dB for a cumulative period of more than five minutes in any hour; or the noise standard plus 15 dB for a cumulative period of more than one minute in any hour;
  - c. The noise standard plus 10 dB for a cumulative period of more than five minutes in any hour;
  - d. The noise standard plus 15 dB for a cumulative period of more than one minute in any hour; or
  - e. The noise standard plus 20 dB or the maximum measured ambient, for any period of time.
2. If measured ambient level exceeds that permissible within any of the first four noise limit categories above, the allowable noise exposure standard would be increased in 5 dB increments in each category as appropriate to encompass or reflect the ambient noise level. In the event the ambient noise level exceeds the fifth noise limit category, the maximum allowable noise level under the category would be increased to reflect the maximum ambient noise level.
3. If the noise measurement occurs on a property adjoining a different land use category, the noise limit applicable to the lower land use category, plus 5 dB, would apply.
4. If for any reason the alleged offending noise source cannot be shutdown, the ambient noise must be estimated by performing a measurement in the same general area of the source but at a sufficient distance that the noise from the source is at least ten dB below the ambient in order that only the ambient level be measured. If the difference between the ambient and the noise source is 5 to 10 dB, then the level of the ambient itself can be reasonably determined by subtracting a one-decibel correction to account for the contribution of the source.
5. Correction for character of sound. In the event the alleged offensive noise contains a steady, audible tone such as a whine, screech, or hum, or contains music or speech conveying informational content, the standard limits set forth in Table 3.14-4 would be reduced by 5 dB.

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as a special district operating under mandates set forth by state law, Valley Water is not subject to any regulation under the County noise ordinance (*Hall v. City of Taft*, 47 Cal. 2d 177,189).



**Table 3.14-4. Exterior Noise Limits**

Receiving Land Use Category	Time Period	Noise Level (dBA)
One- and Two-Family Residential	10 p.m. – 7 a.m.	45
	7 a.m. – 10 p.m.	55
Multiple-Family Dwelling	10 p.m. – 7 a.m.	50
Residential Public Space	7 a.m. – 10 p.m.	55
Commercial	10 p.m. – 7 a.m.	60
	7 a.m. – 10 p.m.	65
Light Industrial	Any Time	70
Heavy Industrial	Any Time	75

Source: Santa Clara County 2023

Key: dBA = A-weighted decibel

Section B11-156(d)(3) of the County Code provides an exemption from the exterior noise standards described in Table 3.14-4 for work activities because construction-specific noise standards are established in Section B11-154(b)(6) of the County Code. Santa Clara County Code (Section B11-154[b](6)) prohibits between the hours of 7 p.m. and 7 a.m. on weekdays and Saturdays and at any time on Sundays or holidays the operation of any tools or equipment used in construction, drilling, repair, alteration, or demolition work that would generate a noise disturbance across a residential or commercial real property line. Where technically and economically feasible, work activities must be conducted in a manner such that the maximum noise levels at affected properties would not exceed those listed in Table 3.14-5 and Table 3.14-6.

**Table 3.14-5. Mobile Equipment – Maximum Noise Levels for Nonscheduled, Intermittent, Short-Term Operation (Less than 10 days)**

Time Period	Single- and Two-Family Dwelling Residential Area (dBA)	Multifamily Dwelling Residential Area (dBA)	Commercial Area (dBA)
Daily, except Sundays and legal holidays 7:00 a.m. – 7:00 p.m.	75	80	85
Daily, 7:00 p.m. to 7:00 a.m. and all-day Sunday and legal holidays	50	55	60

Source: Santa Clara County 2023

Key: dBA = A-Weighted decibel

**Table 3.14-6. Stationary Equipment – Maximum Noise Levels for Repetitively Scheduled and Relatively Long-Term Operation (Periods of Ten Days or More)**

Time Period	Single- and Two-Family Dwelling Residential Area (dBA)	Multifamily Dwelling Residential Area (dBA)	Commercial Area (dBA)
Daily, except Sundays and legal holidays 7:00 a.m. – 7:00 p.m.	60	65	70
Daily, 7:00 p.m. to 7:00 a.m. and all-day Sunday and legal holidays	50	55	60

Source: Santa Clara County 2023

Key: dBA = A-Weighted decibel



### ***Ground Vibration***

County Code Section B11-154(b)(7) prohibits operating or permitting the operation of any device that creates a vibrating or quivering effect that endangers or injures the safety or health of human beings or animals; annoys or disturbs a person of normal sensitivities; or endangers or injures personal or real properties.

### ***Helicopters***

County Code Section B11-154(b)(14) prohibits operating or permitting the operation of any helicopter that violates the nighttime exterior noise standards outlined in Section B11-152 or that causes a noise that exceeds 80 dBA during the day in residential or commercial areas without a variance. The County Code does not explicitly define the noise metric associated with helicopters; therefore, this standard was applied to helicopter noise as an  $L_{\max}$ , due to the non-stationary or temporary nature of the operation. Military and government-operated helicopters are exempt.

## **3.14.3 Environmental Impacts and Mitigation Measures**

The following sections discuss the methods and assumptions, criteria for determining the significance of impacts, environmental impacts, and mitigation measures.

### **Methods and Assumptions**

#### ***Short-Term Project-Generated Noise***

As shown in Table 3.14-5 and Table 3.14-6, Santa Clara County identifies one set of standards for short-term (i.e., less than 10 days) project activities using mobile equipment and one set for activities using stationary equipment for periods longer than 10 days. Overall, the duration of the Proposed Project would occur in eight working months over an eleven-month period using mobile equipment that may remain stationary for up to four days at each activity area.

While individual boring activities at each activity area would be completed in a matter of several hours to several days, due to the number of activity areas and in some instances, their close proximity to one another, it is possible that activity could occur in the same general area for more than 10 days; thus, the noise standards applicable to short-term noise-generating activities occurring for more than 10 days were applied to investigation activities (i.e., Table 3.14-6) as hourly average noise levels (i.e.,  $L_{eq}$ ). The mobile-source noise standards (section 3.14-5) were applied to equipment that would be used for access between activity areas (i.e., the all-terrain vehicle).

Modeling was conducted using reference noise levels available from FTA, for each type of equipment listed in Table 2-5. More specifically, seven Proposed Project activities that would be implemented were modeled. Model scenarios were based on the varying anticipated activity types and different combinations of anticipated equipment required to complete each activity. Thus,



each model scenario represents the anticipated maximum noise level associated with a discrete activity that could occur at any one location throughout the duration of project activities.

Reference noise levels are noise-exposure values for various noise sources that are based either on manufacturer specifications or measured noise levels and include a distance from the noise source. In the case of FTA reference noise levels for heavy-duty equipment, reference noise levels are provided in maximum instantaneous (i.e.,  $L_{max}$ ) levels at 50 feet from the operation of a single piece of equipment. This noise modeling applied default (per FTA) usage rates to each piece of equipment to calculate hourly noise levels (i.e.,  $L_{eq}$ ) at 50 feet from equipment operation. Then, based on the anticipated number of simultaneous equipment used for each activity (which ranges from one to six pieces of equipment operating at the same time based on anticipated activity type as shown in Table 3.14-8), noise levels were combined to estimate a worst-case noise level at individual work sites. Using distance attenuation calculations, the combined worst-case noise level was attenuated to nearby receptors for comparison to applicable noise standards.

To evaluate increases in noise from short-term activities, existing ambient noise level data were collected at locations within the Proposed Project study area and project-generated noise was added to existing noise levels to calculate anticipated increases in noise.

### ***Short-Term Project-Generated Vibration***

Similar to the methods described above for noise, FTA has published reference vibration levels for heavy-duty equipment. Using the pieces of equipment for each activity/location combination that would generate the highest vibration levels, impact distances to the FTA-recommended vibration criteria were modeled, then using the proposed activity locations and aerial imagery, it was determined if structures and sensitive receptors are located within the impact distances modeled.

### ***Applicable Conservation Measures***

The Conservation Measures applicable to the analysis of impacts on noise are applied to evaluate whether impacts are significant. Section 2.4 provides a full description of each BMP and AMM. No BMPs or AMMs are applicable to noise and vibration.

## **Criteria for Determining Significance of Impacts**

Based on guidance from CEQA Guidelines Appendix G, adopted County of Santa Clara General Plan and County Code, as well as FTA guidance and CEQA case law pertaining to the requirement for a noise analysis to consider not only adopted noise levels but also project-generated increases in noise over existing conditions, implementation of the Proposed Project would have a significant impact related to noise or vibration if it would result in:

- Generation of a substantial temporary or permanent increase in ambient noise levels within the vicinity of the Proposed Project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies. Based on the



County General Plan and County Code, a noise impact would be significant if implementation of the Proposed Project would result in:

- Short-term, temporary noise levels associated with equipment use for the Proposed Project activities that exceed the maximum noise level of 60 dBA  $L_{eq}$  for stationary equipment or 75 dBA  $L_{eq}$  for mobile equipment at single- and two-family dwelling residential areas between the hours of 7 a.m. and 7 p.m. or 50 dBA  $L_{eq}$  at residential property lines between the hours of 7 p.m. and 7 a.m. (County Code Section B11-154(b)(6))
- Short-term, temporary noise levels associated with equipment use for the Proposed Project activities that exceed the maximum noise level of 70 dBA  $L_{eq}$  for stationary equipment at commercial land uses between the hours of 7 p.m. and 7 a.m. (County Code Section B11-154(b)(6))
- Helicopter noise that exceeds the maximum noise level of 80 dBA  $L_{max}$  (County Code Section B11-154(b)(14))
- Short-term, temporary noise levels associated with equipment use for the Proposed Project that result in a substantial increase over existing conditions, defined as a 10 dBA increase in areas where existing noise is below 65 dBA and a 5 dBA increase in areas where existing noise is above 65 dBA (adopted as a threshold for this project based on FTA guidance for the purpose of evaluating a substantial temporary increase in noise pursuant to case law requirements when such standards are not adopted by the lead agency)
- Generation of excessive groundborne vibration or groundborne noise levels. Applying FTA vibration assessment criteria, a vibration impact would be significant if implementation of the Proposed Project would result in:
  - Sleep disturbance: A limit of 72 VdB (frequent event) associated with equipment uses (Table 4.13-2)
  - Structural damage: A limit of 0.20 in/sec PPV for non-engineered timber/masonry structures (Table 4.13-3)
- For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, expose people residing or working in the project study area to excessive noise levels.





## Environmental Impacts

### ***Impact NOI-1***

***Would the project result in generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?***

This discussion includes an analysis of short-term equipment operation noise associated with the Proposed Project. Noise can be characterized based on the type of project activity and the associated equipment needed. In this analysis, potential short-term (equipment operation-related) noise impacts are evaluated by considering sensitive receptors and their relative exposure to noise levels associated with the likely combination of investigation equipment required for the Proposed Project. Noise levels generated from the operation of Proposed Project equipment were based on methodologies, reference emission levels, and usage factors from FTA's Guide on Transit Noise and Vibration Impact Assessment (FTA 2018), as described above. The Proposed Project would not result in long-term increases in operational noise; thus, this analysis focuses on short-term equipment operation-related noise and substantial increases in noise over existing ambient conditions.

### Equipment Noise Exposure

Project investigations are anticipated to commence in the summer of 2025 depending on access, field conditions, and availability of field investigation crews, and are expected to be completed by November 2026. As described in Chapter 2, investigation activities would primarily be conducted between 7 a.m. and 6 p.m. Monday through Friday and between 9 a.m. and 4 p.m. on Saturdays, which would be subject to the noise standards presented in Tables 3.14-5 and 3.14-6. However, as detailed in Chapter 2, investigation activities at four exploratory boring sites (PB-01, PB-02, R-20-001, and R-20-003) requiring a highway lane closure for safety, would require work during nighttime hours which would be subject to the prohibition of certain noise generation under County Code Section B-11-154(b)(6).<sup>83</sup>

For the borings north of the west-bound lane of SR-152, borings PB-02 and R-20-001, work would require a closure of one west-bound lane from approximately 8 p.m. to 4 a.m. for up to three to four nights. For the borings associated with the east-bound lane of SR-152, borings PB-01 and R-20-003, a lane closure would be required between 10 p.m. and 7 a.m. for up to three to four nights. A total of up to six to eight nights of work is anticipated for these four borings. Temporary equipment-related noise would be generated by activities such as surface investigations (e.g., seismic), excavation and backfill of test pits, operation of geotechnical drilling equipment, and the transport of fuels and materials using trucks and one medium lift helicopter operating at any one

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<sup>83</sup> County Code Section B11-154(b)(6) prohibits between the hours of 7 p.m. and 7 a.m. on weekdays and Saturdays and at any time on Sundays or holidays the operation of any tools or equipment used in construction, drilling, repair, alteration, or demolition work that would generate a noise disturbance across a residential or commercial real property line.



time. Equipment noise can be characterized based on the type of activity and associated equipment needed.

The typical maximum noise levels (i.e.,  $L_{\max}$ ) for pieces of equipment that would be used during the Proposed Project at a distance of 50 feet from equipment operation (in other words, the noise level someone would experience if they were standing 50 feet away from operating equipment) are presented in Table 3.14-7.

**Table 3.14-7. Typical Noise Levels from Equipment Operation**

Investigation Activity Equipment Type	Typical Noise Level ( $L_{\max}$ dBA) @ 50 feet From Equipment Operation
Auger Drill Rig	85
All-Terrain Vehicle	89
Chainsaw	85
Compactor	82
Drill Rig Truck	84
Excavator	85
Generator	82
Small Generator (<25 kVA)	73
Medium lift Helicopter	98
Pneumatic Tools	85
Pumps	77
Rock Drill	95
Sledgehammer	76
Vibratory Roller	80
Water Truck/Pickup Truck	75

Source: FTA 2018: 176; FHWA 2006; NIOSH 2019; Berger et al. 2010

Key:

dBA = A-weighted decibel

kVA= kilovoltampere

$L_{\max}$  = maximum instantaneous noise levels

The Proposed Project would include two types of surface geophysical investigations (seismic refraction and electrical resistivity) and two types of subsurface geotechnical investigation methods (exploratory test pits and exploratory borings). Depending on the site characteristics, exploratory borings would be drilled with either a truck-mounted, all-terrain track-mounted, helicopter-portable, or barge-based rig. Although some Proposed Project activities would require the same types of hand-held tools (e.g., sledgehammer), heavy equipment (e.g., excavator) equipment, or both, the combined noise levels generated by each proposed investigation activity would fluctuate depending on the number of pieces of equipment and the duration of use. For example, some boring sites would use one truck-mounted or all-terrain rig, while other areas in close proximity to each other could have up to three rigs operating concurrently at adjacent bore sites. Therefore, in this analysis, equipment noise is evaluated by considering the noise levels associated with the likely combination of hand tools and heavy equipment for each activity.



Specifically, seven Proposed Project activities that would be implemented were modeled. Model scenarios were based on the varying anticipated activity types and different combinations of anticipated equipment required to complete each activity. Table 3.14-8 details the type of equipment that would be used during each activity, the sites at which each activity would be conducted, and summarizes the modeled noise level at 50 feet and the noise exposure levels at the nearest sensitive receptors. It should be noted that the noise levels for equipment used in electrical resistivity imaging and seismic refraction investigations were evaluated independently, as equipment use would not be concurrent. The assessment is conservative and considers that, although a single drill rig would operate at an individual site, it is plausible that more than one rig and associated equipment would be operating in the same general area, combining to affect the same nearby receptor due to the close proximity of individual sites to one another. Thus, multiple pieces of equipment were assumed to be operating simultaneously, as shown in Table 3.14-8 and described in more detail in the subsections that follow. Detailed calculations are provided in Appendix H. The following impact analysis also contains separate discussions for various noise sources associated with Proposed Project activities.

**Table 3.14-8. Proposed Project Noise Estimates**

Investigation Activity	Activity Area Labels <sup>1</sup>	Equipment <sup>6</sup>	Modeled Noise Level (dBA Leq) at 50 feet <sup>6</sup>	Distance from Nearest Sensitive Receptor (feet)	Modeled Noise Level (dBA Leq) at Nearest Sensitive Receptor <sup>2,6</sup>
<b>Daytime Investigation Activities</b>					
Electrical Resistivity Imaging <sup>3</sup>	UER-01	Sledgehammer, pickup truck	73.0	SR-1 (8,335 ft)	14.5
Seismic Refraction Investigations <sup>3</sup>	USR-11 through USR-21, DSR-21, DSR-22, LSSR-1 through LSSR-6	Sledgehammer	68.6	SR-1 (774 ft)	37.3
Seismic Refraction Investigations <sup>3</sup>	USR-11 through USR-21, DSR-21, DSR-22, LSSR-1 through LSSR-6	All-terrain vehicle	85.0	SR-1 (774 ft)	53.7
Exploratory Test Pits	TP-16 through TP-33, TP-35, TP-36, TP-40, TP-41, TP-45, TP-46, TP-47, TP-48, TP-52, TP-53, TP-54, TP-60, TP-62, TP-63	Excavator, water truck <sup>4</sup>	78.0	SR 1 (627 ft) SR-2 (741 ft)	49.1 47.2
Exploratory Boring (one drill rig)	A-201, A-202, A-406, A-20-101, A-20-104, A-21-201, A-21-203, CB-21, PB-01, PB-02, R-20-001, R-20-002, R-20-003, S-19, S-26, S-27, S-28, S-29	Auger drill rig, pump, pickup truck, water truck <sup>4</sup>	81.4	SR-4 (240 ft) SR-3 (435 ft) SR-5 (964 ft)	63.5 56.7 47.6
Exploratory Boring (multiple drill rigs: up to 3 drill rigs at adjacent activity areas)	UB-28, UB-44 through UB-46, UB-48, UB-49, UB-51 through UB-60, UB-63 through UB-67, UB-70 through UB-111, BA-19 through BA-25, BA-29, L-01 through L-09, CB-18 through CB-21, CB-25, LS-19 through LS-39, S-01 through S-30	Rock drill, 2 auger drill rigs, pumps, pickup truck, water truck <sup>4</sup>	83.3	SR-1 (794 ft)	51.7



**Table 3.14-8. Proposed Project Noise Estimates (cont.)**

Investigation Activity	Activity Area Labels <sup>1</sup>	Equipment <sup>6</sup>	Modeled Noise Level (dBA Leq) at 50 feet <sup>6</sup>	Distance from Nearest Sensitive Receptor (feet)	Modeled Noise Level (dBA Leq) at Nearest Sensitive Receptor <sup>2,6</sup>
Exploratory Boring (Helicopter-mobilized activity areas) <sup>5</sup>	UB-28, UB-44, UB-45, UB-46, UB-48, UB-62 through UB-67, UB-73, UB-74, UB-81 through UB-84, UB-87 through UB-92, UB-96 through UB-101, UB-106 through UB-109, BA-19 through BA-22, L-01 through L-09, S-02, S-03, S-06, S-07, S-08, S-11 through S-17, S-20 through S-24	Pneumatic tools, pickup truck, chain saw	83.4	SR-1 (5,800 ft)	29.1
Barge-Based Exploratory Boring	LS-19 through LS-39	Auger drill rig, pumps, motorboat (outboard)	83.8	SR-1 (1,800 ft)	42.8
<b>Nighttime Investigation Activities</b>					
Exploratory Boring (one drill rig)	PB-01 PB-02 R-20-001 R-20-003	Truck-mounted drill rig, small generator	74.1	SR-3 (575 ft) SR-3 (1,245 ft) SR-3 (295 ft) SR-3 (225 ft)	46.2 37.4 53.8 56.9

Source: Modeling conducted by Ascent in 2023 and 2024

Notes:

<sup>1</sup> See Tables 2-2 and 2-3 for additional details.

<sup>2</sup> See Figure 3.14 1 for the locations of five sensitive receptors labeled SR-1 through SR-5. Nighttime noise calculated at property line from center of activity areas (i.e., sites).

<sup>3</sup> Because the use of vehicles, handheld and heavy equipment would not be concurrent, the noise levels were evaluated independently. See Appendix H for modeling details.

<sup>4</sup> A water truck could be used at any of the surface or subsurface activity sites for fire protection, soil compaction, or dust suppression.

<sup>5</sup> This noise scenario does not include a helicopter as helicopter noise is evaluated separately using different thresholds/noise standards.

<sup>6</sup> Reference noise levels and equipment usage factors were based on defaults provided by FTA. See Appendix H for more details.

Key:

dBA = A-weighted decibel; ft = feet; SR = Sensitive Receptor

### Surface Geophysical Surveys

Two types of linear surface geophysical investigations (seismic refraction and electrical resistivity) would be performed within the Proposed Project study area. This analysis analyzes the noise impacts from these two types of surface investigations separately.

**Electrical Resistivity Imaging.** One electrical resistivity pedestrian survey would be performed across the valley within the upstream portion of the proposed dam foundation site UER-01. This process would involve the use of a nonmetallic (sparkless) sledgehammer to drive 1/2-inch diameter stainless-steel electrodes approximately 4 to 6 inches into the ground and the use of a battery to induce a DC electrical current which would not generate any noise. Note that a traditional sledgehammer was used in the noise calculations, for a conservative noise assessment.



The use of a nonmetallic (sparkless) sledgehammer hammer can generate noise levels of 108 dBA  $L_{max}$  at 3 feet from the source (NIOSH 2019). Applying a 20 percent usage factor to sledgehammer use results in a 68.6 dBA  $L_{eq}$  at 50 feet from the sledgehammer activity. Applying this reference noise level results in exceedance of the 60 dBA  $L_{eq}$  significance threshold for stationary equipment applicable to sensitive receptors within 165 feet from sledgehammer activity combined with pickup truck use (see Appendix H for modeling details). No sensitive receptors are located within 165 feet of where a sledgehammer would be used. The electrical resistivity imaging site is located approximately 8,335 feet northwest of SR-1, the nearest sensitive receptor. At this distance, noise levels from this activity would attenuate to 14.5 dBA  $L_{eq}$ , and therefore would not exceed applicable County standards. Noise from a pickup truck alone would not be louder than discussed here, as this scenario included both a sledgehammer and pickup truck noise. Noise associated with these activities at sites further away would be further reduced at these receptors, due to increasing distance from the noise source and typical attenuation rates (i.e., 6 dBA reduction with each doubling of the distance from the source). For these reasons, equipment noise associated with electrical resistivity imaging would not exceed County noise standards. Impacts associated with electrical resistivity imaging would be **less than significant**. No mitigation is required.

**Seismic Refraction.** Nineteen seismic refraction lines are proposed at multiple locations as described in Chapter 2. During activity associated with seismic refraction lines, a sledgehammer would be used to strike a metal plate on the ground surface one or more times to send an energy pulse out to geophone stakes that are placed on or pushed into the ground by hand or hammered into the ground with a small hammer. A handheld sledgehammer would be used in areas containing sensitive resources and an ATV-mounted sledgehammer would be used when working in areas accessible using existing established access routes. Because the use of a sledgehammer and an ATV would not be concurrent, the noise levels from these two pieces of equipment were evaluated independently. The use of a sledgehammer can generate noise levels of 108 dBA  $L_{max}$  at 3 feet from the source (NIOSH 2019) and the noise level of an ATV pass by is 89 dBA  $L_{max}$  at 50 feet from the source (Berger et al. 2010). A reference  $L_{eq}$  of 68.6 dBA for the sledgehammer activities was calculated by applying the acoustical usage factor applied to impact pile driving (i.e., 20 percent) to the  $L_{max}$  of the sledgehammer at 50 feet because sledgehammer use is similar in frequency and activity to a pile driver. Typical maximum ATV speeds would be approximately 15 mph. Using the reference  $L_{max}$  of 89 dBA for an ATV at 50 feet from the source and applying a 40 percent acoustical usage factor (factor applicable to other mobile equipment such as a truck), a reference  $L_{eq}$  of 85.0 dBA at 50 feet was calculated for the ATV. See Appendix H for modeling inputs and calculations.

The noise levels for a sledgehammer and an ATV would attenuate to the significance threshold of 60 dBA  $L_{eq}$  for stationary equipment applicable to sensitive residential receptors at distances of 110 feet and 501 feet, respectively. The seismic refraction line (DSR-22) nearest to an existing sensitive receptor (SR-1), which is located approximately 774 feet to the north. At this distance, noise levels from the use of a sledgehammer and an ATV would attenuate to 37.3 dBA  $L_{eq}$  and 53.7 dBA  $L_{eq}$ , respectively, and therefore would not exceed the applicable significance thresholds.



of 60 dBA  $L_{eq}$  for stationary equipment or 75 dBA  $L_{eq}$  for mobile equipment applicable to sensitive residential receptors. Noise associated with these activities at sites further away would be further reduced at these receptors, due to increasing distance from the noise source and typical attenuation rates (i.e., 6 dBA reduction with each doubling of the distance from the source). Therefore, equipment noise associated with seismic refraction activity would not exceed the applicable significance thresholds. Impacts associated with seismic refraction would be **less than significant**. No mitigation is required.

#### Exploratory Test Pits

A total of 32 test pits are proposed as part of the Proposed Project. Each test pit would be excavated, logged, and backfilled over the course of several hours. As detailed in Chapter 2, each test pit would require excavation with a hydraulic excavator, backfilling, and compaction with an excavator bucket or an excavator-mounted sheep's foot roller; no test pits would require tree trimming or removal. Therefore, the modeling scenario for exploratory test pit investigation activity assumed that up to two pieces of heavy equipment (excavator and water truck) could be operating simultaneously at one location in the Proposed Project study area. Modeling identified that the simultaneous operation of an excavator and a water truck<sup>84</sup> would result in noise levels of 78.0 dBA  $L_{eq}$  at 50 feet. See Appendix H for modeling inputs and results. Heavy equipment operation associated with exploratory test pits would attenuate to the significance threshold of 60 dBA  $L_{eq}$  for stationary equipment applicable to sensitive receptors distance of 262 feet. No residences or other noise-sensitive receptors are located within this distance. The sensitive receptor nearest to an exploratory test pit in which this modeling scenario would occur (i.e., TP-19) is a residential dwelling, SR-1, which is located approximately 627 feet southeast of the edge of activity area TP-19. At this distance, heavy equipment noise associated with exploratory test pits would attenuate to 49.1 dBA  $L_{eq}$ . SR-2 is located approximately 741 feet from TP-23 and would be exposed to noise levels of 47.2 dBA  $L_{eq}$  at this distance. Therefore, nearby sensitive receptors would not be exposed to heavy equipment noise levels from exploratory test pit activity that exceed the applicable significance thresholds. Impacts associated with exploratory test pits would be **less than significant**. No mitigation is required.

#### Exploratory Boring Sites

As detailed in Table 2-6 of Chapter 2 it is assumed that one truck or all-terrain rig would be used for the conveyance pipeline, access road, bridge, and highway overpass and pavement boring activity area. Table 2-6 also notes that all other boring activity areas would concurrently use a helicopter-portable drill rig and a trailer/truck/track drill rig. Therefore, for this analysis, modeling was conducted for boring activity areas with one drill rig and boring activity areas with three drill rigs. Table 3.14-8 details the specific activity areas at which each of these scenarios would apply.

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<sup>84</sup> Water trucks would only be used on existing access routes, water for compaction would be available from portable containers transported by ATV or by excavator bucket.





**Boring Sites with One Drill Rig.** In Chapter 2, Table 2-6 specifies that a single auger/rotary wash drill truck rig would be used for activity areas on the Caltrans and Zhou-properties, which are near three sensitive receptors (i.e., two residential dwellings [SR-1 and SR-3] and Bell Station [SR-4]). Auger or rotary wash truck rig drilling for the six borings within these activity areas are anticipated to take place over approximately 10 days between August and September 2025. Based on the information provided under Drilling Methods in Section 2.3.2, the first boring activity area noise modeling scenario assumes that up to four pieces of equipment (i.e., auger drill rig, pump, pickup truck, water truck) could be operating simultaneously at any one of the boring activity areas listed in Table 3.14-8.

Modeling identified that the simultaneous operation of an auger drill rig, pump, and pickup truck would result in noise levels of 81.4 dBA  $L_{eq}$  at 50 feet. Boring activity area PB-02 is located approximately 240 feet southwest of SR-4, which is considered a sensitive commercial receptor in this analysis. Noise from equipment operations associated with boring activity would attenuate to the significance threshold for commercial receptors of 70 dBA  $L_{eq}$  at 143 feet. Therefore, SR-4 would not be exposed to noise levels that exceed the significance thresholds. There are also two residential sensitive receptors (i.e., SR-3 and SR-5) located south of SR-152 that are near boring activity areas. Boring activity with one drill would attenuate to the significance threshold of 60 dBA  $L_{eq}$  for sensitive residential receptors at a distance of 359 feet. The boring activity area nearest to a residential dwelling is A-20-104, which is located approximately 435 feet northeast of the residential dwelling west of Kaiser-Aetna Road (i.e., SR-3). Noise levels associated with boring activity area A-20-104 would attenuate to 56.7 dBA  $L_{eq}$  at SR-3, which is below the applicable significance threshold of 60 dBA  $L_{eq}$ . Noise at SR-5 from this activity would attenuate to 47.6 dBA  $L_{eq}$ , approximately 964 feet from activity area PB-02. There are also several activity areas located near El Toro Road that would only use one truck/all-terrain rig during boring activity, including activity areas CB-21 and A-21-203. Activity area CB-21 is the nearest activity area to a sensitive receptor (i.e., SR-1), which is located approximately 610 feet east of activity area CB-21. At this distance, boring activity at CB-21 would attenuate to 52.8 dBA  $L_{eq}$ , and therefore would not exceed the significance threshold of 60 dBA  $L_{eq}$ . Noise associated with these activities at sites further away would be further reduced at these receptors, due to increasing distance from the noise source and typical attenuation rates (i.e., 6 dBA reduction with each doubling of the distance from the source). In summary, noise associated with daytime exploratory boring activities using one truck/all-terrain rig would not exceed the applicable significance thresholds at any nearby sensitive receptors. Impacts associated with single drill rig daytime boring would be **less than significant**. No mitigation is required.

#### Helicopter Operations

As detailed in Chapter 2, there would be a maximum of one medium lift helicopter used during Proposed Project activities to transport portable drill rigs, materials, and equipment to various activity sites. All helicopter operations would be staged from a single upland location northeast of the Pacheco Reservoir adjacent to an existing road, and the helicopter would fly along a flight path between various exploratory boring locations and the staging area. In addition to staging



area SS-02, an additional area established for helicopter landing area is located to the north of activity area SS-02. These were specifically located to be in close proximity to the proposed helicopter boring locations and beyond the visibility of the SR-152 viewshed corridor to prevent visual distractions to motorists on SR-152. Helicopter fueling and minor maintenance activities would take place at the helicopter landing area several times per day. Additionally, a large pickup truck would transport helicopter fuel and carry tools and equipment necessary for on-site maintenance and safety inspections to the helicopter landing area and or helicopter landing area daily. If helicopter operations were to occur within 500 feet of sensitive receptors they would increase ambient noise levels for those sensitive receptors in excess of the significance thresholds of 80 dBA  $L_{max}$  applicable to helicopter noise, resulting in a significant noise impact. To reduce this significant impact by ensuring that helicopter operations stay at least 500 feet away from nearby sensitive receptors (based on helicopter noise modeling at distance required to be below 80 dBA  $L_{max}$ ; See Appendix H), Valley Water will implement mitigation measure NOI-1. With the incorporation of mitigation measure NOI-1, any potential noise impacts would be **less than significant with mitigation**.

#### Nighttime Noise

Regarding the potential need for geotechnical investigation activities to occur during the nighttime hours (7 p.m. to 7 a.m.), four activity areas (PB-01, PB-02, R-20-001, and R-20-003) located within Caltrans ROW could require a single-lane highway closure to conduct the investigation, which, to reduce safety hazards and traffic impacts, would occur at night in accordance with Caltrans requirements. Santa Clara County has established nighttime significance threshold of 50 dBA  $L_{eq}$  for activities occurring between 7 p.m. and 7 a.m., which apply at the receiving residential property boundary.

Activity area PB-01 is located 575 feet to the east of the nearest residential property boundary (SR-3) and activity area PB-02 is located 1,245 feet to the east from the nearest residential property boundary (SR-2). Activity area R-20-003 is located 225 feet north of the nearest residential property boundary (SR-3) and activity area R-20-001 is located 295 feet north of the nearest residential property boundary (SR-3).

As shown in Table 3.14-8, noise from nighttime activities at these activity areas could exceed established thresholds of 50 dBA  $L_{eq}$  by 6.9 dBA (Site R-20-003) and 3.8 dBA (Site R-20-001) but for nighttime activities at PB-01 and PB-02 would not exceed the nighttime noise standard of 50 dBA  $L_{eq}$  near SR-3. Nighttime noise from activities at PB-01 and PB-02 is not evaluated further.

Overall, nighttime activities are anticipated to require 6-8 hours of investigation work each night, for a total of up to four nights for each activity area; thus, although construction noise standards would be exceeded, they would not be exceeded for more than four nights at each activity area. See further discussion below regarding nighttime work associated with activity areas R-20-001 and R-20-003. Nighttime drilling associated with these two activity areas would result in significant impacts. For these two activity areas, Valley Water would implement mitigation measure NOI-2 which requires the contractors to use temporary sound barriers to attenuate noise, such as



temporary noise curtains, sound walls, equipment enclosures, or similar products that provide a barrier to attenuate equipment noise. With barriers in place, this impact would be **less than significant with mitigation**.

**Boring Activity Areas with Multiple Drill Rigs.** For all other boring activity areas, a conservative estimate of vehicle and heavy equipment noise levels was used. Specifically, modeling assumed the simultaneous operation of six pieces of equipment (three drill rigs, pumps, and two trucks) operating at separate activity areas but within close proximity to each other (see Appendix H for modeling details). Such activity would generate a noise level of 83.3 dBA  $L_{eq}$  at 50 feet. This noise level would attenuate to the significance threshold of 60 dBA  $L_{eq}$  for residential sensitive receptors at a distance of 428 feet. No sensitive receptors are located within 428 feet of any activity areas that would use multiple drill rigs. The sensitive receptor nearest to an activity area in which this modeling scenario would occur (i.e., CB-20) is SR-1, a residential dwelling located approximately 794 feet northeast of activity area CB-20. Noise levels would attenuate to 51.7 dBA  $L_{eq}$  at this distance and therefore would not exceed applicable significance thresholds. For these reasons, equipment noise associated with activity areas using multiple drill rigs would not exceed applicable significance thresholds. Impacts associated with multiple drill rig daytime boring would be **less than significant**. No mitigation is required.

#### Barge-based Vibracore Drill

Depending on the field conditions (e.g., water levels, surface moisture) of activity areas below the full pool line of the existing Pacheco Reservoir, a vibracore drill rig on a pontoon barge could be used to acquire subsurface samples for some or all lake sediment borings. Modeling under this scenario assumed that an auger drill rig, pumps, and a motorboat would be operating as needed to reposition the barge and transport material between the barge and the launch area simultaneously at any one barge-based drill site in the Proposed Project study area. To calculate the  $L_{eq}$  of the motorboat, the acoustical usage factor applied to a tractor (i.e., 40 percent) was applied to the  $L_{max}$  of the motorboat at 50 feet (i.e., 85 dBA  $L_{max}$ ). Noise levels from this scenario would be 83.8 dBA  $L_{eq}$  at 50 feet and attenuate to the applicable significance threshold of 60 dBA  $L_{eq}$  for sensitive residential receptors at 448 feet. There are no sensitive receptors located within 448 feet of any barge-based vibracore drilling sites. The nearest sensitive residential receptor (i.e., SR-1) is approximately 1,800 feet east of where activities that involve barge-based drilling would take place and, at this distance, noise from barge-based drilling would attenuate to 42.8 dBA  $L_{eq}$ . Therefore, this noise from this type of investigation activity would not exceed the applicable significance threshold at nearby sensitive receptors. Impacts associated with barge-based Vibracore drilling would be **less than significant**. No mitigation is required.

#### Exploratory Boring Access

A total of 64 helicopter-mobilized activity areas would require limited hand contouring with picks and shovels and clearing of brush, as well as the trimming or cutting of trees at select activity areas to allow the placement of temporary drilling platforms. This modeling scenario assumes that during the use of temporary drilling platforms, two pieces of equipment and vehicles (pneumatic



tools, chainsaw, water truck) could be operating simultaneously at any specific activity area. Modeling identified that the simultaneous operation of this equipment necessary to assemble or disassemble the temporary drilling platforms, helicopter noise levels from hovering approximately 100 feet above ground range between 97.2 dBA  $L_{max}$  and 98.1 dBA  $L_{max}$ , respectively (Falzarano and Levy 2007: 13). Noise levels from takeoff and landings from the northern staging/access activity area would attenuate to below the significance threshold of 80 dBA  $L_{max}$  at 450 feet and 485 feet, respectively. There are no sensitive receptors located within these distances. The helicopter landing area is located approximately 9,500 feet north of the nearest sensitive receptor (i.e., SR-4). Therefore, daily helicopter liftoff and landing activities and associated hovering activity would not exceed County significance threshold at any sensitive receptors. Further, the helicopter use would be short-term, operating for approximately four hours per day within the northern portion of the Proposed Project study area, approximately 9,500 feet from the nearest sensitive receptor. Further, with the incorporation of mitigation measure NOI-1 helicopter use throughout the duration of the Proposed Project would not exceed applicable standards of significance at sensitive receptors.

Drilling platform activities assumed the use of up to three pieces of equipment (i.e., pneumatic tools, water truck, chain saw). Combined noise (which does not include helicopter noise) would result in a noise level of 83.4 dBA  $L_{eq}$  at 50 feet. This noise level would attenuate to the significance threshold of 60 dBA  $L_{eq}$  for sensitive residential receptors at 433 feet. No sensitive receptors are located within 433 feet of any helicopter-based activity areas. The nearest activity area is approximately 5,800 feet northeast of a sensitive receptor (i.e., SR-1). Equipment noise would attenuate to 29.1 dBA  $L_{eq}$  at this distance. Therefore, noise associated with the temporary drilling platforms would not exceed the significance thresholds. Note that helicopter noise is not included in this scenario because helicopter noise is evaluated using a different noise standard (i.e.,  $L_{max}$ ), which is appropriate for helicopter noise and because the helicopter is not anticipated to be operating at the same time as the drill rigs. Therefore, helicopter noise would not combine at any one location with noise associated with on-ground equipment to affect the same nearby receptors.

After temporary platforms have been placed, a helicopter would be used to transport the drill rig and associated equipment (e.g., drill pipe, water tank) to these platforms. Once in place, the drill rig would operate for one or more days, as necessary, to acquire data at each activity area. Several helicopter trips may be required to move from one activity area to the next and transport supplies and cores between the activity area and the staging areas. Once the boring is complete, the helicopter would repeat the process in reverse and the temporary platform would be dismantled and removed. As discussed above, helicopter noise could exceed the 80 dBA  $L_{max}$  threshold within 500 feet of operation of a mid-size helicopter. Although the helicopter flight paths would be determined as part of the implementation of mitigation measure NOI-1, if a helicopter were to fly over residential receptors at a height of less than 500 feet, the noise level would exceed the applicable significance threshold for helicopter noise (i.e., 80 dBA  $L_{max}$ ). Valley Water will implement mitigation measure NOI-1 (Prepare Helicopter Flight Plan and Path to Avoid Sensitive



Receptors). With the incorporation of mitigation measure NOI-1, any potential noise impacts would be **less than significant with mitigation**.

#### All-Terrain Vehicle Operations

ATVs would be used to provide access for personnel and equipment through the Proposed Project study area where permissible for various activity types (excluding helicopter activity areas). An off-road ATV pass-by can generate approximately 89 dBA  $L_{max}$  at 50 feet (Berger et al 2010). As discussed, landowner restrictions require that any vehicle, including ATVs would not exceed speeds of 15 mph within the Proposed Project study area. Using the  $L_{max}$  reference level, an  $L_{eq}$  of 85.0 dBA at 50 feet was calculated. This noise level would attenuate to the significance thresholds of 60 dBA  $L_{eq}$  for sensitive residential receptors exposed to mobile-source noise at a distance of 501 feet. No residential sensitive receptors are located within 501 feet of any activity area would use an ATV for access. The residential sensitive receptor nearest to an activity area in which an ATV would be used for access (i.e., A-20-101) is SR-3 located approximately 794 feet southwest from the edge of activity area A-20-101.

The nearest access road on which an ATV could be used is near activity area CB-21 approximately 630 feet east of SR-1 (sensitive residential receptor). At a distance of 630 feet, an ATV passing by would attenuate to a noise level of 56.0 dBA  $L_{eq}$ , which would not exceed the applicable significance threshold of 75 dBA  $L_{eq}$  for single-family dwellings exposed to mobile sources. Therefore, the use of ATVs would not exceed applicable significance thresholds. Impacts associated with ATV use would be **less than significant**. No mitigation is required.

#### Investigation-Related Vehicular Traffic Noise

The proposed investigation activities would not require any excavation or earth moving activities requiring the use of heavy trucks to off haul material. Vehicular traffic associated with the proposed activities would be limited to vehicular use associated with worker commute and initial truck-trailers delivering heavy-duty equipment to the work areas. Vehicular noise associated with SR-152 is the predominant noise source in the Proposed Project study area and given the infrequent and minimal addition of project-generated vehicle use on nearby roadways audible increases in noise would not be expected. Considering existing traffic volumes on SR-152 (approximately 40,500 vehicle per day), based on most recently available 2022 Caltrans count data, and considering the properties of noise whereby a doubling of the source is required to result in an audible increase in noise, the few daily vehicle use anticipated would be inaudible compared to existing traffic noise levels associated with existing traffic volumes. Impacts associated with investigation-related vehicle use would be **less than significant**. No mitigation is required.

#### Substantial Temporary Increases in Noise

In addition to an evaluation of maximum noise levels, the temporary noise that could be generated by Proposed Project activities at each sensitive receptor was compared to existing ambient noise levels to determine if a substantial temporary increase in noise would occur. Given the logarithmic properties of noise and the way in which humans perceive noise, a 3 dB increase





in noise is characterized as barely perceptible, a 5 dB increase as distinctly perceptible, and a 10 dB increase as a doubling of the noise level. Further, an audible (i.e., 3 dB) increase requires the doubling of a noise source; thus, when two equal noise levels are combined, the result is a 3 dB increase. Existing noise levels were obtained from ST-2 (i.e., 69.6 dBA  $L_{eq}$  at 100 feet from the centerline of SR-152) and attenuated to each receptor. In addition, existing nighttime noise levels were established using LT-2 to calculate a 12-hour average  $L_{eq}$  using the hourly data from 7 p.m. to 7 a.m. Because traffic from SR-152 is the dominant noise source throughout the Proposed Project study area, noise levels at each receptor are influenced primarily by SR-152. Project-generated equipment noise, existing noise levels, and the combined effect at each receptor location are summarized in Table 3.14-9 and detailed calculations are included in Appendix H.

