



East Bay Municipal Utility District **Sobrante Water Treatment Plant Reliability Improvements Project** **Draft Environmental Impact Report**

Volume I
SCH #2022030308

September 2024

717 Market Street, Suite 400
San Francisco, CA 94103
650-373-1200
www.panoramaenv.com



East Bay Municipal Utility District
**Sobrante Water Treatment Plant Reliability
Improvements Project**
Draft Environmental Impact Report

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September 2024

Prepared for:

East Bay Municipal Utility District
Water Distribution Planning Division
375 11th Street
Oakland, CA 94607

Prepared by:

Panorama Environmental, Inc.
717 Market Street, Suite 400
San Francisco, CA 94103

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Acronyms and Abbreviations

$\mu\text{g}/\text{m}^3$	micrograms per cubic meter
2017 Plan	2017 Clean Air Plan, Spare the Air, Cool the Climate
AB	Assembly Bill
ABAG	Association of Bay Area Governments
ADT	average daily traffic
AERMOD	American Meteorological Society/EPA Regulatory Model
Alquist-Priolo Act	Alquist-Priolo Earthquake Fault Zoning Act
AST	above-ground storage tank
ATCM	(California) Airborne Toxics Control Measure
AWWA	American Water Works Association
BAAQMD	Bay Area Air Quality Management District
BACT	Best Available Control Technology
Basin Plan	Water Quality Control Plan
bgs	below ground surface
BMP	best management practice
CAA	Clean Air Act
CAL FIRE	California Department of Forestry and Fire Protection
Cal/OSHA	California Division of Occupational Safety and Health
CalEEMod	California Emissions Estimator Model
CalEPA	California Environmental Protection Agency
CALGreen Code	California Green Building Standards Code, California Code of Regulations, Title 24, Part 11
CALGreen	California Green Building Standards
California Energy Code	California Code of Regulations, Title 24, Part 6, Building Energy Efficiency Standards
CAPCOA	California Air Pollution Control Officer's Association
CARB	California Air Resources Board
CARE	Community Air Risk Evaluation
CBC	California Building Code
CCCFPD	Contra Costa County Fire Protection District
CCB	chlorine contact basin
CCR	California Code of Regulations

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CCTA	Contra Costa Transportation Authority
CDD	Community Development Division
CDFW	California Department of Fish and Wildlife
CeA	Conejo clay loam
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFGF	California Fish and Game Code
CFGF	California Fish and Game Commission
CGS	California Geological Survey
CFC	chlorofluorocarbons
CFR	Code of Federal Regulations
CH ₄	methane
CHRIS	California Historical Resources Information System
CkB	Cropley clay
CMA	Congestion Management Program
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CNEL	Community Noise Equivalent Level
CO	carbon monoxide
CO ₂	carbon dioxide
CO _{2e}	carbon dioxide equivalent
Cortese List	State Hazardous Waste and Substances List
CUPA	Certified Unified Program Agency
dB	decibel(s)
dBA	A-weighted decibel(s)
DbE	Diablo clay
dbh	diameter at breast height
DBP	disinfection byproduct
DDT	Dichlorodiphenyltrichloroethane
DOSH	California Department of Occupational Safety and Health
DPM	diesel particulate matter
DSOD	California Division of Safety of Dams
DTSC	California Department of Toxic Substances Control
DWR	California Department of Water Resources
EBMUD	East Bay Municipal Utilities District
EIR	Environmental Impact Report
ELAP	Environmental Laboratory Accreditation Program
EPA	U.S. Environmental Protection Agency

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ESA	Environmental Site Assessment
ESL	Environmental Screen Level
FEMA	Federal Emergency Management Agency
FESA	federal Endangered Species Act
FHWA	Federal Highway Administration
FP	State of California fully protected
FT	Federally listed as threatened species
FTA	Federal Transit Administration
FTW	filter-to-waste
GHG	greenhouse gas
GWh	gigawatt hour(s)
H ₂ S	hydrogen sulfide
HAP	hazardous air pollutant
HMBP	Hazardous Materials Business Plans
HMR	Hazardous Materials Release
HCP	Habitat Conservation Plan
HCFC	hydrochlorofluorocarbons
HEPA	high-efficiency particulate air
HFC	hydrofluorocarbon
IP	Internet Protocol
iPaC	Information for Planning and Consultation
IPCC	International Panel on Climate Change
IS	Initial Study
kWh	kilowatt hour(s)
LCFS	Low Carbon Fuel Standard
Ldn	average equivalent sound level over a 24- hour period
Leq	equivalent continuous sound level
Lmax	maximum, instantaneous noise level registered during a measurement period
LNTCFW	Limited Notice to Commence Field Work
LOS	level of service
LRA	Local Responsibility Areas
MBTA	Migratory Bird Treaty Act
MG	million gallons
MGD	million gallons per day
MMRP	Mitigation Monitoring and Reporting Plan
MT CO _{2e}	metric tons carbon dioxide equivalent
MTC	Metropolitan Transportation Commission
MUTCD	Manual on Uniform Traffic Control Devices

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MWh	megawatt hour(s)
MWh	megawatt-hour(s)
N ₂ O	nitrous oxide
NAAQS	National Ambient Air Quality Standards
NAHC	Native American Heritage Commission
NCCP	Natural Community Conservation Plan
NHPA	National Historic Preservation Act
NIOSH	National Institute of Safety and Health
NOC	Notice of Completion
NO	nitric oxide
NO ₂	nitrogen dioxide
NO _x	nitrogen oxide
NOP	Notice of Preparation
NMFS	National Marine Fisheries Service
NPDES	National Pollutant Discharge Elimination System
NTCFW	Notice to Commence Field Work
NWIC	Northwest Information Center
O ₃	ozone
OEHHA	California Office of Environmental Health Hazard Assessment
OPR	Governor's Office of Planning and Research
OSHA	Occupational Safety and Health Administration (federal)
Pb	lead
PCB	polychlorinated biphenyl
PFC	perfluorocarbon
PG&E	Pacific Gas and Electric Company
PM	particulate matter
PM ₁₀	particulate matter that measures 10 micrometers or less in diameter
PM _{2.5}	particulate matter that measures 2.5 micrometers or less in diameter
PPMRP	Practices and Procedures Monitoring and Reporting Plan
PPV	peak particle velocity
PRC	Public Resource Code
PRMP	paleontological resource monitoring plan
Project	SOWTP Reliability Improvements Project
PSD	Prevention of Significant Deterioration
RCNM	Roadway Construction Noise Model
RCRA	Resource Conservation and Recovery Act
REL	reference exposure levels
ROG	reactive organic gases
ROW	right-of-way

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RWQCB	Regional Water Quality Control Board
SB	Senate Bill
SDS	Safety Data Sheet
SF ₆	sulfur hexafluoride
SFBAAB	San Francisco Bay Area Air Basin
SFBW	spent filter backwash water
SHMA	Seismic Hazards Mapping Act
SIP	State Implementation Plan
SO ₂	sulfur dioxide
SOWTP	Sobrante Water Treatment Plant
SMARTS	Stormwater Multi-Application & Report Tracking System
SRAs	State Responsibility Areas
STC	sound transmission class
STCL	Soluble Threshold Limit Concentration
SVP	Society of Vertebrate Paleontology
State Water Board	California Water Resources Control Board
SSC	State of California species of special concern
SWPPP	Stormwater Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TAC	toxic air contaminant
TCLP	Toxic Characteristic Leaching Procedure
TCP	Traffic Control Plan
TTCL	Total Threshold Limit Concentration
TWW	Treated with preservatives
USA	Underground Services Alert
USACE	U.S. Army Corps of Engineers
U.S. EPA	United States Environmental Protection Agency
UCMP	University of California Museum of Paleontology
Unified Program	Unified Hazardous Waste and Hazardous Materials Management Regulatory Program
USC	U.S. Code
USDOT	U.S. Department of Transportation
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
USL	Upper San leandro
UST	underground storage tank
VdB	vibration decibel(s)
VHFHSZ	Very High Fire Hazard Severity Zone
VMT	vehicle miles travelled

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VOC	volatile organic compound
VoIP	Voice over Internet Protocol
WEAP	Worker Environmental Awareness Program
WTTIP	Water Treatment and Transmission Improvements Program
WTP	waste treatment plant
USGS	U.S. Geological Survey
WOS	waters of the State
WOTUS	waters of the United States

Executive Summary

The East Bay Municipal Utility District (EBMUD) water system serves approximately 1.4 million people within a 332-square-mile area in portions of Alameda and Contra Costa counties, serving 20 incorporated cities and 15 unincorporated areas. The EBMUD service area is divided by the Oakland and Berkeley Hills, into the West of Hills and East of Hills service areas. EBMUD's Sobrante Water Treatment Plant (SOWTP) serves customers in the West of Hills service area in the cities of Richmond, Pinole, San Pablo, Hercules, and the unincorporated Contra Costa County communities of El Sobrante, Rollingwood, Crockett, and Rodeo.

In 2010, EBMUD prepared the *West of Hills Master Plan* to address water treatment plant, storage, and transmission capacity for its West of Hills service area (EBMUD, 2010b), to ensure a reliable water supply for current and future customers. The *West of Hills Master Plan* identified the need for new and modified storage, new major transmission pipelines, new or upgraded pumping plants, and capacity improvements to some of EBMUD's water treatment plants. The *West of Hills Master Plan* recommended expanding the SOWTP's treatment capacity to 60 million gallons per day (MGD) in the near term (Phase 1), and to 80 MGD in the long term (Phase 2). The long-term recommendation also includes a new transmission pipeline that would be required to convey the additional treated water from the SOWTP to the distribution system.

Acting on the recommendations from the *West of Hills Master Plan*, EBMUD is planning to construct and operate the SOWTP Reliability Improvements Project (Project). The Project would include improvements to the existing SOWTP in the city of Richmond and unincorporated Contra Costa County and a new Central North Aqueduct pipeline in the cities of San Pablo and Richmond, and in the unincorporated communities of El Sobrante and Rollingwood. The Project location is shown in Figure ES-1.

The Project involves construction and operation of new facilities, replacement of aging infrastructure with new facilities, incorporation of existing uses at the site into a new consolidated maintenance facility, and demolition of facilities. The Project is divided into three components: Phase 1 improvements to SOWTP, Phase 2 improvements to SOWTP, and Phase 2 new Central North Aqueduct pipeline. Phase 1 and Phase 2 improvements to the SOWTP are shown in Figure ES-2. The Phase 2 Central North Aqueduct pipeline is shown in Figure ES-3.

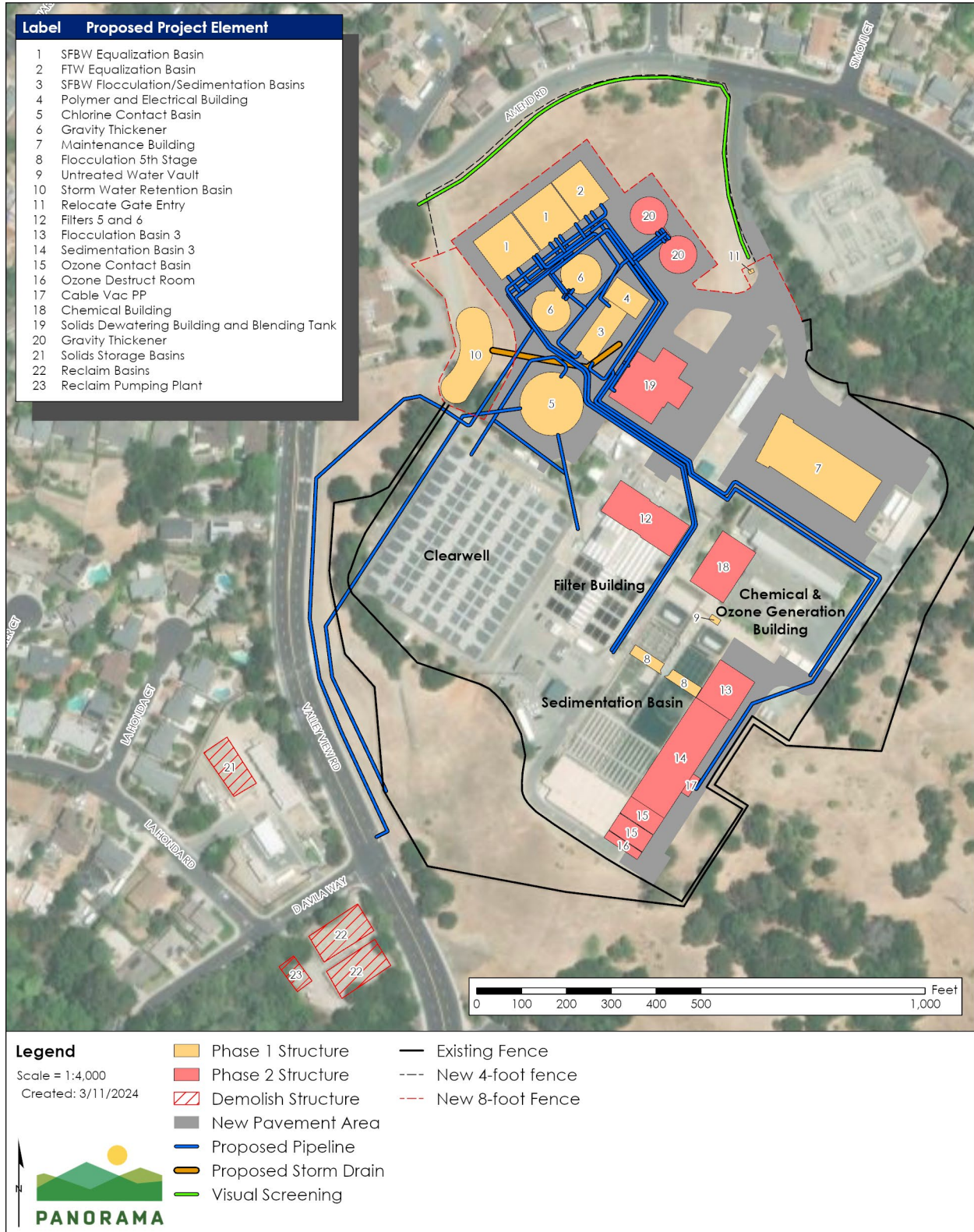
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Figure ES-1 Project Location



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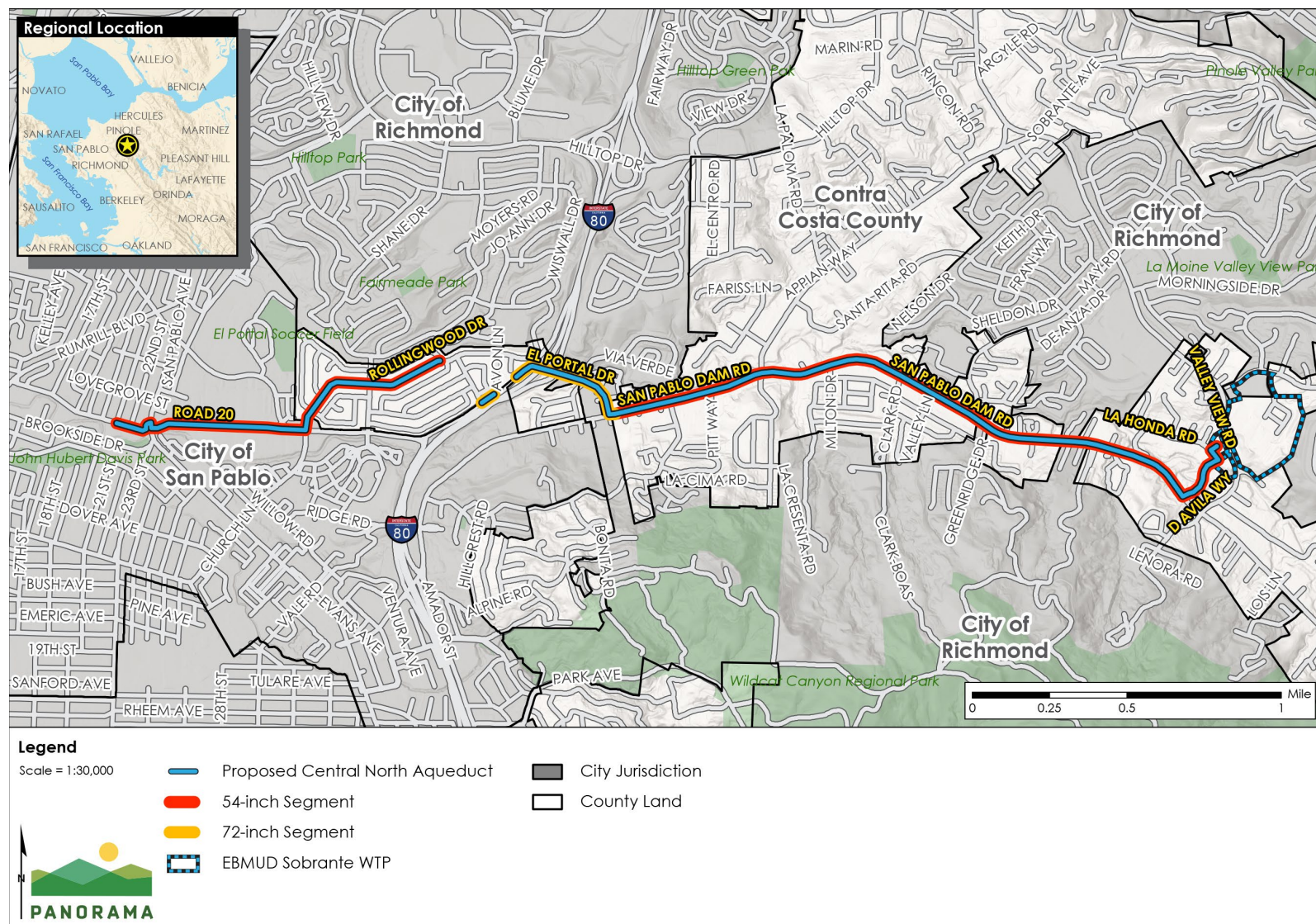
Figure ES-2 Phase 1 and Phase 2 Project Improvements at SOWTP



Source: (EBMUD, 2022a; EBMUD, 2023a)

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Figure ES-3 Phase 2 Central North Aqueduct Pipeline



Source: (EBMUD, 2022b)

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In March 2022, EBMUD prepared an Initial Study (IS), to provide the public and Responsible and Trustee Agencies reviewing the Project with information about the Project's potential impacts on the environment. The IS evaluated the Project and identified potentially significant impacts on 13 environmental resource areas that required further study to determine whether such impacts would be significant, and if so, whether they could be mitigated to less-than-significant levels. Based on the IS completed for the Project and comments from the public, the following 14 environmental resource are studied in detail in this Environmental Impact Report (EIR):

- Aesthetics
- Air Quality
- Biological Resources
- Cultural Resources
- Energy
- Geology, Soils, and Seismicity
- Greenhouse Gas Emissions
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Land Use and Planning
- Noise and Vibration
- Transportation
- Tribal Cultural Resources
- Wildfire

Potential cumulative impacts and potential for growth inducement are addressed, and alternatives are also evaluated in this EIR.

Based on the evaluation of impacts in the IS, EBMUD determined that the Project would have no impacts or less than significant impact on Agriculture and Forestry Resources, Mineral Resources, Population and Housing, Public Services, Recreation, and impacts on Utilities and Service Systems (refer to Appendix A). Therefore, a detailed discussion of these resources has been excluded from this EIR.

EBMUD is the lead agency for compliance with the California Environmental Quality Act (CEQA) environmental review process for the Project.

The EIR considers the Project, as described above. In addition, the EIR considers the following alternatives:

- **No Project Alternative:** This alternative assumes that the proposed improvements at the SOWTP would not be constructed, and the capacity of the SOWTP would continue to be constrained to approximately 45 MGD.
- **No Solids Dewatering Facilities Alternative:** This alternative would involve eliminating the dewatering facilities, consisting of the dewatering building and two blending tanks at the SOWTP from Phase 2 of the Project.

Project Purpose and Need

The existing SOWTP has a permitted capacity of 60 MGD but is limited to a capacity of 45 MGD to reliably treat water while meeting regulations for water quality. In addition, the existing SOWTP does not have the capacity to meet planned future projected water demands that are detailed in EBMUD's *2050 Demand Study* (EBMUD, 2020). The purposes of the Project are to restore reliable capacity of SOWTP to the full permitted capacity of 60 MGD, continue to meet drinking water regulations, reduce disinfection byproducts, improve maintenance operations, maintain flexibility to treat water from supplemental supplies, and increase the treatment capacity of the SOWTP as needed to meet future demands.

CEQA Objectives

Project objectives related to capacity, water quality, and operational efficiency are listed in Table ES-1.

Table ES-1 Project Objectives

Issue	Objectives
Project Specific Objectives	Improve water service reliability by increasing the reliable water treatment capacity to meet planned future demands.
	Maintain flexibility to treat a broad range of water quality from supplemental water supplies entering EBMUD's water system such as the Sacramento River via the Freeport Regional Water Project.
	Continue to meet drinking water and environmental regulations and achieve EBMUD's internal long-term water quality goals.
	Improve efficiency of maintenance operations at the SOWTP site.
	Minimize life-cycle costs (capital, operating, and maintenance) to EBMUD's customers.
Secondary Operational Objectives	Maintain a similar and acceptable aesthetic site-environment after construction.
	Maximize the useful life of existing facilities in a manner that reduces costs for customers.
	Minimize operational emissions of greenhouse gases.
	Maximize energy efficiency during operations.
Construction Objectives	Minimize environmental impacts on the community during construction.
	Reuse or recycle building materials on site to the extent feasible, including concrete demolition materials and excavated earth.
	Maintain water service and emergency flows during construction.
	Protect the local community from construction hazards.
	Provide safe travel routes for motorists and pedestrians.
	Provide safe construction site conditions.

Summary of Impacts

Table ES-2 shows potential significant Project impacts by environmental resource topic area, and EBMUD Practices and Procedures that would be applied to the Project. Furthermore, Table ES-3 summarizes all significant impacts following implementation of EBMUD's Practices and Procedures and required mitigation measures identified for the Project. For all significant impacts, the significance after implementation of mitigation is shown.

Table ES-2 Summary of Impacts and EBMUD Practices and Procedures

Impact Area	Significance Before Practices and Procedures ¹	EBMUD Practices and Procedures	Significance After Practices and Procedures
Aesthetics			
Impact AES-2 Substantially degrade damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway.	PS	<p>EBMUD Standard Construction Specification 01 32 36, Video Monitoring and Documentation</p> <p><i>Section 1.2, Site Survey Audio-Video Recording Requirements</i></p> <ul style="list-style-type: none">• The Contractor shall employ a qualified videographer, experienced in taking properly documented and annotated video to perform the Pre-Construction Site Survey, which shall be completed within 20 days after the issuance of the Notice to Proceed. The Pre-Construction Site Survey shall be completed and accepted prior to EBMUD issuance of the Notice to Commence Field Work.• Prior to commencement of the Pre-Construction Site Survey recording, the Contractor shall notify EBMUD in writing within 48 hours of the recording. EBMUD will provide a designated representative to accompany and observe audio-video recording operations. Audio-video recording completed without an EBMUD Representative present will be unacceptable unless specifically authorized in writing and in advance by EBMUD.• Provide a copy of the Pre-Construction Site Survey to EBMUD for review and comment. The Survey shall include all audio-video recordings, photography, annotations and all documentation. If EBMUD determines that critical areas are missing from the survey, the Contractor shall provide additional recording and documentation of the requested area and locations.• Post-Construction Site Survey: The Contractor shall perform a Post-Construction Site Survey of the same areas recorded in the Pre-Construction Site Survey following the same path/route of the Pre-Construction Site survey. EBMUD will review post-construction survey findings with the Contractor and develop a complete listing of project site restoration requirements to be accomplished by the Contractor. Prior to commencement of Post-Construction Site Survey recording, the Contractor shall notify EBMUD in writing within 48-hours of the recording. EBMUD will provide a designated representative to accompany and observe audio-video recording operations. Audio-video recording completed without an EBMUD Representative present will be unacceptable unless specifically authorized in writing and in advance by EBMUD.• The Contractor shall be responsible for repairing any damage or defects not documented as existing prior to construction.	LTS
Impact AES-3 In non-urbanized areas, 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) or in an urbanized area, conflict with applicable zoning and other regulations governing scenic quality.	PS	<p>EBMUD Standard Construction Specification 01 32 36, Video Monitoring and Documentation,</p> <p><i>Section 1.1, Summary</i></p> <ul style="list-style-type: none">• Audio-video documentation utilizing digital recording of surface features, supplemented by photography, which may be taken along the entire length of the project and may include work and storage areas, adjacent properties, and/or intersecting roadways.<ul style="list-style-type: none">– Prior to audio-video recording of the project, all areas to be inventoried shall be investigated visually with notations made of items not readily visible by audio-video recording or supplemental photographic methods. <p>Section 1.2, Site Survey Audio-Video Recording Requirements <i>(Details listed in Impact AES-2).</i></p> <p>Section 3.1(C), Views and Narratives Required</p> <ul style="list-style-type: none">• Such coverage may include, but not be limited to, existing driveways, sidewalks, pavement, curbs, gutters, ditches, berms, roadways, landscaping, trees, culverts, headwalls, and retaining walls, fencing, gates, handrails, signage, manholes, vaults, utility boxes, lighting, traffic signals and controls, loop detectors, landscaping, irrigation controllers, street furniture, buildings, equipment, appurtenances, structures, and other existing features etc. located within the work zone. <p>EBMUD Standard Construction Specification 01 35 44, Environmental Requirements</p> <p><i>Section 1.1(B), Site Activities</i></p> <ul style="list-style-type: none">• Following completion of Work, remove ditches, dikes, or other ground alterations made by the Contractor. The ground surfaces shall be returned to their former condition, or as near as practicable, in EBMUD's opinion.• Prevent visible dust emissions from leaving the work areas. <p>EBMUD Standard Construction Specification 01 35 45, Biological, Cultural, and Paleontological Resource Requirements</p> <p><i>Section 3.2(B), Tree Protection</i></p> <ul style="list-style-type: none">• Locations of trees to be removed and protected are shown in the construction drawings. Pruning and trimming shall be completed by the Contractor and approved by EBMUD. Pruning shall adhere to the Tree Pruning Guidelines of the International Society of Arboriculture.	PS

¹ Note: LTS= Less than significant; PS= Potentially Significant; SU= Significant and Unavoidable