**Table 3.14-9. Project Generated Equipment Noise Compared to Existing Noise Levels**

Sensitive Receptor1	Nearest Activity	Activity Area with Highest Noise Affecting Receptor (Distance, ft)	Highest Equipment Noise Level at Receptor	Existing Ambient Noise Level at Receptor	Combined Noise Level	Change (dB)
<b>Daytime Investigation Activities</b>						
SR-1 (Residence)	Seismic Refraction Investigation	DSR-22 (774 ft)	53.7 dBA $L_{eq}$	52.6 dBA $L_{eq}$	56.2 dBA $L_{eq}$	+3.6
SR-2 (Residence)	Seismic Refraction Investigation	DSR-22 (786 ft)	53.5 dBA $L_{eq}$	56.0 dBA $L_{eq}$	57.9 dBA $L_{eq}$	+1.9
SR-3 (Residence)	Exploratory Boring – 1 Drill Rig	A-20-104 (435 ft)	56.7 dBA $L_{eq}$	57.0 dBA $L_{eq}$	59.9 dBA $L_{eq}$	+2.9
SR-4 <sup>2</sup> (Commercial)	Exploratory Boring – 1 Drill Rig	PB-02 (240 ft)	63.5 dBA $L_{eq}$	64.8 dBA $L_{eq}$	67.2 dBA $L_{eq}$	+2.4
SR-5 (Residence)	Exploratory Boring – 1 Drill Rig	PB-02 (964 ft)	47.6 dBA $L_{eq}$	52.1 dBA $L_{eq}$	53.4 dBA $L_{eq}$	+1.3
<b>Nighttime Investigation Activities</b>						
SR-3 (Residence)	Exploratory Boring – Drill Rig	R-20-001 (295 ft)	53.8 dBA $L_{eq}$	59.9 dBA $L_{eq}$	60.9 dBA $L_{eq}$	+1.0
		R-20-003 (225 ft)	56.9 dBA $L_{eq}$		61.7 dBA $L_{eq}$	+1.8

Source: Modeled by Ascent in 2023 and 2024

Notes:

- See Figure 3.14-1 for location of sensitive receptors.-Substantial increases in noise pertain to areas where people reside (Residence), not commercial uses; however, for informational purposes only, noise levels with the Proposed Project at SR-4 (commercial property) were provided.
- A 5 dBA increase from Proposed Project noise is appropriate for areas exposed to higher noise (i.e., 65 dBA) and a 10 dBA increase would be allowable in areas exposed to lower noise (i.e., below 65 dBA).
- No sensitive receptors would be exposed to noise level increases of more than 10 dBA and the Proposed Project would not result in a substantial increase in temporary noise.
- Daytime 12-hour average (62.2 dBA) and nighttime 12-hour average (59.9 dBA) were calculated using data obtained from LT 2 at the property line of SR-3.

Key:

dBA= A-weighted Decibel

ft=feet

$L_{eq}$ = hourly-average noise level

SR = Sensitive Receptor





As shown in Table 3.14-9, existing noise levels range from 52.1 dBA to 64.8 dBA. In accordance with FTA guidance, areas exposed to lower levels of noise are less prone to adverse impacts from increases in project noise, whereas areas exposed to higher noise levels become increasingly adversely affected as noise levels increase. As such, a 5 dBA increase from Proposed Project noise is appropriate for areas exposed to higher noise (i.e., 65 dBA) and a 10 dBA increase would be allowable in areas exposed to lower noise (i.e., below 65 dBA). As shown in Table 3.14-9, existing noise at all sensitive receptors is below 65 dBA; thus, the 10 dBA increase threshold was applied. When existing noise and Proposed Project-generated noise are combined, no sensitive receptors would be exposed to noise level increases of more than 10 dBA and the Proposed Project would not result in a substantial increase in temporary noise.

In summary, Santa Clara County has established maximum noise levels for construction activity (also applicable to Proposed Project activities involving heavy equipment) that are intended to protect the community from adverse noise impacts. As discussed, noise levels from the loudest equipment activities associated with the Proposed Project would be as high as 56.7 dBA  $L_{eq}$  at the nearest existing residence (SR-3) and 63.5 dBA  $L_{eq}$  at the nearest commercial land uses (SR-4), which would not exceed the applicable significance thresholds for sensitive residential and commercial receptors (applicable to short-term noise associated with Proposed Project activities) of 60 dBA  $L_{eq}$  or 70 dBA  $L_{eq}$ , respectively for daytime investigation activities.

With the exception of four activity areas to require nighttime work (i.e., PB-01, PB-02, R-20-001, and R-20-003), all other activities would occur during the daytime hours of 7 a.m. and 6 p.m. Monday through Friday and between 9 a.m. and 4 p.m. on Saturdays which would be subject to the noise standards presented in Tables 3.14-5 and 3.14-6. For potential nighttime activities that would occur at activity areas R-20-001, and R-20-003, while existing noise levels at the nearest residential property line south of these activity areas during the night was measured to be higher than the anticipated highest project noise levels (i.e., existing nighttime average of 59.9 dBA  $L_{eq}$  compared to project noise of 56.9 dBA  $L_{eq}$ ), Santa Clara County Code does not include allowable increases in construction noise standards based on existing noise conditions. Further, *CEQA Guidelines Appendix G* question "a" regarding noise impacts specifically asks whether the project would result in noise levels in "excess of standards established in the local general plan or noise ordinance" without considering whether the existing noise levels already exceed the allowable noise limit and anticipated project-generated noise levels. Therefore, a lower (more stringent) significance threshold of 50 dBA  $L_{eq}$  that is applicable to nighttime construction is applied in the nighttime noise impact analysis. The noise from the Proposed Project's nighttime activities at activity areas R-20-001 and R-20-003 would exceed the significance threshold of 50 dBA  $L_{eq}$  by approximately 3.8 dBA and 6.9 dBA, respectively, as shown in Table 3.14-8, for up to four nights, resulting in a significant impact. Mitigation measure NOI-2 requires that Valley Water require its contractors to use temporary sound barriers to attenuate noise, such as temporary noise curtains, sound walls, equipment enclosures, or similar products that provide a barrier to attenuate equipment noise to achieve a minimum of a 4 dBA noise reduction from activities at activity area R-20-001 and 7 dBA noise reduction from activities at activity area R-20-003. The mitigation



requirement is based on the modeled values that exceed the 50 dBA  $L_{eq}$  nighttime significance threshold, as shown 3.14-8, rounded up to the nearest whole number. MM-NOI-2 requires that contractors use temporary sound barriers to attenuate noise, such as temporary noise curtains, sound walls, equipment enclosures, or similar products that provide a barrier to attenuate construction noise to achieve a minimum of a 4 dBA noise reduction from activities at activity area R-20-001 and 7 dBA noise reduction from activities at activity area R-20-003. The mitigation requirement is based on the modeled values that exceed the 50 dBA  $L_{eq}$  nighttime significance threshold, as shown in Table 3.14-8, rounded up to the nearest whole number.

Consistent with Caltrans requirements, these barriers would be placed as close to the noise sources as possible, within the boundaries of the respective activity areas. For these reasons presented in this discussion, this impact would be **less than significant with mitigation measures**.

### **Impact NOI-2**

#### ***Would the project result in generation of excessive groundborne vibration or groundborne noise levels?***

Sensitive receptors and their relative exposure were identified for the assessment of potential short-term (investigation-related) vibration impacts, and Proposed Project-generated vibration levels were determined based on methodologies, reference vibration levels, and usage factors from FTA's Guide on Transit Noise and Vibration Impact Assessment methodology (FTA 2018). Vibration levels for pieces of heavy equipment that would be used during Proposed Project construction are shown in Table 3.14-10.

**Table 3.14-10. Vibration Source Levels for Heavy Equipment**

Equipment	PPV at 25 ft, in/sec	Approximate Lv at 25 ft
Vibratory Roller	0.210	94
Excavator	0.089	87
Caisson drilling (drill rig)	0.089	87
Loaded trucks	0.076	86

Source: FTA 2018: 184.

Key:

in/sec = inches per second

Lv = noise level

PPV = peak particle velocity

After test pits are excavated and logged in each activity area, test pits would be backfilled with an excavator bucket and compacted as needed with an excavator-mounted sheep's foot roller to ensure that the test pit surface is restored to pre-existing conditions. For a conservative analysis, the use of a vibratory roller was used in this analysis. However, it is important to note that a sheep's foot roller or excavator bucket would generate lower vibration levels than those modeled. The use of a vibratory roller generates a ground vibration level of 0.210 in/sec PPV and 94 VdB at 25 feet (FTA 2018: 184). Assuming normal propagation conditions, vibration from the use of a vibratory roller could exceed the FTA significance threshold of 0.20 in/sec for structural damage (for non-



engineered timber and masonry buildings) within approximately 26 feet, or the significance criterion for human annoyance at residential land uses of 72 VdB within approximately 135 feet. No vibration-sensitive buildings are located within these distances. The sensitive receptor nearest to an exploratory pit in which a vibratory roller would be used (i.e., TP-19) is SR-1 (sensitive residential receptor) located approximately 627 feet southeast, well beyond the impact distances of 26 feet for structural damage and 135 feet for annoyance. At this distance, vibration levels affecting structures would be unnoticeable from baseline conditions (i.e., 0.002 in/sec PPV) and perceived by humans at 52 VdB.

Based on FTA reference vibration levels for typical construction equipment, the piece of equipment that could be used during Proposed Project subsurface investigations and would generate the second highest levels of ground vibration would be caisson drilling (used to represent boring explorations). Caisson drilling generates vibration levels of 0.089 in/sec PPV and 87 VdB at 25 feet (FTA 2018: 184). Based on the recommended FTA procedure for applying a propagation adjustment to this reference level, vibration from the use of caisson drilling could exceed FTA significance criterion for structural damage of 0.2 in/sec PPV within 15 feet and the criterion for human annoyance within 79 feet. There are no sensitive receptors located within these distances of any site in which drilling would be implemented. The sensitive receptor nearest to an exploratory boring activity area (i.e., PB-02) is SR-4 (sensitive commercial receptor), located approximately 160 feet northeast of the edge of activity area PB-02. At this distance, the vibration levels associated with drilling would attenuate to 62.8 VdB and 0.005 in/sec PPV, which would not exceed applicable FTA thresholds.

FTA standards would not be exceeded during the investigation activities that use the most vibration-intensive equipment. Further, with the exception of activity areas PB-01, PB-02, R-20-001, and R-20-003, geotechnical-related field activities would occur Monday through Friday from 7 a.m. to 6 p.m. and Saturdays between 9 a.m. and 4 p.m. At these four activity areas associated with SR-152, nighttime boring would occur, but as illustrated in Table 3.14-9, these four activity areas are well beyond the distance established for structural damage and human annoyance. For these reasons, this impact would be **less than significant**. No mitigation is required.

### ***Impact NOI-3***

***For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would expose people residing or working in the project study area to excessive noise levels?***

The Proposed Project study area is not located within an airport land use plan, within 2 miles of a private airstrip, or within 2 miles of a public airport or public use airport. The nearest airport is the Frazier Lake Airpark, which is located approximately 10 miles southwest of the Proposed Project study area. Additionally, the Proposed Project would not include any new land uses where people would reside or work. For these reasons, the Proposed Project would not result in noise impacts related to the exposure of people residing or working within the Proposed Project study area to



excessive airport-related noise levels and thus there would be **no impacts**. No mitigation is required.

## Mitigation Measures

**MM NOI-1: Prepare Helicopter Flight Plan and Path to Avoid Sensitive Receptors.** Prior to initiating helicopter operations within the Proposed Project study area, Valley Water will request a flight plan or similar documentation from the helicopter service. The flight plan or similar documentation will demonstrate that helicopter operations within and near the Proposed Project study area will maintain a minimum distance of 500-feet from identified sensitive receptors (residential and commercial). Valley Water and/or its contractor(s) will conduct any and all helicopter operations in compliance and consistent with Santa Clara County's noise standards (Section B11-154(b)(14) of the Santa Clara County Code).

**MM-NOI-2. Noise Reduction During Nighttime Geotechnical Investigation Activities.** For any investigation activities that could occur during the nighttime hours (i.e., 7 p.m. – 7 a.m.) at activity areas R-20-001 and R-20-003, Valley Water will require its construction contractors to use temporary sound barriers to attenuate noise, such as temporary noise curtains, sound walls, equipment enclosures, or similar products that provide a barrier to attenuate construction noise to achieve a minimum of a 4 dBA noise reduction from activities at activity area R-20-001 and 7 dBA noise reduction from activities at activity area R-20-003. Installation of temporary sound barriers can achieve up to 10 dBA in noise reduction. The temporary sound barrier will be located within the boundary of each activity area consistent with Caltrans requirements and as close as possible to the noise generating equipment to reduce direct line of sight noise attenuation between the project construction noise sources and property boundaries of sensitive receptors to shield the receptors from construction noise. The installation of any temporary sound barrier will meet all the following criteria:

1. Will be installed as close as possible to the boundary of the work activity area (e.g., directly around equipment, boundary of activity area, shoulder of the highway);
2. Will consist of durable, flexible composite material featuring a noise barrier layer bound to sound-absorptive material on one side; and/or
3. Will consist of rugged, impervious, material with a surface weight of at least one pound per square foot, such that the aforementioned sound reduction is achieved on the receiving side of the sound barrier.

## 3.15 Population and Housing

This section describes the environmental setting and regulatory framework for population and housing and analyzes the environmental impacts of the Proposed Project related to population and housing.



### **3.15.1 Environmental Setting**

The Proposed Project study area is located in southeastern unincorporated Santa Clara County. It is located approximately 15 miles northeast of Gilroy and entirely within the Pacheco Creek watershed. SR-152 bisects the southern portion of the Proposed Project study area.

Several landowners own most of the private lands within and surrounding Proposed Project study area. Most of the land within and adjacent to the Proposed Project study area is rural and managed as open space or ranchlands primarily for grazing purposes. There is a single privately-owned ranch compound that includes both residential and agricultural buildings on El Toro Road southeast of North Fork Dam. The two residential buildings on this compound are presumed to be permanently occupied. In addition, several occupied residences and ranch compounds are located south of the SR-152 intersection with Kaiser-Aetna Road near the southwest extent of the Proposed Project study area. None of these residences are located within the Proposed Project study area.

### **3.15.2 Regulatory Framework**

#### **Federal Laws, Regulations, and Policies**

There are no federal laws, regulations, or policies related to population and housing that apply to the Proposed Project.

#### **State Laws, Regulations, and Policies**

There are no state laws, regulations, or policies related to population and housing that would apply to the Proposed Project.

#### **Regional and Local Laws, Regulations, and Policies**

There are no regional or local laws, regulations, or policies related to population and housing that would apply to the Proposed Project.

### **3.15.3 Environmental Impacts and Mitigation Measures**

The following sections discuss the methods and assumptions, criteria for determining the significance of impacts, environmental impacts, and mitigation measures if applicable.

#### **Methods and Assumptions**

This section analyzes the potential impacts of Proposed Project activities that may lead to unplanned growth or the displacement of a significant number of people or housing units.



### ***Applicable Conservation Measures***

There are no Conservation Measures applicable to population and housing.

### **Criteria for Determining Significance of Impacts**

Significance criteria are based on CEQA Guidelines Appendix G. Implementation of the Proposed Project would have significant impacts on population and housing if it were to:

- Induce substantial unplanned growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure).
- Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere.

### **Environmental Impacts**

#### ***Impact PH-1***

***Would the project induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?***

The Proposed Project would not include any new housing, commercial or industrial space, result in the conversion of adjacent land uses, or provide access to previously inaccessible areas. The Proposed Project entails surface and subsurface geotechnical investigations in the Proposed Project study area. The Proposed Project would be temporary in nature and of short duration (approximately eight working months) and therefore would not require the construction of additional housing units for necessary staff involved in implementation of the Proposed Project. On any given day, several crews, with a total of up to about 20 personnel a day would be onsite performing and/or supporting various geotechnical investigations. These individuals would be commuting to the Proposed Project study area from homes or temporary lodging for the duration of the Proposed Project. The Proposed Project would not compel adoption or implementation of the separately proposed PREP or any other Valley Water infrastructure. The Proposed Project would not directly or indirectly induce substantial planned or unplanned population growth. Thus, the Proposed Project would have **no impact**. No mitigation is required.

#### ***Impact PH-2***

***Would the project displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?***

The Proposed Project activities would not displace any people or homes. The Proposed Project would not include the demolition of any of existing housing or displace existing housing or residents, which would necessitate the construction of replacement housing elsewhere. Therefore, the Proposed Project would have **no impact**. No mitigation is required.





## **Mitigation Measures**

No mitigation measures are required.

### **3.16 Public Services**

This section describes the environmental setting and regulatory framework for public services and analyzes the environmental impacts of the Proposed Project related to public services. For the purposes of this assessment, public services include fire protection, law enforcement, schools, parks and other public facilities (e.g., ambulance, hospitals, medical offices) in Santa Clara County.

#### **3.16.1 Environmental Setting**

The Proposed Project study area, as illustrated in Figure 2-1 is located southeast of Henry W. Coe State Park in Santa Clara County and is south of a single parcel of State-owned land just north of the intersection of Kaiser-Aetna Road. The Proposed Project study area includes the existing Pacheco Reservoir upstream from North Fork Dam, North Fork Pacheco Creek upstream from the existing reservoir and downstream from the existing dam to the confluence with the Pacheco Creek mainstem, and within the Caltrans SR-152 ROW near the intersection with Kaiser-Aetna Road. There are public services (i.e., police stations, fire stations, schools, parks, and hospitals) in the surrounding rural area south of the Proposed Project study area (concentrated in the cities of Gilroy and Hollister) that support the residents and visitors to the Proposed Project study area as well as motorists using SR-152. Figure 3.16-1 illustrates that there are no public service facilities within the Proposed Project study area, but there is a wide array of public services that are available in the surrounding area. These public services are discussed in the following subsections.

#### **Fire Protection**

CAL FIRE is the primary agency responsible for fire protection services throughout the Proposed Project study area. Mutual aid agreements enable CAL FIRE to access fire protection services from federal (e.g., U.S Forest Service), state (e.g., California Office of Emergency Services), and local (e.g., Santa Clara County Fire Department) agencies specific to an incident or emergency. These mutual aid agreements ensure that adequate personnel and equipment can be provided as needed.



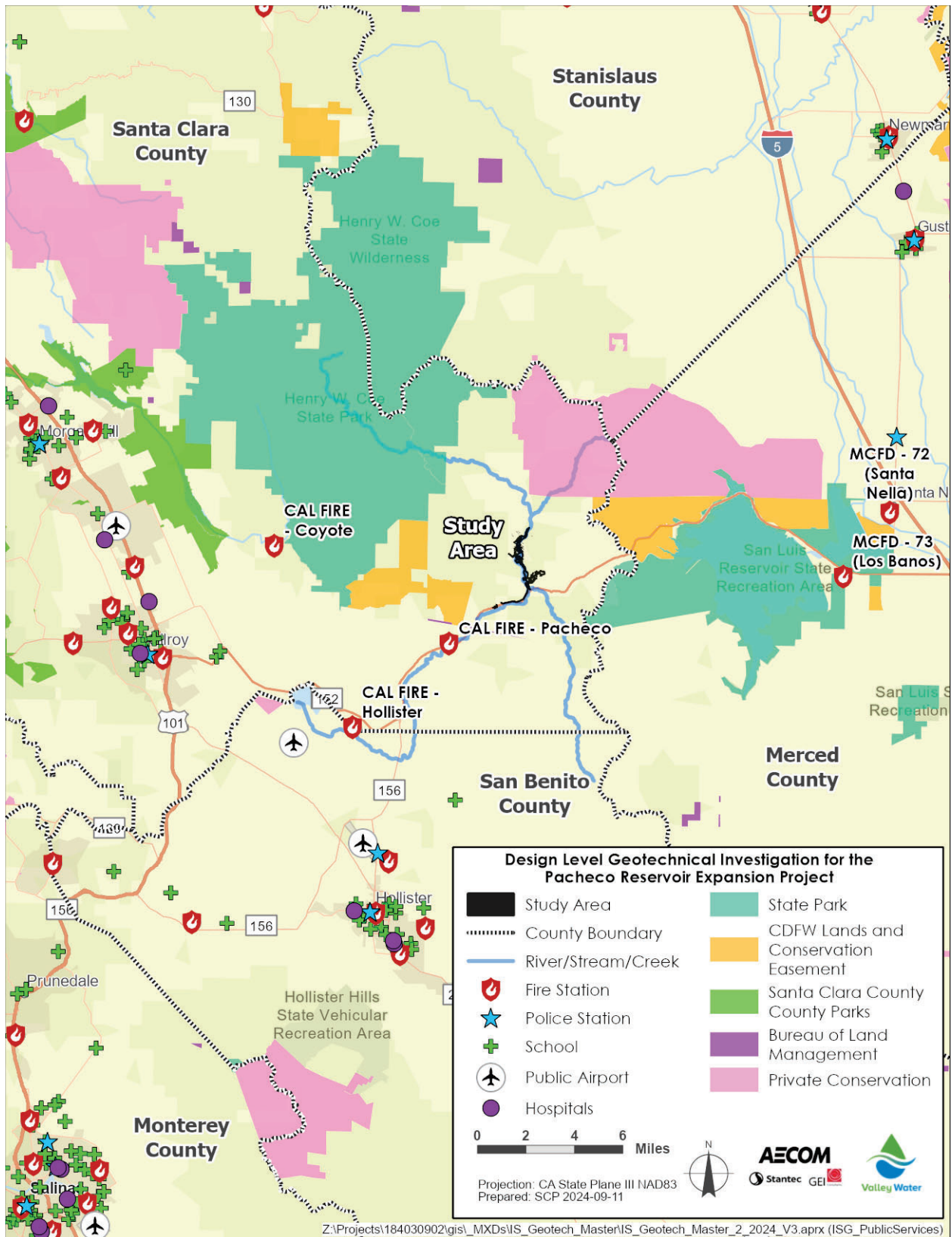


Figure 3.16-1. Public Services Surrounding the Proposed Project Study Area



The entirety of the Proposed Project study area is located within the CAL FIRE SCU jurisdiction. The SCU serves Contra Costa, Alameda, and Santa Clara Counties, and portions of San Joaquin and Stanislaus Counties. The SCU has twelve state-funded fire stations, one helitack base (Alma Helitack), and an Emergency Command Center under its jurisdiction. These stations and the helitack base are fully staffed during the declared fire season with five of the stations staffed year-round. These stations combined provide for the staffing of sixteen state owned fire engines, one state owned helicopter, three state owned transports/bulldozers, two Firefighter Hand Crews, and two California National Guard Hand Crews. Fifteen Battalion Chiefs, and three Law Enforcement/Prevention personnel; one Battalion Chief and two Fire Captain Specialists, along with one Fire Prevention Specialist and one Training Captain, are available within SCU (CAL FIRE 2023a).

The closest station is the CAL FIRE Pacheco Fire Station located approximately four miles southwest of the Kaiser-Aetna Road intersection with SR-152. This station has a wildland fire engine with advanced life support capabilities available. CAL FIRE also provides aerial fire protection and support from the Hollister Air Base, approximately 12.6 miles southwest of the Proposed Project study area.

## **Law Enforcement and Police Protection**

The Santa Clara County Sheriff's Office provides law enforcement services to the Proposed Project study area out of their South County sub-station located at 80 W. Highland Avenue in San Martin, approximately 25 miles southwest of the Kaiser-Aetna Road intersection with SR-152. CHP is responsible for patrolling approximately 1,200 miles of roadway in Santa Clara and San Benito Counties (including the segment of SR-152 within the Proposed Project study area) from its Hollister-Gilroy Area office located at 740 Renz Lane in Gilroy, approximately 19 miles southwest of the Kaiser-Aetna Road intersection with SR-152. In addition, California Department of Parks and Recreation (State Parks), CAL FIRE, and CDFW law enforcement personnel also respond to law enforcement needs within their respective jurisdictions throughout the Proposed Project study area.

## **Schools**

The Proposed Project study area north of SR-152 is not within a designated school district; however, residents along the Pacheco Creek/SR-152 corridor are adjacent to the Gilroy Unified School District, which operates 15 schools. There are seven elementary schools, three middle schools, four high schools, and an adult education facility. The closest school to the Proposed Project study area is Eliot Elementary School, located in Gilroy, about 21 miles west of the Proposed Project study area. At this time there are no scheduled school bus stops within the Proposed Project study area.



## **Parks**

The Proposed Project study area is surrounded by a variety of parks and recreational areas. Section 3.17.1.1 further describes existing recreational facilities near the Proposed Project study area. Henry W. Coe State Park is several miles west of the Proposed Project study area and is managed by the State Parks. Cañada de los Osos Ecological Reserve is located to the west, and Cottonwood Wildlife Area and San Luis Reservoir State Recreation Area are located several miles east of the Proposed Project study area. All three areas are managed by CDFW for various recreational purposes (CDFW 2024). Other than the SR-152 corridor along the southern edge of the Proposed Project study area, there are no public lands or parks open to the public for recreational purposes. Although public land, the SR-152 corridor does not provide public access for recreation purposes. All private lands within the Proposed Project study area are fenced and posted with no trespassing signs.

## **Other Public Facilities**

The Proposed Project study area is rural in character and consists largely of undeveloped ranch lands. Ambulance service and full-service medical facilities are located in Hollister, Gilroy, and Los Banos. Two public airports, Frazier Lake Airpark and Hollister Municipal Airport, are located more than six miles southwest of the Proposed Project study area. No "other public facilities" are located in the Proposed Project study area.

### **3.16.2 Regulatory Framework**

#### **Federal Laws, Regulations, and Policies**

No federal laws, regulations, or policies related to public services apply to the Proposed Project.

#### **State Laws, Regulations, and Policies**

##### ***California Master Mutual Aid Agreement***

The California Master Mutual Aid Agreement, originally signed as the California Disaster and Civil Defense Master Mutual Aid Agreement, is a framework agreement between the State of California and local governments that provides aid and assistance through the interchange of services and facilities (Cal OES 1950). This aid agreement includes but is not limited to the following services: fire, police, medical and health, communication, and transportation and includes facilities to cope with issues related to rescue, relief, evacuation, rehabilitation, and reconstruction.

##### ***California Occupational Safety and Health Administration***

In accordance with CCR, Title 8, Section 6773 ("Fire Protection and Fire Equipment"), Cal/OSHA has set minimum standards for fire suppression and emergency medical services. These



standards encompass guidelines for handling highly combustible materials, specifications for fire hose sizing, restrictions on the use of compressed air, access road requirements, and protocols for the testing, maintenance, and use of firefighting and emergency medical equipment.

## **Regional and Local Laws, Regulations, and Policies**

### ***Santa Clara County General Plan***

Except for the existing Pacheco Reservoir, the lands within the vicinity of the Proposed Project upstream from North Fork Dam are privately owned and designated as Ranchlands under the General Plan (Santa Clara County 1994); see Section 3.12 for additional information on the land use and zoning designations for portions of the Proposed Project study area. There are no applicable policies in the General Plan that apply to public service uses as related to the Proposed Project.

### **3.16.3 Environmental Impacts and Mitigation Measures**

The following sections discuss the methods and assumptions, criteria for determining the significance of impacts, environmental impacts, and mitigation measures if applicable.

#### **Methods and Assumptions**

To assess impacts on public services, methods included a review of local planning documents and maps. This process aimed to determine the proximity of public services to the Proposed Project study area and identify any that could be directly or indirectly affected by the Proposed Project. The assessment focuses on evaluating the potential for Proposed Project activities (e.g., borings and test pits) to cause direct adverse impacts on public services given the proximity of the identified public service, and the impact the Proposed Project could have on the public service.

#### ***Applicable Conservation Measures***

Conservation Measures applicable to public services are listed below. Section 2.4 provides a full description of each BMP and VHP AMM.

- BMP TR-1: Incorporate Public Safety Measures
- VHP AMM-74: Stabilize site ingress/egress locations

These measures will be incorporated into the geotechnical investigation work plans, and all geotechnical contractors employed on the Proposed Project would be required to adhere to them. As such, they are considered part of the Proposed Project for purposes of analysis in this EIR.



## Criteria for Determining Significance of Impacts

Significance criteria are based on CEQA Guidelines Appendix G. Implementation of the Proposed Project would have significant impacts on public services if it were to:

- Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services listed below:
  - Fire protection
  - Police protection
  - Parks
  - Other public facilities

## Environmental Impacts

### ***Impact PS-1***

***Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities or need for new or physical altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services?***

The incorporation of BMP TR-1 and VHP AMM-74 into the Proposed Project would ensure public agencies, including law enforcement and emergency responders, would be able to safely and efficiently respond to emergency situations that may occur within, or in close proximity to the Proposed Project study area. These measures are applicable to the public services analyzed in the following discussions.

**Fire Protection.** Emergency fire protection services would be provided by CAL FIRE's SCU. Proposed Project activities would not contribute to an increased need for fire protection services, because proposed geotechnical investigation activities would be short-term in nature and would not contribute to population growth or other long-term land use modifications. Therefore, the Proposed Project would have **no impact** on fire protection services. No mitigation is required.

**Law Enforcement and Police Protection.** Proposed Project activities would not contribute to an increased need for law enforcement or police protection services, because the proposed geotechnical investigation activities would be short-term in nature and would not contribute to population growth or other long-term land use modifications. Therefore, the Proposed Project would have **no impact** on police protection services. No mitigation is required.





**Schools.** No schools are within the Proposed Project study area. The closest public facilities (e.g., schools) are 20 miles away and bus routes do not serve the residents that may be in close proximity to the Proposed Project study area. The Proposed Project is not located near any schools, bus routes, or other public facilities; therefore, **no impact** on school facilities would occur as a result of the Proposed Project. No mitigation is required.

**Parks.** The Proposed Project would not result in substantial impacts associated with new or physically altered park facilities in order to maintain adequate recreational facilities for residents. Therefore, **no impact** on parks would occur as a result of the Proposed Project. No mitigation is required.

**Other Public Facilities.** Proposed Project activities would not contribute to an increased need for other public services, because the proposed geotechnical investigation activities would be short-term in nature and would not contribute to population growth or other long-term land use modifications. Therefore, the Proposed Project would have **no impact** on other public services, such as ambulance and medical care. No mitigation is required.

## Mitigation Measures

No mitigation measures are required.

### 3.17 Recreation

This section describes the environmental setting and regulatory framework for recreation and analyzes the environmental impacts of the Proposed Project related to recreation. For the purposes of this assessment, recreational resources include parks and other public lands available for recreation several miles east and west of the Proposed Project study area. There are no parks or open spaces within the Proposed Project study area that allow public access.

#### 3.17.1 Environmental Setting

The Proposed Project study area is located in the upper Pacheco Creek Watershed east of Gilroy in Santa Clara County. There are existing recreational facilities and opportunities outside of, but within the general vicinity of the Proposed Project study area (see Figure 3.17-1). Several miles to the west of the Proposed Project study area, State Parks manages Henry W. Coe State Park and CDFW manages the Cañada de los Osos Ecological Reserve. Several miles east of the Proposed Project study area, CDFW manages the San Luis Reservoir Wildlife Area and the Cottonwood Creek Wildlife Area. Both of these wildlife areas provide public recreation opportunities (e.g., hunting, bird watching). The San Luis Reservoir State Recreation Area is managed by State Parks and provides both upland and water-based recreation opportunities. Pacheco State Park is immediately west of San Luis Reservoir State Recreation Area is also managed by State Parks and



offers opportunity for equestrians and pedestrians to ride or walk established trails throughout the park.

Current recreational facilities and opportunities described above in the general vicinity of Proposed Project study area is summarized in Table 3.17-1 and shown in Figure 3.17-1. Per the Santa Clara County Countywide Trails Master Plan map, there are no trails within the general vicinity of the Proposed Project study area.

## **Recreational Facilities and Opportunities**

### ***Henry W. Coe State Park***

Part of the Diablo Range, the park is an amalgam of high ridges, plateaus, and both narrow and open valleys (CSP 2009). At 87,000 acres, Henry W. Coe State Park is the largest state park in Northern California. This remote and largely undeveloped park has over 250 miles of dirt roads and trails that feature many recreational opportunities, including backpacking, equestrian riding, mountain biking, and day-hiking. Henry W. Coe State Park offers campgrounds, hike-in primitive camps, and ride-in horse camps for equestrians. The park also has two visitor centers with interpretive programs assisted by the Pine Ridge Association (Pine Ridge 2021).

From its intersection with SR-152, Kaiser-Aetna Road provides seasonal access to the Dowdy Ranch Visitor Center through the Bell Station Gate located just north of SR-152, five miles east of the SR-152/State Route 156 (SR-156) Interchange. There is no parking allowed on Kaiser-Aetna Road (CSP 2021). Eastbound visitors turn left across westbound traffic on SR-152 at an uncontrolled intersection. Westbound visitors turn right from SR-152 onto Kaiser-Aetna Road.

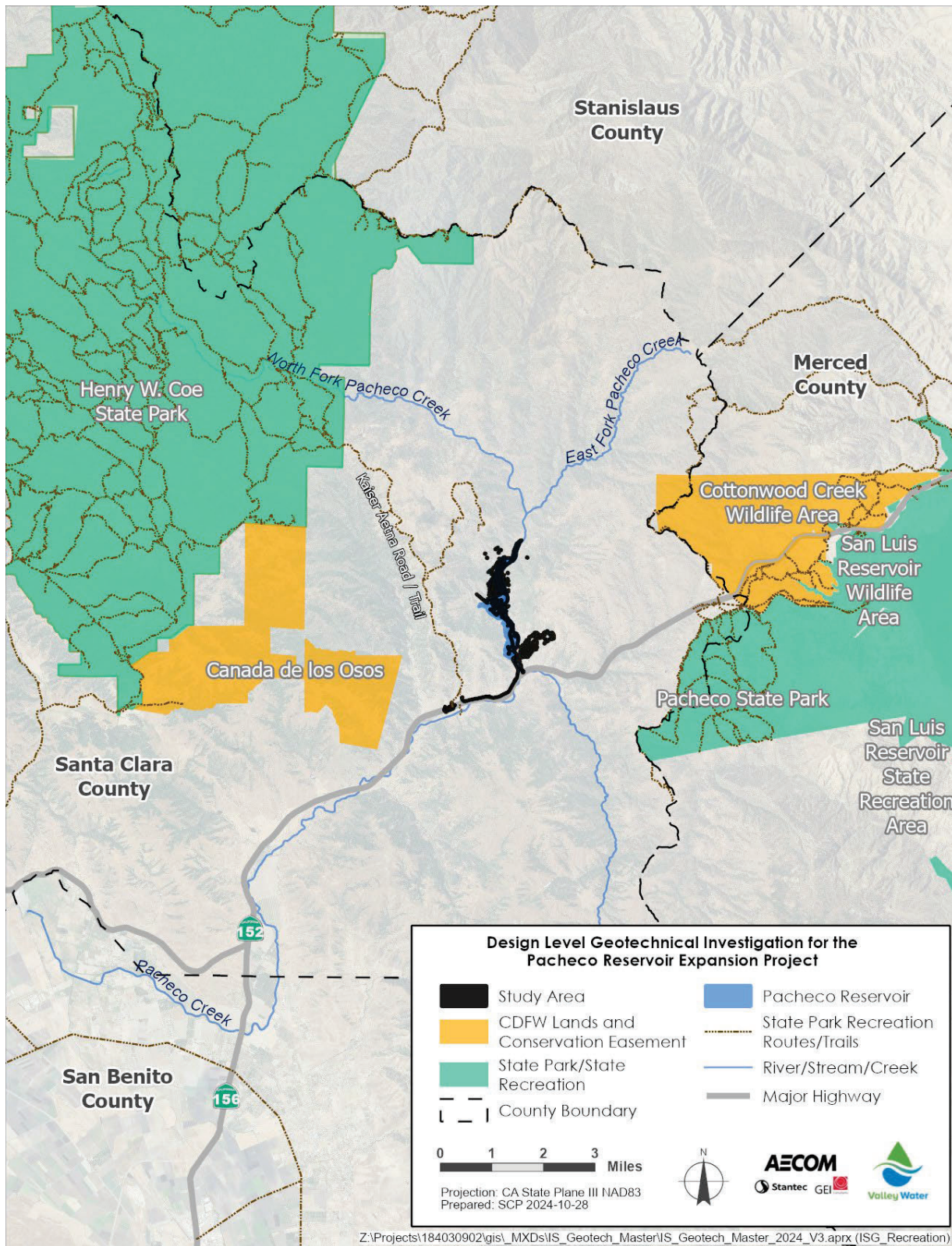
### ***Pacheco State Park***

Managed and operated by State Parks, this 6,890-acre state park located several miles east of the Proposed Project study area has 28 miles of trails with opportunities for hiking, biking, and equestrian activities. The day use picnic area has parking for horse trailers and corrals for horses. Primitive horse camping is allowed with reservations (CSP 2015a).

### ***San Luis Reservoir State Recreation Area***

The San Luis Reservoir State Recreation Area, managed by State Parks, was built as part of the water storage and delivery system of reservoirs, aqueducts, power plants, and pumping stations operated under Reclamation's Central Valley Project, and State Water Project. The 27,000-acre State Recreation Area includes the water surfaces of San Luis Reservoir, O'Neill Forebay, Los Banos Creek Reservoir, and adjacent recreation lands (Reclamation 2014). There are opportunities for camping, picnicking, swimming, boating, and fishing. There is a five-mile accessible trail and a six-mile loop hiking trail, and the area has a designated off-highway vehicle recreation area. Waterfowl hunting is allowed but prohibited within 500 feet of the dam and recreation areas (CSP 2017a).





**Figure 3.17-1. Recreational Facilities and Opportunities Near the Proposed Project Study Area and Surrounding Vicinity**





**Table 3.17-1. Existing Recreational Facilities and Associated Activities in the General Vicinity of the Proposed Project Study Area**

Park	Operator	Area (acres)	Visitor Center	Interpretive Program	Developed Camping (# units)	Primitive Camping	Day Use	Multi-Use Trail	Hiking	Biking	Equestrian	Boating	Hunting	Fishing	Comments
Henry W. Coe State Park	CSP	87,000	Yes	Yes	Yes, 19	60	Yes	Yes	Yes	Yes	Yes	No	No	Yes	Horse camping sites, open riding terrain, designated state wilderness.
Pacheco State Park	CSP	6,890	No	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	Camping for events only, only 2,600 acres open to public access.
San Luis Reservoir State Recreation Area	CSP	27,000	Yes	Yes	Yes, 132	Yes, 20+	Yes	No	Yes	No	No	Yes	Yes	Yes	OHV area, 5-mile-long accessible trail, start of the Aqueduct bikeway (north of O'Neil Forebay).
Cañada de los Osos Ecological Reserve	CDFW	5,800	No	No	No	No	No	No	No	No	No	No	Yes	Yes	Junior wildlife hunts, wildlife viewing. Open for events only.
Cottonwood Creek Wildlife Area	CDFW	6,300	No	No	No	No	No	No	Yes	No	No	No	Yes	No	Special draw hunt.
San Luis Reservoir Wildlife Area	CDFW	902	No	No	No	No	No	No	Yes	No	No	No	Yes	No	Foot access only.

Key: CDFW = California Department of Fish and Wildlife CSP = California State Parks OHV = off-highway vehicle



### ***Cañada de Los Osos Ecological Reserve***

Managed by CDFW, this 5,800-acre ecological reserve is located approximately 1 mile southwest of the Proposed Project study area includes the headwaters of Cedar Creek, a tributary to Pacheco Creek. It features a mix of annual grasslands, oak and montane woodland, chaparral, riparian, and wetland habitats, with numerous springs and ponds. Formerly known as Stevenson Ranch, the property was acquired for the protection and enhancement of habitat for native species and to provide a setting for a youth outdoor recreation program (CDFW 2005). The property was designated as an ecological reserve by the Fish and Game Commission in 2003. The area offers wildlife viewing and junior hunts by draw (CDFW 2019a). The reserve is only open to the public during designated events (CDFW 2019a). Many of these events such as youth education, university classes, and site restoration are managed by the Friends of Cañada de Los Osos, a non-profit conservation organization dedicated to providing youth outdoor education programs, and to improving wildlife habitat on the Cañada de Los Osos Ecological Reserve (Friends 2021).

### ***Cottonwood Creek Wildlife Area***

Managed by CDFW, this wildlife area located several miles east of the Proposed Project study area encompasses 6,300 acres and is managed as two units. The upper unit is predominantly steep oak-grasslands, while the lower unit is predominately steep hilly grasslands. Wildlife includes wild pigs, black-tailed deer, gray fox, and 100 species of birds. Both the upper and lower units offer wildlife viewing along a hiking trail system and hunting in season (CDFW 2019b).

Fifield Road crosses the top end of the upper unit. There is no public vehicle access along this road, although, visitors to the wildlife area could hike to this location from the visitor parking lot located adjacent to the San Luis Reservoir along SR-152 east of Pacheco Pass.

### ***San Luis Reservoir Wildlife Area***

San Luis Reservoir Wildlife Area—which can only be accessed on foot—consists of 902 acres of steep oak-grassland habitat several miles east of the Proposed Project study area. It is known to be a popular area for wildflower viewing and is abundant with animal life. Several mammals are found in the area, including gray fox, black-tailed deer, and wild pigs. Wildlife viewing and hunting are the primary recreational activities. CDFW has documented 101 species of birds in the area (CDFW 2021).

## **3.17.2 Regulatory Framework**

### **Federal Laws, Regulations, and Policies**

There are no applicable federal laws, regulations, or policies related to recreation that apply to the Proposed Project.



## **State Laws, Regulations, and Policies**

### ***Ecological Reserve/Wildlife Area Management Plans***

The CDFW develops land management plans for any property wholly under its jurisdiction that is purchased after January 1, 2002, and subject to an appropriation by the legislature for that purpose. The plans focus on maintaining viable populations of sensitive species and their habitats and on the restoration and enhancement of natural communities within an ecosystem-based framework (CDFW 2005). The Cañada De Los Osos Ecological Reserve Management Plan was published in 2005. Land management plans have not been developed for the Cottonwood or San Luis Wildlife Areas, and management is based on statewide and property specific regulations.

### ***Henry W. Coe State Park General Plan***

The Henry W. Coe State Park General Plan (CSP 1985) was adopted in 1985. The plan outlines management objectives and actions to achieve the purposes adopted for the park, which are to make the landscape and wildland values available to the people for their inspiration, enlightenment, and enjoyment, in an essentially natural condition. The general plan is a comprehensive plan that adopts policies for a wide range of resources including management of recreation, access, and facility development.

## **Regional and Local Laws, Regulations, and Policies**

### ***Santa Clara County General Plan***

The General Plan Parks and Recreation Countywide Issues and Policies section outlines three types of areas and facilities that can contribute both to meeting future recreation demand and to maintaining the county's natural resources and beauty, including Regional Parks and Public Open Space Lands, Trails, and Scenic Highways (Santa Clara County 1994). None of the specific goals in the General Plan are applicable to the Proposed Project.

The Regional Parks and Scenic Highways Map of the General Plan identifies the existing Pacheco Reservoir as a proposed park that "should be stocked with fish and opened for recreation" (Santa Clara County 2008).

### ***Santa Clara County Parks 2018 Strategic Plan***

Santa Clara County has an extensive history of countywide park planning and development managed by the Santa Clara County Parks and Recreation Department (County Parks and Recreation Department). Supported by a voter-approved Park Charter Fund, the County Parks and Recreation Department manages 28 parks comprising over 52,000 acres. The 2018 Strategic Plan outlines the process used to define the County Parks and Recreation Department's vision statement and vision elements, and defines priorities, goals, strategies, actions, and practices for implementing the vision (Santa Clara County Parks 2018).





### 3.17.3 Environmental Impacts and Mitigation Measures

The following sections discuss the methods and assumptions, criteria for determining the significance of impacts, environmental impacts, and mitigation measures if applicable.

#### Methods and Assumptions

The potential recreational impacts of the Proposed Project are assessed qualitatively, drawing from knowledge of the Proposed Project study area and a review of aerial photographs, recreation maps, and usage data provided by state and local planning agencies. The evaluation of the Proposed Project's effects on nearby recreational facilities aims to avoid or minimize environmental impacts by considering the proximity of these facilities to the Proposed Project activity areas.

#### *Applicable Conservation Measures*

There are no Conservation Measures applicable to recreation resources.

#### Criteria for Determining Significance of Impacts

Significance criteria are based on CEQA Guidelines Appendix G. Implementation of the Proposed Project would have significant impacts on recreation if it were to:

- Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated,
- Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment.

#### Environmental Impacts

##### ***Impact REC-1***

***Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?***

There are three publicly managed areas, one ecological reserve, and two wildlife areas within several miles of the Proposed Project study area; there are no public trails within the Proposed Project study area (Figure 3.17-1). Implementation of the Proposed Project would not result in an increase in use of these recreational facilities since the Proposed Project consists of geotechnical investigations with no project-related activities that would increase demand for these facilities. Because the use of these facilities is not expected to increase due to the implementation of the Proposed Project, no physical deterioration of these facilities would occur or be accelerated by



the Proposed Project. Therefore, **no impact** would occur from Proposed Project implementation. No mitigation is required.

***Impact REC-2***

***Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?***

The Proposed Project would conduct geotechnical investigations within the Proposed Project study area. No development of new or expanded recreational facilities is proposed as a part of the Proposed Project. Therefore, **no impact** or adverse physical effect on the environment would occur from Proposed Project implementation. No mitigation is required.