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Impact Area	Significance Before Practices and Procedures ¹	EBMUD Practices and Procedures	Significance After Practices and Procedures
		<ul style="list-style-type: none">Erect exclusion fencing five feet outside of the drip lines of trees to be protected. Erect and maintain a temporary minimum 3-foot high orange plastic mesh exclusion fence at the locations as shown in the drawings. The fence posts shall be six-foot minimum length steel shapes, installed at 10-feet minimum on center, and be driven into the ground. The Contractor shall be prohibited from entering or disturbing the protected area within the fence except as directed by EBMUD. Exclusion fencing shall remain in place until construction is completed and EBMUD approves its removal.No grading, construction, demolition, trenching for irrigation, planting or other work, except as specified herein, shall occur within the tree protection zone established by the exclusion fencing installed shown in the drawings. In addition, no excess soil, chemicals, debris, equipment or other materials shall be dumped or stored within the tree protection zone.In areas that are within the tree drip line and outside the tree protection zone that are to be traveled over by vehicles and equipment, the areas shall be covered with a protective mat composed of a 12-inch thickness of wood chips or gravel and covered by a minimum ¾-inch-thick steel traffic plate. The protective mat shall remain in place until construction is completed and EBMUD approves its removal.Tree roots exposed during trench excavation shall be pruned cleanly at the edge of the excavation and treated to the satisfaction of the Certified Arborist.Any tree injured during construction shall be evaluated as soon as possible by the Certified Arborist, and replaced as deemed necessary by the Certified Arborist. EBMUD Standard Construction Specification 01 74 05, Cleaning Section 3.2(B), Cleaning During Construction <ul style="list-style-type: none">Dispose of all refuse off EBMUD property as often as necessary so that at no time shall there be any unsightly or unsafe accumulation of rubbish. <i>Section 3.3(K), Final Cleaning</i> <ul style="list-style-type: none">Remove from EBMUD property all temporary structures and all material, equipment, and appurtenances not required as a part of, or appurtenant to, the completed work.	
Impact AES-4: The potential to create a new source of substantial light or glare which would adversely affect day or nighttime views in the area.	PS	EBMUD Standard Construction Specification 01 35 44, Environmental Requirements <i>Section 3.9(A), Lighting Used During Nighttime Work</i> <ul style="list-style-type: none">Ensure that temporary stationary lighting used during nighttime construction is only used when needed. All lighting used for nighttime construction shall be designed, installed, and operated to minimize glare that affects traffic near the work zone or that causes annoyance or discomfort for residences near the work zone. Lighting fixtures shall be shielded, located, and aimed to provide the required level of illumination and uniformity in the work zone without the creation of unnecessary glare.	LTS
Air Quality			
Impact AQ-1: Conflict with or obstruct implementation of the applicable air quality plan.	PS	EBMUD Standard Construction Specification 01 35 44, Environmental Requirements <i>Section 1.4(F), Dust Control and Monitoring Plan</i> <ul style="list-style-type: none">Submit a plan detailing the means and methods for controlling and monitoring dust generated by demolition and other work on the site for EBMUD’s acceptance prior to any work at the jobsite.<ul style="list-style-type: none">Identify methods to comply with all applicable regulations including but not limited to the Bay Area Air Quality Management District (BAAQMD) visible emissions regulation and Public Nuisance Rule.Outline practices for preventing dust emissions and procedures to be used during operations and maintenance activities.Include measures for the control of paint overspray and abrasive blasting emissions, including, but not limited to containment, ventilation systems and monitoring for damage and leaks.Describe equipment and methods used to monitor compliance with the plan. <i>Section 3.5, Air Quality Control</i> <ul style="list-style-type: none">Implement all necessary air pollutant construction measures per the BAAQMD “Basic Construction Mitigation Measures” (BAAQMD CEQA Guidelines May 2017), including, but not limited to the following:<ul style="list-style-type: none">All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day.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.All vehicle speeds on unpaved roads shall be limited to 15 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.	LTS

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Impact Area	Significance Before Practices and Procedures ¹	EBMUD Practices and Procedures	Significance After Practices and Procedures
		<ul style="list-style-type: none">– Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations [CCR]). Clear signage shall be provided for construction workers at all access points.– All construction equipment shall be maintained and properly tuned in accordance with manufacturer’s specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation.– The contractor shall post an EBMUD-furnished, publicly visible sign with EBMUD and BAAQMD contact information regarding dust complaints.• Implement all necessary air pollutant construction measures per the BAAQMD “Additional Construction Mitigation Measures” (BAAQMD CEQA Guidelines May 2017) including but not limited to the following:<ul style="list-style-type: none">– All exposed surfaces shall be watered at a frequency adequate to maintain minimum soil moisture of 12 percent. Moisture content can be verified by lab samples or moisture probe.– All excavation, grading, and/or demolition activities shall be suspended when average wind speeds exceed 20 mph.– Wind breaks (e.g., trees, fences) shall be installed on the windward side(s) of actively disturbed areas of construction. Wind breaks should have at maximum 50 percent air porosity.– Vegetative ground cover (e.g., fast-germinating native grass seed) shall be planted in disturbed areas as soon as possible and watered appropriately until vegetation is established.– The simultaneous occurrence of excavation, grading, and ground-disturbing construction activities on the same area at any one time shall be limited. Activities shall be phased to reduce the amount of disturbed surfaces at any one time.– All trucks and equipment, including their tires, shall be washed off prior to leaving the site.– Site accesses to a distance of 100 feet from the paved road shall be treated with a 6- to 12-inch compacted layer of wood chips, mulch, or gravel.– Sandbags or other erosion control measures shall be installed to prevent silt runoff to public roadways from sites with a slope greater than one percent.– Minimizing the idling time of diesel-powered construction equipment to two minutes.– The project shall develop a plan demonstrating that the off-road equipment (more than 50 horsepower) to be used in the construction project (i.e., owned, leased, and subcontractor vehicles) would achieve a project wide fleet-average 20 percent NOx reduction and 45 percent PM reduction compared to the most recent ARB fleet average. Acceptable options for reducing emissions include the use of late model engines, low-emission diesel products, alternative fuels, engine retrofit technology, after-treatment products, add-on devices such as particulate filters, and/or other options as such become available.– Use low VOC (i.e., ROG) coatings beyond the local requirements (i.e., Regulation 8, Rule 3: Architectural Coatings).– Requiring that all construction equipment, diesel trucks, and generators be equipped with Best Available Control Technology for emission reductions of NOx and PM.– Requiring all contractors use equipment that meets CARB’s most recent certification standard for off-road heavy duty diesel engines.• Implement all necessary EBMUD air pollutant construction measures, including but not limited to the following:<ul style="list-style-type: none">– Gravel or apply non-toxic soil stabilizers on all unpaved access roads, parking areas and staging areas at construction sites. Submit specifications for any dust palliatives applied to unpaved roads to EBMUD.– Water and/or cover soil stockpiles daily.– All transitions from soil to a paved road shall have best management practices applied to prevent drag out of soil.– Water used for dust control shall not run off the job site and cause erosion or other issues.– Use of recycled water for dust control is encouraged.– Use line power instead of diesel generators at all construction sites where line power is available.– Temporary sources of air emissions (such as portable pumps, compressors, generators, etc.) shall be electrically powered unless the use of such equipment is not practical, feasible, or available.– All portable engines and equipment units used as part of construction shall be properly registered with the California Air Resources Board or otherwise permitted by the appropriate local air district, as required.– Minimize the use of diesel generators where possible.– Follow applicable regulations for fuel, fuel additives, and emission standards for stationary, diesel-fueled engines.– Locate generators at least 100 feet away from adjacent homes, schools, and parks.– Perform regular low-emission tune-ups on all construction equipment, particularly haul trucks and earthwork equipment.– On road and off-road vehicle tire pressures shall be maintained to manufacturer specifications. Tires shall be checked and re-inflated at regular intervals.– Demolition debris shall be recycled for reuse to the extent feasible. See the Construction and Demolition Waste Disposal Plan paragraphs above for requirements for wood treated with preservatives.	

Impact Area	Significance Before Practices and Procedures ¹	EBMUD Practices and Procedures	Significance After Practices and Procedures
		<p><i>Section 3.6, Dust Monitoring During Demolition and Construction</i></p> <ul style="list-style-type: none">• Provide air monitoring along the perimeter of the job site. A minimum of 4 stations, one on each side of the EBMUD property, shall be established, capable of continuous measurement of total particulate concentration when any dust generating activity is occurring.• Conduct real-time air monitoring at appropriate locations onsite based on wind direction, type of construction activity, and sensitive receptors to ensure dust control measures are effective.• All environmental and personal air sampling equipment shall be in conformance with the Association of Industrial Hygiene and National Institute of Safety and Health (NIOSH) standards.<ul style="list-style-type: none">– All analysis shall be completed by an ELAP certified laboratory for the specific parameters of interest.– The Contractor shall provide to EBMUD, within 72 hours of sampling, all test results.• The dust control system shall comply with the requirements of this section and any applicable laws and regulations. Specific limitations that shall be met include the following:<ul style="list-style-type: none">– Ringelmann No. 1 Limitation: Contractor shall not emit from any source for a period or periods aggregating more than three minutes in any hour, a visible emission which is as dark or darker than No. 1 on the Ringelmann Chart, or of such opacity as to obscure an observer's view to an equivalent or greater degree.– Opacity Limitation: Contractor shall not emit from any source for a period or periods aggregating more than three minutes in an hour an emission equal to or greater than 20% opacity as perceived by an opacity sensing device, where such device is required by BAAQMD regulations. <p>EBMUD Standard Construction Specification 02 82 13, Asbestos Control Activities</p> <p><i>Section 1.1, Compliance and Intent</i></p> <ul style="list-style-type: none">• Furnish all labor, materials, facilities, equipment, services, employee training and testing, permits, and agreements necessary to perform the asbestos removal in accordance with these specifications and with the latest regulations from the U.S. Environmental Protection Agency (EPA), the Occupational Safety and Health Administration (OSHA), the Bay Area Air Quality Management District (BAAQMD), the Cal/EPA Department of Toxic Substance Control, the California Department of Occupational Safety and Health (DOSH), and other federal, state, county, and local agencies. Whenever there is a conflict or overlap of the above references, the most stringent provision is applicable.• During demolition procedures, the Contractor shall protect against contamination of soils, water, adjacent residences and properties, and the airborne release of hazardous materials and dusts. The Contractor will incur the costs associated with the implementation of controls and, if necessary, remediation. The Contractor shall be responsible for all necessary cleanup of contaminated areas/properties to pre-work condition and for all associated costs. It is the Contractor's responsibility to confirm and document the quantities of asbestos material to be removed.• Asbestos materials uncovered during the demolition activities shall be disposed of in an approved manner complying with all applicable federal, state, and local regulations. Appropriate waste manifests shall be furnished to EBMUD as per Sections 01 35 24 – Project Safety Requirements, and 01 35 44 – Environmental Requirements. Materials are conveyed to the Contractor "as is," without any warranty, expressed or implied, including but not limited to, any warranty to marketability or fitness for a particular purpose, or any purpose. <p><i>Section 1.5, Submittals</i></p> <ul style="list-style-type: none">• Project Safety and Health Plan: The Contractor shall provide a Project Safety and Health Plan prior to project initiation as specified in Section 01 35 24.• Submit a detailed plan of the procedures proposed for use in complying with the regulations included in this specification. The plan shall include the location and layout of decontamination areas, the sequencing of asbestos work, the interface of trades involved in the performance of work, disposal plan including location of approved disposal site, and a detailed description of the methods to be employed to control pollution. Expand upon the use of portable HEPA ventilation system, method of removal to prohibit visible emissions in work area, and packaging of removed asbestos debris. Include asbestos abatement in the Construction and Demolition Waste Disposal Plan, in accordance with Section 01 35 44.• Certificates of Compliance: Submit certification that equipment required to contain airborne asbestos fibers conform to ANSI Z9.2. <p>Section 1.6, Submittals (Job in Progress)</p> <ul style="list-style-type: none">• Provide to EBMUD, within 72 hours of sampling, test results of the personal air sampling described in Article 3.2.• Provide to EBMUD, results of required air sampling established at property and project boundaries within 72 hours of sampling, and measures the contractor has taken to improve non-conforming outcomes based on the results. <p>Section 3.1, Initial Area Isolation</p> <ul style="list-style-type: none">• Demarcate the demolition area and specific hazard zones where asbestos removal occurs. Post warning signs and labels as required by Cal-EPA, BAAQMD, Cal OSHA Section 1529, and additional signs and warnings as directed by EBMUD.• Ensure asbestos hazards remain on site for proper abatement and disposal procedures. Ensure worker activity (access and egress) does not cause asbestos hazards to leave the project boundaries. <p><i>Section 3.2, Work Activities</i></p>	

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Impact Area	Significance Before Practices and Procedures ¹	EBMUD Practices and Procedures	Significance After Practices and Procedures
		<ul style="list-style-type: none">• General Procedures: Perform all asbestos related work and comply with the general safety and health provisions in conformance with Cal/OSHA Title 8 CCR Section 1529. For asbestos abatement work, use general work practices, work practices for encapsulation as specified in 34 CFR Part 231 Appendix C, applicable CAL OSHA requirements, and other appropriate work procedures approved by the Environmental Protection Agency (EPA).• Suppress air-borne particulates using a minimum of two misting units operated simultaneously from the following product series given below:<ul style="list-style-type: none">– Monsoon Atomizing Misting System, Buffalo Turbine, www.buffaloturbine.com– Or equal as approved by EBMUD• Ensure air borne asbestos limits are not exceeded and are compliance with U.S. Environmental Protection Agency (EPA), the Occupational Safety and Health Administration (OSHA), the Bay Area Air Quality Management District (BAAQMD), the Cal/EPA Department of Toxic Substance Control, the California Department of Occupational Safety and Health (DOSH), and other federal, state, county, and local agencies requirements for airborne emissions.• Monitoring: Monitoring of airborne concentrations of asbestos shall be in accordance with Title 8CCR section 1529, and BAAQMD requirements.<ul style="list-style-type: none">– Baseline air monitoring shall be conducted prior to demolition work and prior to asbestos related work. Base air measurements shall be established at the property boundary in the east, west, north and south coordinates.– If monitoring shows airborne concentrations greater than regulatory asbestos control limits, stop all work, correct the conditions causing the excessive levels, and notify EBMUD immediately.– Conduct at a minimum one set of post-asbestos removal/demolition air monitoring established at the property boundary and in the same location of baseline monitoring in the east, west, north and south coordinates. <p>Procedure 600</p> <ul style="list-style-type: none">• Designates a Public Affairs liaison to respond to construction-related issues, including noise. Contact information for the Public Affairs liaison (i.e., phone number, email address) and capital project site address will be provided via conspicuous signage at construction sites, on all advance notifications, and on the District project website. The Public Affairs liaison will coordinate with the construction project manager/engineer and any contractors to resolve any issues.• Notifies residents at least seven days (and preferably fourteen days) in advance of potentially disruptive construction activities (e.g., noise, traffic, parking); notifications will include the activities’ geographical extent and estimated duration. The Public Affairs liaison will coordinate with the project manager/engineer and any contractors to provide advance notification via email, mailed notices, door-hangers, social media, or other means, as appropriate.	
Impact AQ-3: Expose sensitive receptors to substantial pollutant concentrations.	PS	EBMUD Standard Construction Specification 01 35 44, Environmental Requirements <i>Section 3.5, Air Quality Control</i> /(Details listed under Impact AQ-1)	LTS
Biological Resources			
Impact BIO-1: 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 CDFW or USFWS.	PS	EBMUD Standard Construction Specification 01 35 44, Environmental Requirements <i>Section 1.1(B), Site Activities</i> <ul style="list-style-type: none">• Protect storm drains and surface waters from impacts of project activity.• Store materials and wastes such as demolition material, soil, sand, asphalt, rubbish, paint, cement, concrete, or washings thereof, oil or petroleum products, or earthen materials in a manner to prevent it from being washed by rainfall or runoff outside the construction limits.• Reuse or dispose of excess material consistent with all applicable legal requirements and disposal facility permits.• Clean up all spills and immediately notify EBMUD in the event of a spill.• Equip stationary equipment such as motors, pumps, and generators with drip pans.• Divert or otherwise control surface water and waters flowing from existing projects, structures, or surrounding areas from coming onto the work and staging areas. The method of diversions or control be adequate to ensure the safety of stored materials and of personnel using these areas.• Following completion of Work, remove ditches, dikes, or other ground alterations made by the Contractor. The ground surfaces shall be returned to their former condition, or as near as practicable, in EBMUD’s opinion.• Prevent visible dust emissions from leaving the work area.• Handle, store, apply, and dispose of any chemical or hazardous material used in the performance of the Work in a manner consistent with all applicable federal, state, and local laws and regulations. <i>Section 1.4(A), Stormwater Management</i> <ul style="list-style-type: none">• Construction General Permit<ul style="list-style-type: none">– Submit the Notice of Intent, Storm Water Pollution Prevention Plan (SWPPP), and all other documents prepared for compliance with the General Construction Storm Water Permit (NPDES No. CAS000002) to EBMUD and upload them in the SWRCB’s Storm Water Multi-Application & Report Tracking System (SMARTS).– EBMUD will electronically acknowledge appropriate submittals in SMARTS after review.	PS

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		<ul style="list-style-type: none">– Contractor shall pay for all registration and annual fees under this permit/program.– Submit a Storm Water Management Plan that describes measures that shall be implemented to prevent the discharge of contaminated storm water runoff from the jobsite. Contaminants to be addressed include, but are not limited to soil, sediment, concrete residue, pH less than 6.5 or greater than 8.5, and any other contaminants known to exist at the jobsite location as described in Document 00 31 24 – Materials Assessment Information <p><i>Section 1.4(B), Water Control and Disposal Plan</i></p> <ul style="list-style-type: none">• Plan shall describe measures for containment, handling, treatment (as necessary), and disposal of discharges such as groundwater (if encountered), runoff of water used for dust control, stockpile leachate, tank heel water, wash water, sawcut slurry, test water and construction water. <p><i>Section 1.4(E), Spill Prevention and Response Plan</i></p> <ul style="list-style-type: none">• Submit plan detailing the means and methods for preventing and controlling the spilling of known hazardous substances used on the jobsite or staging areas.<ul style="list-style-type: none">– Include a list of the hazardous substances proposed for use or generated by the Contractor on site, including petroleum products.– Define measures that will be taken to prevent spills, monitor hazardous substances, and provide immediate response to spills.– Include provisions for notification of EBMUD or alternate contact and appropriate agencies including phone numbers; spill-related worker, public health, and safety issues; spill control, and spill cleanup.– Map showing hazardous materials project-related storage locations, names of the hazardous materials, and volumes/quantities.– Submit a Safety Data Sheet (SDS) for each hazardous substance proposed to be used prior to delivery of the material to the jobsite. <p><i>Section 3.2, Storm Water</i></p> <ul style="list-style-type: none">• Conduct all inspections, sampling, reporting, and other required provisions in the SWPPP.• Upload all necessary documents to SMARTS to comply with the Construction General Permit.• Follow all provisions in local storm water permits and/or rules during construction.• Maintain sufficient best management practices or other controls as outlined in the storm water management plan to prevent impacts to storm water from pollution including soil, dust, stored hazardous materials, and construction activities. <p>EBMUD Standard Construction Specification 01 35 45, Biological, Cultural, and Paleontological Requirements</p> <p><i>Section 3.1, Training and Certification</i></p> <ul style="list-style-type: none">• Before beginning construction, all Contractor personnel involved in ground-disturbing activities are required to attend an environmental training program provided by EBMUD, of up to one day for site supervisors, foremen and project managers and up to 30 minutes for non-supervisory Contractor personnel. Contractor general personnel will receive a worker environmental awareness training.• The Contractor is responsible for ensuring that all workers requiring environmental training are identified to EBMUD.• Prior to accessing or performing construction work, the identified Contractor personnel shall:<ul style="list-style-type: none">– Sign a wallet card provided by EBMUD verifying that the Contractor personnel has attended the appropriate level of training relative to their position; have understood the contents of the environmental training, and shall comply with all project environmental requirements.– Display an environmental training hard hat decal (provided by EBMUD after completion of the training) at all times. <p><i>Section 3.2(C), Special-Status Plant Populations</i></p> <ul style="list-style-type: none">• In addition to the training identified in Article 3.1 above, special-status plant population training will include a description of the sensitive plant species in the Project vicinity, including natural history and habitat, the general protection measures to be implemented to protect the species, and a delineation of the limits of the work areas. Identified Contractor personnel will be required to sign documents stating that they understand that take of special-status plant species and destruction or damage of their habitat would be a violation of state and federal law.• In the spring prior to construction, the Designated Biologist will conduct preconstruction sensitive plant surveys in all areas where ground disturbance will occur. Any observed sensitive plant species will be mapped and flagged for avoidance where feasible. EBMUD will notify CDFW upon discovery of any sensitive plant species during preconstruction surveys.• Sensitive plant species shall be avoided, or impacts shall be minimized by limiting ground disturbance where sensitive plants are present.• To minimize impacts on sensitive vegetation immediately adjacent to designated construction areas, EBMUD will designate areas containing sensitive vegetation as restricted areas. <p><i>Section 3.2(D), Protection of Birds Protected Under the Migratory Bird Treaty Act and Roosting Bats</i></p> <ul style="list-style-type: none">• Provide 30 days’ written notice to EBMUD prior to ground disturbing activities, pruning, and trimming.<ul style="list-style-type: none">– EBMUD will conduct biological reconnaissance in advance of construction and will conduct biologic monitoring during construction as necessary.• Protected Bird or Bat Species:	

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		<ul style="list-style-type: none">– If protected species or suitable habitat for protected species is found during biological survey, identified Contractor personnel shall complete the training below in addition to the training identified in Article 3.1:<ul style="list-style-type: none">▪ Watch a video at an EBMUD-designated location, conducted by the Designated Biologist. The program will discuss all sensitive habitats and sensitive species that may occur within the project work limits, including the responsibilities of the Contractor’s personnel, applicable mitigation measures, and notification requirements.• Birds Protected under the Migratory Bird Treaty Act (MBTA):<ul style="list-style-type: none">– It is unlawful to pursue, hunt, take, capture, or kill any migratory bird without a permit issued by the U.S. Department of the Interior.– If ground disturbing activities occur between February 1 and August 31, during the nesting season, EBMUD will conduct a preconstruction survey for nesting birds within 7 days prior to construction to ensure that no nest will be disturbed during construction.– If active nests of migratory bird species (listed in the MBTA) are found within the project site, or in areas subject to disturbance from construction activities, an avoidance buffer to avoid nest disturbance shall be constructed. The buffer size shall be determined by EBMUD in consultation with CDFW and is based on the nest location, topography, cover, and species’ tolerance to disturbance.– If an avoidance buffer is not achievable, the Designated Biologist will monitor the nest(s) to document that no take of the nest (nest failure) has occurred. Active nests shall not be taken or destroyed under the MBTA and, for raptors, under the CDFW Code. If it is determined that construction activity is resulting in nest disturbance, work should cease immediately, and the Contractor shall notify EBMUD who will consult with the Designated Biologist and appropriate regulatory agencies.– If preconstruction surveys indicate that nests are inactive or potential habitat is unoccupied during the construction period, no further action is required. Trees and shrubs within the construction footprint that have been determined to be unoccupied by special-status birds or that are located outside the avoidance buffer for active nests may be removed. Nests initiated during construction (while significant disturbance from construction activities persist) may be presumed to be unaffected, and only a minimal buffer, determined by the Designated Biologist, would be necessary.• Roosting<ul style="list-style-type: none">– If ground disturbing activities occur between March 1 and July 31, during the bat maternity period, EBMUD will conduct a preconstruction survey for roosting bats within two weeks prior to construction to ensure that no roosting bats will be disturbed during construction.– If roosting surveys indicate potential occupation by a special-status bat species, and/or identify a large day roosting population or maternity roost by any bat species within 200 feet of a construction work area, the Designated Biologist will conduct focused day- and/or night-emergence surveys, as appropriate.– If active maternity roosts or day roosts are found within the project site, or in areas subject to disturbance from construction activities, an avoidance buffers shall be constructed. The buffer size will be determined by EBMUD in consultation with CDFW.– If a non-breeding bat roost is found in a structure scheduled for modification or removal, the bats shall be safely evicted, under the direction of the Designated Biologist in consultation with CDFW to ensure that the bats are not injured.– If preconstruction surveys indicate that no roosting is present, or potential roosting habitat is unoccupied during the construction period, no further action is required. Trees and shrubs within the construction footprint that have been determined to be unoccupied by roosting bats, or that are located outside the avoidance buffer for active roosting sites may be removed. Roosting initiated during construction is presumed to be unaffected, and no buffer would be necessary. <p>EBMUD Standard Construction Specification 01 35 45, Biological, Cultural, and Paleontological Requirements</p> <p><i>Section 3.2(E), Project-Specific Protected Wildlife Species</i></p> <ul style="list-style-type: none">• California Red-legged Frog<ul style="list-style-type: none">– Seven days prior to construction activities, the Project area will be surveyed for California red-legged frog by the Designated Biologist. Surveys of the Project area will be repeated if a lapse in construction activity of two weeks or greater occurs.– If the California red-legged frog is observed at the construction site at any time during construction, work shall cease immediately until the frog leaves the work area on its own or is relocated outside of the work area by the Designated Biologist. Any sightings and any incidental take will be reported to the USFWS and CDFW immediately by EBMUD.• San Francisco dusky-footed woodrat<ul style="list-style-type: none">– A preconstruction survey will be performed by the Designated Biologist within seven days prior to the start of ground-disturbing activities to identify the locations of active San Francisco dusky-footed woodrat nests within the project boundary. Any woodrat nests detected will be mapped and flagged for avoidance by the Designated Biologist.– If active nests are determined to be present, avoidance measures will be implemented first. Because San Francisco dusky-footed woodrats are year-round residents, avoidance mitigation is limited to restricting project activities to avoid direct impacts to San Francisco dusky-footed woodrats and their active nests to the extent feasible. A minimum ten-foot buffer should be maintained between project construction activities and each nest to avoid disturbance. In some	