**Mitigation Measures**

No mitigation measures are required.

## **3.18 Transportation**

This section describes the existing conditions for the major transportation facilities within, and in close proximity to the Proposed Project study area. This section focuses on the roadway network, transit service, and bicycle and pedestrian facilities, as well as the regulatory environment governing use and safety of transportation facilities.

### **3.18.1 Environmental Setting**

The Proposed Project study area is located in unincorporated southeastern Santa Clara County. The Proposed Project study area is generally bordered by SR-152 to the south, and Kaiser-Aetna Road to the west. Regional access to the Proposed Project study area is provided by SR-152, which has connections to I-5 to/from the east, and US-101 to/from the west. SR-152 is a major east-west corridor for interregional commercial, commuter, and recreational traffic connecting the South San Francisco Bay Area and Central Valley regions. Other than access to the activity areas associated with the SR-152 corridor, access to the Proposed Project study area is provided via an unnamed ranch road on the northside of SR-152. The unnamed ranch road is accessible to both west-bound and east bound SR-152 traffic and is located approximately 1.5 miles east of Kaiser-Aetna Road. This unnamed road is approximately 35 miles from the City of Los Banos to the east and approximately 25 miles from the City of Gilroy to the west.

### **Existing Roadway Network**

The Proposed Project study area for potential transportation impacts covers approximately 1.5 miles (between Post Mile 28.8 and Post Mile 30.32) along the SR-152 corridor. It includes activity areas near the intersection of SR-152/Kaiser-Aetna Road and activity areas accessed via the



existing ranch road north of SR-152 located approximately 1.5 miles east of Kaiser-Aetna Road. Figure 3.18-1 illustrates the Proposed Project study area for transportation. The transportation impact analysis in this section focuses on this segment of SR-152 because it would be the primary roadway accessing the Proposed Project study area for personnel, equipment and supplies necessary to perform the Proposed Project.

### ***State Route 152***

SR-152 is a four-lane, divided state highway that runs east-west through the Proposed Project study area. To the east, it connects with I-5 and the communities of Merced County. To the west, it connects to US-101 and the communities within Santa Clara and San Benito Counties. Because of these connections to major north-south highways that traverse the entire state, SR-152 is a heavily used truck route. Traveling east from US-101, SR-152 is a 2-lane undivided roadway in Gilroy, with a posted speed limit of 55 mph. SR-152 transitions to a 4-lane divided roadway at the interchange with SR-156 east of Gilroy and continues in this configuration through the Proposed Project study area to its intersection with I-5. The posted speed limit on this segment of SR-152 is 65 mph for cars and 55 mph for trucks and vehicles pulling trailers.

### ***Kaiser-Aetna Road***

Kaiser-Aetna Road is a rural north/south road that intersects with SR-152 at Post Mile 28.8. From the intersection with SR-152, Kaiser-Aetna Road runs north providing seasonal access to Henry W. Coe State Park, as well as Bell Station Farmers Market and private lands in the western portion of the North Fork Pacheco Creek watershed. The section of Kaiser-Aetna Road is paved for several hundred yards to the driveway that provides access to the Bell Station Farmers Market. Beyond that point, a locked gate restricts public access to Henry W. Coe State Park; access is typically provided to the public on weekends and holidays during the summer. That segment of Kaiser-Aetna Road is unpaved with a 25-mph posted speed limit and access is limited to daytime hours when the southern entrance to the park is open. South of SR-152, a short un-paved segment of Kaiser-Aetna Road provides access to several rural residences between SR-152 and Pacheco Creek. Other than ambient lighting from buildings adjacent to SR-152, there is no highway lighting associated with this intersection.





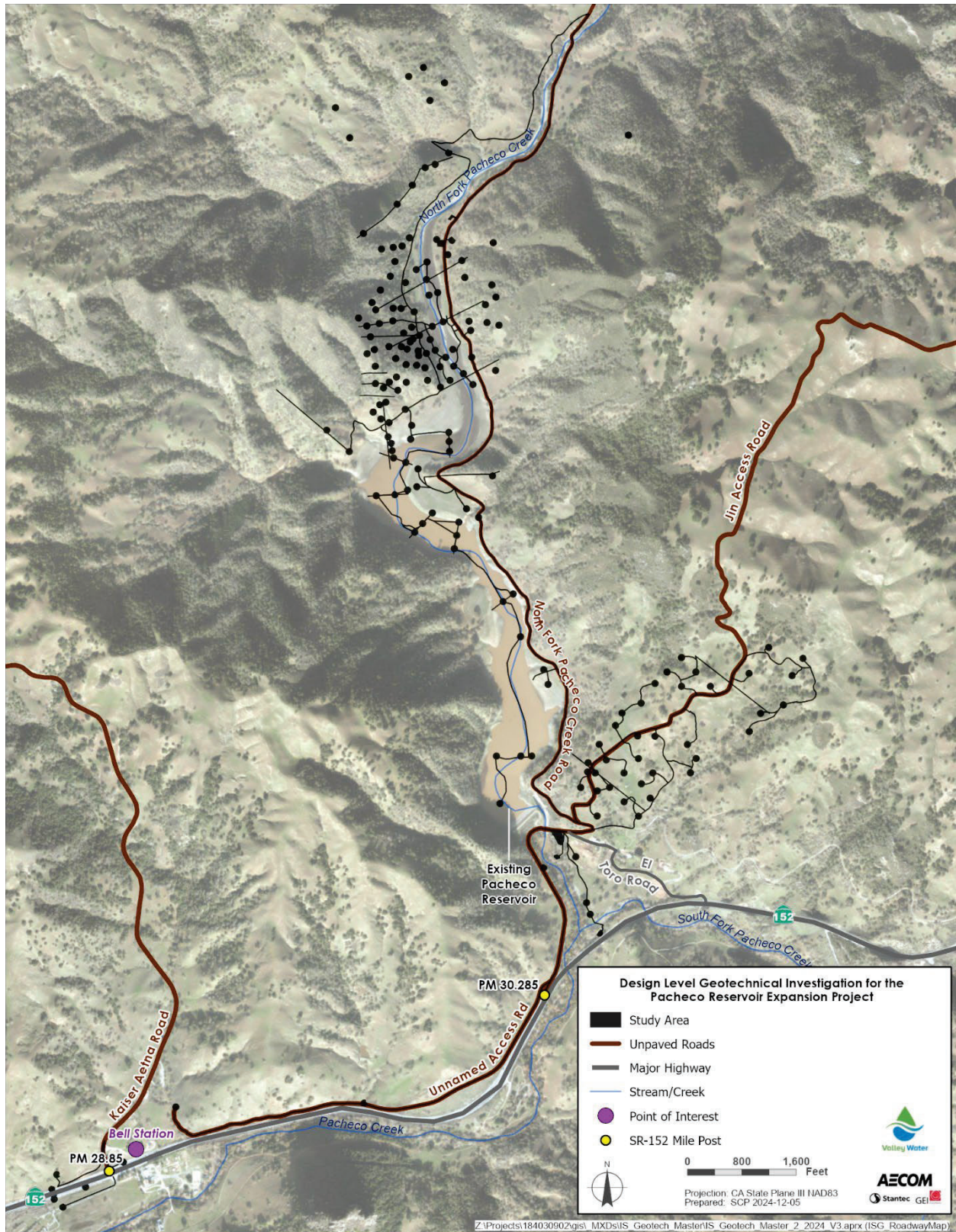


Figure 3.18-1. Roadways Within and Adjacent to the Proposed Project Study Area



### ***Local Roads***

Other than the activity areas adjacent to the SR-152 corridor, all access to the Proposed Project study area would be provided by an unnamed private road that intersects with SR-152 about 1.5 miles east of Kaiser-Aetna Road (MP 30.285). This road is paved for a short distance, however the paved section dates back to its original use before SR-152 was realigned to its current location. Traffic movement at the intersection of the unnamed ranch road with SR-152 is unsignalized; a left turn lane pocket from eastbound SR-152 requires eastbound motorists to cross two lanes of traffic. There is no defined pocket for vehicles traveling westbound onto this unnamed road. Depending on the length and turning radius of the vehicle, a motorist can make a right-turn onto this road from the west bound shoulder of SR-152.

A locked gate at the entrance of the unnamed road prevents any public access to lands owned by PPWD and private parties. Use of this road is restricted to private landowners and emergency personnel (e.g., CAL FIRE). In addition to PPWD use of this road to support ongoing maintenance and operation of North Fork Dam and Pacheco reservoir, landowners use this road to haul livestock and equipment as needed to support their ongoing ranching operations. This road also provides the primary access to a network of roads and trails that have been developed over time by the landowners to support these ranching operations.

### ***Existing Traffic Volumes***

The annual average daily traffic (AADT) volume is 40,400 vehicles traveling in both eastbound and westbound directions for the segment of SR-152 within the Proposed Project study area (Caltrans 2023). Existing average peak hourly traffic volumes for SR-152 were obtained from the Caltrans Performance Measurement System. February 2023 AADT data at the SR-152/Pacheco Creek Bridge just east of the Kaiser-Aetna Road intersection is presented in Table 3.18-1 and is reflective of the most current pre-COVID-19 volumes. The average peak hourly traffic is 4,300. The peak direction of traffic is westbound during the morning (a.m.) peak hour and eastbound during the afternoon (p.m.) peak hour. At this location there was no distinction between eastbound and westbound traffic data so direction is not relevant to this discussion. Data for other highways that may be used to access the Proposed Project study area is presented in Table 3.18-1 to provide context for traffic volumes on these highways during peak hourly and daily periods. According to the 2022 Caltrans Census data, trucks account for approximately 15 percent of the traffic volumes on the section of SR-152 within the Proposed Project study area (Caltrans 2022).





**Table 3.18-1. Existing Peak Hour Volumes per Location for SR-152, SR-156, I-5, and US 101**

Route/Location	Peak Hourly Traffic (veh/h)	Peak Daily Traffic (veh/h)
SR-152 @ Pacheco Creek Bridge	4,300	40,500
SR-152@ SR-156	4,300	41,000
SR-152 @ US 101	4,200	28,500
SR-152 @ I-5	3,500	27,000

Source: Caltrans, PeMS 2023

Key:

I-5 = Interstate Highway 5

SR-152 = State Route 152

SR-156 = State Route 156

US 101 = U.S. Highway 101

Veh/h = vehicles per hour

## Bicycle and Pedestrian Facilities and Transit Service

There are no existing or proposed bicycle paths or routes or pedestrian facilities along SR-152 within Santa Clara County. As part of Santa Clara Valley Transportation Authority's (VTA) 2018 Santa Clara Countywide Bicycle Plan, the bicycle routes referred to as "across barrier connections" (i.e., problem spots or locations where new or improved bicycle crossings are needed to improve bicycle connections and complete gaps in the bicycle network) proposed on SR-152 were removed from the 2008 list of proposed connection improvements due to very low-density land use with no planned land use changes in that area to merit including any bicycle infrastructure (VTA 2018).

The VTA provides light rail, bus, and paratransit service to Santa Clara County; however, there are no transit services on SR-152 within the Proposed Project study area.

## 3.18.2 Regulatory Framework

### Federal Laws, Regulations, and Policies

There are no federal transportation regulations, plans, and/or policies that are applicable to the Proposed Project.

### State Laws, Regulations, and Policies

#### *California Senate Bill 743/California Environmental Quality Act*

SB 743, which became effective in September 2013, initiated changes to the *CEQA Guidelines* to establish new criteria for determining the significance of transportation impacts. Specifically, SB 743 replaced automobile delay—as described solely by level of service or similar measures of vehicular capacity or traffic congestion—with VMT as the recommended metric for determining the significance of transportation impacts. The intent of the change is to help achieve statewide goals related to infill development, the promotion of public health through active transportation,





and the reduction of greenhouse gas emissions. The Governor's Office of Planning and Research (OPR) adopted *CEQA Guidelines* implementing SB 743 on December 28, 2018 (*CEQA Guidelines* §15064.3); statewide implementation began July 1, 2020. The portions of the *CEQA Guidelines* that were revised and are relevant to the Proposed Project state:

**15064.3(a) Purpose.**

This section describes specific considerations for evaluating a project's transportation impacts. Generally, vehicle miles traveled is the most appropriate measure of transportation impacts. For the purposes of this section, "vehicle miles traveled" refers to the amount and distance of automobile travel attributable to a project. Other relevant considerations may include the effects of the project on transit and nonmotorized travel. Except as provided in subdivision (b)(2) below (regarding roadway capacity), a project's effect on automobile delay shall not constitute a significant environmental impact.

**15064.3(b) Criteria for Analyzing Transportation Impacts.**

- a. **Land Use Projects.** Vehicle miles traveled exceeding an applicable threshold of significance may indicate a significant impact. Generally, projects within one-half mile of either an existing major transit stop or a stop along an existing high quality transit corridor should be presumed to cause a less than significant transportation impact. Projects that decrease vehicle miles traveled in the project area compared to existing conditions should be presumed to have a less than significant transportation impact.
- b. **Transportation Projects.** Transportation projects that reduce, or have no impacts on, vehicle miles traveled should be presumed to cause a less than significant transportation impact. For roadway capacity projects, agencies have discretion to determine the appropriate measure of transportation impact consistent with CEQA and other applicable requirements. To the extent that such impacts have already been adequately addressed at a programmatic level, such as in a regional transportation plan EIR, a lead agency may tier from that analysis as provided in §15152.
- c. **Qualitative Analysis.** If existing models or methods are not available to estimate the vehicle miles traveled for the particular project being considered, a lead agency may analyze the project's vehicle miles traveled qualitatively. Such a qualitative analysis would evaluate factors such as the availability of transit, proximity to other destinations, etc. For many projects, a qualitative analysis of construction traffic may be appropriate.

To assist with implementation of the VMT metric, the OPR prepared a Technical Advisory on Evaluating Transportation Impacts in CEQA (OPR 2018). OPR's Technical Advisory recommends that for land use projects a per capita or per employee VMT that is fifteen percent below that of existing development may be a reasonable threshold of significance. In making this recommendation, OPR recognized that land use development projects (i.e., those involving residential, office, and retail proposals) tend to have the greatest influence on VMT. For other types of projects, lead agencies should consider the purposes in PRC § 21099(b)(1) (i.e., promote



reduction of greenhouse gas emissions, the development of multimodal transportation networks, and a diversity of land uses) in applying a threshold of significance. Under CEQA Guidelines section 15064.3(b)(3), qualitative analyses are acceptable when methods do not exist for undertaking a quantitative analysis. Additionally, OPR's Technical Advisory for Evaluating Transportation Impacts in CEQA identifies a screening threshold for small land use projects that would generate or attract fewer than 110 trips per day, as long as no substantial evidence exists that the project would generate a significant level of VMT, or that the project would be inconsistent with a Sustainable Communities Strategy (SCS) or general plan (OPR 2018).

### ***California Senate Bill 375***

SB 375, enacted in 2008, aims to reduce greenhouse gas emissions from the transportation sector by promoting sustainable land use and encouraging regional planning that integrates transportation and housing development. The bill requires metropolitan planning organizations to develop sustainable community strategies that outline how to meet greenhouse gas reduction targets set by the California Air Resources Board. By aligning land use planning with transportation infrastructure, SB 375 seeks to enhance public transit, reduce vehicle miles traveled, and improve overall air quality, contributing to California's climate change goals.

### ***California Department of Transportation***

Caltrans has jurisdiction over California state highway facilities including SR-152. In its 2020 memorandum on CEQA significance determinations, Caltrans concurred that VMT is the most appropriate measure of transportation impacts under CEQA and required such assessment along with a supporting induced travel analysis for capacity-increasing transportation projects on the State Highway System (Caltrans 2020). *Attachment A* to that memorandum includes a list of project types not likely to lead to a measurable and substantial increase in vehicle travel and would not require an induced travel analysis. Project types enumerated in *Attachment A* include safety projects that do not add additional motor vehicle capacity, auxiliary lanes less than one mile in length designed to improve safety, installation or reconfiguration of traffic lanes that are not used for through traffic (e.g., left- and right-turn pockets, and installation of roundabouts (Caltrans 2020). Relevant to construction impacts, Caltrans offers the following guidance: "Impacts associated with construction of a project may also require VMT analysis, particularly for large projects or projects located a considerable distance from urbanized areas. Generally, a qualitative analysis of VMT impacts associated from the construction of the project would be appropriate. Vehicle trips used for construction purposes would be temporary, and any generated VMT would generally be minor and limited to construction equipment and personnel and would not result in long-term trip generation" (Caltrans 2020).

While the VMT metric is appropriate for CEQA analyses, Caltrans does continue to use the level-of-service (LOS) metric for operating state highway facilities to evaluate their operations and as one of its measures of effectiveness.



In its comment letter to Valley Water on the Draft IS/MND for the Proposed Project dated July 16, 2024, Caltrans emphasized the need to coordinate permitting requirements with District 4 representatives. Specific permits described in this letter that may be required for the Proposed Project included: Transportation Permit for Oversized or Excessive Load Vehicles, and Encroachment Permit.

### ***Congestion Management Program***

California Government Code 65088 requires that all urbanized counties in California prepare a Congestion Management Program (CMP) in order to obtain each county's share of the increased gas tax revenues. The legislation requires that each CMP contain the following five mandatory elements: 1) a system definition and traffic level of service standard element; 2) a transit service and standards element; 3) a trip reduction and transportation demand management element; 4) a land use impact analysis program element; and 5) a capital improvement element. The Santa Clara County CMP is administered and managed by the VTA when it assumed this responsibility through a new joint powers agreement among Santa Clara County and its 15 cities (VTA 2021). The VTA establishes a standard level of service for all the CMP roadway network, including freeways, urban arterials, County Expressways, and rural highways; SR-152 is classified as a rural highway<sup>85</sup> and LOS C by VTA in Santa Clara County.

### ***CCR, Title 8, Section 1523 (b)***

The California Code of Regulations provides direction on illumination for nighttime construction work lighting as follows: *Nighttime highway construction work lighting shall be provided within the work zone to illuminate the task(s) in a manner that will minimize glare to work crews and not interfere with the vision of oncoming motorists (e.g. providing screens, mounting lamps below the top edge of the barrier wall, varying the beam angle, etc.).* All work occurring at night within SR-152 will be in accordance with this provision.

## **Regional and Local Laws, Regulations, and Policies**

### ***Plan Bay Area 2040 and 2050***

Plan Bay Area 2040 and 2050 is the Bay Area's Regional Transportation Plan/Sustainable Community Strategy for the nine-county San Francisco Bay Area region. Prepared by the Association of Bay Area Governments (ABAG) and the Metropolitan Transportation Commission (MTC), the plan focuses on four key issues: the economy, the environment, housing, and transportation; outlines strategies to accommodate increased growth in priority areas; seeks to improve multimodal transportation options for these targeted areas; and strives to meet and

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<sup>85</sup> Rural highways are generally characterized by: moderate to high level of use with a Level of Service (LOS) C – between 18 and 26 passenger cars/mile/lane and average speed of 65 miles per hour.



exceed federal and state requirements for improved air quality. MTC, and ABAG released the Final Plan Bay Area 2050 in October 2021 (MTC 2021).

Relevant to the Proposed Project study area, Plan Bay Area 2040 and 2050 identify investments for maintaining, managing, and improving the region's multi-modal transportation network and proposes transportation projects and programs to be implemented with reasonably anticipated revenue. There are no identified investments along SR-152 within the Proposed Project study area; however, a planning and environmental study for the SR-152 Trade Corridor study by Caltrans, VTA, and the Council of San Benito County Governments is evaluated new alignments for SR-152 between US-101 and SR-156 and eastbound truck climbing lanes at the Pacheco Pass, both of which would improve travel for commercial, commuter, and recreational traffic along the segment of SR-152 in the Proposed Project study area (Caltrans 2015).

### ***Santa Clara Valley Transportation Authority***

The VTA is an independent special district that operates light rail and bus transit services, designs and funds highway and roadway improvements throughout Santa Clara Valley, and oversees several transportation programs such as the CMP, Valley Transportation Plan 2040 (VTA 2014), Bicycle Program, and Pedestrian Program (VTA 2018). The CMP is described above under applicable state programs and does not identify any programs, improvements, or service levels for SR-152. The Valley Transportation Plan was developed as a long-range countywide transportation plan, which also includes highway system program development and highway capital program. VTA identified 52 projects in its financially constrained list of projects to improve system operations, increase efficiency in key corridors and enhancements that relieve congestion, alleviate bottlenecks, and increase safety. Two of the identified capital projects (new SR-152 alignment between SR-156 and US-101 and eastbound SR-152 climbing lane at Pacheco Pass) are encompassed in the 2015 SR-152 Trade Corridor Study, described above. VTA's bicycle and pedestrian programs do not identify any improvements for SR-152 within the Proposed Project study area.

### ***Santa Clara County General Plan***

The General Plan, 1995-2010, identifies long-range goals, policies, and implementation programs for the County's growth, development, and open space and resource management. The plan's Transportation Element addresses the County's transportation network and facilities and provides policy guidance for their development and operation. The element contains the following policies relevant to the Proposed Project study area:

- **C-TR 12:** It is the goal of this plan to achieve a LOS no lower than D<sup>86</sup> at peak travel periods on city streets, county roads, expressways, and state highways. However, in certain

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<sup>86</sup> Level of Service D is defined as Stable flow. Speeds considerably affected by change in operating conditions, minor delays. High density traffic restricts maneuverability. Volume 80- 90% of capacity, delay at signals 25-40 seconds.



instances, a lower level of service may be acceptable when LOS D cannot practically be achieved.

- **R-TR-9:** Rural roads should be designed and built to standards that will assure driving safety and provide access for emergency vehicles.

### 3.18.3 Environmental Impacts and Mitigation Measures

The following sections discuss the methods and assumptions, criteria for determining the significance of impacts, environmental impacts, and mitigation measures if applicable.

#### Methods and Assumptions

The VMT metric concentrates on land development and project level and long-term planning decisions that support achieving the state's climate and air quality goals in accordance with SB 375. The 2018 OPR Technical Advisory offers recommendations for evaluating VMT for residential, office, retail, and mixed-use developments—those uses that have the greatest influence on VMT. For these uses, the types of trips, the typical lengths of those trips, and, hence, the VMT are well understood, as are means of reducing VMT. As discussed above, OPR's Technical Advisory for Evaluating Transportation Impacts in CEQA identifies a screening threshold for small land use projects that would generate or attract fewer than 110 trips per day, as long as no substantial evidence exists that the project would generate a significant level of VMT, or that the project would be inconsistent with an SCS or general plan (OPR 2018).

The Proposed Project is a geotechnical investigation that would occur during eight work months over an 11-month timeframe. Therefore, it would not be a long-term generator of trips beyond those necessary for transporting equipment and personnel to and from the Proposed Project study area. Unlike land development projects which can have a substantial change in travel demand post construction, the impacts of the Proposed Project focus almost entirely on the timeframe anticipated to complete the investigations. No permanent operational phase is proposed, and no permanent ongoing traffic trips would occur as a result of the Proposed Project. The Proposed Project does not lend itself neatly to a VMT analysis that seeks to analyze long-term travel patterns since it would only generate temporary traffic trips that would terminate following completion of the planned geotechnical activities. Therefore, Valley Water has determined that OPR's recommended screening criteria of 110 trips per day is an appropriate threshold for determining whether the Proposed Project would result in a significant VMT impact.

The analysis uses a qualitative approach to assess the Proposed Project's potential to result in hazardous conditions by introducing a design feature or element that could pose a safety risk for travelers or result in inadequate emergency access. This assessment considers the safety requirements required by Caltrans and CHP to perform geotechnical investigations within the SR-152 ROW. This assessment complies with SB 743 and is closely related to the air quality and greenhouse gas analyses in Sections 3.4 and 3.9, respectively.



The impact analysis presented in Section 3.18.3 assumes that the number of vehicles necessary to transport personnel and equipment would range between five and 20 vehicles on any given day. As indicated in Table 2-5, an estimated average 16 daily total round trips (which equates to 32 individual daily trips) is used for this analysis over the duration of the Proposed Project using one or both of the highways (I-5 or US-101) as well as SR-152. More vehicles would use these highways during the mobilization and demobilization of personnel and equipment during the two anticipated field periods.

### ***Applicable Conservation Measures***

The conservation measure applicable to transportation is listed below. Section 2.4 provides a full description of the BMP. No VHP AMMs are applicable to this section.

- **BMP TR-1:** Incorporate Public Safety Measures

This measure will be incorporated into the geotechnical investigation work plans, and all geotechnical contractors employed on the Proposed Project will be required to adhere to it. As such, it is considered part of the Proposed Project for purposes of analysis in this EIR.

### **Criteria for Determining Significance of Impacts**

Significance criteria are based on CEQA Guidelines Appendix G. Implementation of the Proposed Project would have significant impacts on transportation if it were to:

- Conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities,
- Conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b),
- Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment). or
- Result in inadequate emergency access.

### **Environmental Impacts**

#### ***Impact TRA-1***

***Would the project conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?***

Geotechnical investigation activities associated with the Proposed Project would generate a short-term increase in vehicle trips from workers and haul trucks transporting equipment to and from the Proposed Project study area on SR-152. As described in Table 2-5, it is estimated that the Proposed Project would generate a total of 16 maximum daily roundtrips (a total of 32 trips per day) using local roads and state highways. The annual average peak hourly daily traffic trips on SR-152 is 4,300 in either direction through the Proposed Project study area. Presuming this





increase would, conservatively occur over the course of a peak one-hour period of time in the morning and evening each day, an increase of 16 one-way trips twice a day equates to a 0.004 percent increase in vehicle trips per hour during the Proposed Project implementation period lasting for eight working months.

None of the transportation or circulation plans and programs discussed under Section 3.18.2.3 specifically addresses SR-152, which functions within the Proposed Project study area as an expressway throughout rural/open space portions of the County. General Plan Goal C-TR 12 is to achieve an LOS no lower than D at peak travel periods; SR-152 is the only roadway where this goal is applicable with respect to the Proposed Project. On average, an increase of less than one percent in hourly traffic during peak am and pm times is not expected to change operating conditions, result in minor delays or restrict maneuverability for motor vehicles. The Proposed Project would not be inconsistent with Goal C-TR 12. The Valley Transportation Congestion Management Plan and the Valley Transportation Plan are long range plans and programs that do not discuss temporary congestion or traffic related to construction. While there are no specific transit, bicycle or pedestrian facilities within, or in close proximity to the Proposed Project study area, all activities associated with the Proposed Project during the anticipated eight working months/11-month duration within the SR-152 corridor would not restrict the legal use of the corridor by cyclists or pedestrians. Therefore, the Proposed Project would have no impact on adopted measures of effectiveness for the performance of the street and highway system.

Based on the above analysis, implementation of the Proposed Project would not conflict with a program plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities, and there would be **no impact**. No mitigation is required.

#### ***Impact TRA-2***

##### ***Would the project conflict or be inconsistent with CEQA Guidelines §15064.3, subdivision (b)?***

During Proposed Project implementation, trips via SR-152 would be needed to access the Proposed Project study area to deliver equipment and materials to the staging areas and work activity areas, and to transport personnel to and from the Proposed Project activity areas during the Proposed Project implementation period.

The proposed surface and subsurface geotechnical investigations are expected to take approximately eight working months through 2026 to complete, depending upon drill rig, crew and helicopter availability. Proposed field activities are expected to begin in the summer of 2025 (e.g., August depending on timing of Proposed Project approval, access, field conditions and availability of field investigation crews) and be completed by November 2026. As shown in Table 2-5, the Proposed Project would result in a total of approximately 16 daily round trips (32 individual daily trips).

As discussed above, OPR's Technical Advisory for Evaluating Transportation Impacts in CEQA indicates that projects that would generate or attract fewer than 110 trips per day generally may



be assumed to cause less-than-significant transportation impacts (OPR 2018). Valley Water believes this is an appropriate and conservative threshold to apply this case given the limited duration of the Proposed Project, and the fact that the air quality and GHG analyses provided in sections 3.4 and 3.9 of this EIR fully account for all VMT that would be generated by the Proposed Project, including miles travelled by equipment driven to the site for using during the investigations. Therefore, because the Proposed Project would generate a total of 32 maximum daily trips, which is less than the 110 trips per day significance threshold, it would not conflict or be inconsistent with CEQA Guidelines §15064.3. Therefore, impacts would be **less than significant**. No mitigation is required.

### ***Impact TRA-3***

#### ***Would the project substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?***

The Proposed Project would not include new design features (e.g., new facilities, obstructions within a public roadway, sharp curves, or dangerous intersections) or alterations of existing features (e.g., road realignment). Implementation of BMP TR-1 in association with the Proposed Project, requires fencing, barriers, lights, flagging, guards, and/or signs (as appropriate) to provide warning to the public of Proposed Project activities that would avoid or minimize the hazards due to transporting equipment and personnel traveling to and from the Proposed Project study area on state, local, and private roads.

The process of receiving an encroachment permit from Caltrans would make Valley Water and the designated contractor subject to Caltrans' requirements for projects that would encroach on a Caltrans easement or ROW (e.g., SR-152). Caltrans would complete a Preliminary Environmental Analysis Report to document support of Caltrans' issuance of an encroachment permit. Caltrans' review of the Proposed Project would also verify the Proposed Project does not have any hazardous design features.

The Proposed Project has incompatible uses with SR-152 associated with temporary nighttime lane closures of a small segment of SR-152 over a several week period. These lane closures would be required by Caltrans to provide for four boring activity areas (PB-01, PB-02, R-20-001, and R-20-003) within the Caltrans ROW. The four borings would be conducted during nighttime hours to minimize the potential for traffic safety hazards to Project personnel and motorists traveling on SR-152. For the borings (PB-02, R-20-001) associated with the west-bound lane of SR-152, a lane closure would be required from approximately 8 p.m. to 4 a.m. for up to three to four nights. For the borings (PB-01, R-20-003) associated with the east-bound lane of SR-152, a lane closure would be required between 8 p.m. to 10 p.m. and 4 a.m. to 7 a.m. for up to three to four nights. A total of up to 12 to 16 nights of work is anticipated for these four borings. Additional nighttime lighting and signage would be required at these locations for the safety of drill crews and motorists. Nighttime lighting would be used to light up the work area within the ROW of SR-152 according to Caltrans standards. All nighttime lighting installed in accordance CCR Title 8, Section 1523 as well as Caltrans Standard Specifications Section 87-20.02I Temporary Lighting Systems, as



described in Section 2.3.5. These lighting requirements would be implemented to minimize up-glare and located to reduce lighting of adjacent rural development and wildland areas. Caltrans standard lane closure signage and traffic guidance equipment (e.g., cones, pylons, arrow boards) would also be used during the drilling within Caltrans ROW.

As described in Chapter 2, hazards to project personnel and motorists associated with drilling within the SR-152 ROW would be minimized by implementing nighttime lane closures consistent with Caltrans and CHP requirements. BMP TR-1 and requirements imposed by Caltrans and CHP would minimize potential traffic hazards related to the lane closures necessary to perform work within the Caltrans ROW. Therefore, implementation of the Proposed Project would result in a **less than significant impact** from transportation and traffic hazards associated with the Proposed Project. No mitigation is required.

#### ***Impact TRA-4***

##### ***Would the project result in inadequate emergency access?***

As described in Impact Haz-4, the Santa Clara County EOP applicable to the Proposed Project study area is not specific with respect to emergency response or evacuation routes.

Implementation of BMP TR-1 in association with the Proposed Project, requires fencing, barriers, lights, flagging, guards, and/or signs (as appropriate) to provide warning to the public of Proposed Project activities that would avoid or minimize the hazards due to transporting equipment and personnel traveling to and from the Proposed Project study area on state, local, and private roads. The process of receiving an encroachment permit from Caltrans would make Valley Water and the designated contractor subject to Caltrans' requirements for projects that would encroach on a Caltrans easement or ROW (e.g., SR-152). Caltrans would complete a Preliminary Environmental Analysis Report to document support of Caltrans' issuance of an encroachment permit. Caltrans' review of the Proposed Project would also verify the Proposed Project would result in adequate emergency access. BMP TR-1 and requirements imposed by Caltrans and CHP would minimize the potential for the Proposed Project to result in inadequate emergency access.

The proposed geotechnical investigation activities within the SR-152 ROW could temporarily conflict with emergency response and evacuation, during the timeframe that nighttime lane closures would be in effect. As part of the Proposed Project, Valley Water will implement BMP TR-1 which requires incorporation of public safety measures to give adequate warning to the public of Proposed Project activities, and of any dangerous condition to be encountered. However, potential substantial conflicts with emergency vehicles could still occur in the form of traffic slowdowns, which would be a significant impact.

Therefore, Valley Water will implement mitigation measure TR-1 (Traffic Control Plan), which provides specific direction with respect to agency notification/communication requirements, lane closure charts, detail for work beyond the shoulder and shoulder closures. This plan also addresses requirements for Valley Water to enter into an agreement with CHP for construction and maintenance zone enhanced enforcement (COZEPP) support during all field activities involving



lane and/or shoulder closures. Mitigation measure TR-1 would minimize conflicts with emergency vehicles and/or evacuation traffic for SR-152 at Kaiser-Aetna Road. Therefore, implementation of the Proposed Project would result in a **less than significant impact with mitigation**.

## Mitigation Measures

**MM TR-1: Traffic Control Plan** Valley Water will prepare and implement a Traffic Control Plan (TCP) to minimize traffic delays and safety hazards that may result from lane restrictions or closures in the work zone within and adjacent to the SR-152 Caltrans ROW. The TCP will comply with Caltrans' standard lane closure requirements and will be submitted to Caltrans for review and approval as part of the encroachment permit process prior to commencement of investigations that require shoulder or lane closure within Caltrans' right-of way.

Under this mitigation measure, prior to issuance of an encroachment permit, a final TCP will be prepared consistent with the initial TCP prepared and submitted to CHP by Valley Water on July 24, 2024 as requested by CHP in its June 27, 2024 comments on the IS/MND. Specifically, the purpose of the TCP is to address the short-term traffic and transportation impacts during proposed lane and/or shoulder closures during nighttime hours over a several-week period. The objectives of the TCP are to:

- Ensure that applicable agencies (e.g., Caltrans, CHP) are notified in advance of when and how these restrictions and/or closures would be implemented to ensure agencies have ample time to prepare for monitoring and/or oversight
- Maintain traffic safety during lane and/or shoulder closures
- Effectively maintain an acceptable level of traffic flow on SR-152 as determined by Caltrans during the time temporary nighttime lane or shoulder closures are in effect
- Foster public awareness of the Proposed Project and related transportation and traffic impacts

Achieve public acceptance of activities associated with the Proposed Project and the TCP. The TCP will contain information necessary to inform motorists of proposed lane and shoulder closures. The effective implementation of a traveler information system during implementation of the Proposed Project is crucial for enabling motorists to make informed decisions about their travel plans and options with real-time traffic information. That real-time traffic information will include information on lane closures and intersection delays and to adjacent land uses; "businesses are open" signing; and other signing and information to assist travelers in navigating the proposed lane closures.

- Incident Management. Effective incident management will ensure that incidents in and near work zones are cleared quickly and do not result in substantial delays for the traveling public in the vicinity of work zones. Incident management includes, but is not limited to:
  - CHP's COZEEP



- Traffic Management Team
- Caltrans Transportation Management Center
- Traffic Management Strategies. The TCP will include procedures to lessen the transportation effects of proposed nighttime lane and shoulder closures and will include, but not be limited to, consideration of the following:
  - Lane closure charts - Caltrans initially approved the lane closure charts for activities similar to those described for the Proposed Project in 2022. These charts will be updated and submitted to Caltrans consistent with the encroachment permit application for review and approval prior to commencing any activities in the Caltrans ROW. The work will be conducted at night when traffic volumes are less, minimizing disruption and avoiding significant impacts on traffic flow.
  - Adherence to the California Manual on Uniform Traffic Control Devices (MUTCD) and Caltrans' standard traffic plans listed below:
    - **Work Beyond the Shoulder:** One of the proposed exploratory borings is located outside of the eastbound SR152 traveled way and shoulder and work would be performed outside the edge of the pavement. No lane and/or shoulder closures are anticipated for this soil boring and no traffic impacts to SR152 are anticipated. Traffic control for this boring would be based on the California MUTCD. A detailed exhibit will be developed and submitted to Caltrans to illustrate: Work Beyond the Shoulder, SR152 Eastbound off Shoulder.
    - **Shoulder Closures:** One soil boring is located on the right shoulder of westbound SR152 approximately 20 feet from the fog line of the outside lane. It is anticipated that this soil boring would require a right shoulder closure to perform the work. Traffic control layout for this soil boring work is based on the California MUTCD. A detailed exhibit will be developed and submitted to Caltrans to illustrate: Work on the Right Shoulder, SR152 Westbound Right Shoulder Closure. If it is determined in the field that a lane closure is necessary in addition to the shoulder closure for this work traffic control for a lane closure would be implemented per the lane closure figure referenced below.
    - **Lane Closures:** A third soil boring is located within the median of SR152 on the eastbound side. It is anticipated this work would require a lane and shoulder closure. Traffic control layout for this soil boring work is based on Caltrans Traffic Control System for Lane Closure on Multilane Conventional Highways, Plate T11. A detailed exhibit will be developed and submitted to illustrate: Work on Median, SR152 Westbound Left Shoulder Soil Boring.
- COZEEP Agreement. Valley Water will enter into an agreement with the CHP for COZEEP support during all field activities involving lane and possibly shoulder closures. If traffic starts backing up to the extent that CHP officers are concerned about emergency response



times, they will have the authority to halt operations to reopen the lane, typically within 30 minutes or less.

The designated contractor will implement the measures in the TCP during implementation of the Proposed Project.

## **3.19 Tribal Cultural Resources**

This section describes tribal cultural resources (TCR) in the Proposed Project study area and surrounding area. The environmental setting and regulatory framework are provided as well as an analysis of impacts to tribal cultural resources from implementation of the Proposed Project. TCRs are defined as either a site, feature, place, or cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe

### **3.19.1 Environmental Setting**

#### **Cultural Context**

See Section 3.6, Cultural Resources, Section 3.6.2, Environmental Setting, Cultural Context, for details.

### **3.19.2 Regulatory Framework**

#### **Federal Laws, Regulations, and Policies**

There are no federal laws, regulations, or policies related to tribal cultural resources that apply to the Proposed Project.

#### **State Laws, Regulations, and Policies**

##### ***Assembly Bill 52 and the California Environmental Quality Act***

Effective July 1, 2015, AB 52 requires (1) a lead agency to provide notice to any California Native American tribes that have requested notice of projects proposed or reviewed by the lead agency, and (2) if a tribe requests consultation within 30 days upon receipt of the notice, the lead agency must consult with the tribe. Topics that may be addressed during consultation include tribal cultural resources, the potential significance of Project impacts, type of environmental document that should be prepared, and possible mitigation measures and Project alternatives. AB 52 created a new category of resources, i.e., tribal cultural resources as defined below in Section 21074(a) of the PRC.





Section 21074(a) "Tribal cultural resources" are either of the following:

1. Sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe that are either of the following:
  - A. included or determined to be eligible for inclusion in the California Register of Historical Resources; and/or
  - B. included in a local register of historical resources as defined in subdivision (k) of Section 5020.1; and/or
2. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Section 5024.1, in applying the criteria set forth in subdivision (c) of Section 5024.1 for the purposes of this paragraph, the lead agency shall consider the significance of the resource to a California Native American tribe.

In addition to Section 21074(a) above, tribal cultural resources are further defined under Section 21074(b) and (c) as follows:

- (b) A cultural landscape that meets the criteria of subdivision (a) is a tribal cultural resources to the extent that the landscape is geographically defined in terms of the size and scope of the landscape; and
- (c) A historical resource described in Section 21084.1, a unique archaeological resource as defined in subdivision (g) of Section 21083.2, or a "nonunique archaeological resource" as defined in subdivision (h) of Section 21083.2 may also be a tribal cultural resource if it conforms to the criteria of subdivision (a) [of Section 21074].

Mitigation measures for tribal cultural resources may be developed in consultation with the affected California Native American tribe in accordance with PRC § 21080.3.2. Under PRC § 21084.3, tribal cultural resources mitigation measures may include avoidance and preservation of tribal cultural resources and treating tribal cultural resources with culturally appropriate dignity, taking into account tribal cultural values and the meaning of the resource.

Pursuant to AB 52, a project that may cause a substantial adverse change in the significance of a tribal cultural resource is a project that may have a significant effect on the environment. Section 21084.3 of the California PRC states that:

- (a) Public agencies shall, when feasible, avoid damaging effects to any tribal cultural resource; and
- (b) if the lead agency determines that a project may cause a substantial adverse change to a tribal cultural resource, and measures are not otherwise identified in the consultation process provided in Section 21080.3.2 [formal AB 52 consultation], additional mitigation measures may be considered to avoid or minimize the significant adverse impacts.



## ***Regional and Local Laws, Regulations, and Policies***

### **Santa Clara County General Plan**

See Section 3.6 Cultural Resources, Section 3.6.3.3, Regulatory Framework, Regional and Local Laws, Regulations, and Policies.

### **3.19.3 Summary of Tribal Consultation**

AB 52 consultation requirements went into effect on July 1, 2015, for all projects that have not already published a Notice of Intent to Adopt a Negative Declaration or Mitigated Negative Declaration or published a Notice of Preparation of an Environmental Impact Report. To date, Valley Water has received written requests from the Muwekma Ohlone Indian Tribe of the San Francisco Bay Area Region and the Tamien Nation of the Santa Clara Valley to receive notifications of proposed projects as specified in PRC § 21080.3.1. Therefore, Valley Water emailed Project notification letters to the following recipients: Charlene Nijmeh, Chairwoman of the Muwekma Ohlone Indian Tribe of the San Francisco Bay Area Region on October 26, 2023, Quirina Luna Geary, Chairwoman of the Tamien Nation on October 26, 2023, and to Johnathan Costillas, Tribal Cultural Resource Officer for the Tamien Nation on October 26, 2023 (see Appendix I). Although not required under AB 52, a Project notification letter was also sent out to Chair Valentin Lopez of the Amah Mutsun Tribal Band on October 26, 2023 since they have been named Most Likely Descendant by the Native American Heritage Commission for the Proposed Project study area, and have previously been consulting with Valley Water regarding the separately proposed PREP. The Project notification letters provided a brief description and location of the Proposed Project (See Appendix I). Hard copies of the notification letters were also sent via the U.S. Postal Service certified mail on October 26, 2023. No requests for consultation were received within or following the 30-day response period.

### **Consultation with the Amah Mutsun Tribal Band**

Subsequent to sending the Project notification letters, Valley Water reached out to Chair Valentin Lopez of the Amah Mutsun Tribal Band on January 24, 2024, via e-mail, which included a copy of the October 26, 2023, letter as an attachment intended to open a dialogue with Chair Lopez. On March 21, 2024, the Amah Mutsun Land Trust and the Amah Mutsun Tribal Band responded to subsequent attempts by Valley Water to obtain the Tribe's input and requested informal consultation. The Tribe's March 21, 2024, letter raised four issues. First, the Tribe requested Valley Water use 150-feet as a minimum buffer distance around all 181 work activity areas. Second, the Tribe identified special culturally important plant foods with potential to occur within the various locations that would contain the proposed test pits. Third, the Tribe requested more information about proposed cultural resource monitoring. Fourth, the Tribe requested additional information about receiving a copy of an updated archaeological report from Far Western as well as



clarification from Valley Water on whether AB 52 consultation was ongoing or whether it had concluded.

In a letter dated April 15, 2024, Valley Water responded in writing to the Amah Mutsun Land Trust and Amah Mutsun Tribal Band's March 21, 2024, comment letter. Subsequently, Valley Water held a virtual meeting with the Amah Mutsun Tribal Band representatives on April 24, 2024, to discuss the Tribe's letter and Valley Water's responses to the March 21, 2024, letter. During this meeting, Valley Water explained that it would apply a 150-foot minimum buffer distance in all but two boring activity areas that could not be moved. Valley Water further explained that Valley Water would not permanently remove any plant materials from test pit locations that could potentially contain ethnobotanical materials and would be open to cooperating with the Amah Mutsun Tribal Band to collect local seeds as part of Valley Water's ongoing consultation for the separate PREP CEQA process which requires consultation with the Tribe to determine the significance of any inadvertent discovery at the same time as the consulting archaeologist rather than after. Additionally, Valley Water has committed to conducting pre-activity cultural resources identification and sensitivity training (MM CUL-2) to geotechnical personnel by an Amah Mutsun representative and/or archaeologist prior to the commencement of and for the duration of all work activities. On April 30, 2024, Valley Water sent an email to Chair Lopez confirming these agreements and modifications and sending draft versions of mitigation measures CU-1 and CU-2 for his review. Valley Water's email stated that if no response or further comments were received by May 2, 2024, Valley Water would consider the informal consultation complete. Valley Water did not receive any further response from the Amah Mutsun Tribal Band and, therefore, concluded the informal consultation.

On June 17, 2024, Chair Lopez sent an email indicating the Tribe did not see any issues with mitigation measure CUL-1 or CUL-2 and requested a plant list on future projects involving seed mix. Chair Lopez also sought clarification on the distinction between the "informal" consultation conducted for the proposed geotechnical investigations and the "formal" consultation occurring on the PREP. On July 1, 2024, Valley Water agreed to share any future proposed seed mixes associated with the PREP with the AMTB for review and comment. In addition, for future projects, AMTB will continue to have opportunities to provide input including commenting on seed mix related issues through the CEQA public review process. Further, Valley Water will notify AMTB prior to the release of a negative declaration, mitigated negative declaration, or EIR for proposed future projects that may occur within the geographic area which AMTB is traditionally and culturally affiliated.

Valley Water also clarified that although it had not received a formal request for consultation from AMTB on the PREP, Valley Water has regarded the ongoing consultation with the AMTB on the PREP as a formal AB 52 consultation from the outset. Regarding the separately proposed geotechnical investigations project, i.e., the Proposed Project, at the time Valley Water initiated analysis of the Proposed Project in 2023, Valley Water had not received a written request from the AMTB pursuant to AB 52 to be notified of proposed projects under AB 52. Nevertheless, Valley



Water contacted the AMTB on October 25, 2023, to offer an informal consultation process on the proposed geotechnical investigations. Though labelled “informal,” this consultation was equivalent to a formal consultation in all substantive respects and provided for more flexible timelines than formal consultation.

In their July 19, 2024, comments on the Draft IS/MND prepared for the Proposed Project, the AMTB and AMLT questioned why the Proposed Project would require a new and separate request for AB 52 consultation. In response, Valley Water offers that, though not technically required, the benefit of the consultation that occurred with the AMTB on the Proposed Project is that it resulted in development of two mutually agreed upon mitigation measures that will be implemented during the proposed geotechnical investigations (mitigation measures CUL-1 and CUL-2). Because the Proposed Project can and would be implemented separately from the PREP, it was appropriate to consult with AMTB on specific ways to avoid impacts from the Proposed Project distinct from the ongoing consultation on the PREP.

### **3.19.4 Environmental Impacts and Mitigation Measures**

The following sections discuss the methods and assumptions, criteria for determining the significance of impacts, environmental impacts, and mitigation measures if applicable.

#### **Methods and Assumptions**

The analysis in this section is focused on the physical impacts of the Proposed Project on TCRs. As discussed in detail in Section 3.6, Cultural Resources, the APE/Proposed Project study area has been entirely surveyed for both historic and Native American resources with an Ohlone representative present for portions of survey and all subsurface testing (Engbring and Byrd 2023). Only two known archaeological resources have been identified to occur within 150 feet<sup>87</sup> of designated work activity areas described in Chapter 2, Project Description (e.g., test pits, boring sites, and staging areas). The two resources that have been identified within 150 feet of work areas are still greater than 50 feet away from these work areas.

#### ***Applicable Conservation Measures***

The Conservation Measures applicable to the analysis of impacts on tribal cultural resources are applied to evaluate whether impacts are significant. Section 2.4 provides a full description of each AMM. AMMs applicable to TCRs include:

- VHP AMM-29: Existing native vegetation shall be retained by removing only as much vegetation as necessary to accommodate the trail clearing width. Maintenance roads should be used to avoid effects on riparian corridors.

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<sup>87</sup> This is a standard buffer designed to protect resources through avoidance while allowing for margins of error in mapping and surface visibility at the time of resource recordation.



- VHP AMM-40: Maintain native shrubs, trees and groundcover whenever possible and revegetate disturbed areas with local native or non-invasive plants.
- VHP AMM-58: Existing access routes and levee roads shall be used if available to minimize impacts of new construction in special-status species habitats and riparian zones.
- VHP AMM-61: Minimize ground disturbance to the smallest area feasible.
- VHP AMM-62: Use existing roads for access and disturbed area for staging as site constraints allow. Off-road travel would avoid sensitive communities such as wetlands and known occurrences of covered plants.
- VHP AMM-85: Seed mixtures applied for erosion control will not contain invasive nonnative species and will be composed of native species or sterile nonnative species. If sterile nonnative species are used for temporary erosion control, native seed mixtures must be used in subsequent treatments to provide long-term erosion control and slow colonization by invasive nonnatives.
- VHP AMM-86: Topsoil removed during soil excavation would be preserved and used as topsoil during revegetation when it is necessary to conserve the natural seed bank and aid in revegetation of the site.

## Criteria for Determining Significance of Impacts

Based on guidance from CEQA Guidelines Appendix G, implementation of the Proposed Project would have significant impacts on tribal cultural resources if it were to:

- Cause a substantial adverse change in the significance of a tribal cultural resource, defined in PRC § 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:
  - listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in PRC § 5020.1(k).
  - a resource determined by the 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. In applying the criteria set forth in subdivision (c) of PRC § 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.

## Environmental Impacts

### ***Impact TCR-1***

***Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074 as either a site, feature,***



***place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code Section 5020.1(k)?***

The cultural resources study conducted for the Proposed Project, and summarized in Section 3.6 (Cultural Resources), identifies the presence of Native American cultural resources within the Proposed Project study area that may be considered tribal cultural resources as defined in PRC § 21074. Two resources are located within 50 feet of work areas, but no impacts to these two resources are anticipated as a result of Project-associated work. Five known precontact Native American archaeological resources have been identified as overlapping with or being immediately adjacent to existing and well-established equipment and vehicle access roads (see Figures 2-2a through 2-2e). Of these, three have been evaluated and recommended not eligible for listing on the NRHP or CRHR. The remaining two Native American habitation sites have been evaluated as eligible (Byrd et al. 2025). For this reason, Valley Water is treating these two prehistoric habitation sites as TCRs per PRC § 21074(a)(2), which states. "A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Section 5024.1 for the purposes of this paragraph, the lead agency shall consider the significance of the resource to a California Native American tribe." As noted in Section 3.6, the impacts associated with the continued use of these existing access roads as part of the Proposed Project are not anticipated to have a substantial adverse change in the significance of the cultural resources that they pass through. However, the potential for unanticipated and inadvertent discoveries of tribal cultural resources as a result of the Proposed Project would be a significant impact.

In the case of unanticipated inadvertent discoveries of TCRs during project-associated work, mitigation measures CUL-1 and CU-2 (see Section 3.6.4) will be implemented which would reduce potential impacts to a less-than-significant level. With implementation of mitigation measures CUL-1 and CUL-2, no substantial adverse change in the significance of a tribal cultural resource would occur as a result of the continued use of existing access roads during Proposed Project implementation. Impacts would be **less than significant with mitigation** pursuant to PRC § 21074.

#### ***Impact TCR-2***

***Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is a resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in Subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of***





***Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe?***

Other than the two eligible archaeological resources discussed in Impact TCR-1 above, Valley Water is not aware of any other resources in the Proposed Project study area that would be considered significant pursuant to the criteria set forth in Subdivision (c) of Public Resources Code Section 5024.1. Therefore, impacts would be **less than significant**. No mitigation required.

## **Mitigation Measures**

See Section 3.6-4 for description of mitigation measures CUL-1 and CUL-2.

## **3.20 Utilities and Service Systems**

This section describes the environmental and regulatory setting applicable to the Proposed Project study area with respect to utilities and service systems, and includes an analysis of potential impacts to those systems from the Proposed Project. For the purposes of this assessment, utilities and service systems include water supply, wastewater treatment, stormwater drainage, natural gas, electricity, telecommunications, and solid waste disposal.

### **3.20.1 Environmental Setting**

#### **Water Supply**

The Proposed Project study area is located in the upper Pacheco Creek Watershed east of Gilroy in Santa Clara County and within the jurisdiction of the CCRWQCB. The existing Pacheco Reservoir, formed by North Fork Dam, is located on North Fork Pacheco Creek in southeastern Santa Clara County (see Figure 2-1). North Fork Dam was completed in 1939 and retains approximately 5,500 acre-feet of water. North Fork Dam and existing Pacheco Reservoir are owned and operated by the PPWD. Water stored in existing Pacheco Reservoir originates from the North Fork Pacheco Creek watershed. The Proposed Project study area is within the jurisdiction of CCRWQCB.

Valley Water manages an integrated water resources system within Santa Clara County that includes the supply of clean, safe water, flood protection, and stewardship of streams on behalf of the County's 1.8 million residents (Valley Water 2019). Valley Water's water supply system consists of a network of water management facilities, which include ten reservoirs and dams (with a total capacity of 169,000 acre-feet), 17 miles of raw surface water canals, 393 acres of groundwater recharge ponds, 91 miles of controlled in-stream recharge, 142 miles of pipelines, three pumping stations, three drinking water treatment plants, and the Silicon Valley Advanced Water Purification Center. Valley Water also operates and maintains the Pacheco Conduit located immediately south of the Proposed Project study area, which is part of the U.S. Department of the Interior, Bureau of



Reclamation's (Reclamation) Central Valley Project, San Felipe Division. Valley Water does not deliver any potable (treated) water within the Proposed Project study area for utilities and service systems.

Municipal water needs within or in close proximity to the Proposed Project study area include utilities for a number of rural residences, CAL FIRE's Pacheco Fire Station, and a commercial development (Bell Station Farmers Market). These properties are reliant on private, localized potable water sources, primarily using on-site wells and treatment systems. In some cases, these groundwater wells may also serve as a source of irrigation water.

## **Wastewater Treatment**

In addition to several rural residences within the Proposed Project study area, additional residences, CAL FIRE's Pacheco Fire Station, and a commercial development (Bell Station Farmers Market) are in close proximity to the Proposed Project study area adjacent to SR-152. These properties are reliant on private, localized wastewater treatment facilities (e.g., on-site septic systems).

## **Stormwater Drainage**

In conjunction with the construction and improvement of SR-152 over time, Caltrans has developed and continues to maintain a comprehensive stormwater drainage system to protect the highway and ensure safe access and traffic conditions. Stormwater runoff from the paved surface is collected using surface drains and conveyed off-site into local drainages (e.g., Pacheco Creek). In some instances, the unpaved ranch roads within the Proposed Project study area have cross-drains and culverts at existing creek and drainage crossings to minimize impacts of stormwater runoff on ranch roads.

## **Electricity**

The Pacific Gas and Electric Company (PG&E) provides electrical transmission/distribution service to Santa Clara County. PG&E currently maintains an electrical transmission/distribution network that crosses through the Proposed Project study area essentially parallel to SR-152. This network provides electricity to its customers within and adjacent to the Proposed Project study area.

## **Natural Gas**

PG&E provides natural gas for customers in Santa Clara County; however, there is no natural gas service available to the residences or commercial properties within or in close proximity to the Proposed Project study area. Propane is an alternative fuel source that is used for heating, cooking, and in some cases electrical power via generators that are stored in tanks and refilled periodically from vendors via local delivery trucks located to the east (Los Banos) and west (Gilroy) of the Proposed Project study area.



## Telecommunications

The Proposed Project study area is served by multiple telecommunications companies, including AT&T, Xfinity/Comcast, and Verizon. The SR-152 corridor functions as a telecommunications corridor with both aerial and underground line and fiber optic cables and associated infrastructure (e.g., amplifiers, generators). A network of cellular towers continues to be developed to expand cellular coverage along the SR-152 corridor; however, there are areas throughout the Proposed Project study area with little or no cellular phone coverage.

## Solid Waste Disposal

Solid waste within the region is primarily collected and disposed of by contracted private waste handling companies. There is currently no solid waste pick-up service for residents within the Proposed Project study area. In Santa Clara County, no burning of solid waste is permitted. Solid waste generated in the Proposed Project study area is typically transported to commercial Class I, II, and III landfills. Class I sites may accept hazardous and nonhazardous wastes; Class II sites may accept “designated” and nonhazardous wastes; and Class III sites may accept nonhazardous wastes.

Multiple operating landfills and recycling facilities are located near the Proposed Project study area. The three nearest the Proposed Project study area include Billy Wright Landfill (located west of Los Banos), RJR Recycling (located just north of Hollister), and Recology South Valley Organics Composting Facility (Recology), located east of Gilroy.

The Billy Wright Landfill accepts vegetation, metal, asphalt, concrete, wood, and clean soil (Merced County 2024) and is the only facility that has the capacity to accept Class III debris. The RJR Recycling facility accepts metal, wood, glass and plastic that can be recycled or repurposed (RJR Recycling 2024). Recology only accepts waste that may be generated from yard trimmings or food scraps (Recology 2024). The California Integrated Waste Management Board (CalRecycle) maintains facility information and waste stream profiles for all counties and jurisdictions in the state. Table 3.20-1 summarizes the permitted capacities of Billy Wright Landfill, RJR Recycling, and Recology South Valley Organic Composting Facility.

**Table 3.20-1. Solid Waste Facility Permitted Capacities**

Facility	Category	Permitted Daily Tonnage	Maximum Permitted Capacity	Remaining Capacity	Remaining as of Date	Estimated Permitted Closure
Billy Wright Landfill	Disposal	1,500 tons/day	14,800,000 cubic yards	11,370,000 cubic yards	September 30, 2010	December 31, 2054
RJR Recycling	Processing	100 tons/day	35,550 tons/year	N/A	N/A	N/A
Recology South Valley Organic Composting Facility	Composting	3,750 tons/day	620,294 cubic yards	N/A	N/A	N/A

Source: CalRecycle 2024a, 2024b, 2024c

Key: N/A = not applicable due to category of facility



## 3.20.2 Regulatory Framework

### Federal Laws, Regulations, and Policies

No federal regulations related to utilities and service systems apply to the Proposed Project.

### State Laws, Regulations, and Policies

#### *California Integrated Waste Management Act of 1989*

The California Integrated Waste Management Act of 1989 (PRC, Division 30), enacted through AB 939 and modified by subsequent legislation, required all California cities and counties to implement programs to reduce, recycle, and compost at least 50 percent of wastes by the year 2000 (PRC § 41780). A jurisdiction's diversion rate is the percentage of its total waste that it diverts from disposal through reduction, reuse, and recycling programs. The state determines compliance with the mandate to divert 50 percent of generated solid waste through a complex formula. This formula requires cities and counties to conduct empirical studies to establish a "base year" waste generation rate against which future diversion is measured. The diversion rates in subsequent years are then determined by deduction rather than by direct measurement of material recycled and composted. Cities and counties track the amount of material disposed of at landfills, then subtract that amount from the base-year amount, and the difference is assumed to be diverted (PRC § 41780.2). In 2010, the state legislature passed AB 341 which set a statewide recycling goal of 75 percent by 2020, which was anticipated to be achieved through source reduction, recycling, and continued diversion of materials such as organic wastes. As of 2023, AB 341's goal has not been achieved (Petek 2023). Any solid waste and recyclable materials generated from Proposed Project activities would be considered for tracking purposes in the specific county (e.g., Santa Clara County) where Proposed Project waste would be disposed of or recycled.

#### *Utility Notification Requirements*

CCR Title 8, Section 1541 requires excavators (including drillers) to determine the approximate locations of subsurface installations such as sewer, telephone, fuel, electricity, and water lines (or any other subsurface installations that may reasonably be encountered during excavation work) prior to opening an excavation. California law (Government Code § 4216 *et seq.*) requires owners and operators of underground utilities to become members of and participate in a regional notification center, such as USA North. USA North receives reports of planned excavations from public and private excavators and transmits the information to all participating members that may have underground facilities at the location of an excavation. USA North members mark or stake their facilities, provide information, or give clearance to dig. Proposed Project activities within the SR-152 utility corridor would be subject to these notification requirements.



### ***Nonhazardous Solid Waste Disposal Standards***

Title 14, Division 7, Chapter 3, of the CCR provides minimum standards for solid waste handling and disposal in California pertaining to nonhazardous solid waste management. The California Department of Resources Recycling and Recovery administers the programs formerly managed by CalRecycle, including the regulation of nonhazardous solid waste facilities in the state.

### ***Central Coast Regional Water Quality Control Board Basin Plan***

The CCRWQCB's Basin Plan provides guidance for wastewater and stormwater facilities and development that could affect water quality in the basins (CCRWQCB et al. 2019). The Basin Plan may apply to activities during geotechnical investigations that have the potential to impact water quality in the basin.

## **Regional Laws, Regulations, and Policies**

### ***Santa Clara County General Plan***

Given the temporary nature of the Proposed Project (approximately eight working months), there are no General Plan (1994) policies applicable to the Proposed Project.

### ***Santa Clara County Integrated Waste Management Plan***

The 1996 Santa Clara County Integrated Waste Management Plan was approved to reduce waste in Santa Clara County, ensure that new disposal facilities are designed for effective and efficient operation, avoid environmental degradation and unnecessary expenditure, and ensure that the integrated waste management needs of the County are being met (Santa Clara County 1996). State law requires the County to review its Integrated Waste Management Plan every five years.

## **3.20.3 Environmental Impacts and Mitigation Measures**

The following sections discuss the methods and assumptions, criteria for determining the significance of impacts, environmental impacts, and mitigation measures if applicable.

### **Methods and Assumptions**

The analysis assesses how the Proposed Project's landfill disposal requirements align with the capacity of local landfills and Valley Water's ability to meet solid waste diversion targets.

### ***Applicable Conservation Measures***

Conservation Measures applicable to utilities and service systems are listed below. Section 2.4 provides a full description of each BMP and VHP AMM.

- BMP WQ-15: Prevent Water Pollution
- BMP WQ-16: Prevent Stormwater Pollution



- BMP WQ-17: Manage Sanitary and Septic Waste
- VHP AMM-90: All trash will be removed from the site daily
- VHP AMM-97: Erosion control measures shall be in place at all times during construction

These measures will be incorporated into the geotechnical investigation work plans, and all geotechnical contractors employed on the Proposed Project will be required to adhere to them. As such, they are considered part of the Proposed Project for purposes of analysis in this EIR.

## Criteria for Determining Significance of Impacts

Significance criteria are based on CEQA Guidelines Appendix G. Implementation of the Proposed Project would have significant impacts on utilities and service systems if it were to:

- Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electrical power, natural gas,<sup>88</sup> or telecommunications facilities, the construction or relocation of which could cause significant environmental effects;
- Have insufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years;
- Result in a determination by the wastewater treatment provider that serves or may serve the project that it has inadequate capacity to serve the project's projected demand in addition to the provider's existing commitments;
- Generate solid waste in excess of state or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals; or
- Be out of compliance with federal, state, and local management and reduction statutes and regulations related to solid waste.

## Environmental Impacts

### ***Impact USS-1***

***Would the project require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?***

### ***Water and Wastewater Treatment***

The Proposed Project would rely on off-site water during geotechnical investigations for the purposes of dust control on roadways and staging areas, for drilling, dust control related to test

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<sup>88</sup> No natural gas pipelines service the Proposed Project study area.





pit excavations and/or backfill efforts, and in-situ jet testing. The Proposed Project would not require the relocation or construction of new or expanded water or wastewater treatment facilities. A water truck would be used to transport water to the Proposed Project study area and temporary portable sanitation stations (i.e., toilet wash station) would be provided and maintained for workers at appropriate locations throughout the Proposed Project study area for the duration of the Proposed Project consistent with BMP WQ-17. Geotechnical investigations are expected to require approximately eight working months to complete. Thus, there would be **no impact**. No mitigation is required.

### ***Storm Water Drainage***

With respect to stormwater flows originating from the Proposed Project study area during geotechnical investigations, the designated contractor would be responsible for implementing all BMPs and VHP AMMs (e.g., BMP WQ-16, VHP AMM-84) within the Proposed Project study area. The Proposed Project would not overburden existing stormwater drainage facilities such that they would require or result in the relocation or construction of new or expanded stormwater drainage facilities; therefore, there would be **no impact**. No mitigation is required.

### ***Electric Power, Natural Gas, and Telecommunications Facilities***

In the event there is need for temporary power, portable, petroleum powered generators would be used to generate electricity for tools, light plants or maintenance activities. The Proposed Project would not require natural gas. The telecommunications needs of the Proposed Project (investigation-coordination cellular phone calls and GPS data) would be adequately served by the multiple telecommunications companies providing cellular service in the Proposed Project study area. The Proposed Project would not require or result in the relocation or construction of new or expanded electrical power, natural gas, or telecommunications facilities, therefore there would be **no impact**. No mitigation is required.

### ***Impact USS-2***

***Would the project have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?***

Implementation of the Proposed Project would not require permanent or long-term water supply. Short-term water use over a period of about eight months during the implementation of the Proposed Project would require non potable water only. The Proposed Project would rely on off-site water during geotechnical investigations for the purposes of dust control on roadways and staging areas, for drilling, and in-situ jet testing. Water use would be temporary and would be provided by Valley Water through the Pacheco Conduit via a fire hydrant located at Casa de Fruta (shown in Figure 3.16-1). Sufficient supplies would be available to serve the Proposed Project. Because the Proposed Project only entails temporary geotechnical investigation activities, there is no reasonably foreseeable future development occurring as a result of the Proposed Project during normal, dry and multiple dry years. Further, the Proposed Project would not compel



adoption or implementation of the separately proposed PREP or any other Valley Water infrastructure. Therefore, the Proposed Project would have **no impact**. No mitigation is required.

***Impact USS-3***

***Would the project result in determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?***

The Proposed Project does not include uses (e.g., residential, commercial, etc.) that would result in wastewater discharge requiring treatment. The Proposed Project study area is not served by any existing wastewater treatment facility such as the San Jose/Santa Clara Regional Wastewater Facility. Temporary portable toilets would be provided for personnel at the Proposed Project study area consistent with BMP WQ-17. Therefore, the Proposed Project would not result in a determination by any wastewater treatment provider that it has inadequate capacity to serve the Proposed Project's projected demand in addition to the provider's existing commitments. As a result, the Proposed Project would have **no impact** on wastewater treatment facilities. No mitigation is required.

***Impact USS-4***

***Would the project generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?***

Implementation of the Proposed Project would generate solid waste associated with geotechnical investigations. At the completion of drilling operations, a small amount of remaining drill fluids (drill water and soil/rock cuttings) would be pumped into temporary storage (such as a storage tank or 55-gallon drums) and disposed of at an approved off-site commercial Class III landfill that accepts non-hazardous waste consistent with California thresholds for hazardous waste classification. The Proposed Project is estimated to generate approximately 2,500 gallons of drilling fluids that would be disposed of off-site at an approved facility. Several cubic yards of solid waste (e.g., plastic buckets, metal bands, wooden pallets, food/beverage packaging, food waste) would be generated in conjunction with drilling activities. As required under VHP AMM-90, all solid waste would be collected in containers designed to restrict animal access and removed from the Proposed Project study area on a daily basis and disposed of off-site. This is not expected to produce an amount of solid waste that would significantly impact the remaining landfill capacity at the Billy Wright Landfill, RJR Recycling, or Recology South Valley Organic Composting Facility. These facilities would have adequate capacity to accommodate the disposal of waste generated from the Proposed Project. Impacts related to generating solid waste would not be in excess of State or local standards, or in excess of the capacity of the local infrastructure, or otherwise impair the attainment of solid waste reduction goals. Therefore, the Proposed Project would be consistent with state and local standards and would not impair the attainment of solid waste reduction goals. There would be **no impact** from the Proposed Project. No mitigation is required.



**Impact USS-5**

***Would the project comply with federal, state, and local management and reduction statutes and regulations related to solid waste?***

The Proposed Project would comply with all applicable state and local statutes listed in Section 3.20.2 and regulations related to solid waste, including recycling programs (no federal statutes related to solid waste would apply). There would be **no impact** from the Proposed Project. No mitigation is required.

**Mitigation Measures**

No mitigation measures are required.

## **3.21 Wildfire**

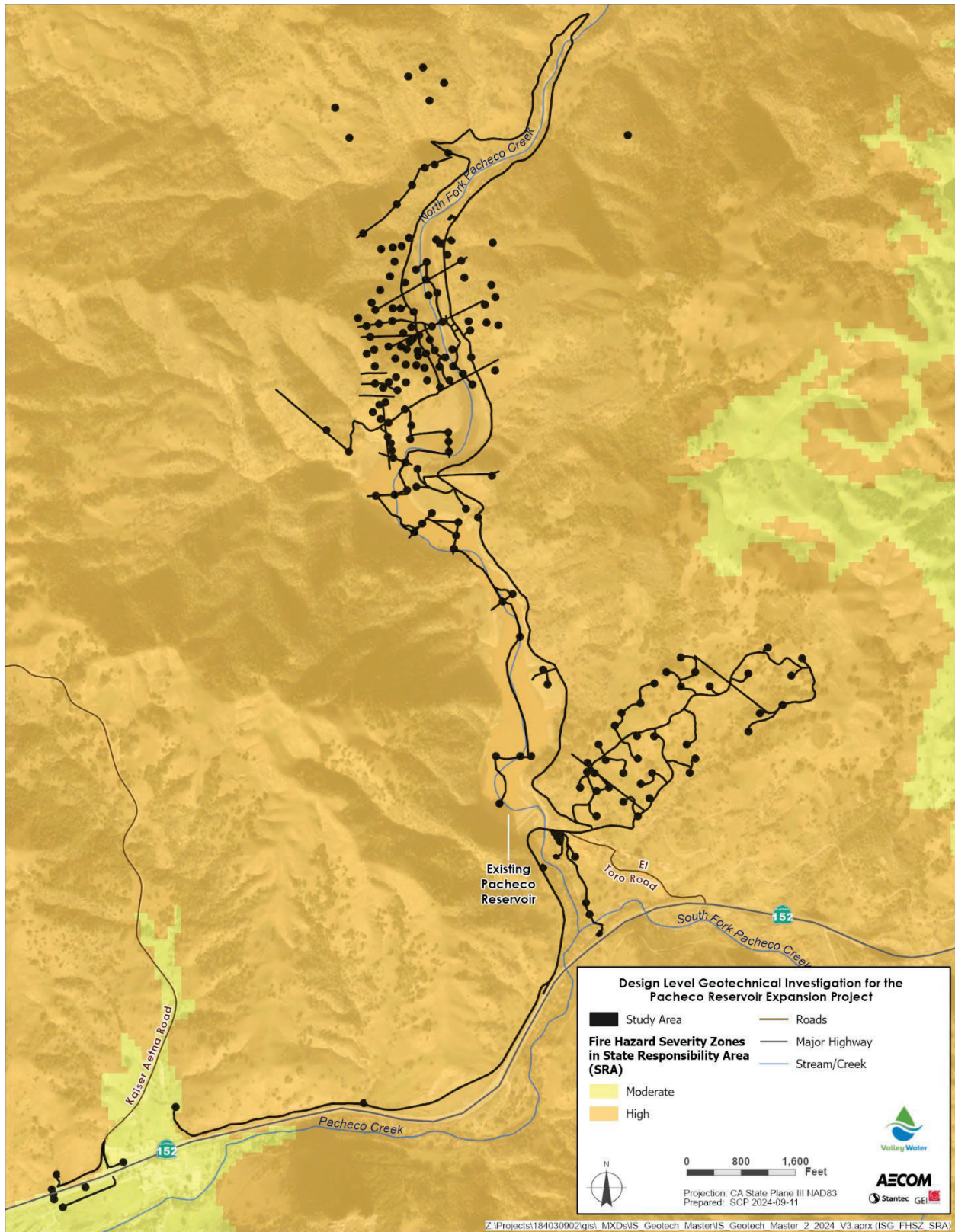
This section describes the environmental and regulatory setting for wildfire and analyzes the environmental impacts of the Proposed Project related to wildfire. For the purposes of this assessment, the Proposed Project Study area for wildfire includes areas where CAL FIRE is responsible for fire suppression, called State Responsibility Areas (SRA).

### **3.21.1 Environmental Setting**

The Proposed Project study area is located in unincorporated southeastern Santa Clara County. This section includes identification of very high fire hazard severity zones, fire history, and fire threat areas. Figure 3.21-1 presents the Proposed Project study area for wildfire impact analysis purposes, which includes the entirety of the existing Pacheco Reservoir and adjacent areas affected by the proposed geotechnical investigation activities. The Proposed Project study area also includes areas downstream of the existing North Fork Dam, including the SR-152 corridor and the unnamed ranch road that would be used to access most of the Proposed Project study area north of SR-152.







**Figure 3.21-1. Fire Hazard Severity Zones in State Responsibility Area Lands**



**Table 3.21-1. Fire Hazard Severity Zone Acres Within the Proposed Project Study Area**

Fire Hazard Severity Zone Classification	Acres
Moderate	1.7
High	53.7
Very High	0
Unmapped (not within State Responsibility Area)	0

Source: CALFIRE 2024b

## Fire Hazard Severity Zones

CAL FIRE maps Fire Hazard Severity Zones (FHSZ) based on factors such as fuel, slope, and fire weather. The zones are classified as having moderate, high, and very high fire severity. Figure 3.21-1 illustrates that all of the Proposed Project study area is within CAL FIRE’s SRA jurisdiction<sup>89</sup> (CAL FIRE 2024a). The majority of the Proposed Project study area for wildfire includes areas classified by CAL FIRE as very high; however, four borings within the SR-152 corridor are in a moderate FHSZ (CAL FIRE 2024b). The current SRA maps updated April 1, 2024, were originally adopted in 2007, and the data is hosted by the Office of the State Fire Marshal. Figure 3.21-1 reflects the most updated SRA map.

FHSZ do not predict where wildfires occur, but they do indicate where the effects of a wildfire could be greater and have more impact to values at risk such as residences or watersheds. The goal of FHSZ mapping is to reduce the loss associated with wildfire by incorporating the risk of wildfire into planning, fire prevention, and fire mitigation measures.

## Fire History

CAL FIRE’s Fire and Resource Assessment Program (FRAP) compiles fire perimeters and has established an on-going fire perimeter data capture process within California. CAL FIRE, the United States Forest Service Region 5, the Bureau of Land Management, and the National Park Service jointly develop the fire perimeter GIS layer for public and private lands throughout California at the end of the calendar year. Upon release, the data is current as of December 2023 (CAL FIRE 2023a).

The Pacheco Creek watershed has a history of moderate-sized fires that have started along SR-152. In 2009 the 1,700-acre Pacheco Fire burned west of Kaiser-Aetna Road. In 2015 the 200-acre Pacheco Fire burned just west of Pacheco Pass. Larger fires have occurred north of the Proposed Project study area in and adjacent to the North Fork Pacheco Creek watershed. The 2007 Lick Fire burned approximately 18,000 acres primarily in Henry W. Coe State Park, and the 2003 Anne Fire burned over 18,000 acres in Stanislaus County, burning to the ridge that divides Stanislaus County from Santa Clara County. The most recent and largest fire was the 2020 SCU Lightning Complex, which started as multiple lightning-caused fires in August that burned together over the span of

<sup>89</sup> More information is available on the Office of the State Fire Marshal web site (CAL FIRE 2024b).



396,000 acres. The combined fires ranged from the upper part of the Proposed Project study area north into Alameda County along the Diablo Range. Figure 3.21-2 shows the perimeters of these and other historic larger fires in relationship to the Proposed Project study area.

## Fire Threat (CAL FIRE)

As classified by the CAL FIRE's FRAP, Fire Threat is a combination of two factors: 1) fire frequency, or the likelihood of a given area burning, and 2) potential fire behavior (hazard). These two factors are combined to create four threat classes ranging from low to extreme. Fire Threat represents the relative likelihood of a damaging or difficult to control wildfire occurring in a given area. Figure 3.21-3 illustrates fire threat areas ranging from low to very high, as well as unmapped areas (e.g., SR-152). These data indicate that fires that may start within the Proposed Project study area would be difficult to control and have the potential for impacts on various assets and values susceptible to fire. The variation in topographic relief is illustrated using various shades of gray, with darker shading representative of steeper slopes. Acres of fire threat areas within the Proposed Project study area summarized in Table 3.21-2.

**Table 3.21-2. Fire Threat Classification Within the Proposed Project Study Area**

Fire Threat Classification	Acres
Low	0.1
Moderate	0.4
High	9.9
Very High	32.3
Unmapped (not within State Responsibility Area)	12.7

Source: CALFIRE 2019

## Fire Threat Areas (California Public Utilities Commission)

The California Public Utilities Commission (CPUC) adopted fire-safety regulations (Decision 17-01-009, Decision 17-12-024) that map areas in California as "high fire-threat areas" where there is an elevated risk for power line fires igniting and spreading rapidly. Lands are classified into three areas based on two mapping schemes. The first area identified is Zone 1, which consists of Tier 1 High Hazard Zones on the map of Tree Mortality prepared jointly by the United States Forest Service and CAL FIRE. High Hazard Zones are zones in direct proximity to communities, roads, and utility lines, and are a direct threat to public safety. There are no Zone 1 lands mapped in the Proposed Project study area.

Tier 2 consists of areas on the CPUC Fire-Threat Map where there is an elevated risk (including likelihood and potential impacts on people and property) from utility associated wildfires. Tier 3 consists of areas on the CPUC Fire-Threat Map where there is an extreme risk (including likelihood and potential impacts on people and property) from utility associated wildfires. Both Tiers 2 and 3 are mapped based on site characteristics and not based on the presence of utility infrastructure. The Proposed Project study area is located entirely within the Tier 2 elevated fire-threat area.





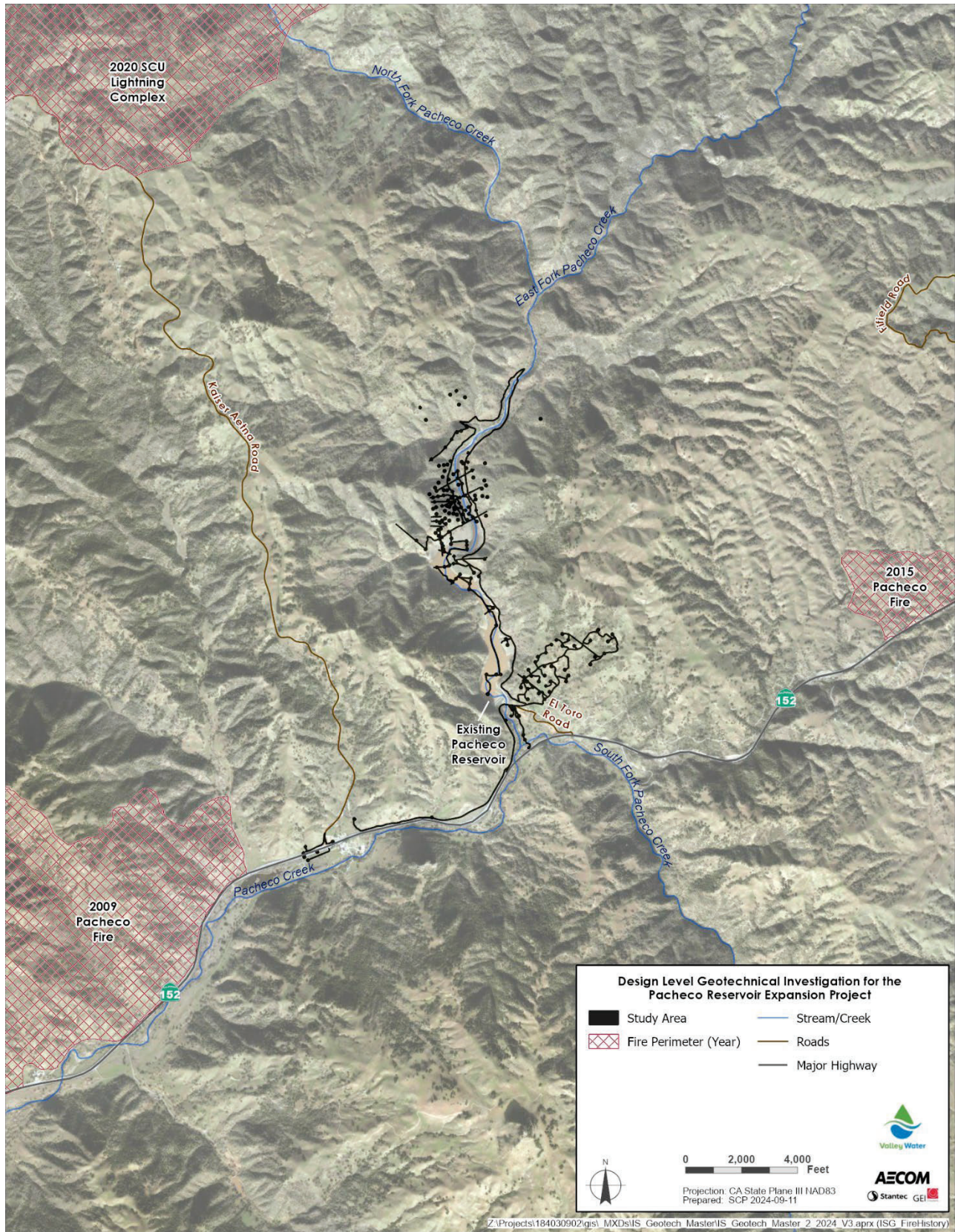


Figure 3.21-2. Fire History in the Project Vicinity





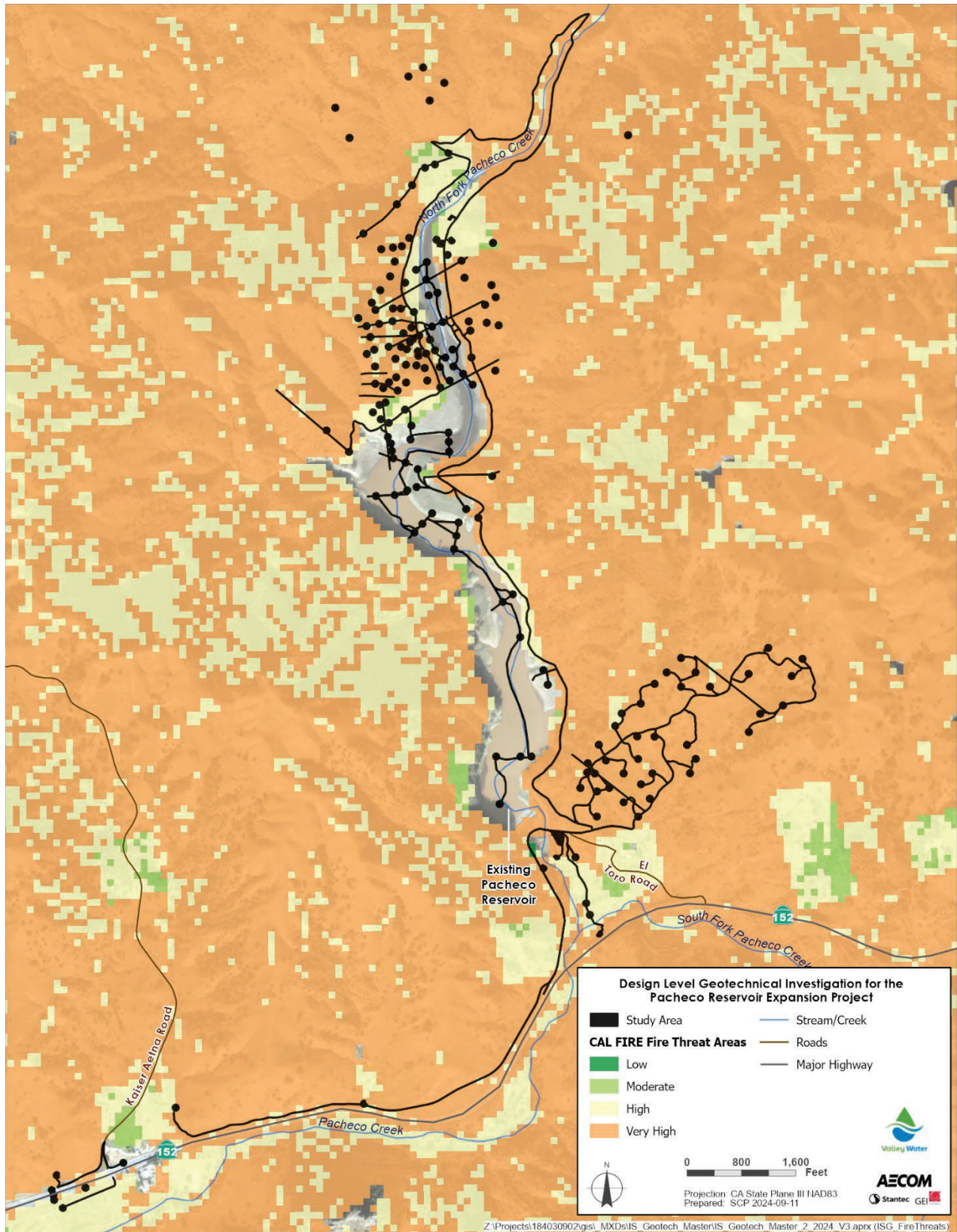


Figure 3.21-3. Fire Threat as Mapped by CAL FIRE



## **Fire Suppression Access/Evacuation Routes**

Access and evacuation routes typically overlap, with fire crews traveling toward an advancing fire as residents and visitors to an area travel away from the fire. Existing access roads and potential evacuation routes within the Proposed Project study area are shown in Figure 3.21-4

### ***SR-152***

This major route is the primary route for emergency vehicles responding to fires in the Pacheco Creek watershed. It would also serve as the collector route for evacuations from the southern entrance of Henry W. Coe State Park and ranchlands both north and south of SR-152.

### ***Kaiser-Aetna Road***

Intersecting SR-152, this road is a seasonal<sup>90</sup> unpaved access road into the Bell Station entrance for Henry W. Coe State Park. Emergency vehicles could use this road to access the western portion of the North Fork Pacheco Creek watershed, while visitors and local property owners could use the road to evacuate the watershed, depending on the specific wildfire behavior. It also provides an access and evacuation route for ranchlands throughout the North Fork Pacheco Creek watershed.

### ***North Fork Pacheco Creek Road***

This road begins at the intersection of El Toro Road and the unnamed Ranch road near North Fork Dam and follows North Fork Pacheco Creek through the Proposed Project study area for approximately 6 miles. The road provides access to the upper reaches of the North Fork Pacheco Creek watershed and associated ranchlands, to an existing ranch compound that includes a residence and outbuildings, and is suitable for fire engines, other firefighting equipment, and livestock trucks.

### ***Property Owner Access Roads***

Several existing unpaved, ungraded roads and trails traverse the canyon and ridges providing access to ranchlands throughout the North Fork Pacheco Creek watershed. These unimproved roads are suitable for high clearance fire trucks and off-highway vehicles.

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<sup>90</sup> Open to the public on weekends during the summer recreation season.