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		<p>situations, a smaller buffer may be allowed if, in the opinion of the Designated Biologist, removing the nest would be a greater impact than that anticipated as a result of project activities.</p> <ul style="list-style-type: none">- If an unoccupied woodrat nest is found within the site and it cannot be avoided, the nest should be disassembled by hand by the Designated Biologist. The nest materials should be relocated off site outside of the wildlife exclusion fencing to prevent rebuilding.- If occupied nests are found within the site, and a litter of young is found or suspected, the nest shall be left alone for two to three weeks before a recheck to verify that young are capable of independent survival before proceeding with nest dismantling. Dismantling shall be done by hand, allowing any animals to escape either along existing woodrat trails or toward other available habitat.- EBMUD will notify CDFW of any nests, unoccupied or occupied, before they are dismantled.	
Impact BIO-2: Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the CDFW or USFWS.	PS	EBMUD Standard Construction Specification 01 35 45, Biological, Cultural, and Paleontological Requirements <i>Section 3.2(B), Tree Protection</i> (Details listed in Impact AES-3)	PS
Impact BIO-4: 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	PS	EBMUD Standard Construction Specification 01 35 44, Environmental Requirements <i>Section 1.1(B), Site Activities</i> (Details listed in Impact BIO-1) <i>Section 1.4(A), Stormwater Management</i> (Details listed in Impact BIO-1) <i>Section 1.4(B), Water Control and Disposal Plan</i> (Details listed in Impact BIO-1) <i>Section 1.4(E), Spill Prevention and Response Plan</i> (Details listed in Impact BIO-1) <i>Section 3.2, Stormwater</i> (Details listed in Impact BIO-1)	LTS
Impact BIO-5: Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance	PS	EBMUD Standard Construction Specification 01 35 45, Biological, Cultural, and Paleontological Requirements <i>Section 3.2(B), Tree Protection</i> (Details listed in Impact AES-3)	PS
Cultural Resources			
Impact CUL-2: Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5.	PS	EBMUD Standard Construction Specification 01 35 45, Biological, Cultural, and Paleontological Resource Requirements <i>Section 3.1, Training and Certification</i> (Details listed in Impact BIO-1) <i>Section 3.3, Protection of Cultural and Paleontological Resources</i> <ul style="list-style-type: none">• Confidentiality of Information on Cultural and Paleontological Resources<ul style="list-style-type: none">– In conjunction with Contractor’s performance under this contract, the Contractor may obtain information as to the location and/or nature of certain cultural or paleontological resources, including Native American artifacts and remains. This information may be provided to the Contractor by EBMUD or a third party, or may be discovered directly by the Contractor through its performance under the contract. All such information shall be considered “Confidential Information” for the purposes of this Article.– Pursuant to California Government Code Section 6254.10, cultural resource information is protected from public disclosure. The Contractor agrees that the Contractor, its subcontractors, and their respective agents and employees shall not publish or disclose any Confidential Information to any person, unless specifically authorized in advance, in writing by EBMUD.• Conform to the requirements of statutes as they relate to the protection and preservation of cultural and paleontological resources. Unauthorized collection of prehistoric or historic artifacts or fossils along the Work Area, or at Work facilities, is strictly prohibited.• In addition to the training identified in Article 3.1.A above, identified Contractor personnel shall attend a cultural and paleontological resources training course provided by EBMUD of up to two hours. The training program will be completed in person or by watching a video, at an EBMUD designated location, conducted or prepared by a Qualified Archaeologist and/or Paleontologist. The program will discuss cultural and paleontological resources awareness within the project work limits, including the responsibilities of Contractor personnel, applicable mitigation measures, confidentiality, and notification requirements. Prior to accessing the construction site, or performing site work, identified Contractor personnel shall:<ul style="list-style-type: none">– Sign an attendance sheet provided by EBMUD verifying that all Contractor construction personnel involved in ground disturbing activities have attended the appropriate level of training; have read and understood the contents of the training; have read and understood the contents of the “Confidentiality of Information on Cultural and Paleontological Resources” document, and shall comply with all project environmental requirements.• In the event that potential cultural or paleontological resources are discovered at the site of construction, the following procedures shall be instituted:<ul style="list-style-type: none">– Discovery of prehistoric or historic-era archaeological resources requires that all construction activities shall immediately cease at the location of discovery and within 100 feet of the discovery.<ul style="list-style-type: none">▪ The Contractor shall immediately allow EBMUD to evaluate the find. The Contractor is responsible for stopping work and notifying EBMUD and shall not recommence work until authorized to do so by EBMUD.	PS

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		<ul style="list-style-type: none">EBMUD will retain a qualified archaeologist to inspect the findings within 24 hours of discovery. If it is determined that the Project could damage a historical resource as defined by CEQA (or a historic property as defined by the National Historic Preservation Act of 1966, as amended), construction shall cease in an area determined by the archaeologist until a management plan has been prepared, approved by EBMUD, and implemented to the satisfaction of the archaeologist (and Native American representative if the resource is prehistoric, who shall be identified by the Native American Heritage Commission [NAHC]). In consultation with EBMUD, the archaeologist (and Native American representative) will determine when construction can resume.Discovery of human remains requires that all construction activities immediately cease at, and within 100 feet of the location of discovery.<ul style="list-style-type: none">The Contractor shall immediately notify EBMUD who will engage a qualified archaeologist provided by EBMUD to evaluate the find. The Contractor is responsible for stopping work and notifying EBMUD and shall not recommence work until authorized to do so by EBMUD.EBMUD will contact the County Coroner, who will determine whether or not the remains are Native American. If the remains are determined to be Native American, the Coroner will contact the Native American Heritage Commission (NAHC). The NAHC will then identify the person or persons it believes to be the most likely descendant from the deceased Native American, who in turn would make recommendations to EBMUD for the appropriate means of treating the human remains and any associated funerary objects. Otherwise, the County Coroner shall be allowed to complete their investigation and the Contractor shall not recommence work until authorized to do so by both the Coroner and EBMUD.If EBMUD determines that the cultural or paleontological resource discovery requires further evaluation, at the direction of EBMUD, the Contractor shall suspend all construction activities at the location of the find and within a larger radius, as required.	
Impact CUL-3: Disturb any human remains, including those interred outside of formal cemeteries.	PS	EBMUD Standard Construction Specification 01 35 45, Biological, Cultural, and Paleontological Resource Requirements <i>Section 3.1, Training and Certification</i> (Details listed in Impact BIO-1) <i>Section 3.3, Protection of Cultural and Paleontological Resources</i> (Details listed in Impact CUL-2)	LTS
Energy			
Impact ENG-1: Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation	PS	EBMUD Standard Construction Specification 01 35 44 (Environmental Requirements) <i>Section 3.5, Air Quality Control</i> (Details listed in Impact AQ-1).	LTS
Geology, Soils, and Seismicity			
Impact GEO-1: Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving: rupture of a known earthquake fault; strong seismic ground-shaking; seismic-related ground failure (liquefaction, lateral spreading); or landslides.	PS	EBMUD Standard Construction Specification 01 35 24, Project Safety Requirements <i>Section 1.1(F), Site Activities</i> <ul style="list-style-type: none">Complete a Safe Work Permit prior to starting work at a Water Treatment Plant. <i>Section 1.3(M), Excavation Safety Plan</i> <ul style="list-style-type: none">Submit an Excavation Safety Plan in accordance with Title 8 CCR §1541.Contractor shall obtain an excavation permit per Title 8, CCR §341(a)(1) when required.California Government Code §4216 describes the requirements and procedures for excavation notifications and utility excavation Engineering Standard Practice 512.1, Water Main Design Criteria <i>Purpose:</i> Establishes criteria for design of water pipelines and establishes minimum requirements for pipeline construction materials. Engineering Standard Practice 550.1, Seismic Design Requirements <i>Purpose:</i> Establishes minimum criteria for seismic design of all EBMUD facilities, including offices, operating centers, water and wastewater treatment plants, water and other liquids storage structures, pumping plants, retaining walls, underground vaults, pipelines, and other structures.	LTS
Impact GEO-2: Result in substantial soil erosion or the loss of topsoil.	PS	EBMUD Standard Construction Specification 01 35 44, Environmental Requirements <i>Section 1.1(B), Site Activities</i> (Details listed in Impact BIO-1) <i>Section 1.4(A), Storm Water Management</i> (Details listed in Impact BIO-1)	LTS
Impact GEO-3: Be located on a geologic unit or soil that is unstable, or that would become unstable because of the project, and potentially result in on or off-site landslide, lateral spreading, subsidence, liquefaction or collapse.	PS	EBMUD Standard Construction Specification 01 35 24, Project Safety Requirements <i>Section 1.3(M), Excavation Safety Plan</i> (Details listed in Impact GEO-1) Engineering Standard Practice 512.1, Water Main Design Criteria (Details listed in Impact GEO-1)	LTS

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Engineering Standard Practice 550.1, Seismic Design Requirements (Details listed in Impact GEO-1)			
Impact GEO-4: Be located on expansive soil creating substantial direct or indirect risks to life or property.	PS	Engineering Standard Practice 512.1, Water Main Design Criteria (Details listed in Impact GEO-1)	LTS
Impact GEO-5: Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.	PS	EBMUD Standard Construction Specification 01 35 45, Biological, Cultural, and Paleontological Requirements <i>Section 3.1, Training and Certification</i> (Details listed in Impact BIO-1) <i>Section 3.3, Protection of Cultural and Paleontological Resources</i> (Details listed in Impact CUL-2)	PS
Greenhouse Gas Emissions			
Impact GHG-1: Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment.	PS	EBMUD Standard Construction Specification 01 35 44, Environmental Requirements <i>Section 3.5, Air Quality Control</i> (Details listed in Impact AQ-1)	LTS
Hazards and Hazardous Materials			
Impacts HAZ-1 and HAZ-2: Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials, or to create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the likely release of hazardous materials into the environment.	PS	EBMUD Standard Construction Specification 01 35 24, Project Safety Requirements and Site Activities <i>Section 1.3(B), Project Health and Safety Plan</i> <ul style="list-style-type: none">Submit a Project Health and Safety Plan for the work to be performed prior to start of the Notice to Commence Field Work (NTCFW) and/or prior to any Limited Notice to Commence Field Work (LNTCFW).The Project Health and Safety Plan shall implement applicable Title 8, California Code of Regulations for the work performed. <i>Section 1.4, Training and Qualifications Requirements</i> <ul style="list-style-type: none">Ensure that all personnel who, as the result of work on this contract, will likely be exposed to hazardous conditions or hazardous substances at the site have received the appropriate training for the hazards they may encounter. Establish minimum training requirements and do not allow untrained workers to enter or perform work at the site.Submit certification of current training and qualification for each worker engaged in work with hazardous conditions or hazardous substances. <i>Section 1.3(F), Submit an Emergency Action Plan</i> <ul style="list-style-type: none">Prepare responses to employee accident/injury events, or any serious unplanned event (e.g.: utility break, fire, structure collapse, etc.) that requires any first aid provider or response agencies (e.g.: fire departments, utility agencies, rescue teams, etc.) <i>Section 1.3(N), Submit USA Marking Record</i> <ul style="list-style-type: none">Submit utility locate and marking number and documents, and verification of markings.Make available to EBMUD the record of all subsequent utility marking events and meetings on the project. EBMUD Standard Construction Specification 01 35 44, Environmental Requirements <i>Section 1.1(A) Work includes:</i> <ul style="list-style-type: none">Comply with applicable Federal, State and Local environmental regulations in the execution of the Work. <i>Section 1.1(B) Site activities</i> (Details listed in Impact BIO-1) Section 1.4(A), Storm Water Management (Details listed in Impact BIO-1) <i>Section 1.4(B), Water Control and Disposal Plan</i> <ul style="list-style-type: none">Submit a detailed Water Control and Disposal Plan that complies with all requirements of the Specification and includes provisions for the types of discharges and permits in a through c below, if applicable to the project.<ul style="list-style-type: none">Drinking Water System Discharge<ul style="list-style-type: none">Plan shall comply with Drinking Water Systems Discharges Statewide Permit, General Order CAG140001.Submit all records of actual discharges, monitoring, water quality data, and beneficial reuse described above to EBMUD.Non-Stormwater Discharges<ul style="list-style-type: none">Plan shall describe measures for containment, handling, treatment (as necessary), and disposal of discharges such as groundwater (if encountered), runoff of water used for dust control, stockpile leachate, tank heel water, wash water, sawcut slurry, test water and construction water.	LTS

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		<p><i>Section 1.4(C), Waste Management</i></p> <ul style="list-style-type: none">• Prepare a Waste Management Plan and submit a copy of the plan for EBMUD's acceptance prior to start of work (except for water wastes which shall be addressed in the Water Control and Disposal Plan). The Waste Management Plan shall address all Construction and Demolition Waste, universal wastes, Hazardous Wastes, Excavation Soils, and any other solid debris intended to be removed from the project site(s).<ul style="list-style-type: none">– Identify how the Contractor will handle, transport, dispose of, or otherwise divert each type of material required to be removed under this contract in a safe, appropriate, and lawful manner in compliance with all applicable regulations of local, state, and federal agencies having jurisdiction over the removed materials.– Identify materials that are not recyclable or not recovered which will be disposed of in a landfill (or other means acceptable by the State of California and local ordinance and regulations). List the permitted landfill, or other permitted disposal facilities, which will be accepting the disposed waste materials. All landfills, hazardous waste, and universal waste disposal sites shall be approved for use by EBMUD.– Describe planned sampling and analysis for characterizing wastes or the Sampling and Analysis Plan below in Paragraph 1.4.J. <p><i>Section 1.4(E), Spill Prevention and Response Plan</i> (Details listed in Impact BIO-1)</p> <p><i>Section 1.4(I), Waste Disposal Records</i></p> <ul style="list-style-type: none">• Copies of waste management and disposal records including bills of lading, manifests, weight tickets, and receipts from waste management facilities shall be submitted to EBMUD. This provision applies to Hazardous Wastes, universal wastes, treated wood wastes, solid wastes disposed at landfills, and radioactive wastes.• Hazardous Waste Manifests<ul style="list-style-type: none">– Use the “Uniform Hazardous Waste Manifest”, EPA form 8700-22. Contractor shall prepare and EBMUD will review all hazardous waste manifests for acceptability prior to use.– Submit the “Generator’s Initial Copy” and a legible photocopy of the first page of hazardous waste manifests, land disposal restriction forms, or other documentation required by applicable regulations governing transport and disposal of Hazardous Wastes for disposal of hazardous substances within 5 days of off haul. <p><i>Section 1.4(J), Sampling and Analysis Plan</i></p> <ul style="list-style-type: none">• Submit a project-specific Sampling and Analysis Plan (SAP) for projects including but not limited to sanitary sewer discharge samples, waste characterization samples, air samples, and site characterization involving soil, groundwater, and soil gas samples requiring laboratory analysis. <p><i>Section 3.4, Waste Management and Disposal</i></p> <ul style="list-style-type: none">• Segregate, stage, label/mark, and properly manage waste at the jobsite in a manner that complies with applicable regulations and to facilitate proper disposal.• Characterize all liquid wastes, solid wastes, and other wastes prior to removing from the project site. Sampling and analysis shall adhere to the Sampling and Analysis Plan.• EBMUD will review laboratory analysis results for EBMUD acceptance of Contractor Characterization of waste classification.• EBMUD will obtain a Hazardous Waste Generator's EPA ID Number if required for disposal of Hazardous Wastes and treated wood waste.• EBMUD will give Contractor written notice to dispose of all or a portion of the waste material at a Class I disposal site if EBMUD determines that such disposal is required based on review of Contractors waste characterization and the analytical results of samples collected.<ul style="list-style-type: none">– Waste materials from different sites shall not be transported or mixed until the material is determined to be non-hazardous. Unless pre-approved by EBMUD for direct hauling, excavation materials shall be stored or stockpiled at each site until classified and accepted for movement by EBMUD.• Transport materials and/or wastes in accordance with all local, state, and federal laws, rules, and regulations.• Contractor shall not assume any soil is approved for offsite reuse. Offsite reuse is only permitted with explicit approval from EBMUD after a careful review of the Contractor’s proposed reuse. <p>EBMUD Engineering Standard Practice 514 Identifying Buried Conflicts</p> <p>EBMUD Engineering Standard Practice 514 provides guidelines and minimum steps required for the investigation needed to identify existing underground utilities, and to establish a uniform approach for site reconnaissance of existing buried conflicts, including active and abandoned utilities (EBMUD, 2008).</p> <p>EBMUD Standard Construction Specification 02 82 13, Asbestos Control Activities</p> <p><i>Section 1.1, Compliance and Intent</i> (Details listed in Impact AQ-1).</p> <p><i>Section 1.5, Submittals</i> (Details listed in Impact AQ-1).</p> <p><i>Section 1.6 Submittals (Job in Progress)</i> (Details listed in Impact AQ-1).</p> <p><i>Section 3.1, Initial Area Isolation</i> (Details listed in Impact AQ-1).</p> <p><i>Section 3.2, Work Activities</i> (Details listed in Impact AQ-1).</p>	

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Impact Area	Significance Before Practices and Procedures ¹	EBMUD Practices and Procedures	Significance After Practices and Procedures
		<p>EBMUD Standard Construction Specification 02 83 13, Lead Hazard Control Activities</p> <p><i>Section 1.4, Submittals</i></p> <ul style="list-style-type: none">Lead Demolition Plan: Lead-containing coating handling, engineering control, removal, and disposal proceduresLead-Containing Coating Demolition Work: All Contractor's supervisors and workers performing lead-containing coating work shall meet the requirements of the California Department of Health Services (DHS) lead-related construction interim certification (17 CCR 350001). <p><i>Section 3.2, Air Monitoring</i></p> <ul style="list-style-type: none">The purpose of any air monitoring conducted by EBMUD will be to detect possible release of dusts (lead) emanating from the work area. This testing will be conducted independently of the air monitoring described in Section 01 35 24. <p>EBMUD Procedure 711, Hazardous Waste Removal</p> <p>The procedure defines hazardous waste and establishes responsibilities for removal of hazardous wastes from EBMUD facilities. Procedure 711 outlines specific steps and responsibilities for: characterizing the waste and determining what analyses are needed to classify the waste; coordinating waste disposal, re-use or recycling issues; labeling, storing, inspecting, and maintaining inventory records for the waste; and reviewing, signing, and tracking any hazardous waste handling and disposal requirements and hazardous waste manifests.</p>	
Impact HAZ-3: The project has the potential to emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school.	PS	<p>EBMUD Standard Construction Specification 01 35 44, Environmental Requirements</p> <p><i>Section 1.4(C), Waste Management</i>(Details listed under Impacts HAZ-1 and HAZ-2)</p> <p><i>Section 1.4(E), Spill Prevention and Response Plan</i> (Details listed under Impact BIO-1)</p>	LTS
Impact HAZ-4: The project has the potential to impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.	PS	<p>EBMUD Standard Construction Specification 01 55 26, Traffic Regulation</p> <p><i>Section 1.1, Summary</i></p> <ul style="list-style-type: none">All proposed street closures shall be clearly identified in the Traffic Control Plan (TCP) and shall conform to the section “Traffic Control Devices” below. Construction area signs for street closure and detours shall be posted a minimum of forty-eight (48) hours prior to the commencement of street closure. Contractor shall maintain safe access around the project limit at all times. Street closures shall be limited to those locations indicated on the construction documents. <p><i>Section 1.2, Submittals</i></p> <ul style="list-style-type: none">Submit at least 15 calendar days prior to work a detailed Traffic Control Plan, that is approved by all agencies having jurisdiction and that conforms to all requirements of these specifications and the most recently adopted edition of the MUTCD. Traffic Control Plan shall include:<ul style="list-style-type: none">A description of emergency response vehicle access. If the road or area is completely blocked, preventing access by an emergency responder, a contingency plan must be included. <p><i>Section 3.1, General</i></p> <ul style="list-style-type: none">For complete road closures, immediate emergency access to be provided if needed to emergency response vehicles.	LTS
Impact HAZ-5: Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires.	PS	<p>EBMUD Standard Construction Specification 01 35 24, Project Safety Requirements and Site Activities</p> <p><i>Section 1.3(F), Submit an Emergency Action Plan</i> (Details listed under Impacts HAZ-1 and HAZ-2)</p> <p><i>Section 3.2(F), Fire Prevention and Protection</i></p> <ul style="list-style-type: none">Perform all Work in a fire safe manner and supply and maintain on the site adequate fire fighting equipment capable of extinguishing incipient fires. Comply with applicable federal, local, and state fire prevention regulations. Where these regulations do not apply, applicable parts of the National Fire Prevention Standards for Safeguarding Building Construction Operations (NFPA No. 241) shall be followed.A long-handled, round-point shovel, or a fire extinguisher shall be kept at an accessible (unlocked) location on the construction site at all times.Earthmoving and portable equipment with internal combustion engines shall be equipped with a spark arrestor to reduce the potential for igniting a wildfire. Such equipment shall be maintained to ensure proper functioning of spark arrestor.For all work occurring between April 1 and December 1, or any other periods during which a high fire danger has been identified:<ul style="list-style-type: none">Equipment that could produce a spark, fire, or flame shall not be used within 10 feet of any flammable materials.Portable tools powered by gasoline-fueled internal combustion engines shall not be used within 25 feet of any flammable materials.Vegetation management for fire prevention and protection<ul style="list-style-type: none">Prior to and during construction:	LTS

EXECUTIVE SUMMARY

Impact Area	Significance Before Practices and Procedures ¹	EBMUD Practices and Procedures	Significance After Practices and Procedures
		<ul style="list-style-type: none">▪ Create and maintain a defensible space (100 feet or to EBMUD property boundary, whichever is shorter) around construction site, construction ingress and egress sites through landscaping, mowing, disking, and/or spraying dry brush or native grasses to a height of 4-inches or less.▪ Remove dead trees within 100 feet of construction site.▪ Limb up trees within 100 feet of construction site so that no leafy foliage, twigs or branches are within 5-feet of the ground. To maintain tree health, tree limbing shall not remove more than 25 percent of a tree canopy within one growing season.▪ Ensure and maintain 5-feet of vertical clearance between roof surfaces and portions of trees overhanging all structures within construction site, and keep roofs free of leaves, needles, twigs, and other combustible matter. To maintain tree health, tree limbing shall not remove more than 25 percent of a tree canopy within one growing season.▪ Keep all overhanging trees, shrubs, and other vegetation, or portions thereof, free of dead limbs, branches, and other combustible matter. <ul style="list-style-type: none">- Neatly stack all combustible materials away from structures within construction site and have all combustible growth cleared 15-feet around the stack.• During construction, maintain an unobstructed horizontal clearance at access drives of not less than the required width of the access drives, and an unobstructed vertical clearance of not less than 13 feet 6 inches above all roadways	
Hydrology			
Impact HYD-1: Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality.	PS	EBMUD Standard Construction Specification 01 35 44, Environmental Requirements <i>Section 1.1(B), Site Activities</i> (Details listed in Impact BIO-1). <i>Section 1.4(A), Stormwater Management</i> (Details listed in Impact BIO-1). <i>Section 1.4(B), Water Control and Disposal Plan</i> (Details listed in Impact HAZ-1). <i>Section 1.4(E), Spill Prevention and Response Plan</i> (Details listed in Impact BIO-1). <i>Section 3.2, Stormwater</i> (Details listed in Impact BIO-1) EBMUD’s Standard Construction Specification 01 74 05, Cleaning <i>Section 3.1(B), Cleaning</i> <ul style="list-style-type: none">• Conduct cleaning and disposal operations to comply with local ordinances and anti pollution laws. Do not burn or bury rubbish and waste materials on project site. Do not dispose of volatile wastes such as mineral spirits, oil, or paint thinner in storm or sanitary drains. Do not dispose of wastes into streams or waterways. EBMUD Standard Construction Specification 32 92 19.16, Hydraulic Seeding Defines requirements for hydroseed and erosion control of areas disturbed during construction. The Standard Construction Specification includes a seed mix composition for pure live seed, requirements for inoculant sources, fertilizer, mulch, and application rates for hydroseeding.	LTS
Impact HYD-3: 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. b. Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on or off-site. 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.	PS	EBMUD Standard Construction Specification 01 35 44, Environmental Requirements <i>Section 1.1(B), Site Activities</i> (Details listed in Impact BIO-1) <i>Section 1.4(A), Stormwater Management</i> (Details listed in Impact BIO-1) <i>Section 1.4(B), Water Control and Disposal Plan</i> (Details listed in Impact HAZ-1) <i>Section 3.2, Stormwater</i> (Details listed in Impact BIO-1)	LTS
Impact HYD-4: In a flood hazard, tsunami, or seiche zone, risk release of pollutants due to project inundation.	PS	EBMUD Standard Construction Specification 01 35 44, Environmental Requirements <i>Section 1.1(B), Site Activities</i> (Details listed in Impact BIO-1) <i>Section 1.4(A), Stormwater Management</i> (Details listed in Impact BIO-1)	LTS
Impact HYD-5: Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.		EBMUD Standard Construction Specification 01 35 44, Environmental Requirements <i>Section 1.1(B), Site Activities</i> (Details listed in Impact BIO-1) <i>Section 1.4(A), Stormwater Management</i> (Details listed in Impact BIO-1) <i>Section 1.4(B), Water Control and Disposal Plan</i> (Details listed in Impact HAZ-1) EBMUD Standard Construction Specification 32 92 19.16, Hydraulic Seeding (Details in Impact HYD-1)	LTS