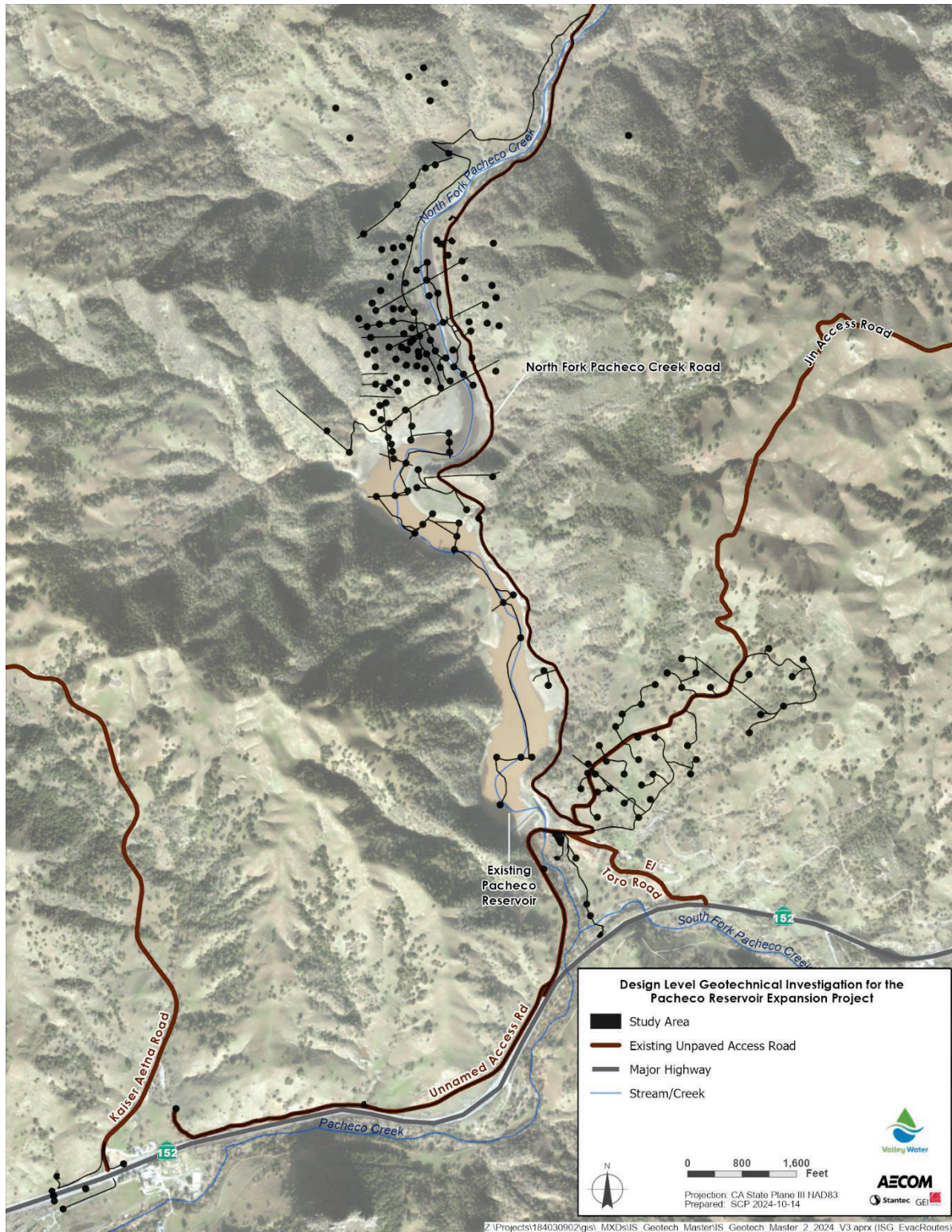


Figure 3.21-4. Access Roads Within the Vicinity of the Proposed Project Study Area



## **3.21.2 Regulatory Framework**

### **Federal Laws, Regulations, and Policies**

There are no federal laws, regulations, or policies pertaining to wildfire that regulate the Proposed Project.

### **State Laws, Regulation, and Policies**

#### ***California Department of Forestry and Fire Protection***

CAL FIRE provides fire protection and stewardship of over 31 million acres of California's privately-owned wildlands. Section 3.16, Public Services, provides additional information regarding CAL FIRE's role as it relates to the Proposed Project. CAL FIRE provides varied emergency services in 36 of the state's 58 counties via contracts with local governments. The Proposed Project study area is located within lands subject to an SRA designation. These are lands where the State of California bears financial responsibility for the prevention and suppression of wildfires. The entirety of the Proposed Project study area is located within the CAL FIRE SCU. The SCU serves Contra Costa, Alameda, and Santa Clara Counties, and portions of San Joaquin and Stanislaus Counties. The closest station is the CAL FIRE Pacheco Fire Station located just north of the westbound lanes of SR-152 approximately four miles southwest of the Kaiser-Aetna Road intersection. This station has wildland fire engines, fire crews and emergency medical technicians trained to provide advanced life support services. Both CAL FIRE and CHP also have aircraft available to respond to emergency situations (e.g., medical, evacuation, fire suppression) from the Hollister Airport about 20 miles southwest of the Proposed Project study area.

#### ***California Fire Code***

The California Fire Code (CFC) Title 24 Part 9 contains regulations consistent with nationally recognized and accepted practices for safeguarding life and property from the hazards of fire and explosion, dangerous conditions arising from the storage, handling, and use of hazardous materials and devices, and hazardous conditions in the use or occupancy of buildings or premises. The CFC also contains provisions to assist emergency response personnel. These fire-safety related building standards are referenced in other parts of Title 24 of the CFC.

#### ***Statutes Related to Wildfires***

The California PRC—Division 4 - Forests, Forestry and Range, and Forage Lands, Part 2 - Protection of Forest, Range, and Forage Lands—contains requirements that cover prevention and control of forest fires (Chapter 1), establishment of fire hazard severity zones (Chapter 1 Article 9), and defensible space around structures and powerlines (Chapter 3). The PRC notes that local jurisdictions can adopt more stringent codes based on local conditions.





### ***CAL FIRE Strategic Fire Plan***

The 2024 Strategic Plan (CAL FIRE 2024c) identifies CAL FIRE's mission, vision, and values that are reflected in the four goals that CAL FIRE labors to accomplish. One of the core capabilities includes prevention and regulatory oversight, including direction for fire prevention and enforcement of the PRC within the SRA. This capability is accomplished using fire resource assessments, a variety of available data, mapping, and other tools. Pre-fire management activities, including prescribed burning, fuel breaks, rangeland health treatments, and the removal of hazardous vegetation are conducted at the unit level under the guidance of CAL FIRE program managers.

### ***CAL FIRE Santa Clara Unit Plan***

The Proposed Project study area is located within the CAL FIRE SCU. The SCU prepares an annual Strategic Fire Management Plan for the upcoming fire season. The plan documents an assessment of the fire situation in the SCU, includes stakeholder contributions and priorities, and identifies strategic targets for pre-fire solutions as defined by the people who live and work with the local fire problem area.

One of the priority areas identified in the 2023 SCU Strategic Fire Management Plan (CAL FIRE 2023b) is the Santa Clara County Line Road Fuel Break and fire road maintenance, which includes Fifield Road; which runs along the eastern edge of the North Fork Pacheco Creek watershed. As described in the SCU Plan, the road runs from the San Antonio Valley at Highway 130 to SR-152 just east of CAL FIRE's Pacheco Fire Station and serves as a critical access route to fires in the North Fork Pacheco Creek and Orestimba Creek watersheds, as well as Henry W. Coe State Park.

### ***Worker Safety Requirements***

Respiratory Protection from Wildfire Smoke CCR Title 8, Section 5141.1 is designed to safeguard workers from the harmful effects of smoke exposure during wildfires. It requires employers to assess air quality and implement protective measures, including providing N95 respirators or higher-level protection when smoke levels pose a health risk. Employers must also ensure proper training for employees on the use and maintenance of respiratory protection equipment. By establishing these guidelines, the regulation seeks to minimize respiratory hazards and promote the safety and well-being of workers exposed to wildfire smoke.

## **Regional and Local Laws, Regulations, and Policies**

### ***Santa Clara Emergency Operations Plan***

The Santa Clara OES updated its EOP in 2022 (Santa Clara OES 2022). The EOP provides a comprehensive, single source of guidance and procedure for the County to prepare for, respond to, and manage significant or catastrophic natural or man-made threats, crises, incidents, or events that produce situations requiring a coordinated response.





### ***2023 Santa Clara County Community Wildfire Protection Plan***

The purpose of the 2023 Santa Clara County Community Wildfire Protection Plan (CWPP) (Santa Clara County Fire Safe Council 2023) update is to:

- Provide a countywide scale of wildfire risk and protection needs,
- Bring together all responsible wildfire management and suppression entities in the planning area to address the identified needs, and
- Provide a framework for future planning and implementation of necessary mitigation measures.

This CWPP aims to assist in protecting human life and reducing property loss due to wildfire throughout the county. This 2023 plan was compiled from reports, documents, data, and Planning Team and public input. The plan was developed in response to the Healthy Forest Restoration Amendments Act of 2009.

### ***Santa Clara County Fire Department/Fire Marshal***

The Fire Chief serves as the County Fire Marshal and also provides management oversight for Santa Clara County's Office of Emergency Management and 9-1-1 Communications Center. The County Fire Marshal's Office is responsible for fire prevention activities in most unincorporated areas of Santa Clara County. The department also provides emergency response to over 226,000 residents in the communities of Campbell, Cupertino, Los Altos, Los Altos Hills, Los Gatos, Monte Sereno, Redwood Estates, Saratoga, and adjacent unincorporated areas including the SR-152 corridor and the North Fork Pacheco Creek watershed.

### ***Santa Clara County Fire Marshal Standards and Specifications***

Section A33-47 of the Santa Clara County Code and Section 101 of the CFC give the County Fire Marshal the authority to make and enforce such rules and regulations for the prevention and control of fire and fire hazards as may be necessary to carry out the intent of the Code. Copies of Santa Clara County Fire Marshal Standards and the County Fire Code Amendments can be found on the Santa Clara County Department of Planning and Development website (Santa Clara County 2024).

## **3.21.3 Environmental Impacts and Mitigation Measures**

The following sections discuss the methods and assumptions, criteria for determining the significance of impacts, environmental impacts, and mitigation measures.



## Methods and Assumptions

The analysis of impacts related to wildfire, resulting from implementation of the Proposed Project is based on review of available data and information, results of the desktop evaluations performed using geographic information systems, and personal communications with CAL FIRE personnel.

### *Applicable Conservation Measures*

The Conservation Measures applicable to wildfire are listed below. Section 2.4 provides a full description of each BMP.

- BMP HM-12: Incorporate Fire Prevention Measures
- BMP TR-1: Incorporate Public Safety Measures

These measures would be incorporated into the geotechnical investigation work plans, and all geotechnical contractors employed on the Proposed Project would be required to adhere to them. As such, they are considered part of the Proposed Project for purposes of analysis in this EIR.

## Criteria for Determining Significance of Impacts

Based on guidance from CEQA Guidelines Appendix G, and the fact that the Proposed Project is located in a CAL FIRE SRA and on lands classified as very high FHSZ, implementation of the Proposed Project would have significant impacts on wildfires if the Proposed Project were to:

- Substantially impair an adopted emergency response or emergency evacuation plan;
- Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire;
- Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment; or
- Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes.

## Environmental Impacts

### *Impact WF-1*

***Would the project substantially impair an adopted emergency response plan or emergency evacuation plan?***

As described in Chapter 2, the designated contractor will implement BMP HM-12 to prevent wildfires during the proposed geotechnical investigations and BMP TR-1 to give adequate warning to the public of any dangerous conditions (such as wildfire) that may be encountered as



a result of the Proposed Project. The fences, barriers, lights, flagging, guards, and signs would be installed as determined appropriate by the public agency having jurisdiction, who would follow their own adopted emergency response plan or emergency evacuation plan. However, no adopted emergency response plan or emergency evacuation plan currently apply to the Proposed Project. Thus, the Proposed Project would not impair any adopted emergency response plan (2022 EOP) or emergency evacuation plan and there would be **no impact**.

As discussed in Section 3.18.3, temporary lane closures and other traffic control measures have the potential for temporary, short-term delays in traffic near the SR-152-Kaiser Aetna Road intersection, including access in response to emergency conditions (e.g., wildfire evacuations. On private lands within the Proposed Project study area, Valley Water will implement PAMM WF-1 requiring that vehicles and equipment are located such that they do not block private roads during the duration of the Proposed Project to allow for emergency vehicle access and provide open evacuation routes. The potentially substantial delay in response to emergency situations would be significant.

Mitigation Measure TR-1 (Prepare Traffic Control Plan) would require a Traffic Control Plan to be prepared according to Caltrans standard plans to ensure that all temporary safety hazards along SR-152 are avoided thereby enabling unimpeded access to the SR-152-Kaiser Aetna Road intersection by emergency vehicles at all times. Therefore, impacts of the Proposed Project would be **less than significant with mitigation incorporated**.

#### ***Impact WF-2***

***Would the project, due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?***

The Proposed Project does not propose any new development or new permanent occupation of the Proposed Project study area, and would not exacerbate wildfire risks, exposing project occupants (including residents and Project personnel) to pollutant concentrations from a wildfire or uncontrolled spread of wildfire. BMP HM-12 would require Valley Water and its designated contractor to incorporate fire prevention measures, which would further reduce wildfire risks. These measures would include equipping all earthmoving and portable equipment with internal combustion engines with spark arrestors and ensuring work crews have appropriate fire suppression equipment available at the Proposed Project activity areas. In addition, smoking would be prohibited except in areas designated by Valley Water (e.g., staging areas) and at least 20 feet from any combustible chemicals or vegetation. Therefore, **a less than significant impact** would occur from Proposed Project implementation. No mitigation is required.

#### ***Impact WF-3***

***Would the project require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that***



***may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?***

The Proposed Project does not propose the construction of new roads, fuel breaks, emergency water sources, powerlines, or other utilities. Although not roads, the Proposed Project would require the temporary use of overland access routes for vehicles and equipment. Use of these temporary access routes would occur during the Proposed Project implementation period lasting eight working months. However, each temporary access route would be used for a period of several days to several weeks as investigation activities proceed from one activity area to the next one. Limited tree removal and trimming would be required at 12 boring activity areas to allow for vehicle and equipment access. Tree removal and trimming for temporary access routes would require the use of small, hand-held mechanical equipment (e.g., chainsaw) that could result in sparks while in use. Fires suppression equipment, including portable water pumps, shovels and Pulaski would be available whenever investigation activities are occurring and carried on each vehicle or piece of equipment operating within the Proposed Project study area.

As described in Chapter 2, Valley Water and its designated contractor would implement BMP HM-12 to reduce fire risk. Therefore, impacts from Proposed Project implementation would be **less than significant**. No mitigation is required.

***Impact WF-4***

***Would the project expose people or structures to significant risks, including downslope, or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?***

The Proposed Project does not propose any new development or new permanent occupation of the Proposed Project study area because the proposed geotechnical investigations are temporary in nature. Legal access to the Proposed Project study area is limited to nearby occupants and visitors to private lands and personnel necessary to implement the Proposed Project. As discussed in Chapter 2, the Proposed Project would require approximately five to 20 personnel to work within the Proposed Project study area at any one time.

Significant post-wildfire risks such as downslope or downstream flooding or landslides often occur after a wildfire event occurs and burns away vegetation that stabilizes slopes, drainages, and the earth (USGS n.d.). The Santa Clara County Sheriff has the authority and responsibility to issue evacuation warnings or orders to people (including nearby residents) based on weather forecasts after the event of a wildfire. If such a situation arises during Proposed Project activities, all project personnel would comply with local evacuation orders related to potential flooding in the event that a wildfire occurs at some point prior to, or during implementation of the Proposed Project and post-fire effects are predicted. Nearby residents, project personnel and other people that may be in or in close proximity to the Proposed Project study area, would all receive evacuation warnings or orders via existing plans and processes used by the Santa Clara County Sheriff's Office for emergency purposes. No nearby residents or structures would be subject to significant risks



as a result of the Proposed Project. This impact would be **less than significant**. No mitigation is required.

## Mitigation Measures

**MM TR-1: Traffic Control Plan.** Valley Water will prepare and implement a Traffic Control Plan to minimize traffic delays and safety hazards that may result from lane restrictions or closures in the work zone within and adjacent to the SR-152 Caltrans ROW. The Traffic Control Plan will comply with Caltrans' standard lane restriction/closure and notification requirements and will be submitted to Caltrans for review and approval prior to commencement of investigations that require shoulder or lane closure within Caltrans' ROW. This mitigation measure is fully described in Section 3.18.3.5.





## Chapter 4. Alternatives

### 4.1 Introduction/California Environmental Quality Act Requirements for Alternatives Analysis

This chapter presents the CEQA alternatives analysis for the Proposed Project. CEQA Guidelines, Section 15126.6(a), states that an EIR must describe and evaluate a reasonable range of alternatives to the Proposed Project, or to the location of the Proposed Project, that would feasibly attain most of the Project's basic objectives and would avoid or substantially lessen any of the identified significant environmental effects of the Proposed Project. As further described in Section 4.4.1, due to the nature of the Proposed Project (i.e., data collection to meet specific DSOD requirements), a feasible alternative would need to satisfy all of the project objectives. Specifically, CEQA Guidelines Section 15126.6 sets forth the following criteria for selecting and evaluating alternatives:

- **Identifying Alternatives.** The selection of alternatives is limited to those that would avoid or substantially lessen the significant environmental effects of the project, are feasible, and would attain most of the basic objectives of the project, without cost considerations. Factors that may be considered when addressing the feasibility of an alternative include site suitability, availability of infrastructure, general plan consistency, other plans or regulatory limitations, jurisdictional boundaries, economic viability, and whether the proponent can reasonably acquire, control, or otherwise have access to an alternative site. An EIR need not consider an alternative whose impacts cannot be reasonably ascertained and whose implementation is remote and speculative. The specific alternative of "no project" must also be evaluated.
- **Range of Alternatives.** An EIR need not consider every conceivable alternative but must consider and discuss a reasonable range of feasible alternatives in a manner that will foster informed decision-making and public participation. The "rule of reason" governs the selection and consideration of EIR alternatives, requiring that an EIR set forth only those alternatives necessary to permit a reasoned choice. The lead agency (the Santa Clara Valley Water District [Valley Water]) is responsible for selecting a range of project alternatives to be examined and for disclosing its rationale for choosing the alternatives.
- **Evaluation of Alternatives.** EIRs are required to include sufficient information about each alternative to allow meaningful evaluation, analysis, and comparison with the proposed project. Matrices may be used to display the major characteristics and the environmental effects of each alternative. If an alternative would cause one or more significant effects that would not result from the project as proposed, the significant effects of the alternative must be discussed, but in less detail than the significant effects of the project.



Section 4.2 describes the objectives of the Proposed Project and summarizes the significant impacts of the Proposed Project, as analyzed in Chapter 3. Section 4.3 describes the alternatives selection criteria. Section 4.4 discusses the preliminary alternatives that were considered but eliminated from further consideration. Sections 4.5 and 4.6 describe each alternative brought forward for review, provides a comparison of the alternatives to the Proposed Project, and identifies the environmentally superior alternative.

## **4.2 Summary of Proposed Project**

### **4.2.1 Project Objectives**

As discussed in Chapter 2, the specific objectives of the Proposed Project are to:

- Provide a more complete understanding of the depth to, and properties of, the underlying bedrock within and close to the footprint of the proposed PREP upstream dam location, including exploration for possible bedrock faults within the dam foundation.
- Provide additional data within potential borrow sites necessary to quantify the volume and material characterization (via sample collection for laboratory testing) of materials adequate for use in construction of an earthfill dam.
- Provide additional data on the thickness, gradation and other properties of alluvial materials currently deposited in the existing Pacheco Reservoir upstream of North Fork Dam in support of sediment management during construction and ongoing design of the North Fork Pacheco Creek channel restoration reach.
- Identify the location and depths of existing landslide deposits at the proposed upstream dam site, spillway location and at selected locations within the inundation area of the proposed reservoir.
- Evaluate geotechnical conditions along the alignment of the proposed conveyance pipeline and pump station that would connect the expanded reservoir with the existing Pacheco Conduit.
- Investigate foundation conditions for an improved site access road and a new bridge planned to be constructed several hundred feet south of the existing North Fork Dam.
- Investigate foundation and embankment conditions associated with a temporary overpass over SR-152 near the existing Kaiser-Aetna Road intersection.
- Provide additional data on the quantity, location, and character (e.g., gradation and chemical constituents) of alluvial sediments stored behind North Fork Dam necessary to refine the design of the North Fork Pacheco Creek restoration reach included in the description of PREP in the 2021 Draft Environmental Impact Report.



- Provide additional data on the character of alluvial sediments stored in Pacheco Reservoir that would inform the development and use of modeling tools (e.g., sediment transport model, water quality model) necessary to refine channel restoration design, analyze PREP-related impacts, and support development of PREP-specific mitigation and monitoring elements.

### **4.2.2 Project Significant Impacts**

This section summarizes environmental impacts of the Proposed Project, as analyzed in Chapter 3, Environmental Setting, Impacts, and Mitigation Measures, and Chapter 5, Cumulative Impacts, of this EIR, and that were considered during the alternatives' identification process.

#### **Significant and Unavoidable Impacts**

No significant and unavoidable impacts from implementation of the Proposed Project have been identified within this Draft EIR.

All impacts identified were mitigated to a less than significant level with the implementation of mitigation measures identified in Chapter 3, Environmental Setting, Impacts, and Mitigation Measures.

#### **Cumulative Impacts**

Implementation of the Proposed Project, in combination with other projects that may cause related impacts, would not result in any significant cumulative impacts. Chapter 5 discusses cumulative impacts in greater detail.

## **4.3 Alternatives Selection Criteria**

CEQA Guidelines Section 15126.6 requires that an EIR describe a range of reasonable range of alternatives to the proposed project that could feasibly attain most of the basic project objectives and would avoid or substantially lessen one or more significant effects of the proposed project. The CEQA Guidelines further state that an EIR need not consider every conceivable alternative to the project. The range of alternatives should be selected in such a way as to foster meaningful dialogue, informed decision making, and public participation. In addition, a "no project" alternative must be considered.

An EIR is not required to consider alternatives that are infeasible. The feasibility of an alternative may be determined based on a variety of factors, such as site suitability, economic viability, general plan consistency, and whether the project sponsor can reasonably acquire, control, or obtain access to an alternative site (or the sponsor already owns the alternative site) (CEQA Guidelines, Section 15126.6[f][1]).



The alternatives selection process for the Project was guided, in part, by the magnitude and severity of the impacts identified above. Therefore, this analysis focuses on alternatives that could be implemented (i.e., are feasible), meet most of the Project basic objectives, and substantially lessen or avoid the significant impacts from geotechnical investigation activities.

## **4.4 Alternatives Considered but Eliminated from Further Analysis**

Section 15126.6, subdivision (c) of the CEQA Guidelines states that the EIR should identify any alternatives that were considered by the lead agency but were eliminated as infeasible and briefly explain the reasons underlying the lead agency's determination to eliminate alternatives from further analysis. Among the factors that may be used to eliminate alternatives from detailed consideration in an EIR are: (i) failure to meet most of the basic project objectives, (ii) infeasibility, or (iii) inability to avoid significant environmental impacts.

Four alternatives were considered but eliminated from further consideration for a variety of reasons, as described below.

### **4.4.1 Relocation of Geotechnical Investigation**

Relocating the proposed geotechnical investigations would not meet any of the Proposed Project objectives because the objectives are site-specific to the Proposed Project study area. Relocating the proposed geotechnical investigations outside of the Proposed Project study area would not provide data on the underlying bedrock, borrow site materials, landslide deposits, geotechnical conditions, foundation conditions, or alluvial sediments within and close to the footprint of the proposed PREP upstream dam location. Relocated geotechnical investigations would result in data that is irrelevant to the Proposed Project because the data would not be representative of the proposed PREP upstream dam location.

As described in Section 2.3, all activity areas associated with both surface and subsurface investigations were located to buffer biological resources, sensitive natural communities, aquatic resources, and cultural resources throughout the Proposed Project study area to minimize impacts and maximize accessibility.

In addition, the proposed activity areas that would be subject to surface or subsurface investigations coincide with the potential locations of various infrastructure components proposed for PREP. These proposed activity areas have already been established at locations intended to minimize or avoid various sensitive resources (described above) or directly tied to specific information requests from DSOD in its comments on Valley Water's proposed workplan dated April 5, 2022 for additional geologic or geotechnical information at specific locations within the Proposed Project study area (DSOD 2022). Substantially altering these locations of proposed activity areas would hinder the collection of data essential for the efficient and safe design of an



earthfill dam, rendering an off-site alternative or alternative boring and test pit locations infeasible.

#### **4.4.2 No Tree Trimming or Cutting**

This alternative would remove all proposed tree trimming and cutting at twelve activity areas (UB-62, UB-65, UB-81, UB-82, UB-85, UB-88, UB-90, S-12, S-14, S-15, S-16, S-18).<sup>91</sup> Under this alternative, up to 30 trees (which includes two snags/dead trees) would not be removed and up to 17 trees would not be trimmed. This alternative would not achieve the objective of providing an understanding of the depth to, and properties of, the underlying bedrock within and close to the footprint of the proposed PREP upstream dam location, including exploration for possible bedrock faults within the dam foundation. This alternative would require significantly reducing a substantial number of strategically placed geotechnical investigation activity areas within the Proposed Project study area to avoid trimming and/or cutting trees. Therefore, this alternative would result in insufficient data to meet several of the project objectives for PREP design and submission to DSOD and has been considered but eliminated for further analysis.

#### **4.4.3 Relocation of Helicopter Landing Area**

This alternative would relocate all proposed helicopter activities from staging area SS-02 and the associated helicopter landing area north of SS-02 illustrated on Figure 2-2b to the Staging Area SS-01 illustrated on Figure 2-2d. While the relocation of these activity areas intended to support helicopter activity to the lower reaches of the North Fork Pacheco Creek watershed would reduce helicopter landing and staging efforts east of Pacheco Reservoir, it would actually increase the total amount of flight time for each round trip. Relocation of all helicopter activity to SS-01 would result in an increase of several minutes for each roundtrip of the helicopter.

Under an alternative that relocates all helicopter activity to staging area SS-01, staging area SS-02 and the associated helicopter landing area to the north of it would not be subject to direct disturbance associated with the Proposed Project.<sup>92</sup> The new helicopter landing area would need to be located in close proximity to staging area SS-01 in an area with suitable access, topography and adjacent open area to support safe helicopter operations. (flat with minimal vegetation). This would decrease the distance between the proposed helicopter operation areas and sensitive receptors described in the Section 3.2, Aesthetics, and Section 3.14, Noise of Chapter 3. In addition to increasing the potential area subject to surface disturbance that could have a negative effect on biological, cultural resources and tribal cultural resources, relocation of helicopter activity to

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<sup>91</sup> This alternative would not avoid any significant impacts as all the trees proposed for trimming or cutting are not protected or of special-status.

<sup>92</sup> Staging areas SS-01, SS-02, and the associated Helicopter Landing Area were delineated in the field by a team of biologists and engineering geologists and specific boundaries established consistent with evidence of previous disturbance to vegetation and/or soil resources at those locations associated with ongoing previous land management activities (e.g., grazing, PPWD maintenance and operation of Pacheco Reservoir).





Staging Area SS-01 and designation of an additional helicopter landing area would also increase the potential visibility of helicopter activity from the SR-152 corridor which could result in impacts associated with hazards and transportation. An increase in aviation fuel usage due to increased flight time to the proposed boring activity areas designated for helicopter access would also occur as compared to the Proposed Project. This alternative has been considered, but eliminated for further analysis as it would increase a number of the significant environmental impacts relative to the Proposed Project.

#### **4.4.4 No Helicopter Use for Access**

This alternative would carry out the geotechnical investigations without any helicopter use. This alternative would utilize existing access roads and would also require the construction of new access roads throughout the Proposed Project study area. This alternative would require extensive clearing and grading to construct a number of new access roads, many of which would require removal and disposal of excess soil and rock where slopes exceed thirty percent. As illustrated on Figure 2-2b, it is estimated that several miles of new road would be required just to access activity areas L-01, L-02, L-03, L-04, L-05, L-08, L-09, and S-06. Due the steep terrain in some portions of the Proposed Project study area, some activity areas would be excluded under this alternative, further reducing the ability of this alternative to meet the project objectives.

The increased use of vehicles and excavation equipment to construct the new access roads would generate emissions of ROG, NO<sub>x</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub>. Activities under this alternative would include more use of off-road equipment (e.g., bulldozers, excavators) and other associated equipment (e.g., generators), worker transport/commute (e.g., all-terrain vehicles, passenger vehicles), and ground-disturbing activities/vegetation clearing (i.e., chainsaws) than the Proposed Project. Thus, this alternative would likely increase the potential for significant impacts to a number of environmental resources described in Chapter 3 (e.g., biological resources, cultural resources, geology and soils, hydrology/water quality, noise, hazardous materials, transportation, wildfire) compared to the Proposed Project and has been eliminated. This alternative has also been eliminated for further analysis due to the potential for increased ground disturbance beyond the Proposed Project that may result in new significant impacts to biological, cultural and, tribal cultural resources.

### **4.5 California Environmental Quality Act Alternatives**

This section describes the Project alternatives that were selected for further analysis in accordance with CEQA Guidelines Section 15126.6(a). The two alternatives to the Proposed Project selected for further analysis in this EIR are:

- **Alternative 1:** No Project Alternative.
- **Alternative 2:** Reduced Subsurface Investigations.



Table 4-1 provides a brief description of these alternatives and highlights how they differ from the Proposed Project.

**Table 4-1. CEQA Alternatives Selected for Further Analysis**

Alternative	How Does the Alternative Differ from the Proposed Project?
<b>Alternative 1:</b> No Project—Valley Water would not conduct the geotechnical investigations to inform PREP design. The proposed PREP planning and design process would not move forward.	<ul style="list-style-type: none"> <li>Valley Water would not conduct geotechnical borings.</li> <li>No, excavating, or boring of the landscape would occur.</li> <li>PREP design would halt.</li> </ul>
<b>Alternative 2:</b> Reduced Subsurface Investigations and Tree Removal—Valley Water would conduct the primary geotechnical investigations with a reduction in the number of subsurface investigations (e.g., test pits, exploratory borings), borings, test pits, and supplemental helicopter borings.	<ul style="list-style-type: none"> <li>Removal of five supplemental borings to reduce number of trees removed (14), tree trimmed (5) and approximately 50 helicopter trips.</li> <li>Changing five test pits to borings to reduce size of Proposed Project footprint.</li> <li>Removal of four lake sediment borings to reduce potential water quality impacts.</li> </ul>

## 4.5.1 Alternative 1 – No Project Alternative

Evaluation of a No Project Alternative is required to allow decision-makers to compare the impacts of approving a proposed project with the impacts of not approving the proposed project. The No Project Alternative is required to reflect the conditions that would be reasonably expected to occur in the foreseeable future if the project were not approved (CEQA Guidelines Section 15126.6(e)).

### Description and Setting

Under the No Project Alternative (Alternative 1), Valley Water would not conduct geotechnical investigations within, adjacent to, and in the vicinity of the existing Pacheco Reservoir and along SR-152. Alternative 1 would result in no geotechnical data collection and, consequently, none of the impacts described throughout this EIR as resulting from the Proposed Project would occur.

### Ability to Meet Project Objectives

Under Alternative 1, no design-level geotechnical investigations would be conducted in the North Fork Pacheco Creek watershed or within the SR-152 corridor. This means that no essential design-level geotechnical data would be collected and existing conditions in the Proposed Project study area would remain as they are today for the foreseeable future.

### Environmental Impacts of Alternative 1

Alternative 1 would result in no action.

Alternative 1 would not result in any environmental impacts to any of the resource areas discussed in CEQA Appendix G. No mitigation would be required for Alternative 1.



Alternative 1 would also not result in:

- Growth Inducing Impacts;
- Significant Irreversible Environmental Changes, or
- Significant and Unavoidable Environmental Impacts.

## **4.5.2 Alternative 2 – Reduced Subsurface Investigations and Tree Removal**

This section describes and analyzes the Reduced Subsurface Investigations and Tree Removal Alternative (Alternative 2) to provide a comparison with the Proposed Project.

### **Description and Setting**

Alternative 2 would include the primary surface and subsurface geotechnical investigations necessary to meet the Project objectives, but with a reduced number of exploratory borings and test pits, as illustrated in Figures 4.1a through 4.1e and presented in Table 4-2 and Table 4-3. Alternative 2 would follow the same methodology for electrical resistivity imaging and seismic refraction investigations as the Proposed Project, described in Section 2.3.1, Surface Geophysical Surveys. Alternative 2 would reduce the number of activity areas where subsurface geotechnical investigations would be conducted. It would include 27 exploratory test pits; five fewer exploratory test pits than what is proposed under the Proposed Project. The five test pits (TP-45, TP-52, TP-53, TP-62, and TP-63) would be replaced with five exploratory borings within the same activity areas using the same access routes as under the Proposed Project. These five additional borings would require a drill rig instead of an excavator.

Alternative 2 would exclude five supplemental helicopter borings that would require tree trimming and/or removal (S-12, S-14, S-15, S-16, and S-18). In addition, four lake sediment borings (LS-19, LS-20, LS-31, and LS-32) and the associated access routes (if the reservoir is dry) would be excluded. This equates to an overall reduction of nine boring activity areas. With the conversion of five test pits to borings, this equates to a total of 145 borings and 27 test pits. Table 4-2 summarizes the exploratory borings for Alternative 2. Activity areas where borings are proposed to replace test pits are shown as shaded with italic text, and boring activity areas excluded from Alternative 2 are shown as bold, strike out text. Table 4-3 summarizes the test pits for Alternative 2. The five test pits that are shown as bold, strike out text are the test pits being replaced with borings.





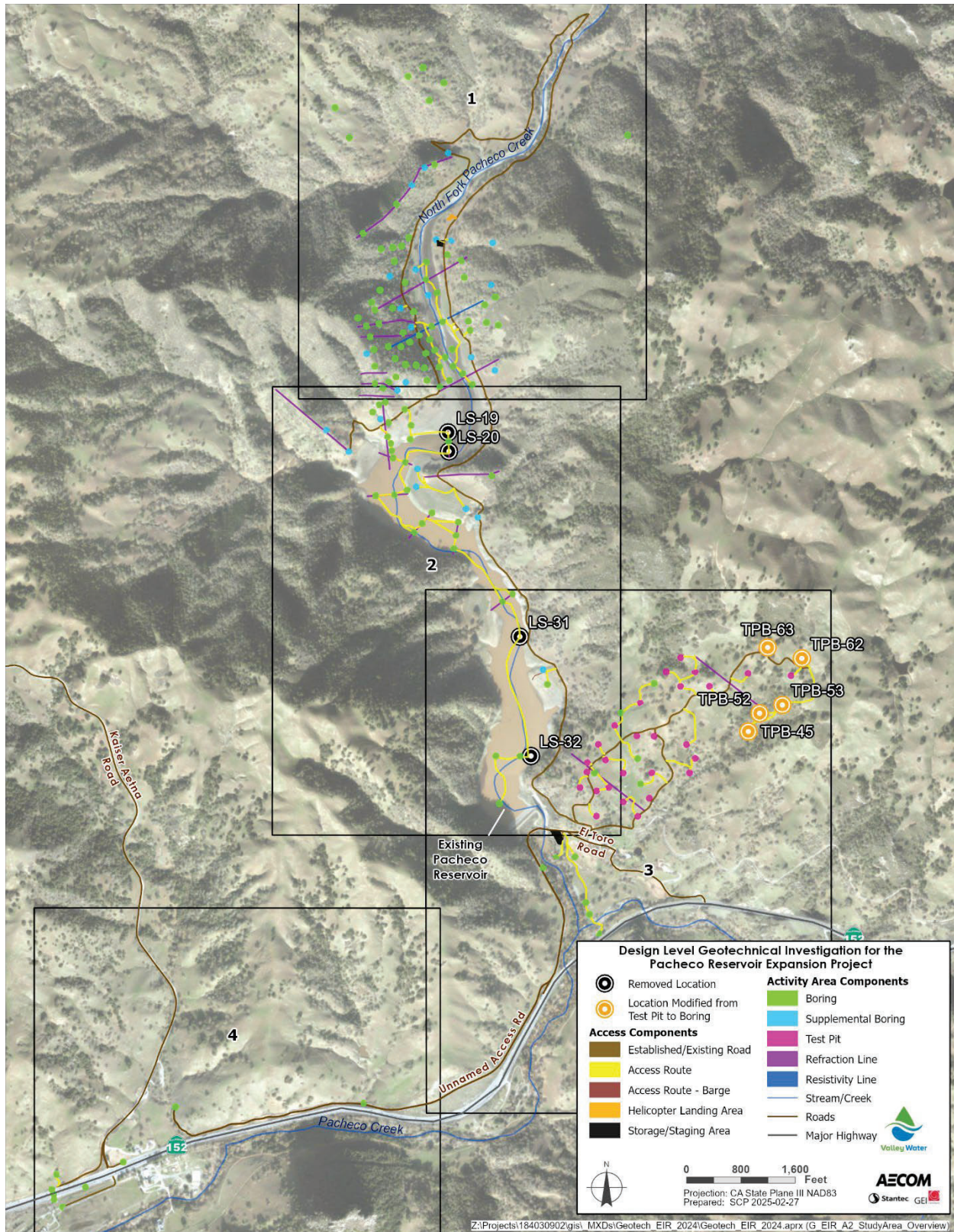


Figure 4-1a. Alternative 2 Map Index





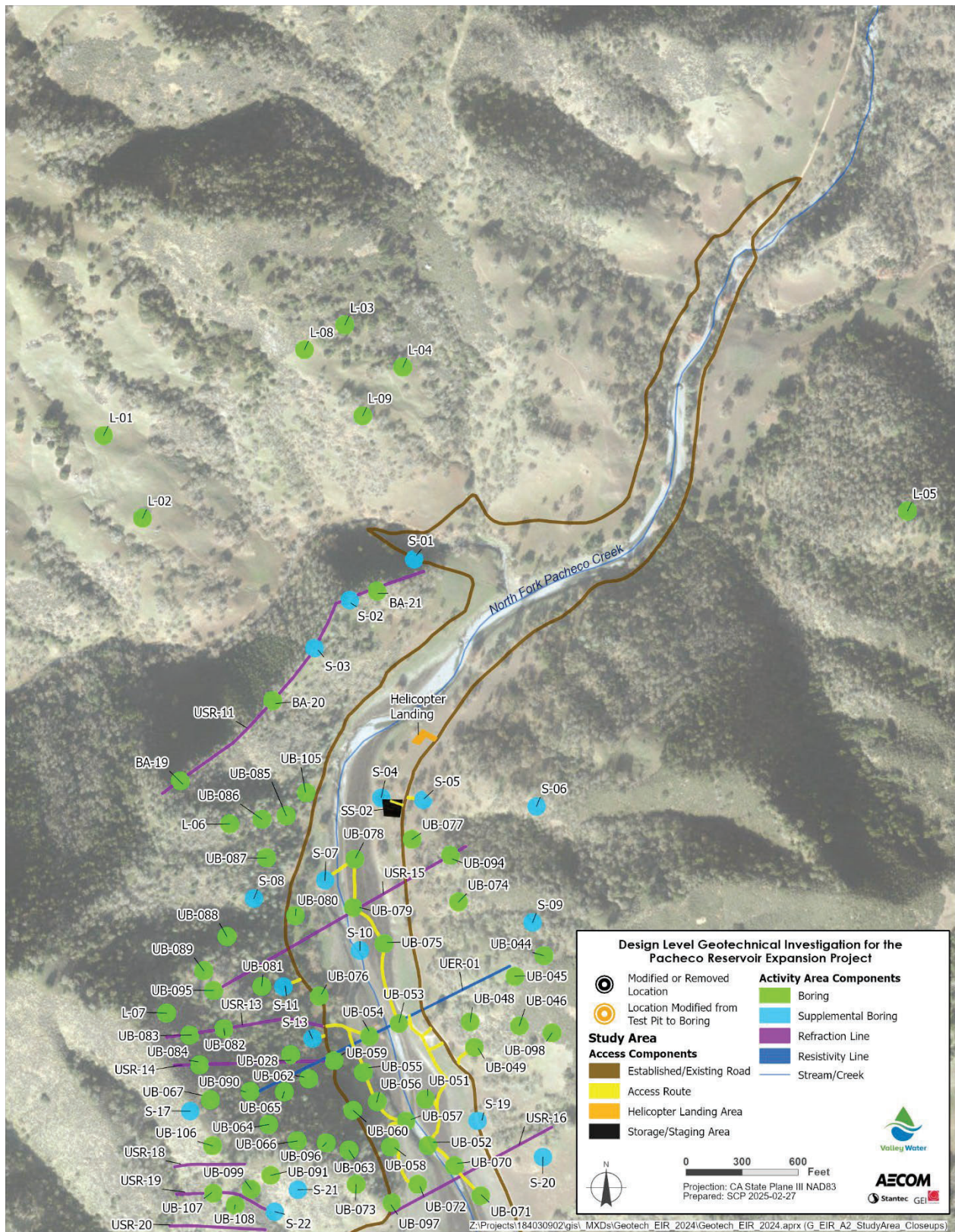


Figure 4-1b. Alternative 2, Plate 1





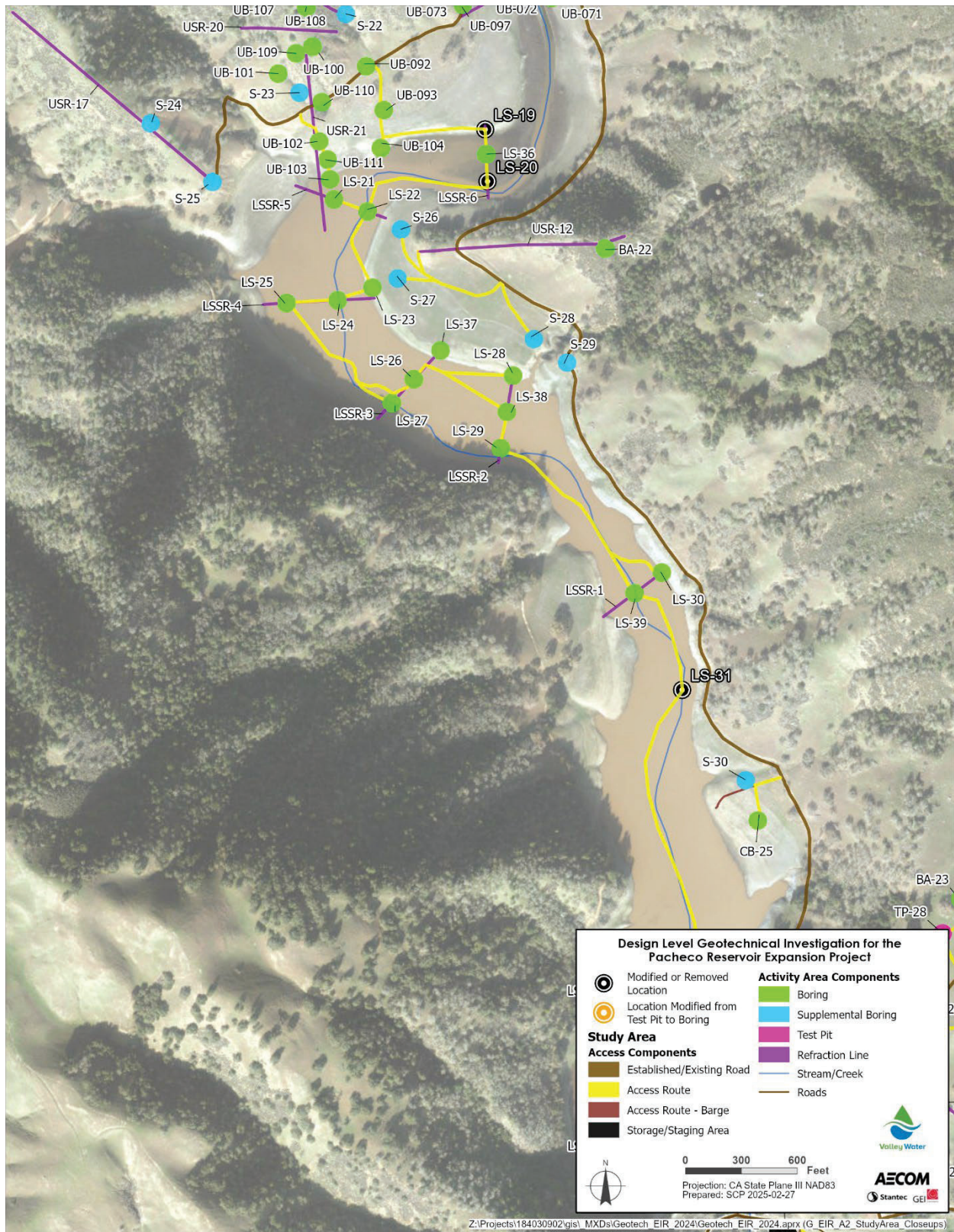


Figure 4-1c. Alternative 2, Plate 2





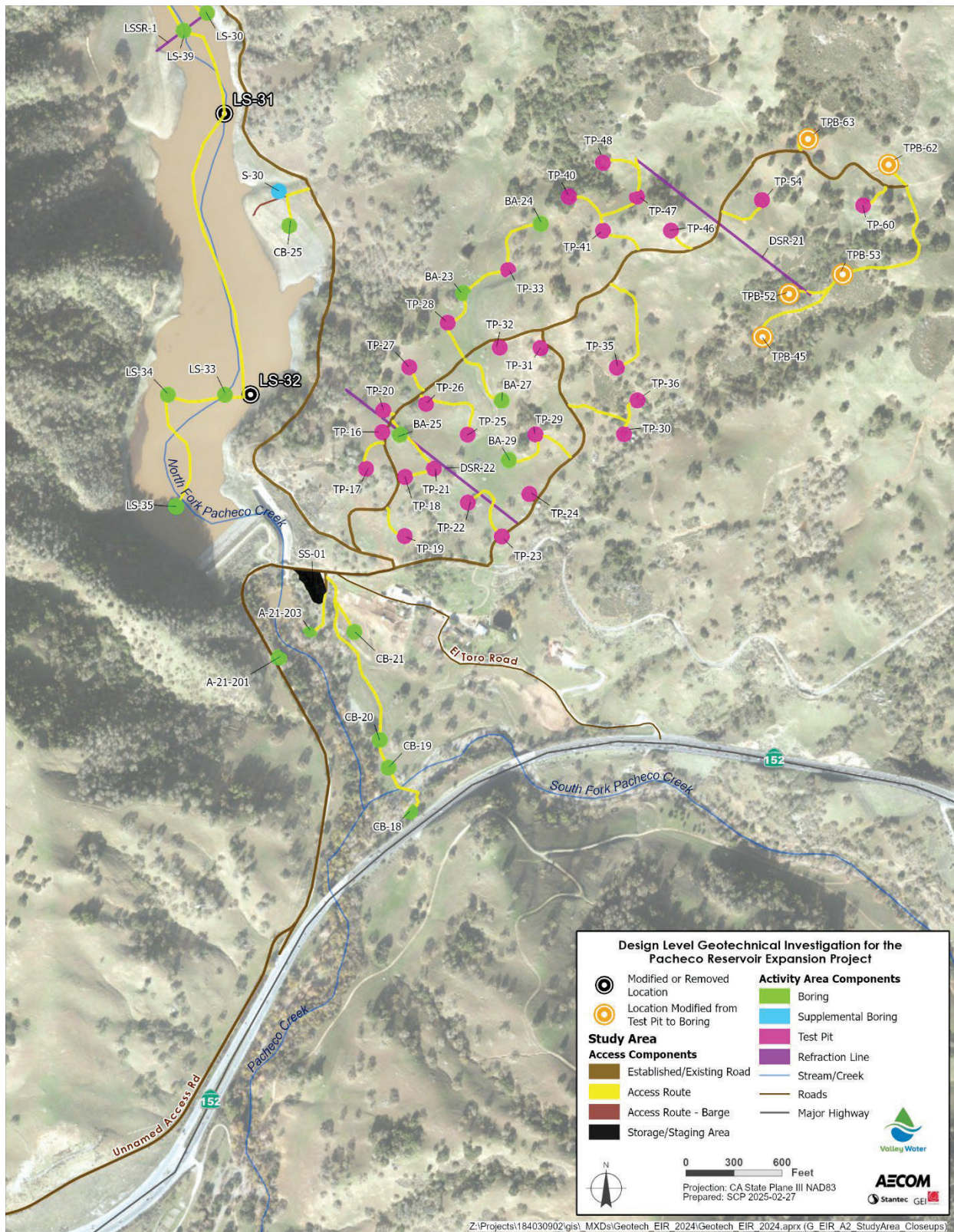


Figure 4-1d. Alternative 2, Plate 3





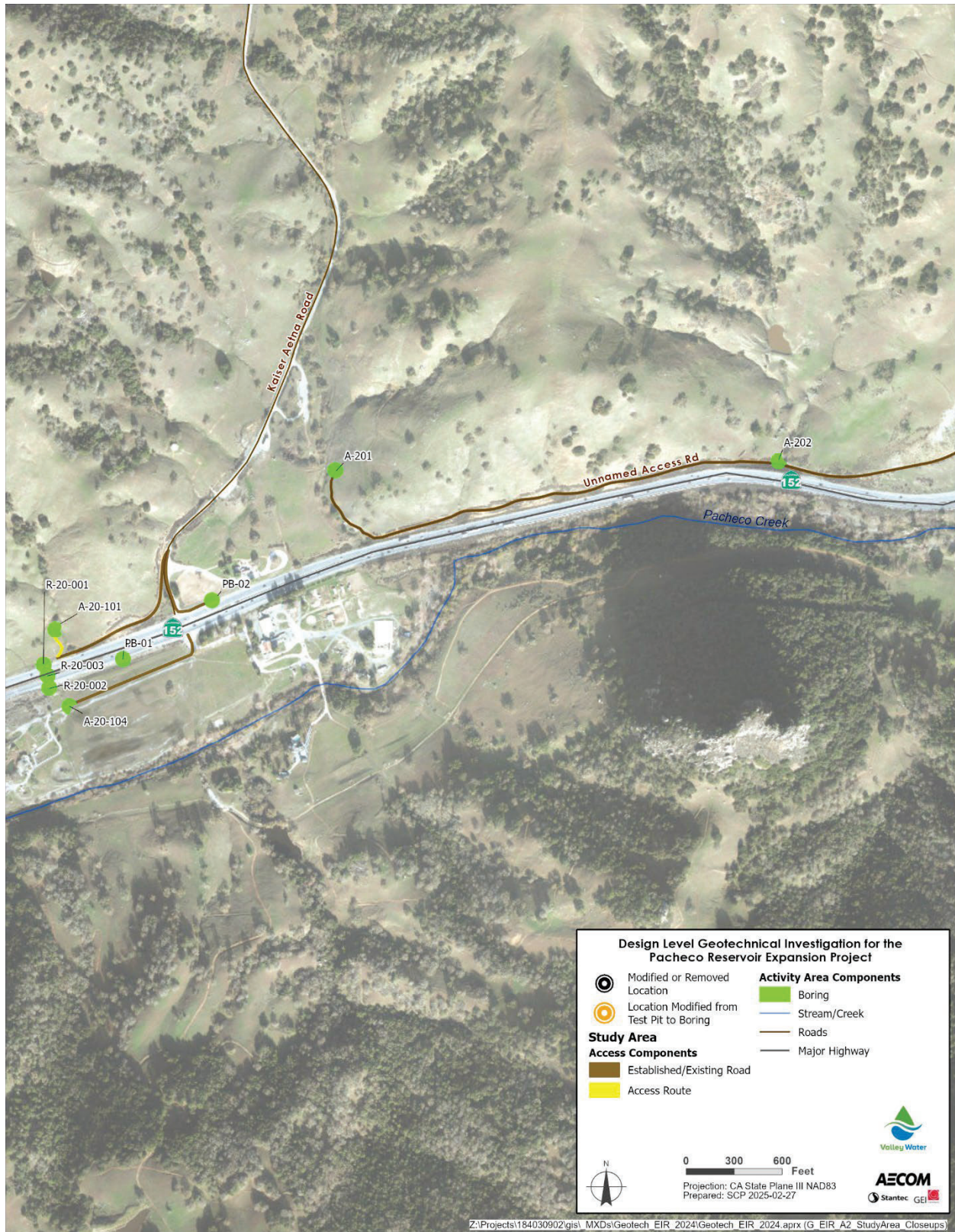


Figure 4-1e. Alternative 2, Plate 4



**Table 4-21. Alternative 2 Exploratory Boring Summary**

Boring Name	Location	Boring Type	Property Owner	Latitude (WGS84)	Longitude (WGS84)	Surface Elev2 (Ft)	Boring Depth (Ft)	Boring Inclination (Degrees)	Piezometer /Inclinometer	In Situ Testing	Equipment Access	Tree Trimming and/or Removal	Hand Contouring	Goal
<u>TPB-45</u>	<u>Core borrow area</u>	<u>Core</u>	<u>Jin</u>	<u>37.054035</u>	<u>-121.280052</u>	<u>967</u>	<u>TBD</u>	<u>90</u>			<u>Trailer Track/Truck</u>	<u>No</u>	<u>Yes</u>	<u>Core material borrow study</u>
<u>TPB-52</u>	<u>Core borrow area</u>	<u>Core</u>	<u>Jin</u>	<u>37.054777</u>	<u>-121.279491</u>	<u>1033</u>	<u>TBD</u>	<u>90</u>			<u>Trailer Track/Truck</u>	<u>No</u>	<u>Yes</u>	<u>Core material borrow study</u>
<u>TPB-53</u>	<u>Core borrow area</u>	<u>Core</u>	<u>Jin</u>	<u>37.055122</u>	<u>-121.278345</u>	<u>1241</u>	<u>TBD</u>	<u>90</u>			<u>Trailer Track/Truck</u>	<u>No</u>	<u>Yes</u>	<u>Core material borrow study</u>
<u>TPB-62</u>	<u>Core borrow area</u>	<u>Core</u>	<u>Jin</u>	<u>37.057011</u>	<u>-121.277381</u>	<u>1340</u>	<u>TBD</u>	<u>90</u>			<u>Trailer Track/Truck</u>	<u>No</u>	<u>Yes</u>	<u>Core material borrow study</u>
<u>TPB-63</u>	<u>Core borrow area</u>	<u>Core</u>	<u>Jin</u>	<u>37.057440</u>	<u>-121.279112</u>	<u>1222</u>	<u>TBD</u>	<u>90</u>			<u>Trailer Track/Truck</u>	<u>No</u>	<u>Yes</u>	<u>Core material borrow study</u>
UB-28	US dam site	Core	Jin	37.070027	-121.297641	558	150	90	-	H, T	Helicopter	No	Yes	Landslide/foundation
UB-44	US dam site	Core	Jin	37.071518	-121.293003	805	60	90	-	H, T	Helicopter	No	Yes	Landslide/foundation
UB-45	US dam site	Core	Jin	37.071209	-121.293534	731	300	90	-	H, T	Helicopter	No	Yes	Foundation
UB-46	US dam site	Core	Jin	37.070482	-121.293444	674	100	90	-	-	Helicopter	No	Yes	Foundation
UB-48	US dam site	Core	Jin	37.070533	-121.294348	566	150	90	-	H	Helicopter	No	Yes	Foundation
UB-49	US dam site	Core	Jin	37.070158	-121.294268	515	150	90	-	H	Trailer/Track/Truck	No	No	Foundation
UB-51	US dam site	Core	PPWD	37.069389	-121.295157	453	100	90	-	-	Trailer/Track/Truck	No	No	Foundation
UB-52	US dam site	Core	PPWD	37.068710	-121.295101	445	75	90	-	-	Trailer/Track/Truck	No	No	Foundation
UB-53	US dam site	Core	PPWD	37.070502	-121.295657	454	270	45°@ S63°W	-	H, T	Trailer/Track/Truck	No	No	Foundation
UB-54	US dam site	Core	PPWD	37.070309	-121.296199	454	200	45°@ S63°W	-	H, T	Trailer/Track/Truck	No	No	Foundation



**Table 4-22. Alternative 2 Exploratory Boring Summary (cont.)**

Boring Name	Location	Boring Type	Property Owner	Latitude (WGS84)	Longitude (WGS84)	Surface Elev2 (Ft)	Boring Depth (Ft)	Boring Inclination (Degrees)	Piezometer /Inclinometer	In Situ Testing	Equipment Access	Tree Trimming and/or Removal	Hand Contouring	Goal
UB-55	US dam site	Core	PPWD	37.069778	-121.296301	469	200	45°@ S63°W	-	H, T	Trailer/Track/Truck	No	No	Foundation
UB-56	US dam site	Core	PPWD	37.069347	-121.296042	469	100	90	-	H	Trailer/Track/Truck	No	No	Foundation
UB-57	US dam site	Core	PPWD	37.069063	-121.295512	445	100	90	-	-	Trailer/Track/Truck	No	No	Foundation
UB-58	US dam site	Core	PPWD	37.068684	-121.295793	468	75	90	-	-	Trailer/Track/Truck	No	No	Foundation
UB-59	US dam site	Core	PPWD	37.069946	-121.296841	490	150	90	-	H	Trailer/Track/Truck	No	No	Landslide/foundation
UB-60	US dam site	Core	Jin	37.069218	-121.296487	495	130	90	-	H	Trailer/Track/Truck	No	No	Landslide/foundation
UB-62	US dam site	Core	Jin	37.069675	-121.297303	551	150	90	-	H, T	Helicopter	Remove	Yes	Landslide/foundation
UB-63	US dam site	Core	Jin	37.068631	-121.296554	595	75	90	-	-	Helicopter	No	Yes	Foundation
UB-64	US dam site	Core	Jin	37.068998	-121.298030	713	300	90	-	H, T	Helicopter	No	Yes	Tunnel/foundation
UB-65	US dam site	Core	Jin	37.069481	-121.297749	627	100	45°@ S63°W	-	T	Helicopter	Remove Trim	Yes	Landslide/foundation
UB-66	US dam site	Core	Jin	37.068758	-121.297504	716	70	90	-	T	Helicopter	No	Yes	Foundation
UB-67	US dam site	Core	Jin	37.069354	-121.299107	785	50	90	-	T	Helicopter	No	Yes	Landslide/foundation
UB-70	US dam site	Core	PPWD	37.068412	-121.294615	443	75	90	-	-	Trailer/Track/Truck	No	No	Foundation
UB-71	US dam site	Core	PPWD	37.067976	-121.294128	453	75	90	-	-	Trailer/Track/Truck	No	No	Foundation
UB-72	US dam site	Core	PPWD	37.068134	-121.295287	465	75	90	-	-	Trailer/Track/Truck	No	No	Foundation



**Table 4-23. Alternative 2 Exploratory Boring Summary (cont.)**

Boring Name	Location	Boring Type	Property Owner	Latitude (WGS84)	Longitude (WGS84)	Surface Elev2 (Ft)	Boring Depth (Ft)	Boring Inclination (Degrees)	Piezometer /Inclinometer	In Situ Testing	Equipment Access	Tree Trimming and/or Removal	Hand Contouring	Goal
UB-73	US dam site	Core	Jin	37.068126	-121.296418	611	75	90	-	-	Helicopter	No	Yes	Foundation
UB-74	US dam site	Core	Jin	37.072297	-121.294581	586	125	90	-	H, T	Helicopter	No	Yes	Landslide/ foundation
UB-75	US dam site	Core	PPWD	37.071677	-121.295943	454	150	90	-	H	Trailer/ Track/Truck	No	No	Foundation
UB-76	US dam site	Core	Jin	37.070893	-121.297125	487	150	90	-	H	Trailer/ Track/Truck	No	No	Landslide/ foundation
UB-77	US dam site	Core	PPWD	37.073213	-121.295449	489	100	90	-	-	Trailer/ Track/Truck	No	No	Foundation
UB-78	US dam site	Core	PPWD	37.072913	-121.296492	460	100	90	-	H	Trailer/ Track/Truck	No	No	Foundation
UB-79	US dam site	Core	PPWD	37.072203	-121.296514	454	125	90	-	H	Trailer/ Track/Truck	No	No	Foundation
UB-80	US dam site	Core	Jin	37.072076	-121.297578	489	125	90	-	-	Trailer/ Track/Truck	No	No	Foundation
UB-81	US dam site	Core	Jin	37.071031	-121.298179	566	125	90	-	-	Helicopter	Remove	Yes	Foundation
UB-82	US dam site	Core	Jin	37.070402	-121.298870	666	230	90	-	H, T	Helicopter	Remove, Trim	Yes	Tunnel
UB-83	US dam site	Core	Jin	37.070304	-121.299499	795	50	90	-	-	Helicopter	No	Yes	Landslide/ foundation
UB-84	US dam site	Core	Jin	37.069866	-121.299310	786	50	90	-	-	Helicopter	No	Yes	Landslide/ foundation
UB-85	US dam site	Core	Jin	37.073546	-121.297757	522	50	90	-	H	Trailer/ Track/Truck	Remove, Trim	No	Tunnel
UB-86	US dam site	Core	Jin	37.073491	-121.298204	613	175	90	-	H, T	Helicopter	No	Yes	Tunnel
UB-87	US dam site	Core	Jin	37.072922	-121.298114	551	230	90	-	H, T	Helicopter	No	Yes	Tunnel
UB-88	US dam site	Core	Jin	37.071760	-121.298827	621	100	90	-	H, T	Helicopter	Remove, Trim	Yes	Tunnel
UB-89	US dam site	Core	Jin	37.071252	-121.299246	748	315	90	-	H, T	Helicopter	No	Yes	Outlet control shaft





**Table 4-24. Alternative 2 Exploratory Boring Summary (cont.)**

Boring Name	Location	Boring Type	Property Owner	Latitude (WGS84)	Longitude (WGS84)	Surface Elev2 (Ft)	Boring Depth (Ft)	Boring Inclination (Degrees)	Piezometer /Inclinometer	In Situ Testing	Equipment Access	Tree Trimming and/or Removal	Hand Contouring	Goal
UB-90	US dam site	Core	Jin	37.069481	-121.298376	673	250	90	-	H, T	Helicopter	Remove	Yes	Tunnel
UB-91	US dam site	Core	Jin	37.068249	-121.297986	749	200	90	-	T	Helicopter	No	Yes	Tunnel
UB-92	US dam site	Core	Jin	37.066944	-121.297524	508	105	90	-	H, T	Trailer/Track/Truck	No	No	Tunnel
UB-93	US dam site	Core	PPWD	37.066300	-121.297195	472	60	90	-	H	Trailer/Track/Truck	No	No	Tunnel
UB-94	US dam site	Core	PPWD	37.072983	-121.294738	573	50	90	-	H	Trailer/Track/Truck	No	No	Tunnel
UB-95	US dam site	Core	Jin	37.070963	-121.299061	713	50	90	-	H	Trailer/Track/Truck	No	No	Tunnel
UB-96	US dam site	Core	Jin	37.068734	-121.296970	655	100	90	-	T	Helicopter	No	Yes	Possible outlet control shaft
UB-97	US dam site	Core	Jin	37.067858	-121.295754	498	375	90	-	H, T	Helicopter	No	Yes	Possible tunnel
UB-98	US dam site	Core	Jin	37.070382	-121.292843	703	80	90	-	H, T	Helicopter	No	Yes	Possible tunnel
UB-99	US dam site	Core	Jin	37.068043	-121.298343	723	100	90	-	T	Helicopter	No	Yes	Spillway
UB-100	US dam site	Core	Jin	37.067227	-121.298515	660	120	90	-	T	Helicopter	No	Yes	Spillway
UB-101	US dam site	Core	Jin	37.066826	-121.299143	631	100	90	-	T	Helicopter	No	Yes	Spillway
UB-102	US dam site	Core	PPWD	37.065831	-121.298380	463	100	90	-	T	Trailer/Track/Truck	No	No	Spillway
UB-103	US dam site	Core	PPWD	37.065273	-121.298172	442	100	90	-	-	Trailer/Track/Truck	No	No	Spillway
UB-104	US dam site	Core	PPWD	37.065742	-121.297244	450	100	90	-	T	Trailer/Track/Truck	No	No	Bifurcation structure
UB-105	US dam site	Core	Jin	37.073886	-121.297391	493	100	90	-	T	Trailer/Track/Truck	No	No	Tunnel approach
UB-106	US dam site	Core	Jin	37.068677	-121.299060	797	100	90	-	T	Helicopter	No	Yes	Spillway
UB-107	US dam site	Core	Jin	37.067978	-121.299041	749	100	90	-	T	Helicopter	No	Yes	Spillway
UB-108	US dam site	Core	Jin	37.067809	-121.298634	737	100	90	-	T	Helicopter	No	Yes	Spillway





**Table 4-25. Alternative 2 Exploratory Boring Summary (cont.)**

Boring Name	Location	Boring Type	Property Owner	Latitude (WGS84)	Longitude (WGS84)	Surface Elev2 (Ft)	Boring Depth (Ft)	Boring Inclination (Degrees)	Piezometer /Inclinometer	In Situ Testing	Equipment Access	Tree Trimming and/or Removal	Hand Contouring	Goal
UB-109	US dam site	Core	Jin	37.067126	-121.298817	676	100	90	-	T	Helicopter	No	Yes	Spillway
UB-110	US dam site	Core	Jin	37.066409	-121.298337	502	100	90	-	T	Truck	No	No	Spillway
UB-111	US dam site	Core	PPWD	37.065565	-121.298220	443	100	90	Piezo	T	Trailer/Track/Truck	No	No	Spillway
BA-19	US borrow	Core	Jin	37.074045	-121.299708	851	200	90	-	T, P	Helicopter	No	Yes	Shell borrow
BA-20	US borrow	Core	Jin	37.075238	-121.298023	714	200	90	Piezo	T, P	Helicopter	No	Yes	Shell borrow
BA-21	US borrow	Core	Jin	37.076862	-121.296124	633	175	90	-	T, P	Helicopter	No	Yes	Shell borrow
BA-22	DS borrow	Core	Jin	37.064291	-121.293103	683	275	55°@S90°W	Piezo	T, P	Helicopter	No	Yes	Shell borrow
BA-23	Core borrow	Core	Jin	37.054743	-121.286469	740	50	90	Piezo	P	Trailer/Track/Truck	No	No	Core borrow
BA-24	Core borrow	Core	Jin	37.055947	-121.284825	830	50	90	-	P	Trailer/Track/Truck	No	No	Core borrow
BA-25	Core borrow	Core	Jin	37.052306	-121.287803	670	50	90	Piezo	P	Trailer/Track/Truck	No	No	Core borrow
BA-27	Core borrow	Core	Jin	37.052906	-121.285630	651	50	90	-	P	Trailer/Track/Truck	No	No	Core borrow
BA-29	Core borrow	Core	Jin	37.051886	-121.285466	603	50	90	-	P	Trailer/Track/Truck	No	No	Core borrow
L-01	US reservoir rim	Core	Jin	37.079121	-121.301172	901	105	90	Piezo	T	Helicopter	No	Yes	Reservoir rim landslide
L-02	US reservoir rim	Core	Jin	37.077906	-121.300443	761	110	90	Piezo, Inclino	T	Helicopter	No	Yes	Reservoir rim landslide
L-03	US reservoir rim	Core	Jin	37.080777	-121.296757	889	90	90	Piezo	T	Helicopter	No	Yes	Reservoir rim landslide
L-04	US reservoir rim	Core	Jin	37.080162	-121.295687	760	125	90	Piezo, Inclino	T	Helicopter	No	Yes	Reservoir rim landslide
L-05	US reservoir rim	Core	Jin	37.078109	-121.286396	948	210	90	Piezo	T	Helicopter	No	Yes	Reservoir rim landslide
L-06	US reservoir rim	Core	Jin	37.073417	-121.298795	741	80	90	Piezo	T	Helicopter	No	Yes	Reservoir rim landslide
L-07	US reservoir rim	Core	Jin	37.070624	-121.299924	880	80	90	Piezo	T	Helicopter	No	Yes	Reservoir rim landslide



**Table 4-26. Alternative 2 Exploratory Boring Summary (cont.)**

Boring Name	Location	Boring Type	Property Owner	Latitude (WGS84)	Longitude (WGS84)	Surface Elev2 (Ft)	Boring Depth (Ft)	Boring Inclination (Degrees)	Piezometer /Inclinometer	In Situ Testing	Equipment Access	Tree Trimming and/or Removal	Hand Contouring	Goal
L-08	US reservoir rim	Core	Jin	37.080409	-121.297496	923	90	90	Piezo, Inclino	T	Helicopter	No	Yes	Reservoir rim landslide
L-09	Us reservoir rim	Core	Jin	37.079443	-121.296415	774	125	90	Piezo, Inclino	T	Helicopter	No	Yes	Reservoir rim landslide
CB-18	Tunnel boring, midpoint	HSA/R W/ Core	Jin	37.045844	-121.287518	388	55	90	-	-	Trailer/ Track/Truck	No	No	Microtunnel
CB-19	Tunnel boring, north end	HSA/R W/ Core	Jin	37.046588	-121.287988	387	45	90	-	-	Trailer/ Track/Truck	No	No	Microtunnel
CB-20	Trenchless shaft	HSA/R W/ Core	Jin	37.047066	-121.288176	388	55	90	-	-	Trailer/ Track/Truck	No	No	Shaft foundation
CB-21	Pipeline	HSA/R W/ Core	PPWD	37.048915	-121.288744	404	50	90	-	-	Trailer/ Track/Truck	No	No	Pipeline foundation
CB-25	Pump station	HSA/R W/ Core	PPWD	37.055876	-121.290211	456	45	90	-	-	Trailer/ Track/Truck	No	No	Pump station foundation
A-201	Access/ frontage road	HSA	Jin	37.038659	-121.308785	385	30	90	-	-	Truck	No	No	Deep culvert crossing/ foundation
A-202	Access/ frontage road	HSA	Jin	37.038885	-121.299295	371	30	90	-	-	Truck	No	No	Deep culvert crossing/ foundation
A-20-101	Access/ frontage road	HSA	Jin	37.035883	-121.314750	375	50	90	-	-	Trailer/ Track	No	No	Evaluate access/frontage road subgrade, cut wall
A-20-104	Interchange	HSA	Zhou	37.034569	-121.314432	348	40	90	-	-	Truck	No	No	Interchange approach
A-21-201	Access road bridge, west abutment	RW/ Core	Jin	37.048464	-121.290356	417	80	90	-	-	Truck	No	No	Access road bridge foundation



**Table 4-27. Alternative 2 Exploratory Boring Summary (cont.)**

Boring Name	Location	Boring Type	Property Owner	Latitude (WGS84)	Longitude (WGS84)	Surface Elev2 (Ft)	Boring Depth (Ft)	Boring Inclination (Degrees)	Piezometer /Inclinometer	In Situ Testing	Equipment Access	Tree Trimming and/or Removal	Hand Contouring	Goal
A-21-203	Access road bridge, east abutment	RW/ Core	Jin	37.048859	-121.289712	414	80	90	-	-	Truck	No	No	Access road bridge foundation
PB-01	SR-152 pavement	HSA	Caltrans	37.035389	-121.313299	356	5	90	-	-	Truck	No	No	Pavement subgrade
PB-02	SR-152 pavement	HSA	Caltrans	37.036409	-121.311406	350	5	90	-	-	Truck	No	No	Pavement subgrade
R-20-001	SR-152 overpass	RW /Core	Caltrans	37.035279	-121.314995	356	80	90	-	-	Truck	No	No	Interchange foundation
R-20-002	SR-152 overpass	RW/ Core	Caltrans	37.034884	-121.314873	355	80	90	-	-	Truck	No	No	Interchange foundation
R-20-003	SR-152 overpass	RW/ Core	Caltrans	37.035091	-121.314910	355	80	90	-	-	Truck	No	No	Interchange foundation
<b>LS-19</b>	<b>Channel restoration area</b>	<b>HSA</b>	<b>PPWD</b>	<b>37.066029</b>	<b>-121.295329</b>	<b>452</b>	<b>44</b>	<b>90</b>	<b>Piezo</b>	<b>J</b>	<b>Track/ Truck/Barge</b>	<b>No</b>	<b>No</b>	<b>Evaluate site conditions for channel restoration</b>
<b>LS-20</b>	<b>Channel restoration area</b>	<b>HSA</b>	<b>PPWD</b>	<b>37.065262</b>	<b>-121.295278</b>	<b>443</b>	<b>44</b>	<b>90</b>	<b>-</b>	<b>J</b>	<b>Track/ Truck/Barge</b>	<b>No</b>	<b>No</b>	<b>Evaluate site conditions for channel restoration</b>
LS-21	Channel restoration area	HSA	PPWD	37.064977	-121.298096	437	44	90	-	J	Track/ Truck/Barge	No	No	Evaluate site conditions for channel restoration
LS-22	Channel restoration area	HSA	PPWD	37.064803	-121.297477	434	44	90	-	J	Track/ Truck/Barge	No	No	Evaluate site conditions for channel restoration
LS-23	Channel restoration area	HSA	PPWD	37.063682	-121.297377	450	44	90	Piezo	J	Track/ Truck/Barge	No	No	Evaluate site conditions for channel restoration
LS-24	Channel restoration area	HSA	PPWD	37.063492	-121.298012	431	44	90	Piezo	J	Track/ Truck/Barge	No	No	Evaluate site conditions for channel restoration



**Table 4-28. Alternative 2 Exploratory Boring Summary (cont.)**

Boring Name	Location	Boring Type	Property Owner	Latitude (WGS84)	Longitude (WGS84)	Surface Elev2 (Ft)	Boring Depth (Ft)	Boring Inclination (Degrees)	Piezometer /Inclinometer	In Situ Testing	Equipment Access	Tree Trimming and/or Removal	Hand Contouring	Goal
LS-25	Channel restoration area	HSA	PPWD	37.063444	-121.298953	441	44	90	Piezo	J	Track/ Truck/Barge	No	No	Evaluate site conditions for channel restoration
LS-26	Channel restoration area	HSA	PPWD	37.062337	-121.296600	429	44	90	-	J	Track/ Truck/Barge	No	No	Evaluate site conditions for channel restoration
LS-27	Channel restoration area	HSA	PPWD	37.061985	-121.297000	427	44	90	-	J	Track/ Truck/Barge	No	No	Evaluate site condition for channel restoration
LS-28	Channel restoration area	HSA	PPWD	37.062403	-121.294778	446	44	90	Piezo	J	Track/ Truck/Barge	No	No	Evaluate site conditions for channel restoration
LS-29	Channel restoration area	HSA	PPWD	37.061333	-121.294993	425	44	90	-	J	Track/ Truck/Barge	No	No	Evaluate site conditions for channel restoration
LS-30	Channel restoration area	HSA	PPWD	37.059520	-121.292012	445	44	90	Piezo	J	Track/Truck/ Barge	No	No	Evaluate site conditions for channel restoration
<b>LS-31</b>	<b>Channel restoration area</b>	<b>HSA</b>	<b>PPWD</b>	<b>37.057792</b>	<b>-121.291622</b>	<b>416</b>	<b>44</b>	<b>90</b>	<b>Piezo</b>	<b>J</b>	<b>Track/Truck/ Barge</b>	<b>No</b>	<b>No</b>	<b>Evaluate site conditions for channel restoration</b>
<b>LS-32</b>	<b>Channel restoration area</b>	<b>HSA</b>	<b>PPWD</b>	<b>37.052974</b>	<b>-121.291009</b>	<b>417</b>	<b>44</b>	<b>90</b>	<b>Piezo</b>	<b>J</b>	<b>Track/Truck/ Barge</b>	<b>No</b>	<b>No</b>	<b>Evaluate site conditions for channel restoration</b>
LS-33	Channel restoration area	HSA	PPWD	37.052966	-121.291557	406	44	90	Piezo	J	Track/Truck/ Barge	No	No	Evaluate site conditions for channel restoration
LS-34	Channel restoration area	HSA	PPWD	37.052957	-121.292781	406	44	90	Piezo	J	Track/Truck/ Barge	No	No	Evaluate site conditions for channel restoration



**Table 4-29. Alternative 2 Exploratory Boring Summary (cont.)**

Boring Name	Location	Boring Type	Property Owner	Latitude (WGS84)	Longitude (WGS84)	Surface Elev2 (Ft)	Boring Depth (Ft)	Boring Inclination (Degrees)	Piezometer /Inclinometer	In Situ Testing	Equipment Access	Tree Trimming and/or Removal	Hand Contouring	Goal
LS-35	Channel restoration area	HSA	PPWD	37.051042	-121.292584	401	44	90	Piezo	J	Track/Truck/Barge	No	No	Evaluate site conditions for channel restoration
LS-36	Channel restoration area	HSA	PPWD	37.065663	-121.295305	440	44	90	-	J	Track/Truck/Barge	No	No	Evaluate site conditions for channel restoration
LS-37	Channel restoration area	HAS	PPWD	37.062765	-121.296116	453	44	90	-	J	Track/Truck/Barge	No	No	Evaluate site conditions for channel restoration
LS-38	Channel restoration area	HSA	PPWD	37.061869	-121.294885	428	44	90	-	J	Track/Truck/Barge	No	No	Evaluate site conditions for channel restoration
LS-39	Channel restoration area	HSA	PPWD	37.059211	-121.292511	418	44	90	-	J	Track/Truck/Barge	No	No	Evaluate site conditions for channel restoration
S-01	Borrow area	Core	Jin	37.077332	-121.295450	505	40	90	-	-	Trailer/Track/Truck	No	No	Shell borrow
S-02	Borrow area	Core	Jin	37.076727	-121.296625	660	180	90	-	-	Helicopter	No	Yes	Shell borrow
S-03	Borrow area	Core	Jin	37.076016	-121.297265	708	190	90	-	-	Helicopter	No	Yes	Shell borrow
S-04	US dam site	Core	PPWD	37.073821	-121.296014	476	40	90	-	H	Trailer/Track/Truck	No	No	Alternative Tunnel
S-05	US dam site	Core	Jin	37.073798	-121.295244	493	60	90	-	H	Trailer/Track/Truck	No	No	Alternative Tunnel
S-06	US dam site	Core	Jin	37.073713	-121.293163	674	240	90	-	H	Helicopter	No	Yes	Alternative Tunnel
S-07	US dam site	Core	PPWD	37.072601	-121.297032	459	110	90	-	-	Trailer/Track/Truck	No	No	Dam foundation
S-08	US dam site	Core	Jin	37.072323	-121.298337	605	135	90	-	H	Helicopter	No	Yes	Tunnel
S-09	US dam site	Core	Jin	37.072006	-121.293217	752	315	90	-	H	Helicopter	No	Yes	Alternative Tunnel





Table 4-210. Alternative 2 Exploratory Boring Summary (cont.)

Boring Name	Location	Boring Type	Property Owner	Latitude (WGS84)	Longitude (WGS84)	Surface Elev2 (Ft)	Boring Depth (Ft)	Boring Inclination (Degrees)	Piezometer /Inclinometer	In Situ Testing	Equipment Access	Tree Trimming and/or Removal	Hand Contouring	Goal
S-10	US dam site	Core	PPWD	37.071571	-121.296384	451	130	90	-	-	Trailer/Track/Truck	No	No	Dam foundation
S-11	US dam site	Core	Jin	37.071028	-121.297781	510	125	90	-	-	Helicopter	No	Yes	Dam foundation
<b>S-12</b>	<b>US dam site</b>	<b>Core</b>	<b>Jin</b>	<b>37.070517</b>	<b>-121.298195</b>	<b>620</b>	<b>125</b>	<b>90</b>	<b>-</b>	<b>-</b>	<b>Helicopter</b>	<b>Trim</b>	<b>Yes</b>	<b>Dam foundation</b>
S-13	US dam site	Core	Jin	37.070269	-121.297239	520	125	90	-	T	Helicopter	No	Yes	Dam foundation
<b>S-14</b>	<b>US dam site</b>	<b>Core</b>	<b>Jin</b>	<b>37.069797</b>	<b>-121.297164</b>	<b>509</b>	<b>150</b>	<b>90</b>	<b>-</b>	<b>H, T</b>	<b>Helicopter</b>	<b>Remove</b>	<b>Yes</b>	<b>Dam foundation</b>
<b>S-15</b>	<b>US dam site</b>	<b>Core</b>	<b>Jin</b>	<b>37.069384</b>	<b>-121.297462</b>	<b>615</b>	<b>140</b>	<b>90</b>	<b>-</b>	<b>H, T</b>	<b>Helicopter</b>	<b>Remove, Trim</b>	<b>Yes</b>	<b>Dam foundation</b>
<b>S-16</b>	<b>US dam site</b>	<b>Core</b>	<b>Jin</b>	<b>37.069312</b>	<b>-121.296902</b>	<b>552</b>	<b>140</b>	<b>90</b>	<b>-</b>	<b>T</b>	<b>Helicopter</b>	<b>Remove</b>	<b>Yes</b>	<b>Dam foundation</b>
S-17	US dam site	Core	Jin	37.069184	-121.299474	848	60	90	-	-	Helicopter	No	Yes	Spillway
<b>S-18</b>	<b>US dam site</b>	<b>Core</b>	<b>Jin</b>	<b>37.069122</b>	<b>-121.296871</b>	<b>575</b>	<b>120</b>	<b>90</b>	<b>-</b>	<b>T</b>	<b>Helicopter</b>	<b>Remove, Trim</b>	<b>Yes</b>	<b>Shell borrow</b>
S-19	Pipeline	RW/ Core	PPWD	37.069077	-121.294198	483	75	90	-	-	Trailer/Track/Truck	No	No	Pipeline
S-20	US dam site	RW/ Core	Jin	37.068552	-121.292990	559	120	90	-	H	Helicopter	No	Yes	Alternative Tunnel
S-21	US dam site	Core	Jin	37.068040	-121.297486	690	110	90	-	H	Helicopter	No	Yes	Alternative Tunnel
S-22	US dam site	Core	Jin	37.067714	-121.297908	594	110	90	-	H, T	Helicopter	No	Yes	Tunnel
S-23	US dam site	Core	Jin	37.066548	-121.298747	533	60	90	-	-	Helicopter	No	Yes	Spillway
S-24	Borrow area	Core	Jin	37.066076	-121.301479	666	140	90	-	-	Helicopter	No	Yes	Shell borrow
S-25	Borrow area	Core	Jin	37.065220	-121.300333	533	50	90	-	-	Trailer/Track/Truck	No	No	Shell borrow
S-26	Pipeline	RW/ Core	PPWD	37.064543	-121.296859	458	80	90	-	-	Trailer/Track/Truck	No	No	Pipeline foundation
S-27	Pipeline	RW/ Core	PPWD	37.063820	-121.296913	459	80	90	-	-	Trailer/Track/Truck	No	No	Pipeline foundation
S-28	Pipeline	RW/ Core	PPWD	37.062944	-121.294400	467	70	90	-	-	Trailer/Track/Truck	No	No	Pipeline foundation



**Table 4-211. Alternative 2 Exploratory Boring Summary (cont.)**

Boring Name	Location	Boring Type	Property Owner	Latitude (WGS84)	Longitude (WGS84)	Surface Elev2 (Ft)	Boring Depth (Ft)	Boring Inclination (Degrees)	Piezometer /Inclinometer	In Situ Testing	Equipment Access	Tree Trimming and/or Removal	Hand Contouring	Goal
S-29	Pipeline	RW/ Core	PPWD	37.062602	-121.293787	484	70	90	-	-	Trailer/ Track/Truck	No	No	Pipeline foundation
S-30	Pump station	RW/ Core	PPWD	37.056466	-121.290438	465	45	90	-	-	Trailer/ Track/Truck	No	No	Pump station foundation

Notes: Rows shown with bold strike-out text are boring activity areas that have been excluded from Alternative 2. Rows with underlined italic text are activity areas that were removed as test pits (relabelled TPB) and replaced as borings.



**Table 4-312. Alternative 2 Test Pit Summary**

Test Pit Name	Location	Property Owner	Latitude (WGS84)	Longitude (WGS84)	Surface Elevation (Ft)	Test Pit Depth (Ft)	Tree Trimming or Removal	Excavation	Goal
TP-16	Core borrow area	Jin	37.052349	-121.288181	657	5 – 20	No	Yes	Core material borrow study
TP-17	Core borrow area	Jin	37.051717	-121.288522	619	5 – 20	No	Yes	Core material borrow study
TP-18	Core borrow area	Jin	37.051583	-121.287683	618	5 – 20	No	Yes	Core material borrow study
TP-19	Core borrow area	Jin	37.050567	-121.287683	517	5 – 20	No	Yes	Core material borrow study
TP-20	Core borrow area	Jin	37.052721	-121.288162	661	5 – 20	No	Yes	Core material borrow study
TP-21	Core borrow area	Jin	37.051729	-121.287069	598	5 – 20	No	Yes	Core material borrow study
TP-22	Core borrow area	Jin	37.051153	-121.286334	562	5 – 20	No	Yes	Core material borrow study
TP-23	Core borrow area	Jin	37.050576	-121.285600	556	5 – 20	No	Yes	Core material borrow study
TP-24	Core borrow area	Jin	37.051307	-121.285019	618	5 – 20	No	Yes	Core material borrow study
TP-25	Core borrow area	Jin	37.052318	-121.286349	602	5 – 20	No	Yes	Core material borrow study
TP-26	Core borrow area	Jin	37.052839	-121.287247	671	5 – 20	No	Yes	Core material borrow study
TP-27	Core borrow area	Jin	37.053466	-121.287614	685	5 – 20	No	Yes	Core material borrow study
TP-28	Core borrow area	Jin	37.054235	-121.286797	721	5 – 20	No	Yes	Core material borrow study
TP-29	Core borrow area	Jin	37.052330	-121.284896	662	5 – 20	No	Yes	Core material borrow study
TP-30	Core borrow area	Jin	37.052350	-121.283002	731	5 – 20	No	Yes	Core material borrow study
TP-31	Core borrow area	Jin	37.053815	-121.284805	777	5 – 20	No	Yes	Core material borrow study
TP-32	Core borrow area	Jin	37.053818	-121.285679	720	5 – 20	No	Yes	Core material borrow study
TP-33	Core borrow area	Jin	37.055149	-121.285515	775	5 – 20	No	Yes	Core material borrow study



Table 4-313. Alternative 2 Test Pit Summary (cont.)

Test Pit Name	Location	Property Owner	Latitude (WGS84)	Longitude (WGS84)	Surface Elevation (Ft)	Test Pit Depth (Ft)	Tree Trimming or Removal	Excavation	Goal
TP-35	Core borrow area	Jin	37.053491	-121.283167	830	5 – 20	No	Yes	Core material borrow study
TP-36	Core borrow area	Jin	37.052931	-121.282722	785	5 – 20	No	Yes	Core material borrow study
TP-40	Core borrow area	Jin	37.056414	-121.284221	877	5 – 20	No	Yes	Core material borrow study
TP-41	Core borrow area	Jin	37.055837	-121.283487	953	5 – 20	No	Yes	Core material borrow study
<b>TP-45</b>	<b>Core borrow area</b>	<b>Jin</b>	<b>37.054035</b>	<b>-121.280052</b>	<b>967</b>	<b>5 – 20</b>	<b>No</b>	<b>Yes</b>	<b>Core material borrow study</b>
TP-46	Core borrow area	Jin	37.055849	-121.282033	1022	5 – 20	No	Yes	Core material borrow study
TP-47	Core borrow area	Jin	37.056426	-121.282768	978	5 – 20	No	Yes	Core material borrow study
TP-48	Core borrow area	Jin	37.057003	-121.283502	959	5 – 20	No	Yes	Core material borrow study
<b>TP-52</b>	<b>Core borrow area</b>	<b>Jin</b>	<b>37.054777</b>	<b>-121.279491</b>	<b>1033</b>	<b>5 – 20</b>	<b>No</b>	<b>Yes</b>	<b>Core material borrow study</b>
<b>TP-53</b>	<b>Core borrow area</b>	<b>Jin</b>	<b>37.055122</b>	<b>-121.278345</b>	<b>1241</b>	<b>5 – 20</b>	<b>No</b>	<b>Yes</b>	<b>Core material borrow study</b>
TP-54	Core borrow area	Jin	37.056386	-121.280089	1071	5 – 20	No	Yes	Core material borrow study
TP-60	Core borrow area	Jin	37.056309	-121.277920	1260	5 – 20	No	Yes	Core material borrow study
<b>TP-62</b>	<b>Core borrow area</b>	<b>Jin</b>	<b>37.057011</b>	<b>-121.277381</b>	<b>1340</b>	<b>5 – 20</b>	<b>No</b>	<b>Yes</b>	<b>Core material borrow study</b>
<b>TP-63</b>	<b>Core borrow area</b>	<b>Jin</b>	<b>37.057440</b>	<b>-121.279112</b>	<b>1222</b>	<b>5 – 20</b>	<b>No</b>	<b>Yes</b>	<b>Core material borrow study</b>

Note: Bold, strike out text represents those test pits activity areas to be replaced with borings under Alternative 2.