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Impact Area	Significance Before Practices and Procedures ¹	EBMUD Practices and Procedures	Significance After Practices and Procedures
Noise and Vibration			
Impact NOI-1: Result in the 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.	PS	<p>EBMUD Standard Construction Specification 01 35 44, Environmental Requirements</p> <p><i>Section 1.4(G), Noise Control and Monitoring Plan</i></p> <ul style="list-style-type: none">• Submit a plan detailing the means and methods for controlling and monitoring noise generated by construction activities, including demolition, alteration, repair, or remodeling of or to existing structures and construction of new structures, as well as by items of machinery, equipment or devices used during construction activities on the site for EBMUD’s acceptance prior to any work at the jobsite. The plan shall detail the equipment and methods used to monitor compliance with the plan. <p><i>Section 3.8, Noise Control</i></p> <ul style="list-style-type: none">• Comply with sound control and noise level rules, regulations, and local ordinances and in the CEQA documents which apply to any work performed pursuant to the contract. Noise-generating activities shall be limited to the hours specified in Section 01 14 00.• Take appropriate measures, including muffling of equipment, selecting quieter equipment, erecting noise barriers, modifying work operations, and other measures as needed to bring construction noise into compliance.• Each internal combustion engine, used for any purpose on the job or related to the job, shall be equipped with a muffler of a type recommended by the manufacturer.• Use the best available noise control techniques (including mufflers, intake silencers, ducts, engine enclosures, and acoustically attenuating shields or shrouds) for all equipment and trucks, as necessary.• Truck operations (haul trucks and concrete delivery trucks) shall be limited to the daytime hours specified in Section 01 14 00.• Stationary noise sources (e.g., chippers, grinders, compressors) shall be located as far from sensitive receptors as possible. Enclosure opening or venting shall face away from sensitive receptors. Enclosures shall be designed by a registered engineer regularly involved in noise control analysis and design.• If impact equipment (e.g., jack hammers, pavement breakers, rock drills etc.) is used during project construction, Contractor is responsible for taking appropriate measures, including but not limited to the following:<ul style="list-style-type: none">– Hydraulically or electric-powered equipment shall be used wherever feasible to avoid the noise associated with compressed-air exhaust from pneumatically powered tools. However, where use of pneumatically powered tools is unavoidable, an exhaust muffler on the compressed-air exhaust shall be used. External jackets on the tools themselves shall be used, where feasible. Quieter procedures, such as drilling rather than impact equipment, shall be used whenever feasible. It is the Contractor’s responsibility to implement any measures necessary to meet applicable noise requirements.– Impact construction including jackhammers, hydraulic backhoe, concrete crushing/recycling activities, vibratory pile drivers etc. shall be limited to the daytime hours specified in Section 01 14 00.– Erect temporary noise barriers or noise control blankets around the construction site, particularly along areas adjacent to residential buildings.– Limit the noisiest phases of construction to 10 workdays at a time, where feasible.– Notify neighbors/occupants within 300 feet of project construction at least thirty days in advance of extreme noise generating activities about the estimated duration of the activity.• Noise Monitoring shall be conducted periodically during noise generating activities. Monitoring shall be conducted using a precision sound-level meter that is in conformance with the American National Standards Institute (ANSI) Standard S1.4, Specification for Sound Level Meters. Monitoring results shall be submitted weekly to EBMUD. <p>Procedure 600 (Details listed in AQ-1)</p>	PS
Impact NOI-2: Result in the generation of excessive groundborne vibration or groundborne noise levels.	PS	<p>EBMUD Standard Construction Specification 01 35 44, Environmental Requirements</p> <p><i>Section 1.4(H), Vibration Control and Monitoring Plan</i></p> <ul style="list-style-type: none">• Submit a plan detailing the means and methods for controlling and monitoring surface vibration generated by demolition and other work on the site for EBMUD’s acceptance prior to any work at the jobsite. The plan shall detail the equipment and methods used to monitor compliance with the plan. <p><i>Section 3.7, Vibration Control</i></p> <ul style="list-style-type: none">• Limit continuous surface vibration to no more than 0.5 in/sec Peak Particle Velocity (PPV), measured at the nearest residence or other sensitive structure. See Section 01 14 00. <p>Procedure 600 (Details listed in AQ-1)</p>	LTS
Transportation			

EXECUTIVE SUMMARY

Impact Area	Significance Before Practices and Procedures ¹	EBMUD Practices and Procedures	Significance After Practices and Procedures
Impact TRA-1: Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities.	PS	<p>EBMUD Standard Construction Specification 01 32 36, Video Monitoring and Documentation</p> <p><i>Section 1.1, Summary</i>(Details listed in Impact AES-3)</p> <p><i>Section 1.2, Site Survey Audio-Video Recording Requirements</i> (Details listed in Impact AES-2)</p> <p>EBMUD Standard Construction Specification 01 55 26, Traffic Regulation</p> <p><i>Section 1.1, Summary</i></p> <ul style="list-style-type: none">• All proposed street closures shall be clearly identified in the Traffic Control Plan (TCP) and shall conform to the section “Traffic Control Devices” below. Construction area signs for street closure and detours shall be posted a minimum of forty-eight (48) hours prior to the commencement of street closure. Contractor shall maintain safe access around the project limit at all times. Street closures shall be limited to those locations indicated on the construction documents. <p><i>Section 1.2(A), Submittals</i></p> <ul style="list-style-type: none">• Submit at least 15 calendar days prior to work a detailed traffic control plan, that is approved by all agencies having jurisdiction and that conforms to all requirements of these specifications and the most recently adopted edition of the Manual on Uniform Traffic Control Devices (MUTCD). Traffic Control Plan shall include:<ul style="list-style-type: none">– Circulation and detour plans to minimize impacts to local street circulation. Use haul routes minimizing truck traffic on local roadways to the extent possible.– A description of emergency response vehicle access. If the road or area is completely blocked, preventing access by an emergency responder, a contingency plan must be included.– Procedures, to the extent feasible, to schedule construction of project elements to minimize overlapping construction phases that require truck hauling.– Designated Contractor staging areas for storage of all equipment and materials, in such a manner to minimize obstruction to traffic.– Locations for parking by construction workers. <p><i>Section 1.3, Quality Assurance</i></p> <ul style="list-style-type: none">• Detailed traffic control plan shall be prepared by a California licensed Traffic Engineer.• The Traffic Engineer who prepares the detailed traffic control plan shall be available at any time during the life of the contract to modify the traffic control plan if and as required by the agency having jurisdiction.• No changes or deviations from the approved detailed traffic control plan shall be made, except temporary changes in emergency situations, without prior approval of the Traffic Engineer, the EBMUD’s Engineer, and all agencies having jurisdiction.• Immediately notify the Traffic Engineer, the EBMUD’s Engineer, and the agencies having jurisdiction of occurrences that necessitate modification of the approved traffic control plan. <p>Section 2.1(A) Traffic Control Devices</p> <ul style="list-style-type: none">• Traffic signs, flashing lights, barricades and other traffic safety devices used to control traffic shall conform to the requirements of the most recently adopted edition of the MUTCD and the agency having jurisdiction.<ul style="list-style-type: none">– Portable signals shall not be used unless permission is given in writing by the agency having jurisdiction.– Warning signs used for nighttime conditions shall be reflectorized or illuminated. “Reflectorized signs” shall have a reflectorized background and shall conform to the current State of California Department of Transportation specification for reflective sheeting on highway signs. <p><i>Section 3.1, General</i></p> <ul style="list-style-type: none">• Except where public roads have been approved for closure, traffic shall be permitted to pass through designated traffic lanes with as little inconvenience and delay as possible.• Install temporary traffic markings where required to direct the flow of traffic. Maintain the traffic markings for the duration of need and remove by abrasive blasting when no longer required.• Convenient access to driveways and buildings in the vicinity of work shall be maintained as much as possible. Temporary approaches to, and crossing of, intersecting traffic lanes shall be provided and kept in good condition.• When leaving a work area and entering a roadway carrying public traffic, the Contractor's equipment, whether empty or loaded, shall in all cases yield to public traffic.• Provide temporary signs as required by the traffic control plan and remove signs when no longer required.• Haul routes for each construction phase shall be provided to all trucks serving the site during the construction period.• For complete road closures, immediate emergency access to be provided if needed to emergency response vehicles.• A minimum of twelve (12) foot travel lanes must be maintained unless otherwise approved. <p><i>Section 3.2, Alternative One-Way Traffic</i></p>	PS

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Impact Area	Significance Before Practices and Procedures ¹	EBMUD Practices and Procedures	Significance After Practices and Procedures
		<ul style="list-style-type: none">Where alternating one-way traffic has been authorized, the following shall be posted at each end of the one-way traffic section at least one week prior to start of work:<ul style="list-style-type: none">The approximate beginning and ending dates that traffic delays will be encountered.The maximum time that traffic will be delayed.The maximum delay time shall be approved by the agency having jurisdiction. <p><i>Section 3.3(A), Flagging</i></p> <ul style="list-style-type: none">Provide flaggers to control traffic where required by the approved traffic control plan.<ul style="list-style-type: none">Flaggers shall perform their duties and shall be provided with the necessary equipment in accordance with the current “Instructions to Flaggers” of the California Department of Transportation.Flaggers shall be employed full time on traffic control and shall have no other duties. <p><i>Section 3.4, Temporary Traffic Control</i></p> <ul style="list-style-type: none">All traffic control devices shall conform to the latest edition of the MUTCD, and as amended by the latest edition of the MUTCD California supplement. Electronic signage board with changeable message shall be placed on a street in both directions 2 weeks in advance.The Contractor shall replace within 72 hours, all traffic signal loop detectors damaged during construction. Any work that disturbs normal traffic signal operations and ensure proper temporary traffic control (lane shifts, lane closures, detours etc.) shall be coordinated with the agency having jurisdiction, at least 72 hours prior to commencing construction.A minimum of 12-foot travel lanes must be maintained unless otherwise approved.Access to driveways will be maintained at all times unless other arrangements are made.All traffic control devices shall be removed from view when not in use.Before leaving a work area, ensure the area is left orderly. Trenches must be backfilled or plated during non-working hours.Sidewalks for pedestrians will remain open if safe for pedestrians. Alternate routes and signing will be provided if pedestrian routes are to be closed. <p>Procedure 600 (Details listed in AQ-1)</p>	
Impact TRA-3: Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).	PS	<p>EBMUD Standard Construction Specification 01 32 36, Video Monitoring and Documentation</p> <p><i>Section 1.1, Summary</i>(Details listed in Impact AES-3)</p> <p><i>Section 1.2, Site Survey Audio-Video Recording Requirements</i>(Details listed in Impact AES-2)</p> <p>EBMUD Standard Construction Specification 01 55 26, Traffic Regulation</p> <p><i>Section 1.1, Summary</i>(Details listed in Impact AES-3)</p> <p><i>Section 1.2(A), Submittals</i> (Details listed in Impact TRA-1)</p> <p><i>Section 1.3, Quality Assurance</i> (Details listed in Impact TRA-1)</p> <p><i>Section 2.1(A) Traffic Control Devices</i> (Details listed in Impact TRA-1)</p> <p><i>Section 3.1, General</i>(Details listed in impact TRA-1)</p> <p><i>Section 3.2, Alternative One-Way Traffic</i> (Details listed in impact TRA-1)</p> <p><i>Section 3.3(A), Flagging</i> (Details listed in impact TRA-1)</p> <p><i>Section 3.4, Temporary Traffic Control</i>(Details listed in impact TRA-1)</p>	PS
Impact TRA-4: Result in inadequate emergency access.	PS	<p>EBMUD Standard Construction Specification 01 55 26, Traffic Regulation</p> <p><i>Section 1.2(A), Submittals</i> (Details listed in Impact TRA-1)</p> <p><i>Section 1.3, Quality Assurance</i> (Details listed in Impact TRA-1)</p> <p><i>Section 2.1(A) Traffic Control Devices</i> (Details listed in Impact TRA-1)</p> <p><i>Section 3.1, General</i>(Details listed in impact TRA-1)</p> <p><i>Section 3.4, Temporary Traffic Control</i>(Details listed in impact TRA-1)</p>	LTS
Tribal Cultural Resources			
Impact TCR-1: 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	PS	<p>EBMUD Standard Construction Specification 01 35 45, Biological, Cultural, and Paleontological Resource Requirements</p> <p><i>Section 3.1, Training and Certification</i> (Details listed in Impact BIO-1)</p>	PS

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Impact Area	Significance Before Practices and Procedures ¹	EBMUD Practices and Procedures	Significance After Practices and Procedures
geographically define in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe.		<p><i>Section 3.3, Protection of Cultural and Paleontological Resources</i></p> <ul style="list-style-type: none">Confidentiality of Information on Cultural and Paleontological Resources<ul style="list-style-type: none">In conjunction with Contractor’s performance under this contract, the Contractor may obtain information as to the location and/or nature of certain cultural or paleontological resources, including Native American artifacts and remains. This information may be provided to the Contractor by EBMUD or a third party, or may be discovered directly by the Contractor through its performance under the contract. All such information shall be considered “Confidential Information” for the purposes of this Article.Pursuant to California Government Code Section 6254.10, cultural resource information is protected from public disclosure. The Contractor agrees that the Contractor, its subcontractors, and their respective agents and employees shall not publish or disclose any Confidential Information to any person, unless specifically authorized in advance, in writing by EBMUD.Conform to the requirements of statutes as they relate to the protection and preservation of cultural and paleontological resources. Unauthorized collection of prehistoric or historic artifacts or fossils along the Work Area, or at Work facilities, is strictly prohibited.In addition to the training identified in Article 3.1.A above, identified Contractor personnel shall attend a cultural and paleontological resources training course provided by EBMUD of up to two hours. The training program will be completed in person or by watching a video, at an EBMUD designated location, conducted or prepared by a Qualified Archaeologist and/or Paleontologist. The program will discuss cultural and paleontological resources awareness within the project work limits, including the responsibilities of Contractor personnel, applicable mitigation measures, confidentiality, and notification requirements. Prior to accessing the construction site, or performing site work, identified Contractor personnel shall:<ul style="list-style-type: none">Sign an attendance sheet provided by EBMUD verifying that all Contractor construction personnel involved in ground disturbing activities have attended the appropriate level of training; have read and understood the contents of the training; have read and understood the contents of the “Confidentiality of Information on Cultural and Paleontological Resources” document, and shall comply with all project environmental requirements.In the event that potential cultural or paleontological resources are discovered at the site of construction, the following procedures shall be instituted:<ul style="list-style-type: none">Discovery of prehistoric or historic-era archaeological resources requires that all construction activities shall immediately cease at the location of discovery and within 100 feet of the discovery.<ul style="list-style-type: none">The Contractor shall immediately allow EBMUD to evaluate the find. The Contractor is responsible for stopping work and notifying EBMUD and shall not recommence work until authorized to do so by EBMUD.EBMUD will retain a qualified archaeologist to inspect the findings within 24 hours of discovery. If it is determined that the Project could damage a historical resource as defined by CEQA (or a historic property as defined by the NHPA), construction shall cease in an area determined by the archaeologist until a management plan has been prepared, approved by EBMUD, and implemented to the satisfaction of the archaeologist (and Native American representative if the resource is prehistoric, who shall be identified by the NAHC). In consultation with EBMUD, the archaeologist (and Native American representative) will determine when construction can resume.Discovery of human remains requires that all construction activities immediately cease at, and within 100 feet of the location of discovery.<ul style="list-style-type: none">The Contractor shall immediately notify EBMUD who will engage a qualified archaeologist provided by EBMUD to evaluate the find. The Contractor is responsible for stopping work and notifying EBMUD and shall not recommence work until authorized to do so by EBMUD.EBMUD will contact the County Coroner, who will determine whether or not the remains are Native American. If the remains are determined to be Native American, the Coroner will contact the NAHC. The NAHC will then identify the person or persons it believes to be the most likely descendant from the deceased Native American, who in turn would make recommendations to EBMUD for the appropriate means of treating the human remains and any associated funerary objects. <p>Otherwise, the County Coroner shall be allowed to complete their investigation and the Contractor shall not recommence work until authorized to do so by both the Coroner and EBMUD.</p> <ul style="list-style-type: none">If EBMUD determines that the cultural or paleontological resource discovery requires further evaluation, at the direction of EBMUD, the Contractor shall suspend all construction activities at the location of the find and within a larger radius, as required.	
Wildfire			
Impact Wildfire-1: Substantially impair an adopted emergency response plan or emergency evacuation plan.	PS	EBMUD Standard Construction Specification 01 55 26, Traffic Regulation <i>Section 1.1, Summary</i> (Details listed in Impact TRA-1) <i>Section 1.2(A), Submittals</i> (Details listed in Impact TRA-1) <i>Section 3.1, General</i> (Details listed in Impact HAZ-4)	LTS
Impact Wildfire-2: Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to,	PS	EBMUD Standard Construction Specification 01 35 24, Project Safety Requirements and Site Activities <i>Section 1.3(F), Submit an Emergency Action Plan</i> (Details listed in Impact HAZ-1 and HAZ-2)	LTS

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Impact Area	Significance Before Practices and Procedures ¹	EBMUD Practices and Procedures	Significance After Practices and Procedures
pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire.		<i>Section 3.2(F), Fire Prevention and Protection</i> (Details listed in Impact HAZ-5).	
Impact Wildfire-3: 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.	PS	Engineering Standard Practice 512.1, Water Main Design Criteria (Details listed in Impact GEO-1) Engineering Standard Practice 550.1, Seismic Design Requirements (Details listed in Impact GEO-1)	LTS

Table ES-3 **Summary of Impacts and Mitigation Measures**

Impact Area	Significance Before Practices and Procedures	Mitigation Measure	Significance After Mitigation
Aesthetics			
Impact AES-3 In non-urbanized areas, 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) or in an urbanized area, conflict with applicable zoning and other regulations governing scenic quality.	PS	Mitigation Measure AES-1: Landscape Maintenance The contractor shall inspect all tree materials that are used for Project landscaping to ensure the health of trees and shrubs prior to planting. Any root bound, diseased, or otherwise unhealthy trees or shrubs shall be replaced prior to planting. EBMUD will provide supplemental irrigation of all landscaped areas for a period of five (5) years following landscaping. Damage to the irrigation lines shall be repaired to ensure the irrigation is properly functioning during the dry season (April to October). EBMUD will conduct monitoring of all Project landscaping one year after planting and will replace in-kind any trees that are damaged, diseased, or failing to grow. All replaced, shrubs and trees shall be inspected for health prior to planting.	LTS
Biological Resources			
Impact BIO-1: 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 CDFW or USFWS.	PS	Mitigation Measure BIO-1: California Red-Legged Frog and Western Pond Turtle No more than 24 hours before the date of initial ground disturbance and exclusion fence installation for the Central North Aqueduct pipeline jack and bore pits, a preconstruction survey for California red-legged frog and western pond turtle shall be conducted by a Designated biologist within the jack and bore pit disturbance areas. If any California red-legged frog or potential burrows, or western pond turtle are found, the contractor shall allow the California red-legged frog or western pond turtle to leave the work area on its own or adjust the work area limits to avoid the California red-legged frog or western pond turtle. If avoidance is infeasible, EBMUD shall obtain any required USFWS permit/approval required to relocate the individual(s). Temporary exclusion fencing shall be installed around the limits of the Central North Aqueduct pipeline northern jack and bore work area, so that special-status amphibians, reptiles, and mammals cannot enter the work area. Installation of exclusion fencing shall occur under the supervision of the Designated biologist and immediately following a clearance survey of the area. The exclusion fencing shall have a minimum aboveground height of 30 inches, and the bottom of the fence shall be keyed in at least 4 inches deep and backfilled with soil, sandbags, gravel, or other means to prevent wildlife from passing under the fencing. Exclusion fencing shall be installed to prevent species entry into active work areas, and to mark the limits of construction disturbance at equipment staging areas, site access routes, construction equipment and personnel parking areas, debris storage areas, and any other areas that may be disturbed. The exclusion fencing shall be installed in a manner that reduces the potential for trapping migrating wildlife and for wildlife climbing over the fence, such as having the top of the fencing curved over on the outside of the fence. The exclusion fencing shall remain in place and be maintained for the duration of construction activities at the Central North Aqueduct pipeline northern jack and bore pit. Any damage to the exclusion fence shall be repaired within 48 hours of the observed damage.	LTS
Impact BIO-2: Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the CDFW or USFWS.	PS	Mitigation Measure BIO-2: Willow Riparian and Seasonal Wetland Habitat Protection and Restoration To the extent feasible, all areas of willow riparian habitat and seasonal wetlands shall be avoided during final Project design and construction. Construction limit fencing shall be used to limit the extent of construction to approved work areas. Construction mats shall be applied to the ground surface in areas of temporary disturbance within willow riparian and seasonal wetland habitats. Mats shall be applied before any vehicle activity in the area, to avoid rutting in wetland and willow riparian habitat. A preconstruction survey, including photos at five photo points that are representative of the temporarily impacted sensitive natural communities and transect monitoring, shall be conducted in the areas of temporary willow riparian and seasonal wetland impacts to document the following immediately before construction: <ul style="list-style-type: none">• Species composition and percentage cover of each dominant and subdominant species; and• Relative cover of non-native species within each sensitive natural community.	LTS

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Impact Area	Significance Before Practices and Procedures	Mitigation Measure	Significance After Mitigation
		<p>All areas of temporary impact within willow riparian and seasonal wetland habitats shall be restored to pre-project conditions. The seasonal wetland and willow riparian area shall be planted with a native vegetation mix that is characteristic of the vegetation community. The planting palette for the seasonal wetland and willow riparian area shall be provided by a restoration specialist to EBMUD for submittal to CDFW for review and approval before construction. Temporarily disturbed areas shall be monitored annually for up to five years and maintained until the following success criteria have been met:</p> <ul style="list-style-type: none">• The area has a minimum of 80 percent vegetative cover with native willows and associated species in willow riparian areas and native hydrophytic vegetation typical of seasonal wetlands in the seasonal wetland areas.• Non-native species cover shall not exceed pre-project conditions/cover. <p>EBMUD will cause an annual monitoring report to be completed and submitted to EBMUD and CDFW for up to five years and until success criteria are met. The annual monitoring report shall include the results of photo documentation at the defined preconstruction photo points as well as document performance of the restoration relative to the success criteria. Any corrective actions needed to meet the success criteria shall be documented in the annual report and shall be implemented within the following year. Any areas that fail to meet the success criteria after five years of monitoring shall be treated as permanent impacts and require compensatory mitigation, in compliance with Mitigation Measure BIO-3.</p> <p>Mitigation Measure BIO-3: Sensitive Natural Community Compensatory Mitigation</p> <p>Permanent impacts on willow riparian habitat and seasonal wetlands shall be compensated through on-site or off-site enhancement or creation of willow riparian habitat and seasonal wetland habitat. Permanent impacts on willow riparian and seasonal wetland habitat shall be compensated through enhancement of willow riparian habitat/seasonal wetlands at a minimum 2:1 ratio (enhancement: impact) or creation of willow riparian habitat/seasonal wetlands at a minimum 1:1 ratio. Mitigation credits may be purchased from a CDFW and Regional Water Quality Control Board-approved mitigation bank if on-site mitigation is not feasible.</p> <p>If EBMUD conducts mitigation through habitat enhancement or creation, a riparian and wetland mitigation plan shall be prepared that address the following parameters:</p> <ul style="list-style-type: none">• Baseline conditions within the mitigation site• Proposed mitigation site conditions• Mitigation methods (e.g., habitat creation or enhancement)• Planting plan• Methods for invasive weed control• Methods to establish the desired mitigation site conditions• Maintenance, including trash removal, invasive weed removal, and repair of any damage to the mitigation site• Adaptive management procedures• Monitoring methods <p>The enhanced or created riparian and wetland habitat shall meet the following success criteria:</p> <ul style="list-style-type: none">• Minimum of 70 percent vegetated cover with native willow riparian vegetation for willow riparian mitigation and native wetland vegetation for seasonal wetland mitigation• Less than 3 percent invasive weed cover• Wetland hydrology and soil conditions in the compensatory wetland mitigation areas <p>Annual monitoring shall be conducted for the mitigation habitats and shall include surveys for native vegetation cover, photo documentation at defined photo-monitoring locations, and monitoring for invasive species and any other habitat stressors. Monitoring will be conducted for the first five years or until success criteria are met.</p> <p>An annual report shall be submitted to CDFW by January 31st following the reporting year. The annual report shall provide the results of annual habitat monitoring, recommendations for any corrective actions needed to meet success criteria, and a description of any corrective actions taken in the previous reporting year.</p>	
Impact BIO-3: 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.	PS	<p>Mitigation Measure BIO-2: Willow Riparian and Seasonal Wetland Habitat Protection and Restoration</p> <p>(Details listed in Impact BIO-2)</p> <p>Mitigation Measure BIO-3: Sensitive Natural Community Compensatory Mitigation</p> <p>(Details listed in Impact BIO-2)</p>	LTS

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Impact Area	Significance Before Practices and Procedures	Mitigation Measure	Significance After Mitigation
Impact BIO-5: Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.	PS	Mitigation Measure BIO-2: Willow Riparian and Seasonal Wetland Habitat Protection and Restoration (Details listed in Impact BIO-2) Mitigation Measure BIO-3: Sensitive Natural Community Compensatory Mitigation (Details listed in Impact BIO-2)	LTS
Cultural Resources			
Impact CUL-2: Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5.	PS	Mitigation Measure CR-1: Archaeological and Tribal Monitoring During ground-disturbing construction activities of the Central North Aqueduct pipeline at the previously recorded site P-07-000068 and a 250-foot buffer from the site, a qualified archaeological and tribal monitor shall be present to inspect unexcavated sediments and soils for any sign of site P-07-000068 or other potential archaeological deposit. The archaeologist and tribal monitor shall notify EBMUD and its contractor of a discovery and EBMUD will direct its contractor to stop work in the vicinity of a discovery. The archaeologist will follow all regulations for the identification, evaluation, and recovery of any archaeological resources that cannot be avoided. During ground-disturbing construction activities of the Central North Aqueduct pipeline in areas with moderate sensitivity for deeply buried pre-contact archaeological resources (e.g., Bay Terrace alluvium), a qualified archaeological and tribal monitor shall be present to inspect unexcavated sediments and soils for any sign of potential archaeological deposits bi-weekly (two times per week). The archaeologist and tribal monitor shall notify EBMUD and its contractor of a discovery and EBMUD will direct its contractor to stop work in the vicinity of a discovery. If the archaeologist has observed excavation to final depth in sufficient areas to adequately characterize that the Project area and the underlying sediments appear disturbed or other evidence to suggest that archaeological and tribal cultural deposits are highly unlikely, the qualified archaeologist may recommend, in consultation with EBMUD, a switch to periodic (spot-check) monitoring or cease inspections entirely. If during bi-weekly inspections, the archaeologist identifies sensitive intact sediments that are likely to contain archaeological deposits, ground-disturbing activities shall be halted, and the qualified archaeologist shall develop an appropriate Archaeological Monitoring Plan in consultation with EBMUD. The Archaeological Monitoring Plan may include increased frequency of periodic archaeological inspections, full-time archaeological construction monitoring, or presence/absence testing in areas of heightened archaeological sensitivity. The archaeologist will follow all regulations for the identification, evaluation, and recovery of any archaeological resources that cannot be avoided.	LTS
Geology, Soil, and Seismicity			
Impact GEO-5: Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.	PS	Mitigation Measure GEO-1: Paleontological Resource Monitoring Plan During detailed design of the facilities, a professional paleontologist will be retained to prepare and implement a paleontological resource monitoring plan (PRMP), which will define paleontological resource monitoring locations, timing, and methodology. The location and extent of paleontological resource monitoring will reflect the locations where Project excavations are anticipated to impact the Orinda Formation based on design drawings, depth to bedrock, and locations of historic fills, as interpreted from geotechnical data. The PRMP will include procedures to adjust paleontological monitoring frequency and locations based on field monitoring results. The PRMP will also define protocols for any discoveries of paleontological resources including: <ol style="list-style-type: none"> Notification procedures. Procedures for temporarily diverting or halting construction to salvage fossils. Methods to salvage fossils. Methods to prepare the fossils for curation. Locations of approved repositories where fossil discoveries will be offered for curation. Before the start of ground-disturbing activities, a professional paleontologist will be retained to implement the PRMP.	LTS
Noise and Vibration			
Impact NOI-1: Result in the 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.	PS	Mitigation Measure NOI-1. Phase 1 Temporary Noise Barriers. EBMUD shall erect a 16-foot-tall temporary noise barrier on EBMUD property between the active Phase 1 construction area and residential receptors on Amend Road throughout the duration of Phase 1 construction. The noise barrier will be STC rated 25 or higher and specific to sound attenuation applications. During some periods of construction, the noise barrier may be moved or dismantled temporarily to accommodate the Project construction area, and EBMUD shall schedule only mobile equipment activities to occur during periods when the noise barrier is being moved. EBMUD shall also erect a 12-foot tall noise barrier with an STC rating of 25 or higher between the Phase 1 demolition area and adjacent residents north of the demolition area.	SU