All remaining initial and supplemental exploratory borings would be located at the same activity areas as those defined in the description of the Proposed Project. They would also require the same drilling methods, In Situ Jet testing, piezometers, inclinometers, and heavy equipment (e.g., excavators, drill rigs) as described in Section 2.3.2, Subsurface Geotechnical Investigations. However, it is estimated that Alternative 2 would require approximately 100 fewer helicopter trips than the Proposed Project. It is assumed that transporting platform materials and equipment back and forth from the northern staging area to an activity site would require between nine and 12 helicopter trips, and a similar number of helicopter trips would be needed for removal.

All applicable BMPs, VHP Conditions VHP AMMs and BAAQMD GHG BMPs would be incorporated into the geotechnical investigation work plans that would be submitted to DSOD, and all geotechnical contractors involved with implementation of Alternative 2 would be required to adhere to them. Consistent with Valley Water's procurement and contracting practices, Valley Water's on-site contract manager would document the implementation and, as applicable the effectiveness of these BMPs, VHP Conditions, VHP AMMs and BAAQMD GHG BMPs on a daily basis, including efforts related to site restoration (e.g., seeding) that may be required after specific subsurface investigation activities have been completed.

Additionally, Alternative 2 would incorporate the same mitigation measures identified in Chapter 3 of this Draft EIR for the Proposed Project. Incorporation of these mitigation measures would reduce all significant impacts to below the level of significance.

## **Ability to Meet Project Objectives**

Alternative 2 would meet all of the Proposed Project objectives as described in Section 4.2.1. The remaining borings, lake sediment borings, and test pits would provide the necessary data needed to meet the objectives. The exclusion of the supplemental helicopter and lake sediment borings, and replacement of five test pits with borings would not be essential for future design, planning and permitting efforts. But, rather provide additional data opportunities to meet the objectives. If Alternative 2 were adopted, and subsequently, additional data needs were identified by DSOD after the investigations were completed, Valley Water would be required to undertake additional analysis under CEQA, as appropriate, prior to proceeding with any additional subsurface investigations.

### **4.5.3 Environmental Impacts of Alternative 2 Compared to the Proposed Project**

#### **Environmental Impacts Less than those of the Proposed Project**

Alternative 2 would not result in a reduction of mitigation requirements and no impacts would be reduced from "less than significant" to "no impact." As compared to the Proposed Project, Alternative 2 would minimally reduce already less than significant impacts for the following





resources: air quality, biological resources, cultural resources, energy, geology, GHG, hazards and hazardous materials, hydrology and water quality, noise, transportation, tribal cultural resources and wildfire. Alternative 2 activities would be similar to the Proposed Project activities and restricted to the same Proposed Project study area. The following analysis provides a qualitative discussion of the environmental impacts of Alternative 2 as compared to the Proposed Project.

**Air Quality.** Overall, Alternative 2 would reduce the amount of dust generated by vehicles and equipment with the reduction in the number of test pits and borings. The exclusion of five helicopter borings would result in the reduction in the amount of hours that a helicopter would be operating and a subsequent reduction in emissions. Vehicles and equipment used for both test pits and borings would be reduced to some degree with a corresponding reduction in emissions. Under Alternative 2, the usage of vehicles, equipment, including barges and a helicopter would be reduced by several weeks due to the corresponding reduction in the number of activity areas that would be reduced. In addition to a reduction in dust associated with vehicle and equipment usage, the reduction in equipment usage would generate slightly reduced emissions of ROG, NO<sub>x</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub>. Similar to the Proposed Project, average daily emissions for all modeled criteria air pollutants and ozone precursors would not exceed BAAQMD's thresholds of significance nor expose sensitive receptors to an incremental increase in cancer risk from activity-related TAC emissions.

**Biological Resources.** Under this alternative, all, or a portion of nine boring activity areas would be excluded and subject to no disturbance. This is an overall reduction in the total acres of activity area of about 1.5 acres. Five of supplemental boring activity areas (S-12, S-14, S-15, S-16, and S-18) would not be drilled. This would result in six trees that would not be trimmed and 14 trees that would not be removed. The exclusion of four boring activity areas associated with reservoir sediment (LS-19, LS-20, LS-31, LS-32) would reduce potential impacts to aquatic resources, as well as exclude several temporary access routes across the dry lakebed if the reservoir is drawn down. The replacement of test pits with borings at five activity areas (TP-45, TP-52, TP-53, TP-62, TP-63) would reduce the overall level of disturbance to those activity areas, including potential impacts to vegetation (e.g., seedbed) and wildlife that may be transitioning through these areas at the time a test pit is being excavated or filled. Less disturbance to vegetation (including trees associated with helicopter borings), habitat and aquatic resources would reduce the potential for impacts on other biological resources, such as sensitive natural communities, special-status plants, special-status wildlife, and wildlife migration and dispersal corridors.

**Cultural Resources.** No known cultural resources are within activity areas subject to surface or subsurface investigations. Changing five test pits to exploratory borings and removing nine exploratory borings would reduce the disturbance within the proposed activity areas and reduce potential impact to unknown cultural resources.

**Energy.** Alternative 2 would result in a small reduction in fuel consumption (i.e., fewer gallons of gasoline, diesel fuel, and aviation fuel) due to reduced helicopter trips, tree trimming and removal efforts, and reduced boring and excavation activities. Similar to the Proposed Project, Alternative



2 would not use excessive amounts of fuel (i.e., gasoline, diesel fuel, and aviation fuel) that would constitute wasteful, inefficient, or unnecessary consumption of energy because only the required amount of fuel necessary to complete the proposed work would be used.

**Geology, Soils and Paleontological Resources.** With the exception of soil erosion and/or loss of topsoil, all impacts related to geology, soils and paleontological resources would be similar, but less than the Proposed Project. Under Alternative 2, about 1.5 acres encompassing nine activity areas would be excluded. In addition, four activity areas proposed for test pits would be replaced with borings. This would reduce the need for exposing approximately 240 square feet of topsoil during excavation, as well as the underlying soil and rock that could be subject to erosion, even during the dry season.

**Greenhouse Gas Emissions.** Overall, Alternative 2 would reduce the GHG emissions produced from helicopter usage, excavation equipment, and boring equipment. Under Alternative 2, the reduced use of vehicles, excavation and drilling equipment, boats and barges, and a medium lift helicopter to conduct the proposed surface and subsurface geotechnical investigations would generate slightly reduced emissions of ROG, NO<sub>x</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub>. Similar to the Proposed Project, average daily emissions for all modeled criteria ozone precursors would not exceed BAAQMD's thresholds of significance and would not conflict with 2022 Scoping Plan for Achieving Carbon Neutrality.

**Hazards and Hazardous Materials.** The overall reduction of nine activity areas equating to about 1.5 acres would provide less area exposed to potential release or discharge of hazardous materials such as fuels, oils, grease, and lubricants. This reduction would reduce the number of vehicle and helicopter trips necessary to implement the subsurface investigations. The exclusion of four boring activity areas and associated access routes within Pacheco Reservoir would reduce the potential for impacts to aquatic resources, especially if barge activities may be required. It would also reduce the amount of time that would be required to implement Alternative 2 by several weeks, therefore reducing the potential time that the Proposed Project study area and people would be exposed to use of hazardous materials. Alternative 2 would be similar to the Proposed Project with respect to emergency evacuation plans and risk associated with wildfires.

**Hydrology and Water Quality.** The overall reduction of nine activity areas, combined with a slightly shorter time frame would reduce the potential for an accidental discharge to a water subject to federal or state jurisdiction. The reduction of four boring activity areas, and associated access routes (or boat/barge trips) within Pacheco Reservoir would reduce the potential impacts to Pacheco Reservoir when compared to the Proposed Project. Similarly, the reduction of activity areas within Pacheco Reservoir would result in lesser impacts to a mapped flood zone. A reduction in the number of borings would reduce the potential for hazardous materials such as fuels, oils, grease, and lubricants necessary to perform excavation and drilling investigations being accidentally released during implementation of subsurface investigations (e.g., drilling) proposed within and adjacent to Pacheco Reservoir, which could reduce water quality. Less geotechnical



investigations (e.g., geotechnical borings and test pits) associated with Alternative 2 would slightly decrease the potential for erosion or siltation.

**Noise.** Overall, Alternative 2 would reduce the noise levels caused from equipment noise exposure, exploratory test pits, boring sites, exploratory boring access, and all-terrain vehicle operations. Alternative 2 would take approximately 100 less helicopter trips (assuming that transporting platform materials and equipment from the staging area or activity site to an activity site would take between nine and 12 helicopter trips, and a similar number of helicopter trips would be needed for removal). Less helicopter operations would reduce the duration of potential noise disturbance to sensitive receptors within the southern portion of the Proposed Project study area on its way from the airport to the northern staging area and associated helicopter landing area. While helicopter usage would be reduced compared to the Proposed Project, this alternative would have the potential to exceed County helicopter noise standards at any nearby sensitive receptor locations. The potential for significant noise impacts associated with two activity areas adjacent to the SR-152 corridor would be similar to the Proposed Project. Mitigation measures NOI-1 and NOI-2 will be required to reduce these significant noise impacts to less than significant.

**Transportation.** Under Alternative 2, the overall reduction in activity areas, combined decreasing the level subsurface investigations by several weeks would decrease the type and level of traffic accessing the Proposed Project study area, as well as within it. While the type of and level of traffic would be similar to the Proposed Project, it would result in less time that the intersection of Kaiser-Aetna Road site access road and SR-152 is used, thereby reducing the potential for temporary hazards or restriction in emergency access. The potential for significant impacts associated with temporary hazards or restrictions in emergency access associated with SR-152 lane closures over the course of several weeks would be similar to the Proposed Project. Mitigation Measure TR-1 would be required to reduce this significant transportation impacts to less than significant.

**Tribal Cultural Resources.** No known tribal cultural resources are within activity areas subject to surface or subsurface investigations. Changing five test pits to exploratory borings and removing nine exploratory borings would reduce the disturbance within the proposed activity areas incorporated into Alternative 2 and reduce potential impact to unknown tribal cultural resources.

**Wildfire.** The overall reduction of nine activity areas would reduce the number of vehicle and helicopter trips necessary to transport personnel and equipment necessary to perform subsurface investigations. By reducing the duration of personnel and equipment working within the Proposed Project study area by several weeks, there would be a corresponding reduction in the potential to impair emergency plans or exacerbation of wildfire risks. Alternative 2 would be similar to the Proposed Project with respect to emergency evacuation plans and risk associated with wildfires.

Based on the discussion of above, the Proposed Project study area would not change, but nine activity areas, and associated access routes would be excluded under Alternative 2. While proposed activities would be slightly reduced, this alternative would still complete the necessary proposed geotechnical investigations to meet the project objectives.



## Mitigation Measures

Alternative 2 would require the implementation of the same mitigation measures identified and fully described in the respective sections of Chapter 3. These mitigation measures listed below would reduce significant impacts associated with Alternative 2 to less than significant. Table 4-4 lists each mitigation measure and its associated title. These mitigation measures are also described in Appendix J, Proposed Conservation Measures and Draft Mitigation Monitoring and Reporting Program.

**Table 4-4. Alternative 2 Mitigation Measures**

Mitigation Measure	Mitigation Title
<b>Biological Resources</b>	
BIO-1	Special-Status Plant Surveys and Avoidance
BIO-2	Protection of Silvery Legless Lizard, San Joaquin Coachwhip, and Coast Horned Lizard
BIO-3	Nesting Golden Eagle and Bald Eagle Surveys and Avoidance of Active Eagle Nests (Bald and Golden Eagle Protection Act)
BIO-4	American Badger Avoidance
BIO-5	San Francisco Dusky-Footed Woodrat Surveys and Avoidance
BIO-6	Bat and Ringtail Habitat Assessment and Tree Removal Plan
<b>Cultural Resources</b>	
CUL-1	Accidental Discovery of Archaeological Artifacts, Tribal Cultural Resource, or Burial Finds Protocol
CUL-2	Pre-activity Cultural Resources Identification and Sensitivity Training
<b>Hazards and Hazardous Materials</b>	
TR-1	Traffic Control Plan
<b>Noise</b>	
NOI-1	Prepare Helicopter Flight Plan and Path to Avoid Sensitive Receptors.
NOI-2	Noise Reduction During Nighttime Geotechnical Investigation Activities.
<b>Transportation</b>	
TR-1	Traffic Control Plan
<b>Wildfire</b>	
TR-1	Traffic Control Plan

## Environmental Impacts Similar to Those of the Proposed Project

Under Alternative 2, eight of the 20 resource areas discussed in Chapter 3 would result in no impact consistent with the discussion provided in Chapter 3 for the Proposed Project. These resource areas are agriculture and forestry, energy, land use and planning, minerals, population and housing, public services, recreation and utilities and service systems.



The following resource areas would have similar, but varying levels of reduction in impacts when compared to the Proposed Project: aesthetics, air quality, cultural resources, geology, soils and paleontology, noise, transportation, tribal cultural resources, and wildfire.

## **Environmental Impacts Greater than those of the Proposed Project**

Alternative 2 would have no potential environmental impacts greater than those of the Proposed Project.

## **Growth Inducing Impacts**

Alternative 2 described in Section 4.5.2 would not involve the development of new housing or job centers that would attract additional population. Therefore, Alternative 2 would not directly induce growth. Implementation of Alternative 2 would not result in the development of new permanent facilities or expansion of existing infrastructure that could directly or indirectly induce growth.

Based on this analysis, the Proposed Project and alternatives to the Proposed Project would not have a substantial growth-inducing impact, and no mitigation is required.

The Conservation Measures incorporated into the Proposed Project and as applicable, mitigation measures listed in Table 4-4 will be implemented to reduce potential damage (e.g., wildfire, accidental release of chemicals, fuels, etc.) that may result in an irreversible environmental change, and therefore there would be no impacts.

## **Significant Irreversible Environmental Changes**

The proposed geotechnical investigations associated with Alternative 2 would result in use of nonrenewable resources (e.g., fossil fuel) to operate vehicles, equipment, a helicopter, and vessels. During geotechnical investigations, Valley Water has incorporated BMP AQ-7, which would require idling time be limited during field investigations. Additionally, other equipment (e.g., a helicopter, vessels) would be operated such that fossil fuels would be used in an efficient manner, thus reducing cost and potential environmental effects (such as temporary air quality effects that could result from prolonged engine idling). Alternative 2 would result in the removal of a limited amount of vegetative material (trees and shrubs) for equipment access. The quantity of resources that would be used for Alternative 2 would be minimal and would not noticeably reduce the availability of these resources for other projects or uses.

Additionally, during implementation of the Alternative 2, Conservation Measures, in conjunction with applicable mitigation measures will be implemented to reduce potential damage (e.g., wildfire, accidental release of chemicals, fuels, etc.) that may result in an irreversible environmental change, and therefore there would be no impacts.





## Significant and Unavoidable Environmental Impacts

Implementation of Alternative 2 would not result in any significant and unavoidable impacts to the environment.

### 4.5.4 Identification of Environmentally Superior Alternative

The State CEQA Guidelines Section 15126.6(e)(2) requires the identification of an environmentally superior alternative to the proposed project. If it is determined that the “no project” alternative would be the environmentally superior alternative, then the EIR shall also identify an environmentally superior alternative among the other project alternatives. To determine the environmentally superior alternative, the ability of each alternative to meet Project objectives was considered and the impacts of the alternatives were compared to determine which alternative would have the least adverse effects. In this case, Alternative 1 (No Project) would be the environmentally superior alternative because it would involve the least amount of impact on the existing physical environment. However, it would not meet any of the project objectives.

Therefore, Alternative 2 (Reduced Subsurface Investigations and Tree Removal) is considered the environmentally superior alternative and would meet all nine of the specified project objectives. As illustrated in Table 4-5 when summarizing the environmental impacts of each alternative, for eleven of the resource areas, Alternative 2 would have less impact than the Proposed Project. Under Alternative 2, six resource areas would have significant, but overall, less impacts than the Proposed Project. Similarly, mitigation applied to Alternative 2 would reduce these impacts to these six resource areas to less than significant.

Table 4-5 summarizes the environmental impacts of the alternative compared to those of the Proposed Project. Alternative 2 would not reduce any of the Proposed Project’s significant impacts or cumulatively considerable impacts (pre-mitigation) to less than significant levels.



**Table 4-5. Comparison of the Environmental Impacts of the California Environmental Quality Act Alternatives**

Impact	Proposed Project and Alternatives	Level of Significance Before Mitigation <sup>1</sup>	Mitigation Measures	Level of Significance with Mitigation <sup>1</sup>
<b>Aesthetics</b>				
<b>Impact AES-1:</b> Would the project have a substantial adverse effect on a scenic vista?	Proposed Project	LTS	--	LTS
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	LTS (-)	--	LTS (-)
<b>Impact AES-2:</b> Would the project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	Proposed Project	LTS	--	LTS
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	LTS (-)	--	LTS (-)
<b>Impact AES-3:</b> Would the project substantially degrade the existing visual character or quality of public views of the site and its surroundings?	Proposed Project	LTS	--	LTS
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	LTS (-)	--	LTS (-)
<b>Impact AES-4:</b> Would the project create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	Proposed Project	LTS	--	LTS
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	LTS (-)	--	LTS (-)
<b>Agricultural and Forestry Resources</b>				
<b>Impact AG-1:</b> Would the project convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	Proposed Project	NI	--	NI
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	NI (-)	--	NI (-)
<b>Impact AG-2:</b> Would the project conflict with existing zoning for agricultural use, or a Williamson Act contract?	Proposed Project	NI	--	NI
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	NI (-)	--	NI (-)
<b>Impact AG-3:</b> Would the project conflict with existing zoning for, or cause rezoning of, forest land (as defined in PRC § 12220(g)), timberland (as defined by PRC § 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))?	Proposed Project	NI	--	NI
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	NI (-)	--	NI (-)



**Table 4-5. Comparison of the Environmental Impacts of the California Environmental Quality Act Alternatives (cont.)**

Impact	Proposed Project and Alternatives	Level of Significance Before Mitigation <sup>1</sup>	Mitigation Measures	Level of Significance with Mitigation <sup>1</sup>
<b>Impact AG-4:</b> Would the project result in the loss of forest land or conversion of forest land to non-forest use?	Proposed Project	NI	--	NI
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	NI (-)	--	NI (-)
<b>Impact AG-5:</b> Would the project involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use?	Proposed Project	NI	--	NI
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	NI (-)	--	NI (-)
<b>Air Quality</b>				
<b>Impact AQ-1:</b> Would the project conflict with or obstruct implementation of the applicable air quality plan?	Proposed Project	NI	--	NI
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	NI (-)	--	NI (-)
<b>Impact AQ-2:</b> Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?	Proposed Project	LTS	--	LTS
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	LTS (-)	--	LTS (-)
<b>Impact AQ-3:</b> Would the project expose sensitive receptors to substantial pollutant concentrations?	Proposed Project	LTS	--	LTS
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	LTS (-)	--	LTS (-)
<b>Impact AQ-4:</b> Would the project result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	Proposed Project	LTS	--	LTS
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	LTS (-)	--	LTS (-)
<b>Biological Resources (Botanical/Wildlife)</b>				
<b>Impact BIO-1:</b> Would the project result in adverse effects on sensitive natural communities and riparian habitat?	Proposed Project	LTS	--	LTS
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	LTS (-)	--	LTS (-)



**Table 4-5. Comparison of the Environmental Impacts of the California Environmental Quality Act Alternatives (cont.)**

Impact	Proposed Project and Alternatives	Level of Significance Before Mitigation <sup>1</sup>	Mitigation Measures	Level of Significance with Mitigation <sup>1</sup>
<b>Impact BIO-2:</b> Would the project result in adverse effects on waters of the United States and waters of the State?	Proposed Project	LTS	--	LTS
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	LTS (-)		LTS (-)
<b>Impact BIO-3:</b> Would the project result in adverse effects on special-status plants?	Proposed Project	SI	MM BIO-1,	LSM
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	SI (-)	MM BIO-1	LSM (-)
<b>Impact BIO-4:</b> Would the project result in adverse effects on monarch butterfly and Crotch's bumble bee?	Proposed Project	LTS	--	LTS
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	LTS (-)	--	LTS (-)
<b>Impact BIO-5:</b> Would the project result in adverse effects and loss of habitat for California tiger salamander and California red-legged frog?	Proposed Project	LTS	--	LTS
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	LTS (-)	--	LTS (-)
<b>Impact BIO-6:</b> Would the project result in adverse effects and loss of habitat for foothill yellow-legged frog?	Proposed Project	LTS	--	LTS
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	LTS (-)	--	LTS (-)
<b>Impact BIO-7:</b> Would the project result in adverse effects and loss of habitat for northwestern pond turtle?	Proposed Project	LTS	--	LTS
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	LTS (-)	--	LTS (-)
<b>Impact BIO-8:</b> Would the project result in adverse effects on California floater mussel?	Proposed Project	LTS	--	LTS
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	LTS (-)	--	LTS (-)
<b>Impact Bio-9:</b> Would the project result in adverse effects and loss of habitat for silvery legless lizard, San Joaquin coachwhip, and coast horned lizard?	Proposed Project	SI	MM BIO-2	LSM
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	SI (-)	MM BIO-2,	LSM (-)



**Table 4-5. Comparison of the Environmental Impacts of the California Environmental Quality Act Alternatives (cont.)**

Impact	Proposed Project and Alternatives	Level of Significance Before Mitigation <sup>1</sup>	Mitigation Measures	Level of Significance with Mitigation <sup>1</sup>
<b>Impact BIO-10:</b> Would the project result in adverse effects on special-status fish species or their habitat?	Proposed Project	LTS	--	LTS
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	LTS (-)	--	LTS (-)
<b>Impact BIO-11:</b> Would the project result in adverse effects and loss of habitat for special-status avian species, nesting migratory birds, and raptors (excluding bald and golden eagles)?	Proposed Project	LTS	--	LTS
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	LTS (-)	--	LTS (-)
<b>Impact BIO-12:</b> Would the project result in adverse effects and loss of habitat for nesting bald eagles and golden eagles?	Proposed Project	SI	MM BIO-3	LSM
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	SI (=)	MM BIO-3	LSM (-)
<b>Impact BIO-13:</b> Would the project result in adverse effects and loss of habitat for mountain lion and tule elk?	Proposed Project	LTS		LTS
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	LTS (-)	--	LTS (-)
<b>Impact BIO-14:</b> Would the project result in adverse effects and loss of habitat American badger?	Proposed Project	SI	MM BIO-4--	LSM
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	SI (-)	MM BIO-4--	LSM (-)
<b>Impact BIO-15:</b> Would the project result in adverse effects and loss of habitat for San Joaquin kit fox?	Proposed Project	LTS	--	LTS
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	LTS (-)	--	LTS (-)
<b>Impact BIO-16:</b> Would the project result in adverse effects on dusky-footed woodrat?	Proposed Project	SI	MM BIO-5	LSM
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	SI (-)	MM BIO-5	LSM (-)
<b>Impact BIO-17:</b> Would the project result in adverse effects and loss of habitat for special-status bats (pallid bat, western red bat, western mastiff bat, Townsend's big-eared bat, hoary bat) and ringtail?	Proposed Project	SI	MM BIO-6	LSM
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	SI (-)	MM BIO-6	LSM (-)





**Table 4-5. Comparison of the Environmental Impacts of the California Environmental Quality Act Alternatives (cont.)**

Impact	Proposed Project and Alternatives	Level of Significance Before Mitigation <sup>1</sup>	Mitigation Measures	Level of Significance with Mitigation <sup>1</sup>
<b>Impact BIO-18:</b> Would the project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	Proposed Project	SI	MM BIO-6	LSM
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	SI (-)	MM BIO-6	LSM
<b>Impact BIO-19:</b> Would the project conflict with the Santa Clara Valley Habitat Plan and Santa Clara County General Plan?	Proposed Project	NI	--	NI
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	NI (=)	--	NI (=)
<b>Cultural Resources</b>				
<b>Impact CUL-1:</b> Would the project cause a substantial adverse change in the significance of a historical resource pursuant to CCR Section 15064.5?	Proposed Project	SI	MM CUL-1. MM CUL-2	LSM
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	SI (-)	MM CUL-1. MM CUL-2	LSM (-)
<b>Impact CUL-2:</b> Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to CCR Section 15064.5	Proposed Project	SI	MM CUL-1. MM CUL-2	LSM
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	SI (-)	MM CUL-1. MM CUL-2	LSM (-)
<b>Impact CUL-3:</b> Would the project disturb any human remains, including those interred outside of formal cemeteries?	Proposed Project	SI	MM CUL-1. MM CUL-2	LSM
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	SI (-)	MM CUL-1. MM CUL-2	LSM (-)
<b>Energy</b>				
<b>Impact ENG-1:</b> Would the project result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	Proposed Project	NI	--	NI
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	NI (-)	--	NI (-)



**Table 4-5. Comparison of the Environmental Impacts of the California Environmental Quality Act Alternatives (cont.)**

Impact	Proposed Project and Alternatives	Level of Significance Before Mitigation <sup>1</sup>	Mitigation Measures	Level of Significance with Mitigation <sup>1</sup>
<b>Impact ENG-2:</b> Would the project conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	Proposed Project	NI	--	NI
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	NI (-)	--	NI (-)
<b>Geology, Soils, and Paleontological Resources</b>				
<b>Impact GEO-1:</b> Would the project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving: i. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? ii. Strong seismic ground shaking? iii. Seismic-related ground failure, including liquefaction? iiiii. Landslides?	Proposed Project	NI	--	NI
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	NI (-)	--	NI (-)
<b>Impact GEO-2:</b> Would the project result in substantial soil erosion or loss of topsoil?	Proposed Project	LTS	--	LTS
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	LTS (-)	--	LTS (-)
<b>Impact GEO-3:</b> Would the project be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	Proposed Project	NI	--	NI
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	NI (-)	--	NI (-)
<b>Impact GEO-4:</b> Would the project be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?	Proposed Project	NI	--	NI
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	NI (-)	--	NI (-)
<b>Impact GEO-5:</b> Would the project have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	Proposed Project	NI	--	NI
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	NI (-)	--	NI (-)
<b>Impact GEO-6:</b> Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	Proposed Project	LTS	--	LTS
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	LTS (-)	--	LTS (-)



**Table 4-5. Comparison of the Environmental Impacts of the California Environmental Quality Act Alternatives (cont.)**

Impact	Proposed Project and Alternatives	Level of Significance Before Mitigation <sup>1</sup>	Mitigation Measures	Level of Significance with Mitigation <sup>1</sup>
<b>Greenhouse Gas Emissions</b>				
<b>Impact GHG-1:</b> Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	Proposed Project	LTS	--	LTS
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	LTS (-)	--	LTS (-)
<b>Impact GHG-2:</b> Would the project conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	Proposed Project	LTS	--	LTS
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	LTS (-)	--	LTS (-)
<b>Hazards and Hazardous Materials</b>				
<b>Impact HAZ-1:</b> Would the project create a significant hazard to the public or the environment through the routine transport, use, storage or disposal of hazardous materials?	Proposed Project	LTS	--	LTS
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	LTS (-)	--	LTS (-)
<b>Impact HAZ-2:</b> Would the project create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	Proposed Project	LTS	--	LTS
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	LTS (-)	--	LTS (-)
<b>Impact HAZ-3:</b> Would the project be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	Proposed Project	LTS	--	LTS
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	LTS (-)	--	LTS (-)
<b>Impact HAZ-4:</b> Would the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	Proposed Project	SI	MM TR-1	LSM
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	SI (-)	MM TR-1	LSM (-)
<b>Impact HAZ-5:</b> Would the project expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires?	Proposed Project	LTS	--	LTS
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	LTS (-)	--	LTS (-)



**Table 4-5. Comparison of the Environmental Impacts of the California Environmental Quality Act Alternatives (cont.)**

Impact	Proposed Project and Alternatives	Level of Significance Before Mitigation <sup>1</sup>	Mitigation Measures	Level of Significance with Mitigation <sup>1</sup>
<b>Impact HAZ-6:</b> Would the project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within ¼ mile of an existing or proposed school?	Proposed Project	NI	--	NI
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	NI (-)	--	NI (-)
<b>Impact HAZ-7:</b> For a project located within an airport land use plan, or where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?	Proposed Project	NI	--	NI
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	NI (-)	--	NI (-)
<b>Hydrology and Water Management</b>				
<b>Impact HYD-1:</b> Would the project violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?	Proposed Project	LTS	--	LTS
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	LTS (-)	--	LTS (-)
<b>Impact HYD-2:</b> Would the project substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	Proposed Project	NI	--	NI
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	NI (-)	--	NI (-)
<b>Impact HYD-3:</b> Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would: <b>a.</b> result in substantial erosion or siltation on- or off-site? <b>b.</b> substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite? <b>c.</b> create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff? <b>d.</b> impede or redirect flood flows?	Proposed Project	LTS	--	LTS
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	LTS (-)	--	LTS (-)
<b>Impact HYD-4:</b> Would the project in flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	Proposed Project	LTS	--	LTS
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	LTS (-)	--	LTS (-)



**Table 4-5. Comparison of the Environmental Impacts of the California Environmental Quality Act Alternatives (cont.)**

Impact	Proposed Project and Alternatives	Level of Significance Before Mitigation <sup>1</sup>	Mitigation Measures	Level of Significance with Mitigation <sup>1</sup>
<b>Impact HYD-5:</b> Would the project conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	Proposed Project	LTS	--	LTS
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	LTS (-)	--	LTS (-)
<b>Land Use and Planning</b>				
<b>Impact LU-1:</b> Would the project physically divide an established community?	Proposed Project	NI	--	NI
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	NI (-)	--	NI (-)
<b>Impact LU-2:</b> Would the project cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	Proposed Project	NI	--	NI
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	NI (-)	--	NI (-)
<b>Mineral Resources</b>				
<b>Impact MIN-1:</b> Would the project result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	Proposed Project	NI	--	NI
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	NI (-)	--	NI (-)
<b>Impact MIN-2:</b> Would the project result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?	Proposed Project	NI	--	NI
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	NI (-)	--	NI (-)
<b>Noise</b>				
<b>Impact NOI-1:</b> Would the project result in generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	Proposed Project	SI	MM NOI-1, MM NOI-2	LSM
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	SI (-)	MM NOI-1, MM NOI-2	LSM (-)
<b>Impact NOI-2:</b> Would the project result in generation of excessive groundborne vibration or groundborne noise levels?	Proposed Project	LTS	--	LTS
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	LTS (-)	--	LTS (-)





**Table 4-5. Comparison of the Environmental Impacts of the California Environmental Quality Act Alternatives (cont.)**

Impact	Proposed Project and Alternatives	Level of Significance Before Mitigation <sup>1</sup>	Mitigation Measures	Level of Significance with Mitigation <sup>1</sup>
<b>Impact NOI-3:</b> For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would expose people residing or working in the Project study area to excessive noise levels	Proposed Project	NI	--	NI
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	NI (-)	--	NI (-)
<b>Population and Housing</b>				
<b>Impact PH-1:</b> Would the project induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	Proposed Project	NI	--	NI
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	NI (-)	--	NI (-)
<b>Impact PH-2:</b> Would the project displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	Proposed Project	NI		NI
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	NI (-)	--	NI (-)
<b>Public Services</b>				
<b>Impact PS-1:</b> Would the Project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities or need for new or physical altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services?	Proposed Project	NI	--	NI
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	NI (-)	--	NI (-)
<b>Recreation</b>				
<b>Impact REC-1:</b> Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	Proposed Project	NI	--	NI
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	NI (-)	--	NI (-)
<b>Impact REC-2:</b> Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	Proposed Project	NI	--	NI
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	NI (-)	--	NI (-)



**Table 4-5. Comparison of the Environmental Impacts of the California Environmental Quality Act Alternatives (cont.)**

Impact	Proposed Project and Alternatives	Level of Significance Before Mitigation <sup>1</sup>	Mitigation Measures	Level of Significance with Mitigation <sup>1</sup>
<b>Transportation</b>				
<b>Impact TRA-1:</b> Would the project conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?	Proposed Project	NI	--	NI
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	NI (-)	--	NI (-)
<b>Impact TRA-2:</b> Would the project conflict or be inconsistent with CEQA Guidelines §15064.3, subdivision (b)?	Proposed Project	LTS	--	LTS
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	LTS (-)	--	LTS (-)
<b>Impact TRA-3:</b> Would the project substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	Proposed Project	LTS	--	LTS
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	LTS (-)	--	LTS (-)
<b>Impact TRA-4:</b> Result in inadequate emergency access	Proposed Project	SI	MM TR-1	LSM
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	SI (-)	MM TR-1	LSM (-)
<b>Tribal Cultural Resources</b>				
<b>Impact TCR-1:</b> Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code Section 5020.1(k)?	Proposed Project	SI	MM CUL-1, MM CUL-2	LSM
	Alt 1 (No Project)	NI (-)		NI (-)
	Alt 2	SI	MM CUL-1, MM CUL-2	LSM (-)



**Table 4-5. Comparison of the Environmental Impacts of the California Environmental Quality Act Alternatives (cont.)**

Impact	Proposed Project and Alternatives	Level of Significance Before Mitigation <sup>1</sup>	Mitigation Measures	Level of Significance with Mitigation <sup>1</sup>
<b>Impact TCR 2:</b> Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is a resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in Subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe?	Proposed Project	LTS	--	LTS
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	LTS (-)	--	LTS (-)
<b>Utilities and Service Systems</b>				
<b>Impact USS-1:</b> Would the project require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	Proposed Project	NI	--	NI
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	NI (-)	--	NI (-)
<b>Impact USS-2:</b> Would the project have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?	Proposed Project	NI	--	NI
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	NI (-)	--	NI (-)
<b>Impact USS-3:</b> Would the project result in determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	Proposed Project	NI	--	NI
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	NI (-)	--	NI (-)
<b>Impact USS-4:</b> Would the project generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	Proposed Project	NI	--	NI
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	NI (-)	--	NI (-)
<b>Impact USS-5:</b> Would the project comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	Proposed Project	NI	--	NI
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	NI (-)	--	NI (-)



**Table 4-5. Comparison of the Environmental Impacts of the California Environmental Quality Act Alternatives (cont.)**

Impact	Proposed Project and Alternatives	Level of Significance Before Mitigation <sup>1</sup>	Mitigation Measures	Level of Significance with Mitigation <sup>1</sup>
<b>Wildfire</b>				
<b>Impact WF-1:</b> Would the project substantially impair an adopted emergency response plan or emergency evacuation plan?	Proposed Project	SI	MM TR-1	LSM
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	SI (-)	MM TR-1	LSM (-)
<b>Impact WF-2:</b> Would the project, due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	Proposed Project	LTS	--	LTS
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	LTS (-)	--	LTS (-)
<b>Impact WF-3:</b> Would the project require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	Proposed Project	LTS	--	LTS
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	LTS (-)	--	LTS (-)
<b>Impact WF-4:</b> Would the project expose people or structures to significant risks, including downslope, or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	Proposed Project	LTS	--	LTS
	Alt 1 (No Project)	NI (-)	--	NI (-)
	Alt 2	LTS (-)	--	LTS (-)

Notes:

<sup>1</sup> Symbols within parentheses provide a relative comparison of impacts of the Proposed Project to other alternatives (i.e., No Project Alternative and Alternatives 2, indicating whether the impacts of the other alternatives are similar to, more severe, or less severe than those of the Proposed Project. It should be noted that these comparisons present the most severe impact determination.

Key:

- = Lesser impact than that of the Proposed Project  
+ = Greater impact than that of the Proposed Project  
= = Same or similar impact as that of the Proposed Project

-- = No mitigation required  
Alt = Alternative  
B = beneficial  
LSM = less than significant with mitigation

LTS = less than significant  
MM = mitigation measure  
NI = no impact  
PRC = California Public Resources Code  
SI = Significant



## Chapter 5. Cumulative Impacts

Cumulative impacts, as defined in Section 15355 of the CEQA Guidelines, refer to two or more individual effects that, when considered together, are considerable or that compound or increase other environmental impacts. The individual effects may be changes resulting from a single project or a number of separate projects. The cumulative impact from several projects is the change in the environment that results from the incremental impact of the proposed project when added to other closely related past, present, or reasonably foreseeable probable future projects. Pertinent guidance for cumulative impact analysis is provided in Section 15130 of the CEQA Guidelines:

- An EIR shall discuss cumulative impacts of a project when the project's incremental effect is "cumulatively considerable" (i.e., the incremental effects of the proposed project are significant when viewed in connection with the effects of past, current, and probable future projects) (CEQA Guidelines Sections 15130[a] and 15065[a][3]).
- An EIR should not discuss impacts that do not result in part from the project evaluated in the EIR.
- A project's contribution is less than cumulatively considerable if the project is required to implement or fund its fair share of a mitigation measure or measures designed to alleviate the cumulative impact.
- The discussion of cumulative impact severity and likelihood of occurrence need not be as detailed as that provided for effects attributable to the project alone.
- The focus of analysis should be on the cumulative impact to which the identified other projects contribute, rather than the attributes of the other projects that do not contribute to the cumulative impact.

Accordingly, the first step in cumulative impact analysis under CEQA is to determine whether impacts of a proposed project would combine with similar impacts of other projects. If such combined impacts are identified, the next step in the analysis is to determine whether these combined or cumulative impacts would be significant in accordance with the applicable significance criteria or thresholds. For cumulative impacts that are determined to be significant, the analysis must then determine whether an individual project's contribution to the cumulative impact is considerable.

### 5.1 Approach and Relevant Projects

Two approaches to a cumulative impact analysis are discussed in CEQA Guidelines Section 15130(b)(1): (A) the analysis can be based on a list of past, present, and probable future projects producing related or cumulative impacts; or (B) a summary of projections contained in an adopted





general plan or related planning document can be used to determine cumulative impacts. The analysis presented in this EIR employs the list-based approach.

The criterion for considering whether a project is reasonably foreseeable and probable in this EIR is whether the project has been defined in adequate detail, either through the completion of publicly available preliminary evaluations, feasibility studies, or draft environmental and engineering documents, to project impacts. Projects that were only in the development phase without detailed descriptions, operations criteria, or general locations at the time that this cumulative impact assessment was written were not considered further. In addition, the following factors were used to determine an appropriate list of projects considered in this cumulative analysis:

- Similar Environmental Impacts – a relevant project contributes effects on resources also affected by the Proposed Project.
- Geographic Location – a relevant project is generally located within the same defined geographic location for the cumulative effect. Valley Water primarily focused on projects that would occur within an approximate five-mile radius from the Proposed Project study area, given the majority of the impacts associated with the Proposed Project would be localized (e.g., would occur within a close distance of Proposed Project activities). Projects may have been included that occur outside of the five-mile radius from the Proposed Project. Those projects were considered given their affiliation with the same elements of the Proposed Project (e.g., same access roads).
- Timing and Duration of Implementation – a relevant project that involves the use of heavy equipment similar to that associated with the Proposed Project and would likely occur within the same general timeframe as the Proposed Project.

A variety of federal, state, county, and local government sources were reviewed to identify and collect information on past, present, and reasonably foreseeable actions or projects within the Proposed Project study area that could contribute to cumulative effects. These include:

- Published reports, documents, and plans (for example those available on CEQAnet);
- Biological management plans such as habitat conservation plans and biological opinions issued by USFWS NMFS, and/or CDFW;
- Environmental documents such as EIRs, including public comments received on the Pacheco Reservoir Expansion Project Draft EIR issued on November 17, 2021, due to its proximity to the Proposed Project study area;
- Scoping comments received in 2024 after the NOP was issued; and
- Communications with federal, state, and local agencies and organizations such as Caltrans, PPWD, Valley Water, and Santa Clara Valley Habitat Agency.



Table 5-1 lists the past, present, and reasonably foreseeable probable projects considered in the cumulative impact analysis. These projects were reasonably foreseeable and probable based on the best information available at the time of Draft EIR preparation. The cumulative impacts identified for the listed projects focus on activities typically associated with the use of construction equipment, since the Proposed Project does not have an operational element. Figure 5-1 illustrates the location of all projects listed in Table 5-1. Each project was considered regarding its potential to cause similar environmental impacts, location within the same geographic area, and/or whether it would occur within the same general timeframe as the Proposed Project. Table 5-1 provides a summary of these considerations and indicates whether or not each project was included in the cumulative analysis.

Valley Water has previously conducted scientific investigations associated with PREP that occurred within or downstream of the Proposed Project study area. These included the Scientific Gage Installation Project, two prior geotechnical investigations, and archaeological site testing within the PREP study area. The Scientific Gage Installation Project consisted of the installation of two stream gages in Pacheco Creek, one piezometer near Pacheco Creek, and one rain gage adjacent to the existing Pacheco Reservoir. The Scientific Gage Installation Project was completed by Valley Water in 2021. Since installation, these instruments have been providing Valley Water with real-time information on precipitation, stream flow and groundwater levels in support of ongoing modeling efforts applicable to future PREP design and planning efforts. There are no on-ground operations (e.g., no daily worker vehicle trips) associated with the Scientific Gage Installation Project.

The two prior geotechnical investigations, completed by Valley Water between January 2019 and May 2023, included borings, test pits, geophysical surveys, bathymetric surveys and piezometer installation and monitoring. Both of these investigations were performed within or in close proximity to the Proposed Project study area. The objectives of previous geotechnical investigations were similar to those of the Proposed Project (i.e., characterize materials available for dam materials, identify seismic risk, foundation conditions). As noted, that work is completed and there is no additional work associated with the two prior geotechnical investigations.

The archaeological site testing consisted of small hand excavations (i.e., test pits) at various archaeological sites distributed through the anticipated area of potential effect for PREP to determine eligibility for inclusion in the National and/or California Register of Historic Places. The total disturbed area for the test pits equaled about 0.026 acre of disturbance. The archaeological site testing was conducted between 2020 and 2023, including backfill to existing contour at all test pit locations.

All investigatory projects were conducted in accordance with applicable Valley Water BMPs. Similar to the Proposed Project, conservation measures were incorporated into these three projects to avoid negative effects on the environment. As previously stated, the two prior geotechnical investigations, and the archaeological site testing were completed by May 2023. Environmental conditions following the completion of these projects were included as part of the



existing settings (e.g., baseline conditions) described for each resource area in this EIR, consistent with CEQA Guidelines Section 15125. Therefore, these previous investigations are not separately addressed as part of the Proposed Project's cumulative analysis. Moreover, Valley Water's record demonstrates that Valley Water's methodology for selecting non-sensitive locations for these prior geotechnical investigations and adherence to its standard BMPs ensured these prior investigations resulted in extremely limited environmental impacts. Similarly, this EIR demonstrates that the Proposed Project would not result in any significant impacts. Thus, the impacts of the Proposed Project, in combination with the impacts of the prior investigations, would not result in any significant impacts.



**Table 5-1. Projects Considered in Cumulative Impacts Analysis**

Project Name	Location	Project Description	Distance from Proposed Project	Schedule/Status	Included in Cumulative Analysis	Potential Cumulative Topics
<b>Valley Water Projects</b>						
Pacheco Reservoir Expansion Project	Pacheco Reservoir	Valley Water's proposed PREP would expand the storage capacity of the existing Pacheco Reservoir from 5,500 acre-feet to approximately 140,000 acre-feet through construction of a new dam, conveyance facilities, and appurtenant infrastructure, and the long-term operations of the expanded reservoir and appurtenant facilities (Valley Water 2021).	Within and adjacent to Proposed Project study area	Project planning and environmental review is ongoing. Construction schedule is currently unknown, however it is unlikely to begin prior to 2030.	Yes	Aesthetics, Air Quality/GHG, Biological Resources, Cultural/Tribal Cultural Resources, Hazards and Hazardous Materials, Noise, Transportation, Wildfire
<b>Non-Valley Water Projects</b>						
B.F. Sisk Dam Raise and Reservoir Expansion Project	Merced County (SR-152)	The expansion project includes placing fill material on the dam embankment to raise the dam crest an additional 10 feet above the 12-foot embankment raise under development by the B.F. Sisk Dam SOD Modification Project, increasing storage capacity of San Luis Reservoir by 130,000 acre-ft. Modifications would also be required to a section of SR-152 where it crosses over Cottonwood Bay (SLDMWA and Reclamation 2023).	Over 5 miles from the Proposed Project study area, but within SR-152.	Funding agreement currently being finalized, design anticipated to be complete in 2025, with construction anticipated to start in 2027. Construction would not overlap with the Proposed Project.	Yes	Air Quality; Cultural Resources; Water Quality; Greenhouse Gases; Visual Resources; Noise and Vibration; Traffic and Transportation; Hazards and Hazardous Materials; Aquatic Resources; Terrestrial Resources; Recreation; Geology, Seismicity and Soils; and Public Utilities, Services, and Power



**Table 5-1. Projects Considered in Cumulative Impacts Analysis (cont.)**

Project Name	Location	Project Description	Distance from Proposed Project	Schedule/Status	Included in Cumulative Analysis	Potential Cumulative Topics
California High-Speed Rail Projects	Pacheco Pass (SR-152)	Phase 1 of the high-speed rail system will run from San Francisco to the Los Angeles basin in under three hours at speeds capable of exceeding 200 miles per hour. The system will eventually extend to Sacramento and San Diego, totaling 800 miles with up to 24 stations (CHSRA 2022).	<1 mile south of Proposed Project study area	Construction schedule in the Final EIR for Merced to San Jose Segment shows pre-construction starts in 2022, however per communication from California High Speed Rail Authority, the San Jose to Merced project section does not currently have a set construction timeline due to lack of funding (Pers. Comm. 2025). Therefore construction would not overlap with the Proposed Project.	No	N/A
PPWD Spillway Repair	Pacheco Reservoir	The PPWD Spillway Repair at North Fork Dam would repair the spillway of North Fork Dam which has been damaged since 2014. This project is within the Proposed Project study area and would entail replacing concrete aprons on the side of the spillway release channel installing rip rap and shotcrete, removing vegetation and crack sealing in the spillway, and repair to access road to reestablish operational flexibility of North Fork Dam (South Bay Grading 2024).	Within Proposed Project study area	Construction is anticipated to occur in 2026; Valley Water has coordinated with PPWD to ensure the spillway repair would not overlap with the Proposed Project (Pers. Comm. 2024).	Yes	Air Quality/GHG, Biological Resources, Hazards and Hazardous Materials, Hydrology and Water Quality, Wildfire





**Table 5-1. Projects Considered in Cumulative Impacts Analysis (cont.)**

Project Name	Location	Project Description	Distance from Proposed Project	Schedule/Status	Included in Cumulative Analysis	Potential Cumulative Topics
Three Lot Subdivision	Pacheco Pass (SR-152)	The three-lot subdivision divided a 432-acre parcel located on the south side of SR-152. The subdivision created three lots of 20, 20, and 29.63 acres in size respectively, with one remainder parcel of 372.23 acres. These lots will obtain access from a new common access road. This road will be located along the alignment of the Pacheco Pass water conduit and will connect with an existing access road that intersects with SR-152. Approximate grading quantities associated with subdivision improvements consists of 5,458 cubic yards of cut and 4,032 cubic yards of fill (Santa Clara County 2022).	<1 mile south of Proposed Project study area	2022 Property Split Approved – Ongoing	Yes	Biological Resources, Water Quality
Grading Abatement on Pacheco Pass (also referred to as Grading Abatement at Bourdet Ranch)	Pacheco Pass (SR-152)	The project consists of legalizing the work completed on ranch roads, stock pond, bridge, driveway, arena, and barn, as well as the spillway and cabin (Sequoia Ecological Consulting 2022).	3 miles southwest of Proposed Project study area	2020 – Ongoing	Yes	GHG, Biological Resources, Water Quality



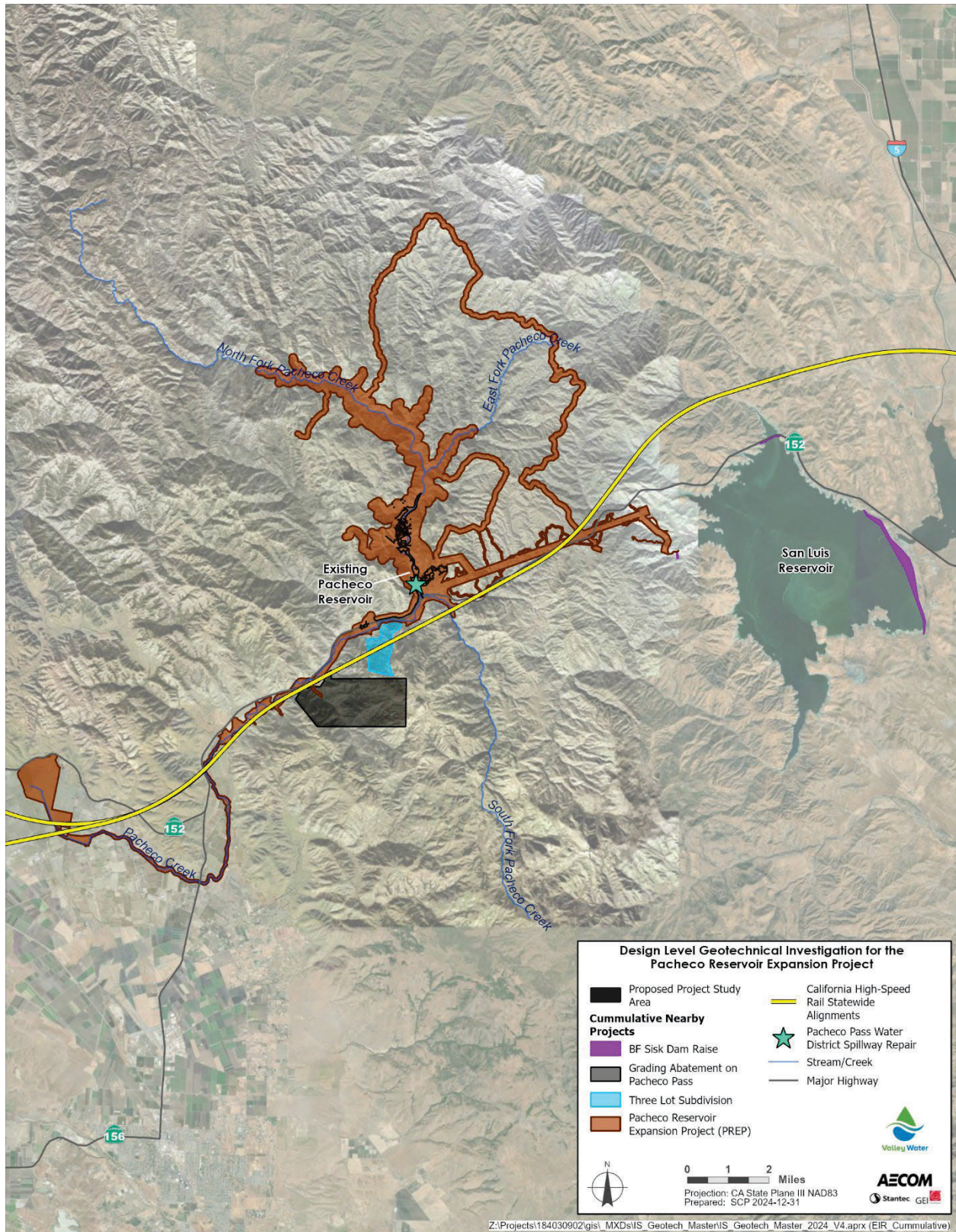


Figure 5-1. Location of Projects Considered in Cumulative Impact Analysis



## 5.2 Cumulative Impact Analysis

Implementation of the Proposed Project would have significant cumulative impacts if it were to have impacts that would be individually limited but cumulatively considerable ("cumulatively considerable" means that the incremental effects of a project are significant when viewed in connection with the effects of past, present, and reasonably foreseeable probable future projects).

This EIR has determined that the Proposed Project would have no impacts related to Agriculture and Forestry Resources, Energy, Geology, Paleontology, Land Use, Mineral Resources, Population and Housing, Public Services, Recreation, and Utilities and Service Systems (see Chapter 3, Environmental Setting, Impacts and Mitigation Measures). Therefore, the Proposed Project, when combined with other cumulative projects would not result in a significant cumulative impact related to these topics. The remaining resources addressed in Chapter 3 are described below.

Table 5-2 lists the area of the analysis for each resource, and the potential for the Proposed Project to contribute to significant cumulative impacts when considered in combination with the effects of other projects listed in Table 5-1.

**Table 5-2. Cumulative Impacts Area of Analysis**

EIR Section	Resource	Significance of Proposed Project's Contribution to Cumulative Impact	Area of Analysis
3.2	Aesthetics	LTS	Local – Individual sites and SR-152 Corridor viewshed.
3.4	Air Quality	LTS	Regional – San Francisco Bay Area Air Basin. <sup>1</sup>
3.5	Biological Resources	LSM	Regional – Pacheco Creek watershed.
3.6	Cultural Resources	LSM	Local – Individual construction sites or other ground disturbance areas and immediate vicinity in Santa Clara County.
3.8	Soils	LTS	Regional – Pacheco Creek watershed.
3.9	Greenhouse Gas Emissions	LTS	Regional – San Francisco Bay Area Air Basin. <sup>1</sup>
3.10	Hazards and Hazardous Materials	LSM	Local – Individual Project sites and immediate vicinity. Portions of Santa Clara County.
3.11	Hydrology and Water Quality	LTS	Local – Local drainage system and individual construction/grading sites. Local groundwater resources at individual Project sites. Local and Regional – Pacheco Creek watershed.
3.14	Noise	LSM	Local – Immediate vicinity of individual activity areas (i.e., typically within half a mile or less, depending on the nature of the noise generated from Proposed Project).





**Table 5-2. Cumulative Impacts Area of Analysis (cont.)**

EIR Section	Resource	Significance of Proposed Project's Contribution to Cumulative Impact	Area of Analysis
3.18	Transportation	LSM	Local and Regional – Roadway network within southeastern Santa Clara County (including local public and private roadways).
3.19	Tribal Cultural Resources	LSM	Local – Individual activity areas subject to ground disturbance within Proposed Project study area. Santa Clara County
3.20	Wildfire	LSM	Local – Individual Project sites and immediate vicinity. Portions of Santa Clara County within vicinity of Proposed Project.

Notes:

<sup>1</sup> San Francisco Bay Area Air Basin as regulated by Bay Area Air Quality Management District

Key:

LTS = Less than Significant

LSM = Less than Significant with Mitigation

## 5.2.1 Aesthetics

Cumulative impacts on aesthetics could occur if the incremental effects of the Proposed Project, together with the environmental impacts of any of the other projects listed in Table 5-1, would collectively result in cumulatively significant effects on a scenic vista, or scenic resource, or create substantial light or glare within the vicinity of the Proposed Project study area. As stated in Section 3.2.3, there are no state scenic highways or public views of scenic vistas located adjacent to, or within view of, the Proposed Project study area, however SR-152 is considered a scenic gateway under the Santa Clara County General Plan.

As discussed in Section 3.2.3, during Proposed Project implementation, a single trailer or truck-mounted drill rig and associated equipment would temporarily alter the visual contrast of views seen by motorists using SR-152 for a period of up to four days at each activity area. Change in form, line, color, and texture of this viewshed would be similar to the types of normal periodic maintenance and improvement projects conducted by Caltrans or utility companies in and adjacent to the SR-152 right-of-way. Additionally, as discussed in Section 3.2.3, the Proposed Project would not result in a permanent change to the visual nature of lands and resources visible to the public within and adjacent to the Proposed Project study area. Therefore, impacts to aesthetics from implementation of the Proposed Project would be less than significant.

With respect to the other projects listed in Table 5-1, there is no potential for the less than significant impacts of the Proposed Project on aesthetics to combine with any aesthetic impacts of the separately proposed PREP project with respect to views from SR-152, because the Proposed Project would be completed several years prior (more than five) to the PREP project. Following completion of the Proposed Project, there would not be any other activities or equipment on SR-152 and, there is no potential for overlapping aesthetic impacts with the PREP. Given this, the



Proposed Project, in combination with PREP would not result in a significant cumulative impact on aesthetics.

The Final EIR for B.F. Sisk Dam identified less-than-significant impacts with mitigation from nighttime glare on visual resources due to construction activities on SR-152. Additionally, that EIR determined a change to the visual character from increased water surface elevations in San Luis Reservoir would have a less than significant impact to traveler's scenic experience on SR-152. Depending on the timing of the construction associated with the B.F. Sisk Dam project, there may be a temporary overlap of Proposed Project activities that would be visible to travelers on SR-152. However, given the temporary nature of visual impacts from the Proposed Project along the SR-152 corridor, and the fact that, as discussed in Section 3.2.3, the Proposed Project would not create a new substantial source of light or glare that would adversely affect day or nighttime views, the Proposed Project, in combination with the B.F. Sisk Dam would not result in a significant cumulative impact on aesthetics.

None of the other projects listed in Table 5-1 have any potential to overlap or combine with the Proposed Project's aesthetic impacts. Therefore, the Proposed Project, in combination with projects in Table 5-1, **would not result in a significant cumulative aesthetic impact.**

### 5.2.2 Air Quality

Any proposed project that would individually have a significant air quality impact would also be considered to have a cumulative air quality impact. That is because project-specific significance thresholds developed by the BAAQMD are established based on regional emissions budgets and set such that when individual projects do not exceed these thresholds, the project's emissions contribution to the air basin would not impede ambient air quality attainment planning, and therefore, would not result in a cumulatively considerable net increase in emission of pollutants in a region that is nonattainment. Exhaust emissions that were estimated for the Proposed Project indicate that there would not be a significant impact on air quality (see impact discussion AQ-2 in Section 3.4.3). Emissions from vehicles and equipment associated with the Proposed Project would be short-term, ceasing upon completion. Further, Valley Water has incorporated conservation measures, including BAAQMD BMPs, to further minimize emissions and the Proposed Project, in combination with other projects, would not result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment.

Regarding localized emissions of particulate matter and TACs, which have direct effects on nearby sensitive land uses, if projects listed in Table 5-1 were close enough together and emitted pollutants and the same time, emissions from individual projects could potentially combine with emissions from all cumulative projects and result in increased localized concentrations of these pollutants. Given the timing of the Proposed Project relative to the projects listed in Table 5-1, there would be little to no overlap of vehicle or equipment emissions affiliated with the Proposed Project and any of the projects listed in Table 5-1. The only project that may overlap in timing would be with the B.F. Sisk Dam project, however equipment usage would not be spaced in close



enough proximity to result in cumulatively significant emissions of particulate matter or TACs. Additionally, because the Proposed Project would be limited to temporary geotechnical investigation activities, there would be no long-term emissions of particulate matter or TACs to combine with emissions from other nearby projects.

Further, and as discussed Section 3.4.3 Impact AQ-3, localized particulate matter from the Proposed Project would be minimal, particularly with implementation of conservation measures, all of which are designed to minimize an individual project's contribution of particulate matter from temporary excavations. Regarding TAC emissions, as described in detail in Impact AQ-3, there are no existing substantial TAC sources in the Proposed Project's vicinity. Additionally, the Proposed Project's overall short-term duration (e.g., eight months) and even shorter duration of activities at any one activity area would not result in substantial concentrations of TACs affecting any one receptor. Moreover, considering the highly dispersive properties of TACs (i.e., 70 percent reduction at 500 feet [CARB 2005]), these emissions would be far reduced with increasing distance from the source (i.e., equipment exhaust tailpipes), such that no measurable increase beyond the immediate vicinity of the work area would occur that could combine with emissions from other projects. Therefore, particulate matter and TAC emissions expected from the Proposed Project, when combined with other cumulative projects, would not result in a significant cumulative impact resulting in the exposure of sensitive receptors to substantial pollutant concentrations.

Additionally, the Proposed Project odors associated with Proposed Project activities would occur intermittently throughout the geotechnical investigation efforts over an 11 working month period, and would not generate odors adversely affecting a substantial number of people. None of the projects listed in Table 5-1 have the potential to overlap or combine with the Proposed Project activities or would be in close enough proximity to the Proposed Project such that there would be an increase in other emissions such as odor.

None of the other projects listed in Table 5-1 have any potential to overlap or combine with the Proposed Project's air quality impacts. Therefore, the Proposed Project, in combination with the projects in Table 5-1, **would not result in a significant cumulative air quality impact.**

## 5.2.3 Biological Resources

The geographic scope of potential biological resources encompasses the aquatic resources, sensitive natural communities and habitat for special-status wildlife and plant species within the Proposed Project study area as well as biologically linked areas in the upper reaches of the Pacheco Creek watershed. This regional approach is appropriate because vegetation, habitats, and plant and wildlife species that could be affected by the Proposed Project and by the projects identified in Table 5-1 are part of a broader ecosystem, and the potential disturbance of individual areas could have repercussions for a wider region than the immediate Project vicinity.

As discussed in Section 3.5.3, Impact BIO-1 and Impact BIO-2, the Proposed Project would result in minimal impacts on sensitive natural communities, including waters of the United States and





waters of the State. Several conservation measures have been incorporated to further minimize any impacts on these resources. Following the completion of all ground-disturbing activities, disturbed areas would be rehabilitated to pre-Project conditions, including seeding with a native and regionally appropriate erosion control mix approved by Valley Water and the landowner, and impacts on sensitive natural communities would be less than significant.

Proposed Project activities may result in impacts on special-status species or may cause wildlife to temporarily avoid the small and isolated activity areas (see Section 3.5.3, impacts BIO-3 through BIO-18). The disruption associated with any activity, or combination of activities, occurring as part of the Proposed Project at any given time would be discrete and temporary (e.g., typically 1-2 days at each activity area over a period of several months). Several conservation measures have been incorporated into the Proposed Project to protect species and sensitive natural communities, during Proposed Project implementation. In cases where impacts were considered to be significant, mitigation measures (Mitigation Measure BIO-1 through Mitigation Measure BIO-6) will be implemented to reduce significant impacts on biological resources to a less-than-significant level. Expansive and unfragmented habitat surrounding each activity area would remain available for wildlife movement, and given the temporary nature of Proposed Project activities, impacts on special-status species, including impacts on wildlife corridors within the Proposed Project study area, impacts would be less than significant.

With respect to the other projects listed in Table 5-1, the less than significant biological impacts of the Proposed Project, when combined with other projects, would not result in a significant cumulative impact on biological resources. The PPWD Spillway Repair would be short term (less than one year) and would have temporary construction-related biological resources impacts primarily from the use of vehicles and equipment within the previously disturbed area associated with the North Fork Dam spillway. The PPWD project would include AMMs and BMPs to minimize or avoid impacts on biological resources, and impacts were determined to be less than significant. Additionally, Valley Water will coordinate with PPWD to ensure the timing of the PPWD Spillway Repair project would not overlap with that of the Proposed Project (Pers. Comm. 2024), eliminating potential for overlapping impacts on biological resources from equipment usage adjacent to or within the spillway. Therefore, the Proposed Project, in combination with the PPWD Spillway Repair would not result in a significant cumulative impact on biological resources.

The Three Lot Subdivision project may impact habitat that supports San Joaquin kit fox, California red-legged frog, and California tiger salamander, as well as special-status birds (western burrowing owl, raptors). The Three Lot Subdivision project may also impact Pacheco Creek and its associated riparian corridor from residential development. The Three Lot Subdivision project is subject to conditions under the VHP Conditions, and all future subdivision improvement and residential developments will be governed by the VHP. Additionally, mitigation measures were included to reduce impacts on species and habitat to a less-than-significant level. Therefore, given the minimal impacts from the Three Lot Subdivisions, the Proposed Project, in combination with this project would not result in a significant cumulative impact on biological resources.



According to a biological resources report prepared for the Grading Abatement project, the project could potentially impact special-status animal species, including California tiger salamander, California red-legged frog, and special-status birds (golden eagle) and special-status plant species, as well as sensitive natural communities (e.g., sycamore alluvial woodland and riparian). However, the Grading Abatement project includes restoration of these natural communities. The Grading Abatement project is also subject to conditions under the VHP and would require permits from regulatory agencies, including the CDFW and CCRWQCB. Additionally, the biological resources report prepared for the Grading Abatement project determined impacts would be less than significant with incorporation of mitigation that would reduce potential impacts on both natural communities and other biological resources. Therefore, the Proposed Project, in combination with the Grading Abatement project would not result in a significant cumulative impact on biological resources.

The separately proposed PREP project is expected to impact the same species that were evaluated in this EIR for the Proposed Project, including special-status plants, special-status wildlife, and special-status fish, as well as sensitive natural communities. Several of the same conservation measures as the Proposed Project would be incorporated into PREP. The Draft EIR for PREP includes PAMMs as well as extensive mitigation to reduce impacts, and determined that the resulting impact on biological resources from PREP would be less than significant. Additionally, prior to construction activities commencing, several regulatory and permitting actions from state and federal agencies would be required, including CDFW, CCRWQCB, USFWS, NMFS, and USACE. All of these permitting actions would consider both short-term and long-term impacts on special-status species, and require implementation of measures, including compensatory mitigation, to protect species and sensitive natural communities. Because the Proposed Project would be completed several years (more than five) prior to the PREP project, temporary disturbed habitat and resulting impacts on species from the Proposed Project would have since recovered to pre-project conditions. Given the minimal biological resources impacts associated with the Proposed Project, the Proposed Project, in combination with the separately proposed PREP project would not result in a significant cumulative impact on biological resources.

None of the other projects listed in Table 5-1 have any potential to overlap or combine with the Proposed Project's biological resource impacts. Therefore, the Proposed Project, in combination with the projects in Table 5-1, **would not result in a significant cumulative biological resource impact.**

## 5.2.4 Cultural Resources and Tribal Cultural Resources

Cumulative impacts on cultural and tribal cultural resources could occur if the incremental effects of the Proposed Project, together with the environmental impacts of any of the other projects listed in Table 5-1, would collectively result in cumulatively significant effects on cultural or tribal cultural resources. The geographic scope of potential cumulative impacts on cultural resources



and tribal cultural resources encompasses the APE for the Proposed Project study area and buffer established around it.

The Proposed Project has been designed to avoid substantial impacts to all identified resources regardless of eligibility. Additionally, as described in Sections 3.6.3 and 3.19.3, the Proposed Project includes several conservation measures to minimize and avoid the potential for adverse impacts to occur on cultural and tribal cultural resources. Regardless, there is potential for activities associated with the Proposed Project to result in the discovery of unknown historical resources and unknown archaeological resources. In cases where impacts were considered to be significant even with implementation of conservation measures, mitigation measures CUL-1 and CUL-2 will reduce all potential impacts from the Proposed Project associated with the discovery of unknown resources, including human remains to a less-than-significant level.

The Proposed Project, in combination with cumulative projects, would not result in a significant cumulative impact on cultural resources. The PPWD Spillway Repair project would occur within the same area as the Proposed Project, however the work associated with the PPWD project would be limited to the existing concrete spillway, and it is not expected that cultural resources or tribal cultural resources would occur within this work area.

The separately proposed PREP project is proposed within the same area (e.g., APE) of the Proposed Project, and was preliminarily determined to result in significant unavoidable impacts on cultural resources. However, given the Proposed Project has been designed to avoid all identified resources regardless of eligibility, as well as the implementation of conservation measures and mitigation, the Proposed Project, in combination with PREP would not result in a significant cumulative impact on cultural or tribal cultural resources.

None of the other projects listed in Table 5-1 would overlap the APE or combine with the Proposed Project's cultural or tribal cultural resource impacts. Therefore, the Proposed Project, in combination with projects in Table 5-1, **would not result in a significant cumulative cultural resource or tribal cultural resource impact.**

## 5.2.5 Soils

In the case of the resources associated with geology, soils and paleontology, as described in Section 3.8.3, there would be no impacts to geology or paleontology. As there was a less significant impact associated with loss of soil resources, that is the focus of this cumulative discussion. The geographic scope of potential cumulative soils impacts encompasses the Proposed Project study area and immediate vicinity, given the nature of the potential impacts associated with the Proposed Project.

The Proposed Project would result in temporary disturbance of topsoil associated with geotechnical borings, test pits and drilling platforms. Conservation measures have been incorporated into the Proposed Project that requires the use of erosion control measures to protect vegetation and water quality, as well as control runoff. Additionally, the Proposed Project



has been timed to occur during the dry season, when there is little to no precipitation, minimizing the potential for erosion and storm water pollution to occur at locations within or downstream of the Proposed Project study area. Therefore, impacts on soil associated with the Proposed Project were determined to be less than significant.

With respect to the other projects listed in Table 5-1, the less than significant impacts on soils from the Proposed Project, when combined with other projects, would not result in a significant cumulative impact. The PPWD Spillway Repair project would be short term, however, could result in temporary construction-related soils impacts. The scope of the PPWD Spillway Repair project would be limited to the existing concrete spillway and is not expected to include extensive excavation. The work would occur when there is no flow within the spillway, reducing the potential for erosion to occur. Additionally, in coordination with Valley Water, the PPWD Spillway Repair would be timed to ensure it does not overlap with the Proposed Project (Pers. Comm. 2024). Given the nature of construction for the PPWD Spillway Repair project, and minimal impacts expected from the Proposed Project, the Proposed Project, in combination with the PPWD Spillway Repair project would not result in a significant cumulative impact on soils.

The separately proposed PREP project Draft EIR identified that, even with mitigation, significant and unavoidable impacts on soil would occur due to the scale of erosion expected to occur within the watershed. However, because the Proposed Project would be completed several years prior to the PREP project, disturbed areas from the Proposed Project would have since recovered to pre-project conditions from site stabilization measures such as reseeding. Additionally, given the minimal acreage of impacts associated with the Proposed Project (less than one acre of total combined disturbance area), the Proposed Project, in combination with the separately proposed PREP project would not result in a significant cumulative impact on soils.

None of the other projects listed in Table 5-1 would combine with the Proposed Project's soils impacts due to lack of immediate proximity. Therefore, the Proposed Project, in combination with projects in Table 5-1, **would not result in a significant cumulative soils impact.**

### 5.2.6 Greenhouse Gas Emissions

GHG emissions generation and related global climate change represent cumulative impacts. Specifically, GHG emissions cumulatively contribute to the significant adverse environmental impacts of global climate change. No single project could generate enough GHG emissions to noticeably change the global average temperature; instead, the GHG emissions from past, present, and future projects, plans, and programs and activities have contributed, currently are contributing, and would contribute to global climate change and its associated environmental impacts. In addition, given that the global atmosphere is the overarching cumulative setting with regard to GHG emissions, GHG emissions cumulative impacts are not location specific but rather time specific.



For the Proposed Project, as discussed under Impact GHG-1 in Section 3.9.3, project-generated emissions would result in 505 MTCO<sub>2</sub>e in the first year and 445 MTCO<sub>2</sub>e in the second year, which is substantially lower than applicable air district thresholds (i.e., SMAQMD). These estimates include the incorporation of conservation measures, as described in Section 2.4 of the EIR.

Projects that do not exceed this limit have been determined to not result individually in a cumulatively considerable magnitude of GHG emissions. Further, Valley Water has incorporated BAAQMD's reasonable measures that will be implemented as part of the Proposed Project to reduce GHG emissions. Given the Proposed Project's short-term duration and minimal anticipated GHG emissions, coupled with the implementation of BAAQMD's measures, the Proposed Project, when combined with the projects in Table 5-1, would not result in a cumulatively considerable increase in GHG emissions and **would not result in a significant cumulative impact on GHG.**

### 5.2.7 Hazards and Hazardous Materials

Hazards and hazardous materials impacts are generally site-specific and depend on past, present, and future uses, as well as existing soil, sediment, and groundwater conditions. The geographic scope of potential cumulative hazards and hazardous materials impacts encompasses the Proposed Project study area and immediate vicinity.

Samples from Valley Water's previous geotechnical investigations projects were analyzed for NOA and for metals listed in Title 22 of the California Code of Regulation (see Section 3.10.1 for a complete description of site conditions). The analytical results for metals indicated that arsenic, cobalt, and nickel in some samples exceeded their respective screening levels, indicating that further investigation and, if necessary, protection (e.g., dust control) may be required to protect workers during subsurface geotechnical investigations. Previous investigations suggest that the occurrence of rock or soil containing NOA and/or metals is unlikely to be present within the Proposed Project study area, other than the alluvial sediments stored in Pacheco Reservoir. No known hazardous materials were identified within the Proposed Project study area or immediate vicinity, with exception of PPWD's North Fork Dam use of a lead-acid battery a number of years ago, however there is no evidence of hazardous materials at this structure (J. Micko, Personal Communication, 2021). All work within the Proposed Project study area has or would occur within these conditions. Conservation measures will be implemented to reduce the potential for impacts associated with the accidental release of hazardous materials. As described in Section 3.10.3, impacts associated with the potential exposure or release of a hazardous material from Proposed Project activities were determined to be less than significant.

As described in Impact HAZ-4 in Section 3.10.3, the Proposed Project would potentially conflict with emergency services due to traffic slowdowns caused by temporary lane closures. Impacts on emergency services were determined to be less than significant with the implementation of mitigation measure TR-1.





With respect to the projects listed in Table 5-1, the less than significant impacts on hazardous materials from the Proposed Project, when combined with these projects, would not result in a significant cumulative impact. The PPWD Spillway Repair project would be short term and includes construction-related activities however, BMPs similar to those incorporated into the Proposed Project would be implemented to reduce the potential for accidental release or exposure of hazardous materials. Given the minimal impacts and limited scope of the Proposed Project, the Proposed Project, in combination with the PPWD spillway project would not result in a significant cumulative impact on hazards and hazardous materials.

The separately proposed PREP project Draft EIR concluded that impacts related to hazards and hazardous materials would be less than significant. Several BMPs and PAMMs would be incorporated into PREP, further minimizing the potential for significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials during construction and operation. Given the minimal acreage of impacts and limited scope of the Proposed Project (less than one acre of total combined disturbance area), the Proposed Project, in combination with the separately proposed PREP project would not result in a significant cumulative impact on hazards and hazardous materials. The Draft EIR for the PREP also determined that impacts on emergency services from PREP would be less than significant with respect to slowdowns or temporary roadway blockages during construction. The Draft EIR for PREP included a similar measure as the Proposed Project, requiring the preparation and implementation of a Transportation Management Plan, which would minimize conflicts with emergency vehicles and evacuation traffic. However, because the Proposed Project would be completed several years prior to (more than five) the PREP project there would not be an overlap of construction-related lane closures or traffic delays, and there would not be a significant cumulative impact on emergency response plans or emergency evacuation plans.

None of the other projects listed in Table 5-1 would combine with the Proposed Project's hazards or hazardous materials impacts. Therefore, the Proposed Project, in combination with projects in Table 5-1, **would not result in a significant cumulative hazards or hazardous materials impact.**

## 5.2.8 Hydrology and Water Quality

Cumulative impacts on hydrology and water quality could occur if incremental effects of the Proposed Project, together with the environmental impacts of any of the other projects listed in Table 5-1, would collectively result in cumulatively significant effects on surface water resources within the Proposed Project study area. The geographic scope of potential cumulative hydrology and water quality impacts generally encompasses the Pacheco Creek watershed, which includes the Proposed Project study area as well as areas upstream and downstream.

The Proposed Project would not result in alterations to existing drainage patterns or redirect flood flows, therefore this discussion focuses on the potential for the Proposed Project to impact water quality. As discussed in Section 3.11.3, ground disturbance associated with the Proposed Project



has the potential to expose soils and mobilize sediments in stormwater. Conservation measures have been incorporated into the Proposed Project to avoid or minimize the potential for accidental discharge or release of substance into a water body subject to federal or state jurisdiction that would degrade surface or subsurface water quality. Further, the Proposed Project has been timed to occur during the dry season, when there is little to no precipitation, minimizing the potential for erosion and storm water pollution to occur at locations within or downstream of the Proposed Project study area. The Proposed Project would not result in the release of pollutants from inundation by a flood hazard, tsunami, or seiche, and impacts would be less than significant on hydrology and water quality.

With respect to the projects listed in Table 5-1, all of projects listed except for the B.F. Sisk dam project would, or has resulted in, some amount of ground disturbance and/or equipment use near waterways within the Pacheco Creek watershed. The PPWD Spillway Repair project would be short term, however could have temporary construction-related soil disturbances resulting in water quality impacts. The scope of the PPWD project would be limited to the existing concrete spillway and is not expected to include extensive excavation. The work would occur when there is no flow within the spillway, reducing the potential for erosion or other water quality impacts to occur. Additionally, in coordination with Valley Water, the PPWD Spillway Repair would be timed to ensure it does not overlap with the Proposed Project (Pers. Comm. 2024). Given the nature of construction for the PPWD spillway project, and minimal impacts expected from the Proposed Project, the Proposed Project, in combination with the PPWD Spillway Repair project would not result in a significant cumulative impact on hydrology and water quality.

The Three Lot Subdivision project was determined to have less than significant impacts on hydrology and water quality. Further, prior to the development of any parcels, the County will review all plans to ensure that septic systems conform to all requirements and that drainage improvements would adequately address increases or changes in run-off. Given the minimal acreage of impacts associated with the Proposed Project (less than one acre of total combined disturbance area), the Proposed Project would not result in erosion entering Pacheco Creek such that, when combined with the Three Lot Subdivision project, a significant cumulative impact on water quality would occur.

The Grading Abatement project specifically includes restoration of the Harper Canyon stream channel (a tributary to Pacheco Creek). The Grading Abatement project is subject to conditions under the VHP, including the protection of water quality. Additionally, permits from regulatory agencies, including the CDFW and the Water Board, would be required which would reduce the potential for impacts on water quality. Additionally, mitigation was incorporated into this project, requiring that work be conducted between April 15 and November 1 when flows are low or nonexistent, which would further reduce potential impacts on water quality. Accordingly, impacts were determined to be less than significant with mitigation. Therefore, the Proposed Project, in combination with the Grading Abatement project would not result in a significant cumulative impact on water quality.



The separately proposed PREP project Draft EIR identified that, even with mitigation, significant and unavoidable impacts on water quality with respect to temperature as well as sediment and turbidity violating water quality standards caused by construction would occur. The Proposed Project would have no impact on the temperature of waters within the Pacheco Creek watershed. Additionally, because the Proposed Project would be completed several years prior to the PREP project, disturbed areas from the Proposed Project would have since recovered to pre-project conditions from site stabilization measures such as reseeding, and there would not be a cumulatively significant increase in sediment or turbidity. Additionally, given the minimal acreage of impacts associated with the Proposed Project (less than one acre of total combined disturbance area), the Proposed Project, in combination with the separately proposed PREP project would not result in a significant cumulative impact on water quality.

No projects listed in Table 5-1 would combine with the Proposed Project's hydrology and water quality impacts. Therefore, the Proposed Project, in combination with projects in Table 5-1, **would not result in a significant cumulative hydrology and water quality impact.**

### 5.2.9 Noise

Cumulative impacts on noise could occur if incremental effects of the Proposed Project, together with the environmental impacts of any of the other projects listed in Table 5-1, would collectively result in cumulatively significant effects. The geographic scope of potential cumulative noise and vibration impacts encompasses the Proposed Project study area as well as areas adjacent to sensitive receptors that may be affected by the Proposed Project and access or haul routes that are located near noise-sensitive land uses.

Section 3.14.3 provides a discussion of expected impacts from the Proposed Project. Short-term noise associated with equipment operation is expected to occur throughout the Proposed Project study area. Impact NOI-1 provides estimates of expected noise levels as well as the modeled noise levels at all sensitive receptors. If helicopter operations were to occur within 500 feet of sensitive receptors they would increase ambient noise levels for those sensitive receptors in excess of the significance thresholds, and there would be a significant impact on noise. Additionally, while the majority of the investigation work would occur during the day, four activity areas require nighttime work, which may result in an exceedance of allowable noise levels, causing a significant impact. Mitigation measures NOI-1 and NOI-2 would be implemented which would reduce noise-related impacts to a less-than-significant level.

There is no potential for the less than significant impacts of the Proposed Project on noise to combine with the impacts of the separately proposed PREP project, because the Proposed Project would be completed several years prior to (more than five) the PREP project. Following completion of the Proposed Project, there would not be any other activities or equipment in use and there is no potential for overlapping noise impacts with the PREP. Similarly, Valley Water will coordinate with PPWD to ensure the timing of the PPWD Spillway Repair project to ensure it would not overlap with that of the Proposed Project (Pers. Comm. 2024), eliminating potential for



overlapping impacts on noise. Given this, the Proposed Project, in combination with PREP and the PPWD project, **would not result in a significant cumulative impact on noise.**

None of the other projects listed in Table 5-1 would combine with the Proposed Project's noise impacts due to lack of proximity. Therefore, the Proposed Project, in combination with projects in Table 5-1, **would not result in a significant cumulative noise impact.**

## 5.2.10 Transportation

Cumulative impacts on transportation could occur if the incremental effects of the Proposed Project, together with the environmental impacts of any of the other projects listed in Table 5-1, would collectively result in cumulatively significant effects. The geographic scope of potential cumulative impacts related to transportation includes regional facilities (e.g., highways and freeways) and local roads providing access to the Proposed Project study area.

As discussed in Section 3.18.3, the Proposed Project would result in less than significant impacts on transportation related to potential traffic hazards caused by the temporary nighttime lane closures on SR-152, and less than significant impacts with mitigation incorporated related to emergency access, as described above in Section 5.2.7, Hazards and Hazardous Materials. Implementation of the conservation measures related to public safety, as well as mitigation measure TR-1 would ensure all transportation impacts remain at a less-than-significant level.

There is no potential for the less than significant impacts of the Proposed Project on transportation to combine with any impacts of the separately proposed PREP project, because the Proposed Project would be completed several years prior to (more than five) the PREP project. Following completion of the Proposed Project, there would not be any long-term transportation impacts therefore there is no potential for overlapping impacts with the PREP. Given this, the Proposed Project, in combination with PREP would not result in a significant cumulative impact on transportation.

The Final EIR for B.F. Sisk Dam identified less-than-significant impacts with mitigation for most transportation impacts, however the Final EIR determined that there would be a significant and unavoidable increase in transportation impacts on SR-152 due to construction-related trips, however there would not be a long-term increase in roadway traffic (SLDMWA and Reclamation 2023). Depending on the timing of the construction associated with the B.F. Sisk Dam project, there may be a temporary overlap of Proposed Project activities impacting travelers on SR-152. However, as discussed in Section 3.18.3, increases in traffic from the Proposed Project would be minimal (up to 32 trips per day). Additionally, work within the SR-152 corridor would occur at night and would be temporary (up to four nights per bore), and once completed there would be no further lane closures needed. Given this, the Proposed Project, in combination with the B.F. Sisk Dam project would not result in a significant cumulative impact on transportation.

None of the other projects listed in Table 5-1 would combine with the Proposed Project's traffic impacts because there would be no overlap of activities from the Proposed Project with these



projects. Therefore, the Proposed Project, in combination with projects in Table 5-1, **would not result in a significant cumulative transportation impact.**

### 5.2.11 Wildfire

Cumulative impacts on wildfire could occur if incremental effects of the Proposed Project, together with the environmental impacts of any of the other projects listed in Table 5-1, would collectively result in cumulatively significant effects. The geographic scope of potential impacts associated with cumulative wildfire impacts encompasses the Proposed Project study area and immediate vicinity.

As described in Section 3.21.3, the Proposed Project would not result in significant impacts on wildfire, and mitigation has been included (TR-1) that requires the preparation of a Traffic Control Plan to reduce potential impacts on emergency vehicles specific to those activity areas subject to Caltrans jurisdiction. Additionally, once project activities are completed, wildfire-related impacts associated with the Proposed Project would cease altogether.

The PPWD Spillway Repair would require the use of construction equipment and techniques within the same vicinity of the Proposed Project, and has the potential to ignite wildfires. Valley Water will coordinate with PPWD to ensure the timing of the PPWD Spillway Repair project would not overlap with that of the Proposed Project (Pers. Comm. 2024), eliminating potential for overlapping wildfire impacts from equipment usage. Therefore, the Proposed Project, in combination with the PPWD Spillway repair would not result in a significant cumulative impact on wildfire.

There is no potential for the less than significant impacts of the Proposed Project to combine with impacts of the separately proposed PREP project with respect to wildfire, because the Proposed Project would be completed several years prior to (more than five) the PREP project. Given this, the Proposed Project, in combination with PREP would not result in a significant cumulative impact on wildfire.

None of the other projects listed in Table 5-1 would combine with the Proposed Project's wildfire impacts because there would be no overlap of activities from the Proposed Project with these projects. Therefore, the Proposed Project, in combination with projects in Table 5-1, **would not result in a significant cumulative wildfire impact.**





## **Chapter 6. Other California Environmental Quality Act Considerations**

In addition to identifying the effects of the Proposed Project, the CEQA Guidelines require the following additional discussions:

- Growth-inducing impacts [CEQA Guidelines Section 15126.2(e)]
- Significant irreversible environmental changes [CEQA Guidelines Section 15126.2(d)]
- Significant and unavoidable environmental impacts [CEQA Guidelines Section 15126.2(c)]

### **6.1 Growth Inducing Impacts**

Section 15126.2(e) of the CEQA Guidelines requires that an EIR discuss “the ways in which the proposed project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment. Included in this are projects which would remove obstacles to population growth (a major expansion of a wastewater treatment plant might, for example, allow for more construction in service areas). It must not be assumed that growth in any area is necessarily beneficial, detrimental, or of little significance to the environment.”

The Proposed Project only entails temporary geotechnical investigation activities and would not involve the development of new housing or job centers that would attract additional population. Therefore, the Proposed Project would not directly induce growth. Implementation of the Proposed Project would not result in the development of new permanent facilities or expansion of existing infrastructure that could directly or indirectly induce growth and would not compel approval or implementation of the separately proposed PREP or any other Valley Water infrastructure.

Based on this analysis, the Proposed Project would not have a substantial growth-inducing impact, and no mitigation is required.

### **6.2 Significant Irreversible Environmental Changes**

CEQA Section 21100(b)(2)(B) and CEQA Guidelines Section 15126.2(d) require that an EIR identify significant irreversible environmental changes that may be caused by a project if it is implemented. Irretrievable commitments of resources should be evaluated to ensure that current consumption is justified. For this analysis, the irreversible impacts described below could occur as a result of implementing the Proposed Project.



The proposed geotechnical investigations associated with the Proposed Project would result in the use of nonrenewable resources (e.g., fossil fuel) to operate vehicles, equipment, the helicopter and vessels. Valley Water has incorporated requirements to reduce vehicle idling time to no more than two minutes during field investigations, as set forth in Section 2.4.5 of the Draft EIR. Additionally, other equipment (e.g., helicopter, vessels) would be operated such that fossil fuels would be used in an efficient manner, thus reducing cost and potential environmental effects (such as temporary air quality effects that could result from prolonged engine idling). The Proposed Project would result in the removal of a limited amount of vegetative material (trees and shrubs) for equipment access. The quantity of resources that would be used for the Proposed Project would be minimal and would not noticeably reduce the availability of these resources for other projects or uses.

Additionally, during implementation of the Proposed Project, Conservation Measures (e.g., BMPs), and, as applicable, mitigation measures will be implemented to reduce potential damage (e.g., wildfire, accidental release of chemicals, fuels, etc.) that may result in an irreversible environmental change.

### **6.3 Significant and Unavoidable Environmental Impacts**

Section 21100(b)(2)(A) of CEQA and CEQA Guidelines Section 15126.2(c) require an EIR to identify any project-related environmental impacts that could not be avoided or reduced to a less-than-significant level with implementation of all feasible mitigation measures. As identified in Chapter 3, the Proposed Project would not result in any significant and unavoidable impacts to the environment.



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### 8.3 Chapter 3. Environmental Setting, Impacts and Mitigation

#### 8.3.1 Considerations for Describing Environmental Setting and Environmental Impacts

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