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Impact Area	Significance Before Practices and Procedures	Mitigation Measure	Significance After Mitigation
Mitigation Measure NOI-2. Phase 2 Temporary Noise Barriers. EBMUD shall erect a 12-foot-tall temporary noise barrier between the Phase 2 gravity thickeners and sensitive receptors on Amend Road and a separate 12-foot-tall temporary noise barrier between the Central North Aqueduct pipeline jack and bore location and the D’Avila Woods Apartment buildings. The temporary noise barrier will be STC rated 25 or higher and specific to sound attenuation applications. To be effective, the noise barriers will be installed to block the line of sight between the construction activity and residential receptors. Mitigation Measure NOI-3. Limit Construction Hours in Contra Costa County. Where feasible, EBMUD shall limit excavation and grading activities within 500 feet of residential and commercial occupancies within Contra Costa County to weekdays within the County approved construction hours of 7:30 a.m. to 5:30 p.m. Mitigation Measure NOI-4. Off-site Accommodation for Affected Nighttime Receptors. EBMUD shall notify residents, who could be affected by nighttime (10 p.m. to 7 a.m.) construction of the Central North Aqueduct pipeline at busy intersections or at tie-in locations, at least 10 days in advance. Residences within 660 feet of these nighttime construction work areas may request alternative lodging for the night(s) of the potential nighttime construction from EBMUD; alternative lodging to be provided will consist of a standard room at a hotel within 5 miles of the affected residence or as close as feasible. Alternative lodging will be provided and approved by EBMUD the day before the known nighttime pipeline construction is planned, or earlier, based on the types of construction activities that may occur during the nighttime hours (10 p.m. to 7 a.m.). This measure will be implemented only if nighttime construction at busy intersections or at tie-ins is to occur for the Central North Aqueduct pipeline.			
Transportation			
Impact TRA-1: Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities.	PS	Mitigation Measure TRA-1. Minimize Impacts on Transit Service At least 60 days prior to construction activities involving temporary roadway centerline adjustment, rerouting of any bus line(s), or temporary closure and relocation of any bus stop, EBMUD shall coordinate with AC Transit. Roadway centerline adjustment and transit rerouting plans shall be reviewed and approved by the relevant city or county and reviewed by AC Transit prior to construction and included in the Project’s Traffic Control Plan. EBMUD shall coordinate with AC Transit, to temporarily relocate any bus stops that are affected by construction of the Central North Aqueduct pipeline. Any parking obstruction, sidewalk obstruction, travel lane obstruction, or other accommodation required for the temporary bus stop shall be reviewed and approved by AC Transit prior to construction and included in the Project’s Traffic Control Plan. Mitigation Measure TRA-2: Minimize Impacts of Heavy Truck Traffic at the SOWTP <ul style="list-style-type: none">• Use of soil and demolition off-haul trucks to and from the SOWTP will be restricted to between the hours of 9:00 a.m. to 4:00 p.m.• Soil and demolition off-haul and large equipment delivery trucks on Valley View Road and Camino Pablo in front of schools will be limited to the hours of 9:00 a.m. to 3:00 p.m.• Concrete deliveries may begin as early as 6:00 a.m.• The required Traffic Control Plan shall include the following measures:<ul style="list-style-type: none">– EBMUD’s Contractor shall distribute written traffic safety requirements to all Contractor heavy construction vehicle drivers. All drivers shall provide signed acknowledgement of having read and understood all traffic safety requirements and consequences of non-compliance.– Written traffic safety requirements shall include:<ul style="list-style-type: none">▪ Construction work hours specifying when construction traffic would be allowed to access the SOWTP and staging areas.▪ Construction haul routes and associated speed limits.▪ Designated parking locations.– Contractor shall provide a Project sticker or equivalent to drivers who have provided written acknowledgement of traffic safety requirements.– Project sticker shall be made available upon request by EBMUD during the construction contract period.– Contractor heavy construction vehicle drivers shall conform to designated construction hours, including no driving, queuing, idling or parking on local roadways outside of designated construction hours as outlined in written traffic safety requirements.– Contractor heavy construction vehicle drivers shall use only designated construction traffic haul routes.– Contractor shall provide Radar Speed Feedback Signs along Valley View Road and Amend Road for the entire Project duration (two, one in each direction of traffic on Valley View Road and Amend Road) to deter speeding by heavy construction vehicles on construction traffic routes.– Contractor heavy construction vehicle drivers shall comply with roadway traffic safety rules as outlined in written traffic safety requirements, including, but not limited to:<ul style="list-style-type: none">▪ Stoplight signals and stop signs.▪ Roadway speed limits (reduced speeds in construction zones and near schools).	LTS

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Impact Area	Significance Before Practices and Procedures	Mitigation Measure	Significance After Mitigation
Impact TRA-3: Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).	PS	<p>Mitigation Measure TRA-3. Minimize Impacts of Heavy Traffic at Road 20</p> <ul style="list-style-type: none">• Use of soil and demolition off-haul and large equipment delivery trucks on Road 20 in front of Helms Middle School will be limited to the hours of 9:00 a.m. to 3:00 p.m.• The required Traffic Control Plan shall include the following measures:<ul style="list-style-type: none">– EBMUD’s Contractor shall distribute written traffic safety requirements to all Contractor heavy construction vehicle drivers. All drivers shall provide signed acknowledgement of having read and understood all traffic safety requirements and consequences of non-compliance.– Written traffic safety requirements shall include:<ul style="list-style-type: none">▪ Construction work hours specifying when construction traffic would be allowed to access the work area at Road 20▪ Construction haul routes and associated speed limits.▪ Designated parking locations.– Contractor shall provide a Project sticker or equivalent to drivers who have provided written acknowledgement of traffic safety requirements.– Project sticker shall be made available upon request by EBMUD during the construction contract period.– Contractor heavy construction vehicle drivers shall conform to designated construction hours, including no driving, queuing, idling or parking on local roadways outside of designated construction hours as outlined in written traffic safety requirements.– Contractor heavy construction vehicle drivers shall use only designated construction traffic haul routes.– Contractor shall provide Radar Speed Feedback Signs along Road 20 during construction on Road 20 (two, one in each direction of traffic on Road 20) to deter speeding by heavy construction vehicles on construction traffic routes.– Contractor heavy construction vehicle drivers shall comply with roadway traffic safety rules as outlined in written traffic safety requirements, including, but not limited to:<ul style="list-style-type: none">▪ Stoplight signals and stop signs.▪ Roadway speed limits (reduced speeds in construction zones and near schools)	LTS
		<p>Mitigation Measure TRA-4. Bicycle Safety</p> <p>The following protocols shall be implemented to protect bicyclist safety during open trench construction in roadways:</p> <ul style="list-style-type: none">• Striped/designated bikeways (Class II) shall be avoided by construction staging and activities to the extent feasible.• Notices shall be posted 14 days prior to construction along roadways where open trench construction will occur. Notices shall include the following information:<ul style="list-style-type: none">– Location of construction within the roadway.– Timing of construction in the area.– Detour routes for bicyclists where designated bike lanes will be impacted by construction.• Flaggers shall be trained to safely direct bicyclists around the work area without creating conflicts with pedestrians or vehicle traffic.• Any impacted bikeway shall be restriped and any physical demarcation of bikeways shall be replaced within 14 days following installation of permanent or temporary asphalt within the impacted roadways.	
		<p>Mitigation Measure TRA-5: Pedestrian Access</p> <p>Construction of the Central North Aqueduct pipeline shall be phased such that at least one crosswalk at each of the affected signalized intersections on San Pablo Dam Road, Valley View Road, El Portal, and Road 20 is accessible at any given time to the extent feasible. Pedestrian access plans shall be included in the Traffic Control Plan and reviewed and approved by the local agency with jurisdiction over the roadway.</p>	
Impact TRA-2: Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).	PS	<p>Mitigation Measure TRA-2: Minimize Impacts of Heavy Truck Traffic at the SOWTP</p> <p>(Details listed in Impact TRA-1)</p> <p>Mitigation Measure TRA-3. Minimize Impacts of Heavy Traffic at Road 20</p> <p>(Details listed in Impact TRA-1)</p> <p>Mitigation Measure TRA-4. Bicycle Safety</p> <p>(Details listed in Impact TRA-1)</p> <p>Mitigation Measure TRA-5: Pedestrian Access</p> <p>(Details listed in Impact TRA-1)</p>	LTS

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Impact Area	Significance Before Practices and Procedures	Mitigation Measure	Significance After Mitigation
Tribal Cultural Resources			
Impact TCR-1: 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 define in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe.	PS	Mitigation Measure CR-1: Archaeological and Tribal Monitoring (Details listed in Impact CUL-2)	LTS

1 Introduction

1.1 Overview, Purpose and Authority

The California Environmental Quality Act (CEQA) requires that all state and local government agencies consider the environmental consequences over which they have discretionary authority before taking an action that has the potential to affect the environment. This Environmental Impact Report (EIR) assesses the potential impacts associated with the Sobrante Water Treatment Plant (SOWTP) Reliability Improvements Project (Project) proposed by the East Bay Municipal Utility District (EBMUD). This EIR was prepared in conformance with CEQA (California Public Resources Code, Section 21000 et seq.), *CEQA Guidelines* (CCR Title 14 Section 15000 et seq.), and EBMUD policies and procedures. This EIR is intended to serve as an informational document for agency decision-makers and the public regarding the Project.

1.1.1 Overview

The purpose of the Project is to restore reliable treatment capacity of the SOWTP to the full permitted capacity of 60 million gallons per day (MGD), continue to meet drinking water regulations, reduce disinfection byproducts, improve maintenance operations, maintain flexibility to treat water from supplemental supplies, and increase the treatment capacity of the SOWTP as needed to meet future demands. The Project is divided into three components: Phase 1 improvements to SOWTP, Phase 2 improvements to SOWTP, and Phase 2 new Central Aqueduct pipeline.

The Phase 1 of the Project would include the following improvements at the SOWTP in the city of Richmond and unincorporated Contra Costa County:

- One untreated water control valve and flow meter
- One fifth stage flocculation for the existing two flocculation basins
- One chlorine contact basin (CCB)
- One new hydraulic weir in the existing clearwell
- One polymer and power building
- Two spent filter backwash water (SFBW) equalization basins
- Two SFBW flocculation and sedimentation basins
- One filter-to-waste (FTW) equalization basin
- Two gravity thickeners
- One consolidated maintenance building that incorporates existing maintenance buildings/shops
- Connecting pipelines
- Site entrance, access road, and paving

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- One stormwater retention basin
- Fencing and lighting
- Screening and landscaping
- Demolition of existing facilities

Phase 2 of the Project would include the following improvements at the SOWTP in the city of Richmond and unincorporated Contra Costa County:

- One rapid mixer and extend influent channel
- One flocculation basin
- One sedimentation basin with tube settlers
- One replacement cable-vac pumping plant
- Two ozone contact basins
- Extend ozone destruct room
- Two dual-media filters and associated pipe and operation gallery
- One chemical storage building
- Two gravity thickeners
- Two blending tanks
- One solids dewatering building
- Connecting pipelines
- Demolition of existing facility

Phase 2 of the Project would also include approximately 22,000 feet of transmission pipeline called the Central North Aqueduct pipeline in public right-of-ways.

1.1.2 Purpose and Authority

This EIR provides an analysis of the potential environmental effects of the Project. The environmental impacts of the Project are analyzed to the appropriate degree of specificity, in accordance with Section 15146 of the CEQA Guidelines. This EIR addresses the potentially significant adverse environmental impacts that may be associated with construction and operation of the Project and identifies appropriate and feasible mitigation measures and alternatives that may be adopted to reduce or avoid significant impacts.

1.2 Lead Agency Determination

EBMUD is designated as the lead agency for the purposes of this EIR. *CEQA Guidelines* Section 15367 defines the lead agency as “...the public agency, which has the principal responsibility for carrying out or approving a project.” Other public agencies may use this EIR in the decision-making or permitting process and consider the information in this EIR along with other information that may be presented during the CEQA process.

1.3 Notice of Preparation

In accordance with Sections 15082(a), 15103, and 15375 of the *CEQA Guidelines*, EBMUD prepared and circulated a Notice of Preparation (NOP) of an EIR for the Project for a 30-day comment period between March 11, 2022 and April 11, 2022. A postcard mailer was sent to over 3,900 residents and property owners notifying them of the NOP. Additionally, an email was sent to approximately 680 EBMUD WaterSmart customers, and meeting notifications were posted to Nextdoor neighborhood groups, which reached about 8,000 customers. A link to the NOP was sent to an additional 46 individuals representing agencies and special interest stakeholders.

EBMUD conducted a virtual public outreach and scoping meeting on March 24, 2022 to receive public input and comments on the scope and content of the EIR. Comment letters and verbal comments were received during the scoping period from six residents and three agencies/organizations. Individuals and agencies that submitted comments during the scoping period are listed in Table 1.3-1. Appendix A contains a copy of the NOP and comment letters submitted by agencies and the public in response to the NOP and verbal comments provided at the public meeting.

Table 1.3-1 Residents and Agencies/Organizations that Submitted Scoping Comments

Residents	Agencies/Organizations
Pat Fihn	California Department of Toxic Substances Control (DTSC)
Adrian Lambert	Caltrans District 4
Ingrid Nielsen	Native American Heritage Commission
Susanne Taylor	
Ed Taylor	
Ronnie Turner	

1.4 Issues Raised During Public Outreach and Scoping

Issues and concerns raised during the public outreach and scoping meeting conducted by EBMUD and in scoping comment letters include, but are not limited to the following:

- Impacts on wildlife and habitat
- Loss of recreation and open space areas
- Impacts on property values
- Fence design and aesthetic impacts of the security fence and new facilities
- Buffer between the fence and Amend Road
- Landscape screening of the fence and facilities
- Requested an access road to the Project from Valley View Road to reduce traffic impacts on Amend Road
- Requested a sidewalk and greenbelt around the Project perimeter
- Requested a tall permanent soundwall to block views of the facility

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- Noise impacts during construction and operation
- Chlorine odors during operation
- Hillslope stabilization and measures to prevent the slope from destabilizing
- Impacts on cultural and tribal cultural resources
- Project construction timeline
- Hazards and hazardous materials
- Consultation with Native Americans
- Project-generated travel demand and transportation improvements necessitated by the Project
- Floodplain and flooding impacts
- Impacts to and encroachment in Caltrans right-of-way during construction
- Impacts to utilities during construction
- Maintaining bicycle and pedestrian access during construction

1.5 Review and Use of the EIR

Upon completion of this EIR, EBMUD filed a Notice of Completion (NOC) with the Governor's Office of Planning and Research to begin the 45-day public review period (Public Resources Code, Section 21161). Concurrent with the NOC, this EIR has been distributed to responsible and trustee agencies, other affected agencies, surrounding cities, and interested parties, as well as all parties requesting a copy of the EIR in accordance with Public Resources Code 21092(b)(3). During the public review period, the EIR and technical appendices are available for review at EBMUD's main office during regular business hours (8:00 a.m. to 4:30 p.m., Monday through Friday), on EBMUD's website (www.ebmud.com/sowtp), and at the following public libraries:

Contra Costa County Library
El Sobrante Branch
4191 Appian Way
El Sobrante, CA 94803

Contra Costa County Library
San Pablo Branch
13751 San Pablo Ave
San Pablo, CA 94806

Richmond Public Library – Main/Civic Center
325 Civic Center Plaza
Richmond, CA 94804

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Agencies, organizations, and interested parties, including those not previously contacted, or who did not respond to the NOP, currently have the opportunity to comment on the EIR during the public review period.

Written comments on this EIR should be addressed to:

Jae Park
East Bay Municipal Utility District
375 Eleventh Street, MS 701
Oakland, CA 94607-4240
Email: sowtp.improvements@ebmud.com

1.6 Organization of the EIR

The EIR is organized into the following main chapters:

Executive Summary. This chapter includes a summary of the Project evaluated in this EIR. It includes a table that summarizes the impacts, mitigation measures, and level of significance after mitigation measures are incorporated.

Chapter 1: Introduction. This chapter provides an introduction and overview describing the Project, purpose, and scope of this EIR, brief explanation of the areas of consideration and issues to be resolved, and a summary of the CEQA review process.

Chapter 2: Project Description. This chapter describes the Project including objectives, location, construction methods, and operations and maintenance activities. A list of responsible agencies and required approvals is included.

Chapter 3: Environmental Analysis. This chapter analyzes the environmental impacts of the Project. Each topic area includes a description of the environmental setting, methodology, significance criteria, impacts, mitigation measures, and significance after mitigation.

Section 3.0: Introduction to Environmental Analysis. This section provides an overview of the environmental analysis and presents the format for each topical section. It describes issues that have been determined to have no or less-than-significant impacts and therefore are not carried forward for further analysis. The approach for the analysis of cumulative impacts is also described.

Section 3.1: Aesthetics. This section evaluates impacts on visual and scenic resources.

Section 3.2: Air Quality. This section addresses local and regional air quality impacts as well as consistency with Bay Area Air Quality Management District rules and regulations.

Section 3.3 Biological Resources. This section addresses impacts on listed, proposed, and candidate threatened and endangered species; impacts on riparian habitat and

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wetlands; impacts on migratory species; and consistency with local policies for protection of biological resources.

Section 3.4: Cultural Resources. This section addresses impacts on known historical resources and potential archaeological resources.

Section 3.5: Energy. This section evaluates energy consumption.

Section 3.6: Geology, Soils, and Seismicity. This section evaluates the impacts on local geology, soil, seismicity, and paleontological resources.

Section 3.7: Greenhouse Gas Emissions. This section addresses the potential for construction and operation of the Project to generate greenhouse gases.

Section 3.8: Hazards and Hazardous Materials. This section addresses the likelihood of the presence of hazards and hazardous materials or conditions on the Project site that may have the potential to impact human health.

Section 3.9: Hydrology and Water Quality. This section addresses impacts on local hydrological conditions, including drainage areas, and changes in water quality.

Section 3.10: Land Use and Planning. This section addresses compatibility with local land use policies.

Section 3.11: Noise and Vibration. This section addresses potential construction and operational noise impacts from mobile and stationary sources and also addresses vibration impacts.

Section 3.12: Transportation. This section addresses impacts on the local and regional roadway system, public transportation, bicycle, and pedestrian access.

Section 3.13: Tribal Cultural Resources. This section evaluates potential effects on resources with cultural value to a California Native American tribe.

Section 3.14: Wildfire. This section addresses the potential for construction and operation of the Project to cause environmental impacts related to wildfire.

Chapter 4: Alternatives. This chapter compares the impacts of the Project with other alternatives considered by EBMUD, including the No Project Alternative. The environmentally superior alternative is evaluated.

Chapter 5 Other CEQA Considerations. This chapter describes potential growth-inducing impacts associated with the Project, a summary of significant environmental impacts, including unavoidable and cumulative effects, and the Project's irreversible and irretrievable commitment of resources.

1 INTRODUCTION

Chapter 6: Report Preparers. This chapter lists the authors that assisted in the preparation of the EIR, by name and company or agency affiliation.

Appendices. This section includes all notices and other procedural documents pertinent to the EIR, as well as all technical material prepared to support the analysis.

1 INTRODUCTION

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2 Project Description

2.1 Overview

East Bay Municipal Utility District (EBMUD) is planning to construct and operate the Sobrante Water Treatment Plant (SOWTP) Reliability Improvements Project (Project). The Project would include improvements at the existing SOWTP and construction of a new transmission pipeline in the cities of San Pablo and Richmond, and in the unincorporated communities of El Sobrante and Rollingwood in Contra Costa County, California (see Figure 2-1). The SOWTP serves customers in Richmond, Pinole, San Pablo, Hercules, and unincorporated Contra Costa County communities of El Sobrante, Rollingwood, Crockett, and Rodeo.

In 2010, EBMUD prepared the *West of Hills Master Plan* to address water treatment plant, storage, and transmission capacity for its West of Hills service area (EBMUD, 2010b), to ensure a reliable water supply for current and future customers. The *West of Hills Master Plan* identified the need for new and modified storage, new major transmission pipelines, new or upgraded pumping plants, and capacity improvements to some of EBMUD's water treatment plants (WTPs). The *West of Hills Master Plan* recommended restoring the treatment capacity of the SOWTP to 60 million gallons per day (MGD) in the near term (Phase 1) and increasing to 80 MGD in the long term (Phase 2). The long-term recommendation also includes a new transmission pipeline that is required to convey the additional treated water from the SOWTP to the distribution system. Figure 2-2 shows the location of the proposed Phase 1 and Phase 2 improvements at SOWTP, which includes new and replacement WTP structures and buildings to support these improvements. Figure 2-3 shows the location of the proposed new transmission pipeline, which is called the Central North Aqueduct pipeline and is part of the Phase 2 improvements.

2.2 Project Background

2.2.1 EBMUD Service Area

EBMUD's water system serves approximately 1.4-million people in a 332-square-mile area in Alameda and Contra Costa Counties, serving 20 incorporated cities and 15 unincorporated areas. The service area is divided by the Oakland–Berkeley Hills, into the West of Hills and East of Hills service areas. The Project is located within the West of Hills service area.

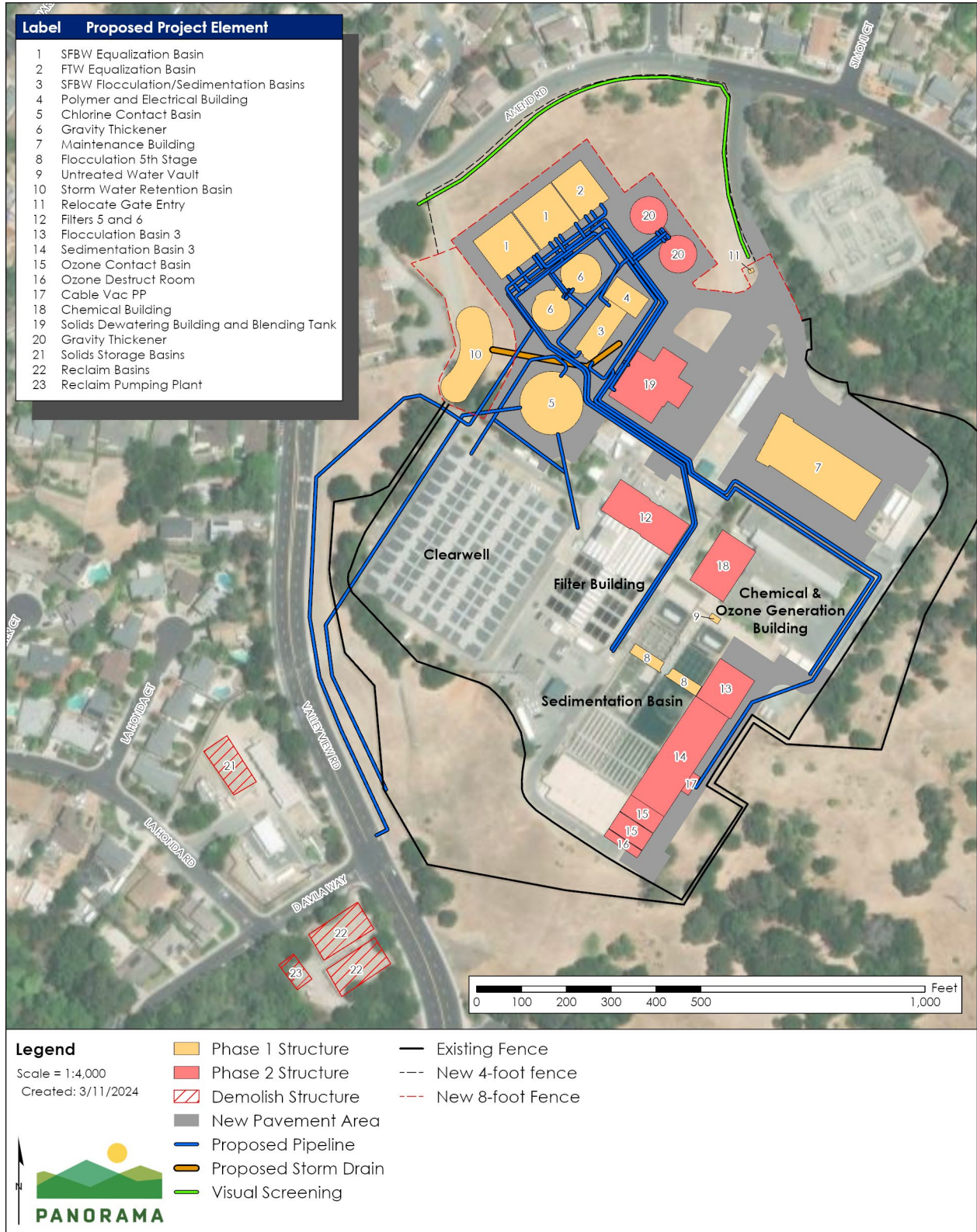
2 PROJECT DESCRIPTION

Figure 2-1 Project Location



2 PROJECT DESCRIPTION

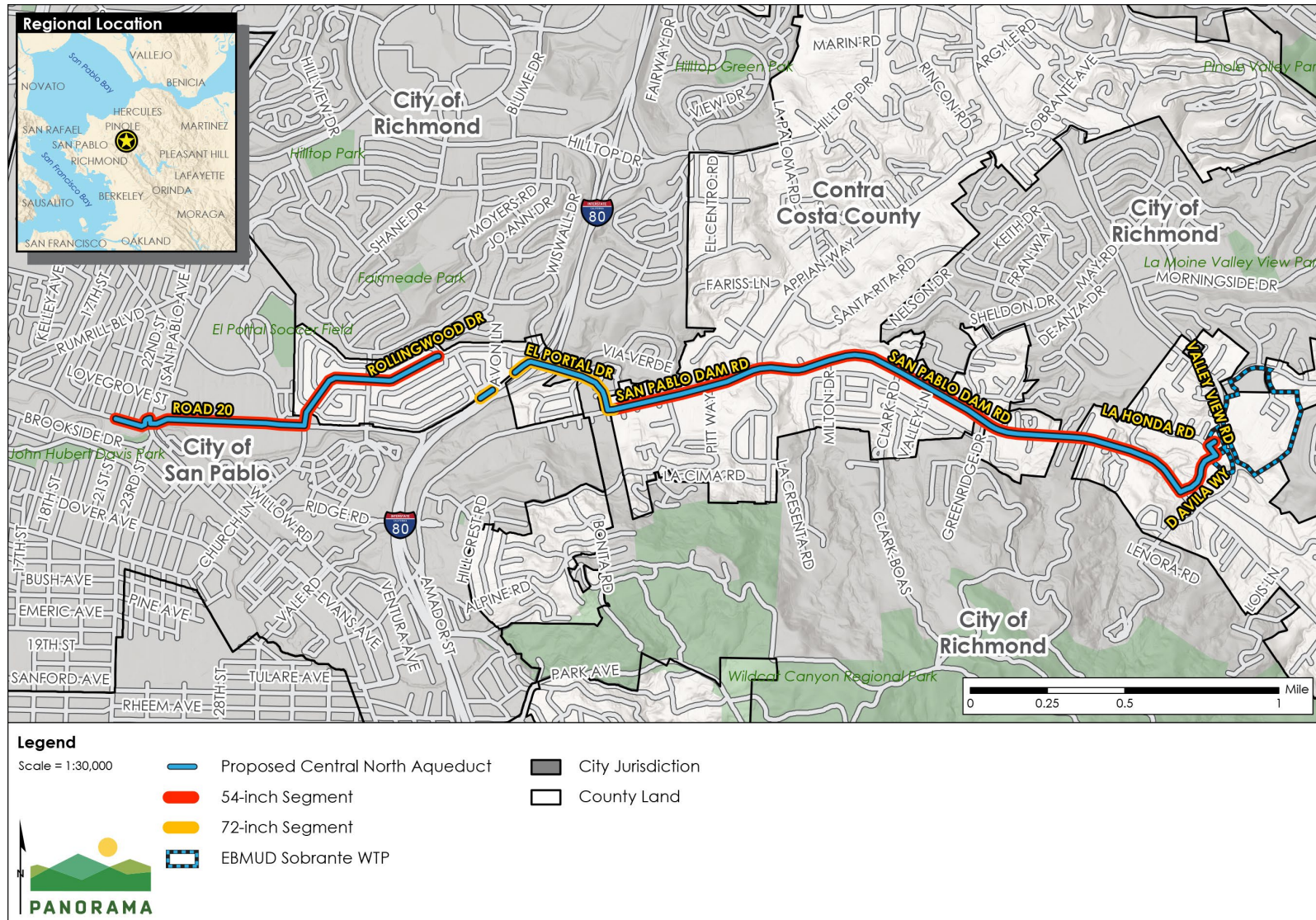
Figure 2-2 Phase 1 and Phase 2 Project Improvements at SOWTP



Source: (EBMUD, 2022a; EBMUD, 2023a)

2 PROJECT DESCRIPTION

Figure 2-3 Phase 2 Central North Aqueduct Pipeline



Source: (EBMUD, 2022b)

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2.2.2 Overview of Existing Water System Operations

Water Supply

EBMUD's principal water source is the Mokelumne River watershed, a 575-square-mile area of the Sierra Nevada in Alpine, Amador, and Calaveras Counties. Water from the Mokelumne River is stored at Pardee and Camanche Reservoirs, about 40 miles northeast of the city of Stockton. Untreated water flows by gravity via the Mokelumne Aqueducts, from Pardee Reservoir to the San Francisco Bay Area. Additional water (less than 10-percent of total supply) comes from local watersheds in Alameda and Contra Costa Counties. During droughts, EBMUD draws water from the Sacramento River via the Freeport Regional Water Project, which connects to the Mokelumne Aqueducts (EBMUD, 2021b).

Water Treatment Plants

EBMUD operates five WTPs: Upper San Leandro (USL), Sobrante, Orinda, Lafayette, and Walnut Creek (EBMUD, 2021c). EBMUD also operates a sixth WTP, the San Pablo WTP, a facility used during drought operations and planned outages of key facilities such as the Claremont Tunnel, which transports water from Orinda WTP to the west side of the Oakland-Berkeley Hills. Substantial overlap occurs in the service areas of the Sobrante, Orinda, and USL WTPs, as well as between the service areas of the Lafayette and Orinda WTPs. The overlap notwithstanding, on any given day, production from one WTP could offset some or all of the production from another depending on actual demands and daily operational decisions.

Treated Water Transmission and Distribution

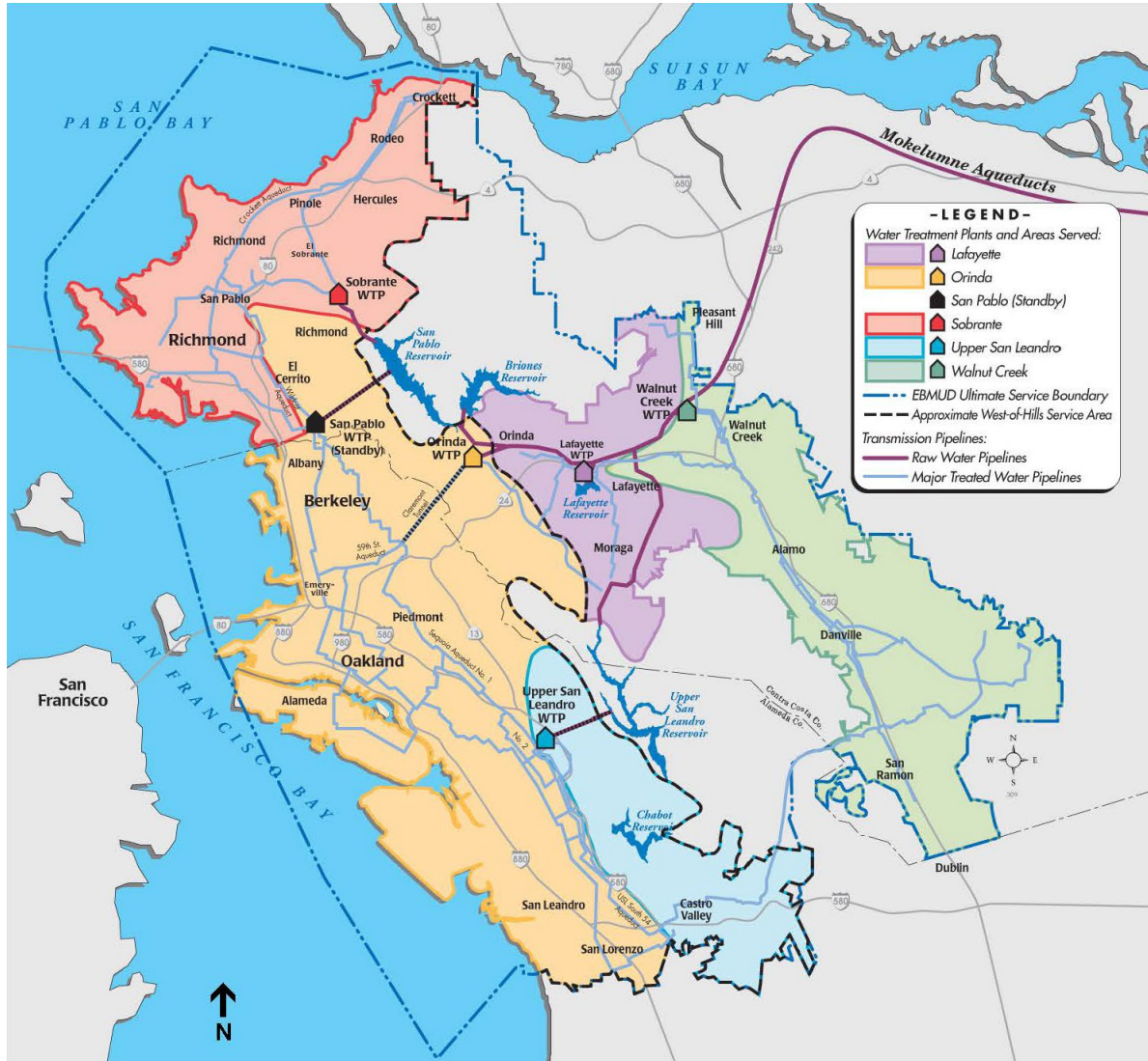
The WTPs and transmission pipelines are the backbone of EBMUD's water treatment and transmission system. After being treated at one of the WTPs, water is distributed to customers throughout EBMUD's service area via a network of transmission and distribution pipelines and distribution reservoirs and pumping plants. EBMUD's water distribution network contains approximately 4,200 miles of distribution pipelines, 135 pumping plants, and 164 distribution reservoirs (EBMUD, 2021b).

Sobrante Water Treatment Plant Service Area

The SOWTP currently supplies approximately 45 of the 375 MGD produced by the EBMUD water treatment system (EBMUD, 2021c). The SOWTP treats water stored locally at San Pablo Reservoir, which is located north of the city of Orinda. San Pablo Reservoir stores untreated water supplied from local runoff and supplemental supply from the Sacramento River via the Freeport Region Water Project. Figure 2-4 shows the location of the EBMUD service boundary, WTP locations, and approximate areas served by each WTP.

2 PROJECT DESCRIPTION

Figure 2-4 EBMUD Service Boundary and Water Treatment Plants



Source: (EBMUD, 2010b)

2.2.3 Existing Sobrante Water Treatment Plant Process

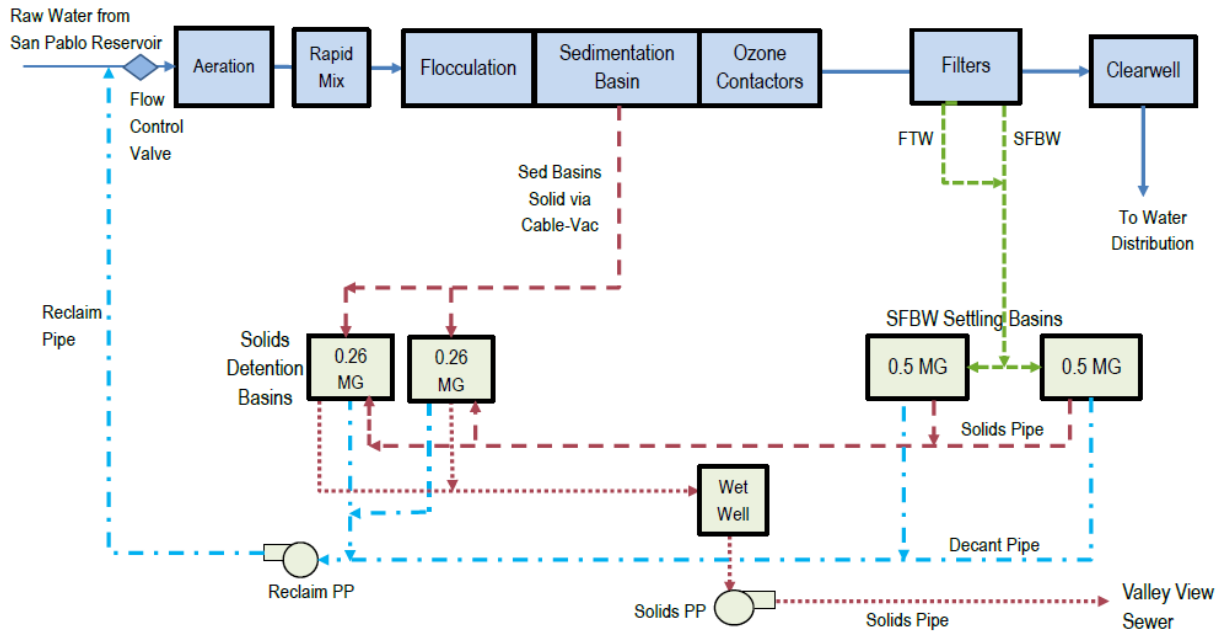
The SOWTP is a conventional WTP which uses rapid mixing, flocculation, sedimentation, ozone, filtration, and free chlorine disinfection to treat water. Untreated water from San Pablo Reservoir enters the SOWTP through a 36-inch control valve. The SOWTP's primary treatment processes include two aeration¹ basins to remove taste- and odor-causing compounds; two

¹ Aeration includes adding dissolved oxygen to the untreated water.

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rapid mix² basins, two four-stage flocculation³ basins with horizontal paddle wheel flocculators, and two sedimentation basins with plate settlers to remove solids; two intermediate ozone contact basins to further remove taste- and odor-causing compounds; four dual-media filtration basins; chlorination for primary disinfection; and chloramination⁴ for secondary disinfection. Treated water flows from the filters to a clearwell for distribution to customers. A schematic of the SOWTP existing treatment process is shown in Figure 2-5.

Figure 2-5 Schematic of the Existing SOWTP Treatment Process



Source: (EBMUD, 2021a)

Solids and wash water are generated as byproducts of the water treatment process and are treated at the neighboring EBMUD property west of Valley View Road at D Avila Way and La Honda Road. Solids from the sedimentation basin drain by gravity to solids storage basins. Spent filter backwash (SFBW) and filter-to-waste⁵ water flows by gravity to reclaim basins. In the solids storage and reclaim basins, solids settle to the bottom of the basin and water is

² The aerated water and any bypass water are mixed and coagulants are added. Coagulants create a chemical process that causes particles that are suspended in the water to settle out.

³ The larger aggregates formed by the coagulants are separated.

⁴ Chloramination is the process of adding chloramine (chemical compounds that contain chlorine and ammonia) to drinking water.

⁵ When a filter is returned to service after a backwash/cleaning, the initial filtered water, "FTW," typically has high turbidity, which requires additional treatment to meet drinking water standards prior to distribution.

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decanted and reclaimed to the head of the treatment process. The remaining solids are sent to the West County Wastewater District sewer line located in Valley View Road. Deficiencies in the flocculation process and SFBW reclaim and solids handling systems limit the SOWTP capacity to approximately 45 MGD.

2.2.4 Water Quality Regulations

Water treatment processes at the SOWTP are designed to meet numerous regulations governing drinking water quality, including the following regulations that are particularly relevant to the Project:

Surface Water Treatment Rule 1989 – Applies to all public water systems and sets treatment technique requirements and establishes maximum contaminant level goals for filtered surface water systems.

Interim Enhanced Surface Water Treatment Rule 1998 – Applies to the SOWTP and focuses on strengthened filtration requirements for *cryptosporidium* (a microscopic parasite that causes the diarrheal disease *cryptosporidiosis*). The Interim Enhanced Surface Water Treatment Rule 1998 also requires sanitary surveys to be completed by the state regulatory agency and addresses risk trade-offs with disinfection byproducts.

Filter Backwash Recycling Rule 2001 – Applies to the SOWTP as a conventional WTP. The Filter Backwash Recycling Rule 2001 requires that the filter backwash water to go back through all processes of the filtration treatment system.

Long Term 2 Enhanced Surface Water Treatment Rule 2006 – Provides provisions to ensure that WTP systems maintain microbial protection as steps are taken to reduce formation of disinfection byproducts. The Long Term 2 Enhanced Surface Water Treatment Rule 2006 also includes untreated water *cryptosporidium* monitoring provisions.

2.2.5 Operational and Reliability Constraints

The SOWTP does not have a dedicated chlorine contact basin (CCB) and uses part of the clearwell to meet the regulatory-required disinfection contact time, so disinfection occurs at multiple points during treatment. Sodium hypochlorite is added to untreated water entering the aeration process at the beginning of the treatment system. Chlorine is then added as the water enters the clearwell followed by ammonia as water leaves the clearwell to produce chloramine for secondary disinfection. Chloramines provide longer lasting disinfection as the water distributes throughout the system.

The existing SOWTP design limits the ability of the SOWTP to meet the primary disinfection requirements necessary to comply with the Surface Water Treatment Rule that was implemented in the 1980s. To comply with the Surface Water Treatment Rule, the SOWTP operations were modified to maintain a constant minimum capacity in the clearwell, ensuring adequate disinfection credit or contact time. Because the clearwell does not have a baffle wall

2 PROJECT DESCRIPTION

system⁶, only approximately 10 percent of the volume can be used for disinfection credit under the Surface Water Treatment Rule, which requires the clearwell to remain nearly full. The lack of available clearwell volume reduces operational flexibility to balance outflow and meet system demands. Operations are further complicated because frequent chemical feed rate changes also are required as the clearwell must be used to meet disinfection contact time requirements instead of buffering variations in water distribution system demands.

Because the SOWTP does not have a dedicated CCB, the disinfection byproducts at the SOWTP are higher than those at EBMUD's WTPs that have CCBs. The disinfection byproducts are from disinfectants reacting with naturally-occurring organic matter in the water, which can increase as the water travels through the distribution system.

The existing SOWTP pumps water and solids from the solids holding basins to a sewer pipeline operation by West County Wastewater District via an approximately 1,000-foot long EBMUD owned sewer lateral. Discharges into the sewer are currently limited to a maximum rate of 500 gallons per minute and a maximum monthly total of 8 million gallons (MG), but in the future discharges may be prohibited by West County Wastewater District or environmental regulations.

2.3 Project Purpose and Objectives

2.3.1 Purpose and Need

The existing SOWTP has a permitted capacity of 60 MGD but is limited to a capacity of 45 MGD to reliably treat water while meeting regulations for water quality. In addition, the existing SOWTP does not have the capacity to meet planned future projected water demands that are detailed in EBMUD's *2050 Demand Study* (EBMUD, 2020). The purpose of the Project is to restore reliable treatment capacity of SOWTP to the full permitted capacity of 60 MGD, continue to meet drinking water regulations, reduce disinfection byproducts, improve maintenance operations, maintain flexibility to treat water from supplemental supplies, and increase the treatment capacity of the SOWTP as needed to meet future demands.

2.3.2 Project Objectives

Project objectives related to capacity, water quality, and operational efficiency are listed in Table 2-1.

⁶ Baffle wall systems are designed for use in water treatment plants to increase settling time and reduce total suspended solids.

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Table 2-1 Project Objectives

Issue	Objectives
Project Specific Objectives	Improve water service reliability by increasing the reliable water treatment capacity to meet planned future demands.
	Maintain flexibility to treat a broad range of water quality from supplemental water supplies entering EBMUD's water system such as the Sacramento River via the Freeport Regional Water Project.
	Continue to meet drinking water and environmental regulations and achieve EBMUD's internal long-term water quality goals.
	Improve efficiency of maintenance operations at the SOWTP site.
	Minimize life-cycle costs (capital, operating, and maintenance) to EBMUD's customers.
Secondary Operational Objectives	Maintain a similar and acceptable aesthetic site-environment after construction.
	Maximize the useful life of existing facilities in a manner that reduces costs for customers.
	Minimize operational emissions of greenhouse gases.
Construction Objectives	Maximize energy efficiency during operations.
	Minimize environmental impacts on the community during construction.
	Reuse or recycle building materials on site to the extent feasible, including concrete demolition materials and excavated earth.
	Maintain water service and emergency flows during construction.
	Protect the local community from construction hazards.
	Provide safe travel routes for motorists and pedestrians.
	Provide safe construction site conditions.

2.4 Project Location

The Project would occur in two locations: on the SOWTP site and within the public rights-of-way. The improvements to the existing SOWTP would occur on the SOWTP site located at 5500 Amend Road in the city of Richmond and unincorporated Contra Costa County, California as shown in Figure 2-1. The majority of the SOWTP site is bound by Amend Road to the north, Valley View Road to the west, and Fascination Circle to the east. The SOWTP site also includes EBMUD property at D Avila Way and La Honda Road, west of Valley View Road.

The new Central North Aqueduct pipeline would be in La Honda Road, D Avila Way, San Pablo Dam Road, El Portal Drive, Rollingwood Drive, and Road 20, as shown in Figure 2-3. The construction of the Central North Aqueduct pipeline would occur within the public rights-of-

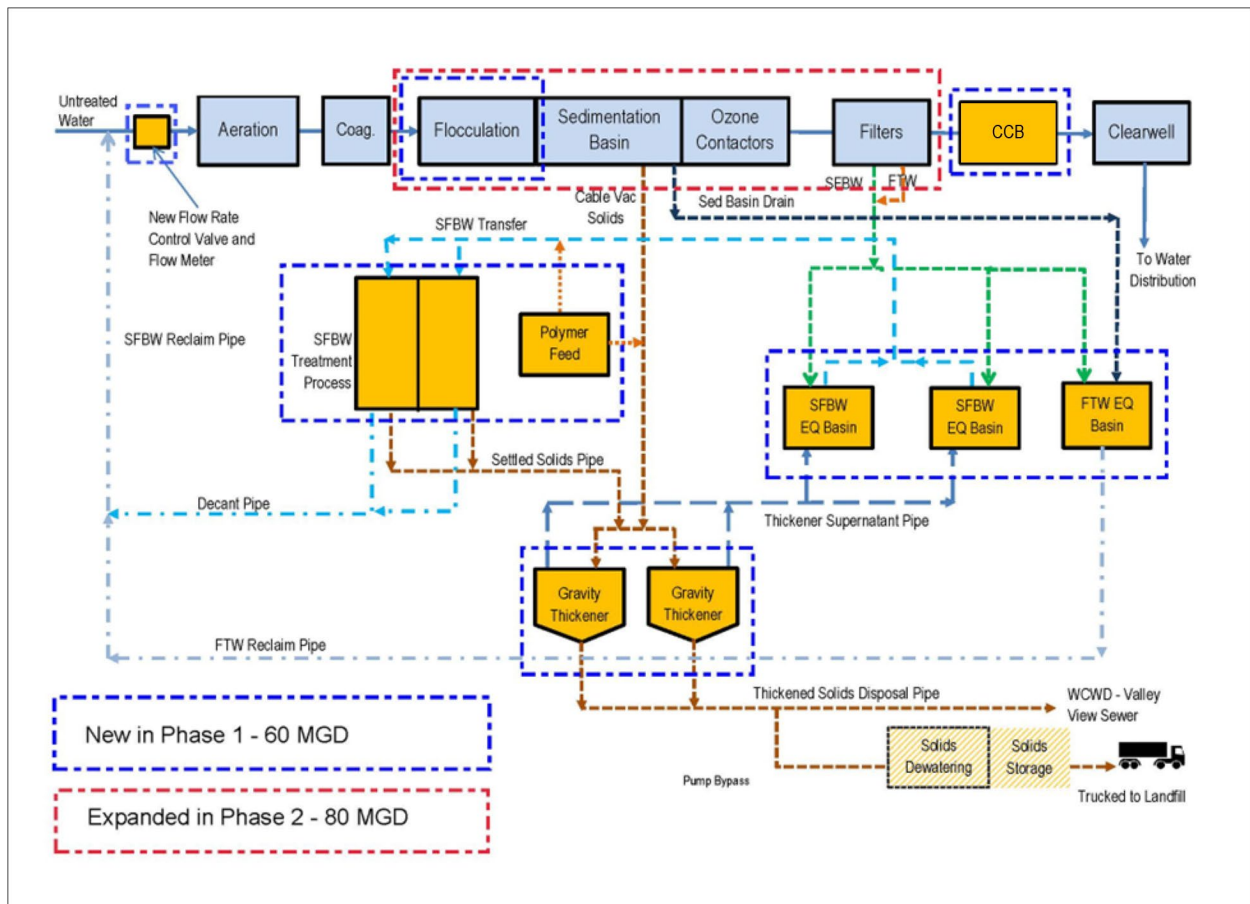
2 PROJECT DESCRIPTION

way in the cities of San Pablo and Richmond, unincorporated areas of El Sobrante and Rollingwood in Contra Costa County, and within an EBMUD right-of-way at the San Pablo Creek crossing at D Avila Way.

2.5 Project Characteristics

The Project involves construction and operation of new facilities, replacement of aging infrastructure with new facilities, incorporation of existing uses at the site into a new consolidated maintenance facility, and demolition of facilities. The Project is divided into three components: Phase 1 improvements to SOWTP, Phase 2 improvements to SOWTP, and Phase 2 new Central North Aqueduct pipeline. Figure 2-6 presents a schematic of the SOWTP treatment process with both Phase 1 and 2 improvements and detailed descriptions of the Project improvements are provided in subsequent sections.

Figure 2-6 Schematic of the SOWTP Treatment Process with Project Improvements



Source: (EBMUD, 2021)

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2.5.1 Phase 1

Phase 1 would include the following improvements at SOWTP:

- One untreated water control valve and flow meter
- One fifth-stage flocculation for the existing two flocculation basins
- One CCB
- One new hydraulic weir in existing clearwell
- One polymer and power building
- Two SFBW equalization basins
- Two SFBW flocculation and sedimentation basins
- One FTW equalization basin
- Two gravity thickeners
- One consolidated maintenance building that incorporates existing maintenance buildings/shops
- Connecting pipelines
- Site entrance, access roads, and paving
- One stormwater retention basin
- Fencing and lighting
- Screening and landscaping
- Demolition of existing facilities

Table 2-2 presents the approximate dimensions of the major new facilities in Phase 1 of the Project.

Table 2-2 Phase 1 Major New Facilities

Facility	Dimensions (approximate)		Proposed Material Type
	Base	Depth / Height	
Untreated water vault	30 by 20 feet	12 feet below grade	concrete
Two flocculation fifth stages	61 by 19 feet	Installed within existing flocculation basins	stainless steel and concrete
Chlorine contact basin (CCB)	115 feet inner diameter	34 feet below grade; 5 feet above grade	concrete
Polymer and power building	70 x 40 feet	3 feet below grade; 16 feet above grade	concrete with stucco finish and red roof
Two spent filter backwash water (SFBW) equalization basins	84 by 84 feet	39 to 41 feet below grade; 4 to 5 feet above grade	concrete
Two SFBW flocculation/ sedimentation basins	100 by 12 feet	3 feet below grade; 15 feet above grade	concrete
Two gravity thickeners	50 feet inner diameter	21 feet below grade; 5 feet above grade	concrete

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Facility	Dimensions (approximate)		Proposed Material Type
	Base	Depth / Height	
Filter-to-waste (FTW) equalization basin	84 by 64 feet	42 feet below grade; 4 feet above grade	concrete
Consolidated maintenance building	17,700 square-feet	3 feet below grade; 15 to 25 feet above grade	concrete, metal roof
Stormwater retention basin	9,000 square-feet	4 feet below grade	gravel, soil, vegetation

Source: (EBMUD, 2023b)

Untreated Water Control Valve, Vault, and Flow Meter

The SOWTP's main 36-inch-diameter control valve would be replaced with a 54-inch-diameter high-performance butterfly control valve. The existing flow meter would be replaced with a 54-inch diameter magnetic flow meter, to accommodate flows greater than 60 MGD. The existing untreated water valve and flow meter vault would be replaced with a larger vault, to provide adequate maintenance space.

Fifth-Stage Flocculation

Fifth-stage flocculation would be added to the end of each of the two existing flocculation basins to improve flocculation performance and solids removal in the pretreatment system and decrease loading on the filters. The new flocculators would be powered by an external drive.

Chlorine Contact Basin

The CCB would be a prestressed-concrete tank that would be located adjacent to the existing clearwell facility. The CCB would include baffles (flow-directing panels) to direct the flow in a serpentine path. A CCB inlet and control valve would direct the flow to the CCB or allow the flow to bypass the CCB and pass directly into the clearwell. The CCB influent, effluent, and bypass pipelines would be 90-inches in diameter. The CCB would be designed for the maximum SOWTP flow rate of 80 MGD, and thus it would not have to be rebuilt for Phase 2 implementation.

Clearwell Modifications

The hydraulic grade line of the SOWTP is controlled by an existing hydraulic control structure within the clearwell. The existing hydraulic control structure would be kept in place, to provide operational flexibility when the CCB is bypassed. A new hydraulic control structure with an adjustable weir would be constructed inside the existing clearwell at the new inlet from the CCB. The new weir elevation would be approximately 3 feet lower than the existing weir, to account for pressure losses as water moves through the CCB, associated piping, and valves.

Polymer and Power Building

A concrete polymer and power building would house the polymer system and motor control centers for the new reclaim and solids handling facilities. The motor control centers would power and control the flocculators, thickened solids collectors, reclaim electrical room, polymer unloading station, polymer storage and feed pumps, a small laboratory, and a bathroom. The

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polymer and power building would be designed in the mission revival style with a red gable roof and beige stucco finish to match the adjacent fire station buildings (Figure 2-7).

Figure 2-7 Power and Polymer Building



SFBW Reclaim Facilities

The SFBW reclaim facilities would include:

- two 1-MG SFBW equalization basins
- two parallel 1.5 MGD SFBW flocculation-sedimentation basins
- a polymer feed system
- related pumps and pipelines

The SFBW equalization basins would have the capacity for five filter backwashes per day. SFBW would flow by gravity from the filters to the SFBW equalization basins. Two SFBW mixing pumps would be installed in each basin, for a total of four pumps, which would mix water within the SFBW equalization basin. Three submersible pumps (one is standby) would be installed to transfer the SFBW from the equalization basins to the flocculation-sedimentation basins with plate settlers. As SFBW is pumped to the flocculation-sedimentation basins, polymer is added to improve treatment performance. The SFBW treatment system would be designed with a stucco finish to match the polymer and power building since the structures are connected.

Solids from the sedimentation basins are collected and sent by gravity to the gravity thickeners. The treated SFBW is collected in a wet well and pumped using four decant submersible pumps (two are standby) to the head of the SOWTP water treatment process.

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The SFBW reclaim facilities would be designed for the maximum SOWTP flow rate of 80 MGD, and thus it would not have to be rebuilt for Phase 2 implementation.

Solids Handling Facilities

The solids handling facilities would include two gravity thickeners, a polymer feed system, and a discharge pipeline to the sewer.

Solids from the SOWTP's primary sedimentation and the SFBW sedimentation basins would flow into two circular concrete gravity thickeners with rotating arms. Polymer would be added to the gravity thickener's influent flow and get mixed into the influent flow via a static mixer. Decant from the gravity thickeners would be collected in a wet well and pumped to the SFBW equalization basins. Thickened solids at the bottom of the gravity thickeners would be sent periodically to the sewer by gravity via a new thickened solids pipeline. The gravity thickeners would be designed for the maximum SOWTP flow rate of 80 MGD, and thus it would not have to be rebuilt for Phase 2 implementation.

FTW Reclaim Facilities

The FTW reclaim facilities would include:

- one 0.7-MG FTW equalization basin
- related pumps and pipelines

The FTW equalization basin would be used when a filter is being returned to service to ensure that the filter is stabilized from the backwash and producing clear water. Like the SFBW equalization basins, the FTW equalization basins are also sized for five filter backwashes per day. Water would have a detention time of approximately 30 minutes in the FTW basin. The FTW equalization basin also receives water from the SOWTP main sedimentation basins when the basins are drained for maintenance. Unlike SFBW, FTW does not require treatment before being returned to the head of the SOWTP using two submersible reclaim pumps (one is standby). Solids from the FTW equalization basins are collected and sent periodically to the sewer by gravity.

The FTW equalization basin would be designed for the maximum SOWTP flow rate of 80 MGD, and thus it would not have to be rebuilt for Phase 2 implementation.

Consolidated Maintenance Building

An approximately 17,700-square-foot consolidated maintenance building would be constructed to replace and consolidate the existing maintenance facilities, shops, workstations, and storage areas that are currently scattered across the SOWTP site. The consolidated maintenance building would include the following:

- electrical, mechanical, and instrument shops with 12-foot rollup doors
- mechanical shop equipped with a 5-ton bridge crane, with coverage for at least 75 percent of the shop floor area
- workstations and offices for current and future maintenance staff
- conference room

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- break room with a small kitchen
- indoor storage, to consolidate existing maintenance storage at ad-hoc locations throughout the SOWTP site and to provide additional storage for new treatment process-related equipment and supplies
- crew locker facilities, including showers, changing rooms, and restrooms

The consolidated maintenance building would include a parking area with approximately 60 parking spaces to accommodate staff and maintenance vehicles and to replace existing parking spaces that would be lost when the new filters are built during Phase 2. The consolidated maintenance building would be approximately 25 feet tall at its tallest point and would have a butterfly roof. The roof would be grey and painted with a non-gloss finish to minimize potential glare. The building exterior would include concrete and painted grey surfaces. The building would include roll-up doors on the side facing the existing SOWTP facilities for loading and unloading of equipment. An HVAC system would be installed on the roof. The consolidated maintenance building is shown on Figure 2-8.

Figure 2-8 Consolidated Maintenance Building



Connecting Pipelines

Numerous pipelines would be constructed to connect the Phase 1 facilities to each other and the existing facilities. The locations of these pipelines are shown in Figure 2-9.

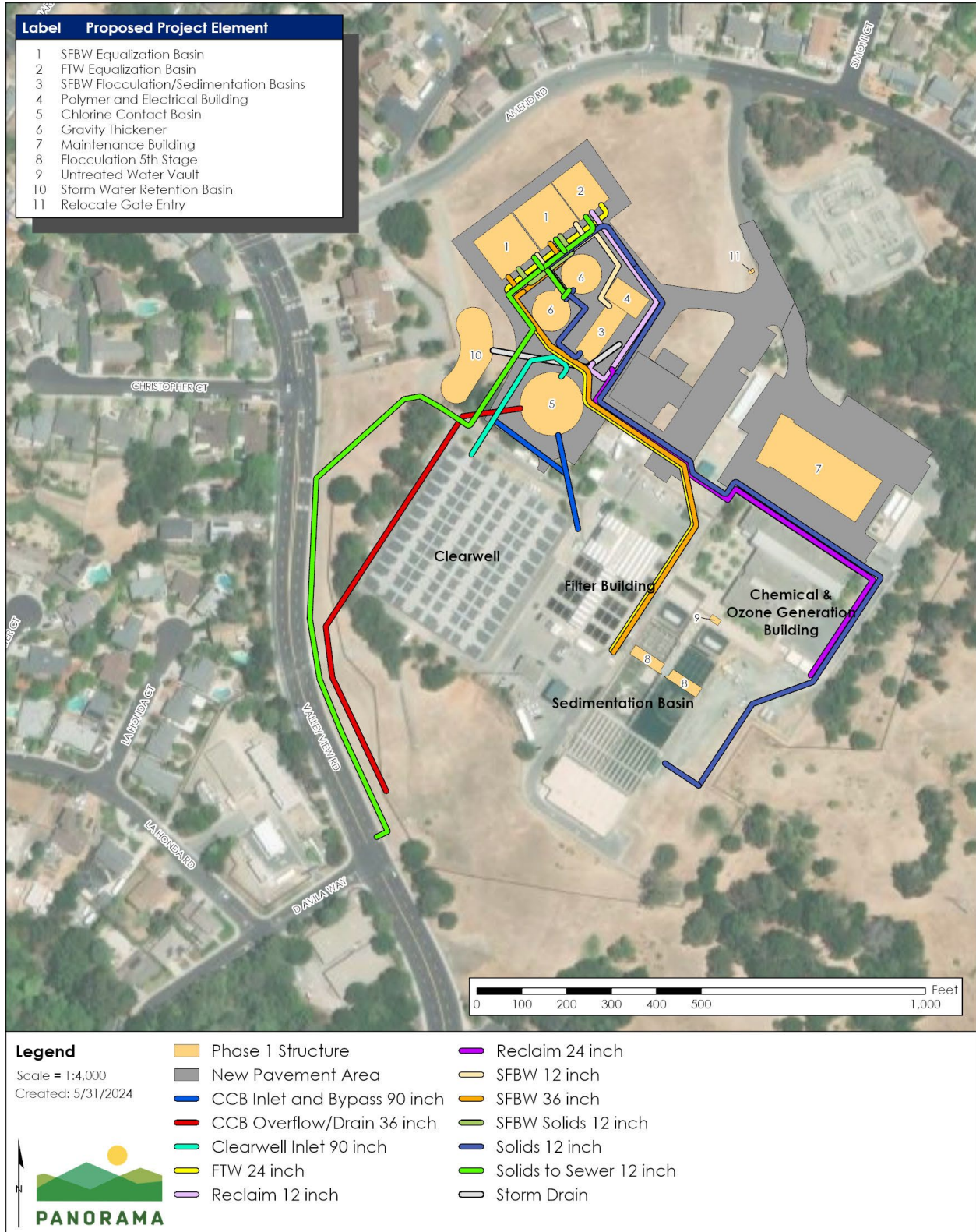
Site Entrance, Access Roads, and Paving

The SOWTP's main entrance gate would be relocated approximately 150 feet to the north and closer to Amend Road, and the gate would be widened to approximately 13 feet to accommodate larger construction and delivery trucks. The new gate would be similar to the existing one, and the entry would include a security guard shack, security card reader and remote access, security camera and lights, and a Voice over Internet Protocol (VoIP) call box.

New access roads and paving would need to be constructed around the new facilities, as shown in Figure 2-2 for maintenance and operation of the new treatment facilities.

2 PROJECT DESCRIPTION

Figure 2-9 Phase 1 Connecting Pipelines



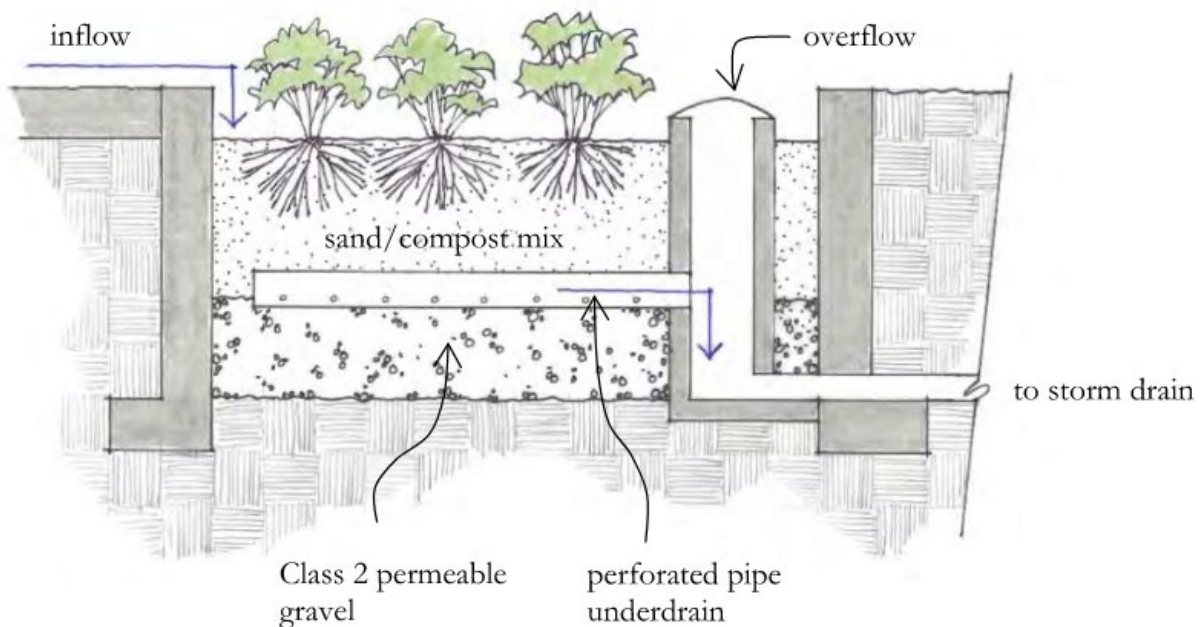
Source: (EBMUD, 2023c)

2 PROJECT DESCRIPTION

Stormwater Retention Basin

The Project would add approximately 5 acres of impermeable surfaces at the SOWTP. A stormwater retention basin would be constructed to capture the increased stormwater runoff. The stormwater retention basin would include a soil layer to support vegetation and infiltration, a gravel layer to dissipate and drain excess water, and PVC piping to convey water to an existing storm drain pipeline, as shown in Figure 2-10. The stormwater retention basin would be approximately 9,000 square-feet and would connect to the 60-inch-diameter storm drain pipeline between the new CCB and the Richmond Fire Department Station. Part of the existing 60-inch-diameter storm drain pipeline would be relocated to avoid conflicts with the new CCB.

Figure 2-10 Conceptual Stormwater Retention Basin



Source: (Contra Costa Clean Water Program, 2017)

Fencing and Lighting

Two different fences would be constructed to provide concentric layers of security for the SOWTP. The first fence located at the property boundary along Amend Road and the access road would be a 4-foot-tall wrought-iron fence or functional equivalent. The second fence located closer to the new facilities would be an 8-feet high security fence with black vinyl coating, 1-inch mesh, double v-arm three-strand barbed wire, and maximum post spacing of 10-feet. The locations of the fences are presented in Figure 2-2 and examples of the two fence types are shown in Figure 2-11 and Figure 2-12.

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Signage would be placed at facility entrances and along new extended property fence lines (e.g., no trespassing). Security cameras would be installed at the new entrance gate, treatment basins, and buildings. In addition, all the existing security cameras would be replaced.

Site lighting would be added to prevent theft and vandalism, and to provide safe access for the operations and maintenance staff traveling between buildings and structures.

Figure 2-11 Example of Wrought Iron Fence (for outer fence facing Amend Road)



Source: (Ameristar Assa Abloy, 2023)

2 PROJECT DESCRIPTION

Figure 2-12 Example of Security Fence



Screening and Landscaping

A retaining wall and berm with landscaping would be constructed between the SFBW and FTW equalization basins and Amend Road, to provide visual screening of the equalization basins and other infrastructure. The retaining wall would be used to support a sloped berm between Amend Road and the equalization basins. Landscaping, including trees and shrubs, would be planted along the earthen berm facing Amend Road. Trees and shrubs would also be planted along the entrance to the SOWTP and around the stormwater retention basin, to provide visual screening of the facility from surrounding neighborhoods. Small shrubs and grasses would also be planted along Amend Road to provide screening. Bare soils would be seeded or covered to reduce soil erosion. Table 2-3 lists the plant palette that would be used on the landscaped berm. A conceptual landscape plan is shown in Figure 2-13. Impacts on existing trees would be minimized in the Project design, to the extent feasible.

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Table 2-3 Landscaping Plant Palette

Botanical Name	Common Name
Trees	
<i>Arbutus 'Marina'</i>	Marina strawberry tree
<i>Lyonothamnus floribundus sp. asplenifolius</i>	Catalina ironwood
<i>Chitalpa tashkentensis</i>	chitalpa
<i>Lagerstroemia indicat x fauriei 'Tuscarora'</i>	Tuscarora crape myrtle
<i>Prunus caroliniana</i>	Carolina cherry laurel
<i>Quercus agrifolia</i>	coast live oak
<i>Quercus chrysolepis</i>	canyon live oak
<i>Quercus douglasii</i>	blue oak
Large Shrubs	
<i>Garrya elliptica</i>	coast silk-tassel
<i>Heteromeles arbutifolia</i>	toyon
<i>Raphiolepis x 'Montic'</i>	majestic beauty Indian hawthorn
Medium Shrubs	
<i>Arctostaphylos manzanita</i>	manzanita
<i>Ceanothus thyrsiflorus 'Snow Flurry'</i>	white wild lilac
<i>Ceanothus 'Frosty Blue'</i>	frosty blue wild lilac
<i>Dendromecon rigida</i>	bush poppy
<i>Rhamnus californica 'Eve case'</i>	Eve case coffeeberry
<i>Salvia clevelandii</i>	Cleveland sage
Stormwater Facility Grasses and Perennials	
<i>Bouteloua gracilis</i>	blue grama grass
<i>Festuca californica</i>	California fescue
<i>Achillea millefolium</i>	yarrow

Source: (Merrill Morris Partners, 2023)

2 PROJECT DESCRIPTION

Figure 2-13 Conceptual Landscaping Plan



Source: (Merrill Morris Partners, 2023)

2 PROJECT DESCRIPTION

Demolition

The existing reclaim facilities, including reclaim basins, solids storage basins, reclaim pumping plant, and related equipment, located west of Valley View Road would be demolished after the Phase 1 facilities have been constructed and placed in-service. The existing SFBW drain pipeline would also be demolished or abandoned in place.

2.5.2 Phase 2

Phase 2 of the Project would include the following improvements at SOWTP:

- One rapid mixer and extended influent channel
- One flocculation basin
- One sedimentation basin with tube settlers
- One replacement cable-vac pumping plant
- Two ozone contact basins
- Extend ozone destruct room
- Two dual-media filters and associated pipes, and an operation gallery
- One chemical storage building
- Two gravity thickeners
- Two blending tanks
- One solids dewatering building
- Connecting pipelines
- Demolition of existing facility

Phase 2 of the Project would also include approximately 22,000 feet of transmission pipeline called the Central North Aqueduct pipeline in public rights-of-way.

Table 2-4 presents the approximate dimensions of the major new facilities in Phase 2 of the Project.

Table 2-4 Phase 2 Major New Facilities

Structure	Dimensions (approximate)		Proposed Material Type
	Base	Depth / Height	
Flocculation basin 3	68 by 75 feet	11 feet below grade; 4 feet above grade	concrete
Sedimentation basin 3	68 by 210 feet	11 feet below grade; 4 feet above grade	concrete
Cable-Vac pumping plant	32 by 18 feet	2 feet below grade; 1 foot above grade	concrete
Two Ozone contact basins	35 by 70 feet	12 feet below grade; 8 feet above grade	concrete
Ozone destruct room	10 by 70 feet	1 foot below grade; 14 feet above grade	concrete

2 PROJECT DESCRIPTION

Structure	Dimensions (approximate)		Proposed Material Type
	Base	Depth / Height	
Filters 5 and 6	24 by 48 feet	14 feet below grade; 2 feet above grade	concrete
Chemical storage building	105 by 70 feet	10 feet below grade; 25 feet above grade	concrete
Two gravity thickeners	50 feet inner diameter	18 to 21 feet below grade; 5 to 8 feet above grade	concrete
Two blending tanks	34 by 34 feet	8 feet below grade; 6 feet above grade	concrete
Solids dewatering building	115 by 45 feet	8 feet below grade; 20 to 25 feet above grade	concrete

Source: (EBMUD, 2023b)

Rapid Mix and Influent Channel

A 25-horsepower motor would be added to provide adequate mixing for the Phase 2 80 MGD treatment capacity. Also, the east-side inlet channel would be extended approximately 70 feet to accommodate the new flocculation basin 3.

Flocculation and Sedimentation Basins

A new flocculation basin (flocculation basin 3) and sedimentation basin (sedimentation basin 3) would be needed to meet the 80 MGD treatment capacity. Flocculation basin 3 and sedimentation basin 3 would be similar to the two existing basins at the SOWTP site and would be concrete basins with a water depth of approximately 14 feet. The new flocculation basin would have five flocculation stages with horizontal paddle wheel flocculators. The new flocculators would have motors that would be above ground on the side of the basin and connected to the paddle wheels via sprockets and a stainless chain mechanism. Similar to the existing sedimentation basins, sedimentation basin 3 would use plate settlers and hose-less Cable-Vac™ solids collectors to collect the accumulated solids from the bottom of the sedimentation basin. The existing sedimentation basins' effluent channel would be extended to accommodate the new basin.

Cable-Vac Pumping Plant

The existing SOWTP Cable-Vac pumping plant would be demolished to make space for the new sedimentation basin; therefore, a new Cable-Vac pumping plant would be constructed next to sedimentation basin 3. The Cable-Vac pumps would be used to pump solids from the sedimentation basins to the gravity thickeners.

Ozone Contact Basins and Destruct Room

Two new ozone contactor basins and an extension to the existing ozone destruct room would be required to improve the taste and odor of the treated water. The ozone contact basins would be a rectangular concrete structure with inlet and outlet channels connected to the existing

2 PROJECT DESCRIPTION

channels. The new extension to the existing ozone destruct room would house the ozone gas influent pipelines, flow meters, control valves, ozone gas destruct piping, valves, instrumentation, and destruct unit; similar to the existing structure.

Filters

Two filters would be added, increasing the total number of filters from four to six. The filters would be adjacent to the existing Operations Building. The additional filters would require extension of the existing pipeline gallery, influent channel, waste channel, and the effluent pipeline.

Chemical Storage Building

An additional chemical storage building would be constructed to support the Phase 2 increase in treatment capacity to 80 MGD and would house alum and sodium hypochlorite storage tanks and chemical feed systems. The existing chemical storage building would be modified to store additional ammonia and caustic. The new chemical storage building would be designed with an angled, grey roof and concrete and painted grey exterior surfaces and would also be designed to blend in with the existing adjacent buildings.

Solids Handling Facilities

The solids handling facilities would include two new gravity thickeners in addition to the two gravity thickeners constructed in Phase 1 to support the increase in treatment capacity to 80 MGD. Solids from the SOWTP's primary sedimentation basins and the SFBW equalization basins would flow into the gravity thickeners and polymer would be added to the gravity thickener's influent flow. Decant from the gravity thickeners would be collected in a wet well and pumped to the SFBW equalization basins. Thickened solids at the bottom of the gravity thickeners would either be sent periodically to the sewer by gravity via a new thickened solids pipeline or would be further treated by the new solids dewatering facilities.

Solids Dewatering Facilities

Two new blending tanks and a solids dewatering building would be installed to further thicken solids for trucking offsite when sewer capacity is limited. The solids dewatering building would be a two-story, concrete structure housing centrifuges that would mechanically dewater solids from the blending tanks.

Thickened solids from the gravity thickeners would be pumped to the blending tanks and polymer would be added to provide a homogenous feed to dewatering centrifuges. The tanks would have mechanical mixing and pumps to transfer the solids to the centrifuges inside the dewatering building. The centrifuges would mechanically dewater and transfer the solids to a conveyor system, which would then transfer the solids to trucks at the truck filling station under the overhang on the side of the building. The solids would be hauled offsite by trucks on an as needed basis. Solids could also be temporarily stored in covered bins in paved areas next to the building when needed. Supernatant (or liquid separated from the solids) from the centrifuges would be pumped back to the gravity thickeners for additional treatment. The dewatering building would be designed in a mission revival style with a red gable roof and beige stucco finish to match the adjacent fire station building.

2 PROJECT DESCRIPTION

Connecting Pipelines

Numerous pipelines would be constructed to connect the Phase 2 facilities to each other, Phase 1 facilities, and existing facilities. The locations of the Phase 2 pipelines are shown in Figure 2-14.

Demolition

The existing Cable-Vac pumping plant would be demolished to make space for the new sedimentation basin.

Central North Aqueduct Pipeline

The Central North Aqueduct pipeline (shown in Figure 2-3) would be constructed to provide transmission for the increase in treatment capacity (80 MGD) to the SOWTP. The Central North Aqueduct pipeline begins approximately 200 feet west of D Avila Way on La Honda Road in the community of El Sobrante where it would connect to an existing 78-inch pipeline downstream of EBMUD's existing La Honda Rate Control Station. The pipeline would terminate in the west at the intersection of Road 20 and 21st Street in the city of San Pablo where it would connect to the existing 48-inch-diameter pipeline in Road 20. In addition, the Central North Aqueduct pipeline would tie into the existing pipelines including a 72-inch-diameter pipeline on El Portal Drive and the 48-inch-diameter pipeline in Glenlock Street.

The Central North Aqueduct pipeline would have 54- and 72-inch-diameter segments as shown in Figure 2-3. The Central North Aqueduct pipeline is divided into three sections based on the dominant land use, roadway width, and horizontal alignment as described in Table 2-5.

Table 2-5 Central North Aqueduct Pipeline Sections

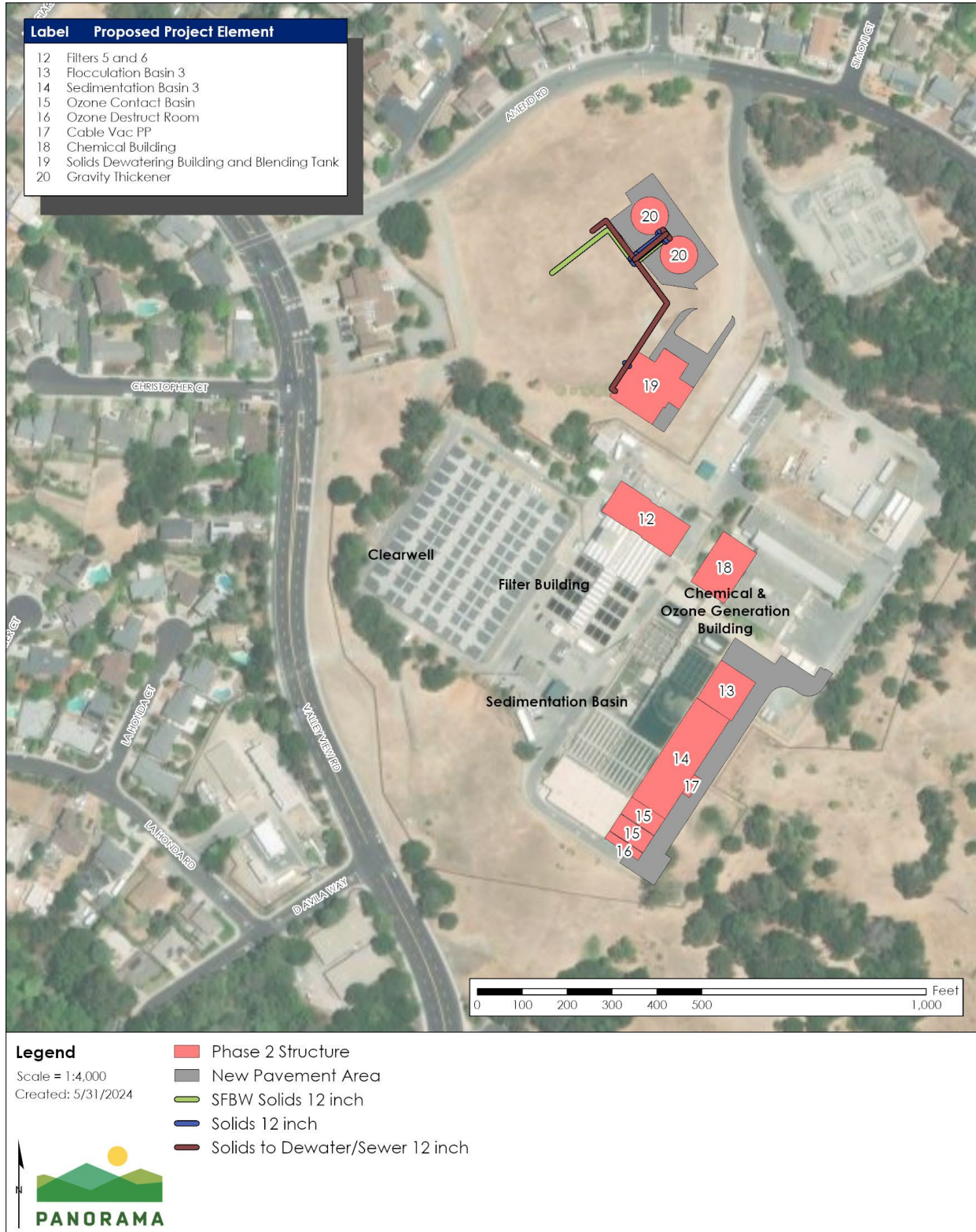
Section	From	To	Via	Length (feet) ¹	Land Use	Road Width Approximate (feet) ¹
1	D Avila Way	I-80	D Avila Way, San Pablo Dam Road	3,400	Business/ Residential	30 to 63
2	I-80	Rollingwood Drive	El Portal Drive, Glenlock Street, Rollingwood Drive	5,200	Residential	25 to 35
3	Rollingwood Drive	21 st Street	El Portal Drive, Road 20	13,400	Business/ Residential	30 to 70

Note: ¹ Pipeline length and road width are approximate

Source: (EBMUD, 2022b)

2 PROJECT DESCRIPTION

Figure 2-14 Phase 2 Connecting Pipelines



Source: (EBMUD, 2023c)

2 PROJECT DESCRIPTION

2.6 Project Construction

The construction activities will occur at two sites: SOWTP for Project improvements to increase treatment capacity and public rights-of-way for Project improvements to increase transmission capacity. Table 2-6 lists the major construction activities by phase with approximate durations.

Table 2-6 Phase 1 and 2 Construction Phases, Major Activities, and Duration

Construction Phase	Construction Activity	Approximate Duration (months)
Phase 1	<ul style="list-style-type: none"> • Mobilization and site preparation • Entrance gate, screening berm, landscaping, security fencing, and lighting • Access and maintenance road for new facilities (rough grading and wearing surface) • CCB • Clearwell hydraulic structure, inlet, outlet, and bypass pipelines • Untreated water control valve and flow meter • Fifth-stage flocculation for the existing two flocculation basins • Two SFBW equalization basins • FTW equalization basin • Two gravity thickeners • Power and polymer building • Two SFBW flocculation and sedimentation basins • SFBW reclaim and solids handling facilities pipelines and connections to redirect flows from existing reclaim and solids handling facilities • Consolidated maintenance building and parking • Storm drain pipelines and stormwater retention basin • Final site grading, paving, and lighting • Final inspections and commissioning (vendor testing and pipeline testing to be completed intermittently as needed during construction) • Demolition to grade and backfill of existing solids storage and reclaim basins and reclaim pumping plant facilities, and demolition of associated pipelines, electrical conduit, and other utilities • Demolition of original maintenance facilities 	54
Phase 2	<ul style="list-style-type: none"> • Mobilization and site preparation • Chemical storage building • Demolition of existing cable-vac pumping plant • Flocculation basin • Sedimentation basin with tube settlers • Cable-Vac pumping plant • Two gravity thickeners • Solids dewatering building • Two blending tanks • Two ozone contact basins 	43

2 PROJECT DESCRIPTION

Construction Phase	Construction Activity	Approximate Duration (months)
	<ul style="list-style-type: none"> • Ozone destruct room • Two dual-media filters and associated pipelines and operation gallery • Final site grading, paving, and lighting • Final inspections and commissioning (vendor testing and pipeline testing to be completed intermittently as needed during construction) 	
Phase 2	<ul style="list-style-type: none"> • Central North Aqueduct Pipeline 	22 ¹

Note: ¹ Assumes concurrent construction by two crews

Source: (Brown and Caldwell, 2021)

2.6.1 Construction Activities at SOWTP

The following sections describe the major construction activities at the SOWTP site.

Mobilization and Site Preparation

Mobilization and site preparation would include:

- assessing site and deploying personnel and construction equipment
- setting up temporary power, water, and site lighting
- setting up office trailers
- installing construction staking and perimeter fencing
- relocating the SOWTP access gate
- clearing of vegetation and trees

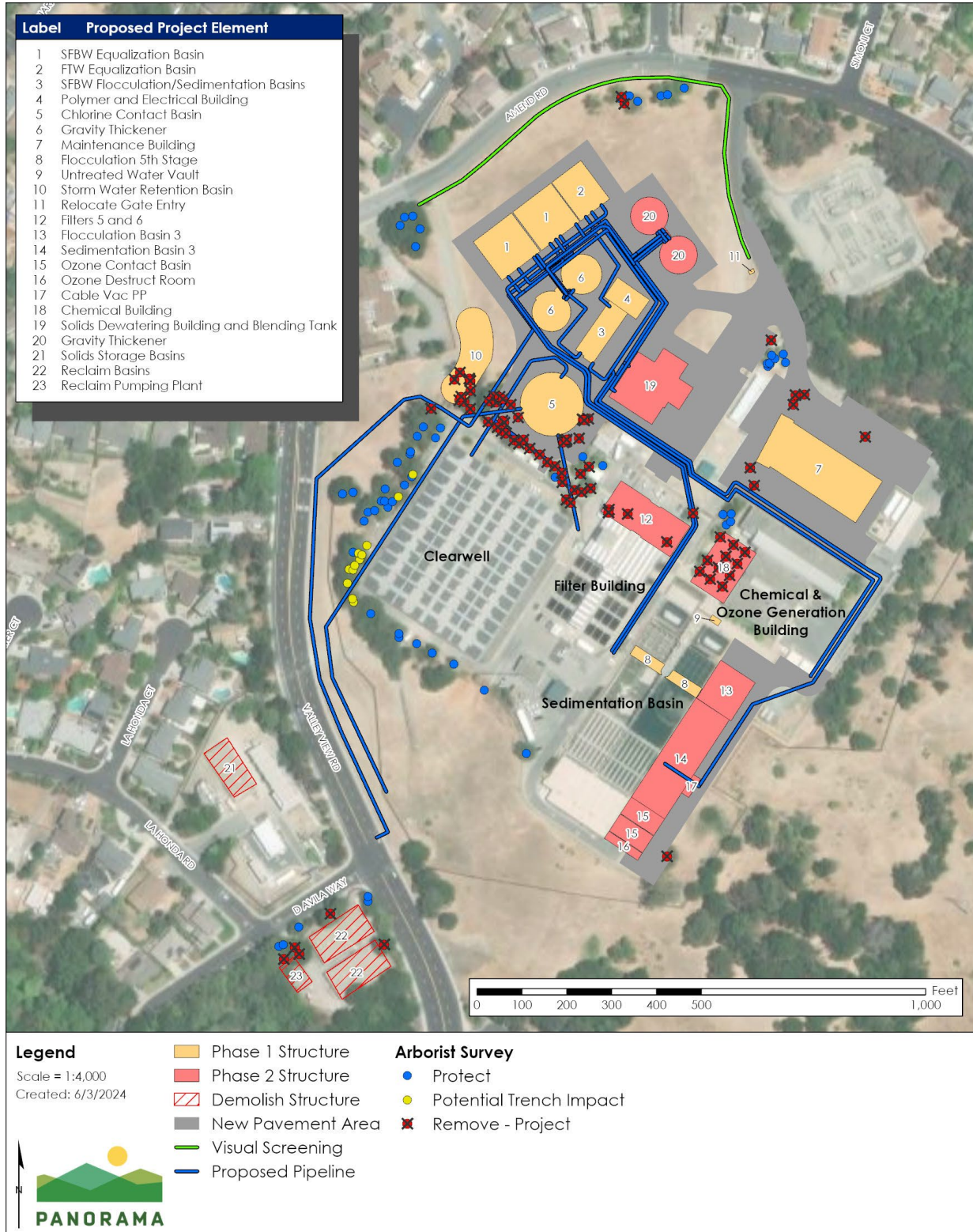
Trees in locations that may conflict with Project construction would be removed. Where possible, existing mature trees would be preserved.

Phase 1

Of the 195 trees surveyed on the SOWTP site, 62 trees are within the Phase 1 construction footprint and would be removed to accommodate Project construction and up to 23 additional trees are adjacent to the area of Phase 1 pipeline trenching and could be impacted by pipeline trenching. Five heritage oak trees along Amend Road would be preserved. Figure 2-15 presents the location of the existing trees in the Project area, the trees that would be removed as part of the Project, trees that would be potentially impacted by trenching for the installation of pipelines, and trees that are adjacent to but not within the construction footprint that would be protected. Grasses and other vegetation within the construction footprint would be mowed and removed. Additional information regarding the trees is provided in the Arborist Condition Report (Appendix B).

2 PROJECT DESCRIPTION

Figure 2-15 Tree Protection and Removal at the SOWTP



Source: (Merrill Morris Partners, 2023)

2 PROJECT DESCRIPTION

The unpaved access road from Amend Road, which is adjacent to the neighboring fire station, may be widened at the entrance from Amend Road and/or the road may be realigned slightly to the east. The temporary construction entrance would be used and allows for improved construction truck access from Amend Road for deliveries of materials and equipment during Phase 1 construction.

Phase 2

Mobilization and site preparation for Phase 2 would involve similar activities as Phase 1 except 16 trees would be removed to accommodate Phase 2 construction and 1 tree is adjacent to pipeline trenching. No temporary access roads are proposed for Phase 2 construction.

Staging and Stockpile Areas

Staging areas would be developed and used for construction equipment, staff parking, office trailers and stockpiling excavate soils and materials. Stockpiles generated during excavation and grading at SOWTP would be temporarily stored on site and excess excavation stockpiles would be hauled offsite periodically as needed. Foundation and engineered backfill materials would be imported, temporarily stockpiled in designated staging and stockpile areas, or deposited adjacent to the immediate work area. Larger equipment, such as D3 dozers and dump trucks (needed for stockpiling), would be delivered as needed and hauled off site when no longer needed. Construction trailers would be located within flat areas within the staging, stockpiling, and/or parking areas as appropriate.

Phase 1

Construction staging, stockpiling, and/or parking area locations for Phase 1 at SOWTP are shown in Figure 2-16. The staging areas for Phase 1 activities would be accessed from the existing Amend Road entrance and the temporary construction entrance from Amend Road adjacent to the neighboring fire station.

Phase 2

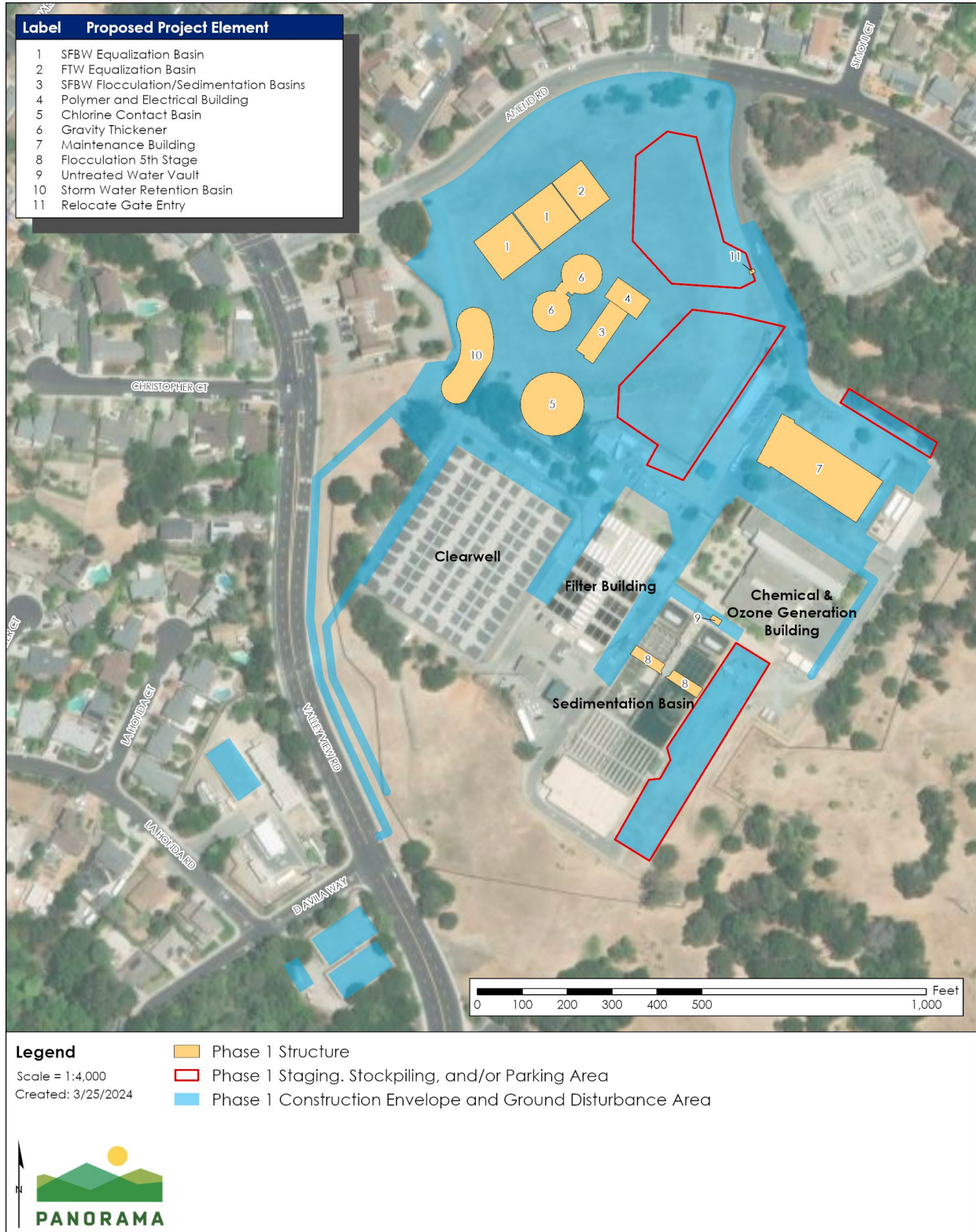
Construction staging, stockpiling, and/or parking areas are shown on Figure 2-17. The staging areas for Phase 2 activities would be accessed from the existing Amend Road entrance only because the stormwater retention basin constructed in Phase 1 would obstruct any future access via the unpaved access road that is adjacent to the neighboring fire station.

Excavation and Soil Handling

The new facilities for the Project would require excavation to create level pads for above-ground facilities or to construct buried or partially buried facilities. Earthwork would begin shortly after site preparation and would be ongoing at various times throughout construction. Excavations would typically have a maximum slope of 1.5:1 and provide a minimum workspace of 5 feet between the edge of each foundation and the bottom edge of the slope, to provide slope stability and facilitate construction.

2 PROJECT DESCRIPTION

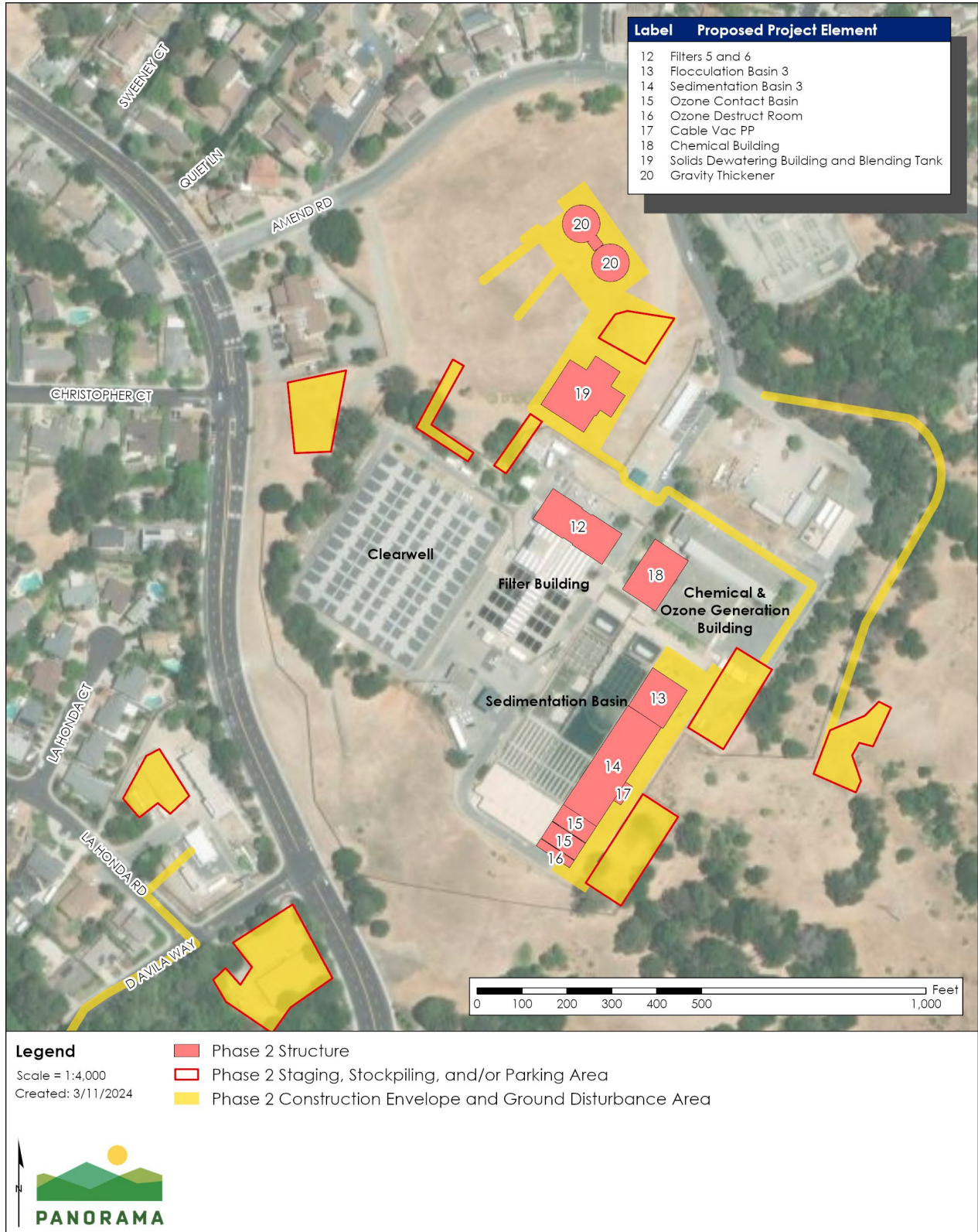
Figure 2-16 Phase 1 Temporary Disturbance, Staging, Parking, and Stockpile Areas at SOWTP



Source: (EBMUD, 2023d)

2 PROJECT DESCRIPTION

Figure 2-17 Phase 2 Temporary Disturbance, Staging, Parking, and Stockpile Areas at SOWTP



Source: (EBMUD, 2023d)

2 PROJECT DESCRIPTION

Phase 1

Phase 1 construction would require excavation of approximately 69,000 cubic yards (CY) of material and importing of approximately 19,000 CY of fill and 6,000 CY of granular material. Off haul of approximately 63,000 CY would be required during Phase 1, because most excavated material may not be suitable for reuse as backfill. Instead of sloped excavation, shoring is anticipated for some new facilities. The north, east, and west sides of the SFBW and FTW equalization basins would be shored rather than sloped to allow approximately 5 feet of workspace around the shored sides of the structures. The east side and a portion of the north and south sides of the CCB would be shored with approximately 10 feet of working space between the edge of the foundation and the shored wall. The rest of the CCB would be sloped to provide approximately 10 feet of minimum workspace. Shoring would also be installed along trenches for pipelines. The excavation depths for Phase 1 structures are presented in Table 2-2.

Shoring would consist of I-Beams and lagging or sheet piles. Sheet piles would be installed with vibratory pile drivers to minimize noise during pile installation. All shoring would be extracted after backfilling around the structure. The excavated soil material would be stockpiled and then partially used to construct the landscaped berm along Amend Road. Excess soil material generated during excavation would be hauled off site.

Phase 2

Phase 2 construction at the SOWTP site would require excavation of approximately 43,000 CY of material and importing of approximately 11,000 CY of fill and 6,000 CY of granular material. Off haul of approximately 42,000 CY would be required. The excavation depths for Phase 2 structures are presented in Table 2-4.

Dewatering

In both Phase 1 and Phase 2, dewatering would be required during excavation to create a dry work area in any areas where groundwater is encountered. Temporary groundwater wells would be installed around the areas of deep excavations and pumps would be used to extract the groundwater continuously. Collected groundwater would be treated in accordance with state and federal regulations before discharge to the storm drain.

Structural Foundations

In both Phase 1 and Phase 2, foundations would consist of drilled concrete piles. Piles would be augered/drilled to the maximum depth of the pier foundation and filled with concrete grout. A design-level subsurface geotechnical investigation was prepared to generate recommendations for the Project foundations. The findings and recommendations from the geotechnical investigation, including design groundwater levels, foundation types, foundation depths, foundation construction methods, shoring systems, pile types, etc., would be incorporated into the final design.

Subsurface Structural Installation and Construction

In both Phase 1 and Phase 2, subsurface basins and vaults would be cast-in-place concrete with the exception of the CCB which would be cast-in-place concrete that is then pre-stressed and

2 PROJECT DESCRIPTION

covered with shotcrete (sprayable concrete). Concrete construction would include installation of a form for the concrete structure, placing reinforcing steel, concrete pouring within the form, curing of the concrete, testing, and removal of the form. The open excavation around each concrete structure would be backfilled to meet engineering specifications, following construction.

Fifth-Stage Flocculation Installation

In Phase 1, fifth-stage flocculators and new baffle walls would be installed within each of the existing flocculation basins. The flocculation basins would be dewatered before installing the baffle walls and flocculators. The external drive would be installed on the top, center, or side of the basins.

Building Construction

Buildings would typically be constructed from concrete poured in place with structural steel. Building would be constructed on footings or a mat foundation.

Phase 1

The power and polymer building and consolidated maintenance building would be constructed in Phase 1. Interior plumbing, interior and exterior doors and windows, and an HVAC system would be installed in each building. Walls would be constructed for the consolidated maintenance building, and the butterfly roof would be delivered, set in place with a crane, and attached to the structure. After the building construction is completed, mechanical and electrical equipment would be installed in both the power and polymer building and consolidated maintenance building. Restroom facilities, kitchen facilities, and office equipment would be installed in the consolidated maintenance building before transfer of materials from the existing on-site maintenance facilities and sheds to the new consolidated maintenance building. The existing maintenance sheds/trailers would be removed from the site or repurposed for WTP needs after the consolidated maintenance building is fully constructed and functional.

Phase 2

The chemical storage building, Cable-Vac pumping plant, ozone destruct room, dewatering building, and filter building extension would be constructed during Phase 2. The chemical storage building would include a basement. Engineered fill material would be used to backfill around the chemical storage building foundation/basement. The existing Cable-Vac pumping plant would be demolished, and a new Cable-Vac pumping plant would be constructed adjacent to the sedimentation basin. The solids dewatering building would have a metal gable roof and stucco finish. The filter building extension would include a new filter gallery. After the buildings have been erected, equipment such as pumps, process equipment, building mechanical, building electrical, etc., would be installed inside the buildings.

Connecting Pipelines and Electrical Duct Banks Construction

In both Phase 1 and 2, connecting pipelines and electrical duct banks for the new facilities would be typically constructed by trenching. Pipeline trenches would extend from approximately 6 feet deep for shallow pipelines to 30 feet deep for deep buried pipelines.

2 PROJECT DESCRIPTION

Hydraulic speed shore systems would be used to support trenches with vertical sides up to 20 feet deep. Trenches greater than 20 feet deep would have soldier piles with timber lagging to support the trench walls. After the trench has been constructed, the pipeline or electrical duct bank would be installed within the trench. Duct banks would be constructed with poured concrete, and electrical cabling would be installed within the buried duct bank. The area underneath and surrounding the pipeline or duct bank would be backfilled with engineered fill material, to meet engineering specifications. The remainder of the open trench would be backfilled with excavated soil materials to existing grade.

In Phase 1, the connecting pipelines for the CCB would be constructed by trenchless methods such as jack and bore to avoid existing utilities within the pipeline alignment. In jack and bore construction, temporary launching and receiving pits would be dug at the connection points of the pipeline. From the launching pit a horizontal hole would be drilled to the receiving pit without disturbing the surface above. As the hole is drilled, the casing would be pushed into place. The new pipeline is installed within the casing and connected to the existing pipelines at both ends. Finally, the pits would be filled, and the surface restored.

Stormwater Retention Basin

In Phase 1, a stormwater drain and retention basin would be constructed to capture the increased stormwater runoff. The approximate 9,000-square-foot retention basin would be excavated to a total depth of approximately 4 feet. A perforated pipeline would be installed at the base of the retention basin and would connect to the storm drain. The retention basin would be filled with a layer of permeable gravel and a layer of native topsoil material, excavated on site. The retention basin then would be planted with shrubs and hydroseed.

Final Grading, Paving and Sitework

After the completion of building construction in Phase 1 and Phase 2, new access roads and parking areas would be paved and new curbs would be installed, per the final design. Security lighting would be installed along the facilities to provide worker access. Landscaping would be planted along the new berm and along Amend Road and the entrance road, as shown in the conceptual landscaping plan (Figure 2-13). Unpaved areas of temporary disturbance would be hydroseeded to provide soil stabilization. Temporary irrigation for trees and shrubs would be installed for plant establishment. All temporary fencing, construction signage, and any excess materials or debris would be removed from the site at construction completion. Temporary construction trailers would be removed at the completion of each phase.

Demolition

Facilities that would be replaced or are within the footprint of new facilities would be demolished and removed in Phase 1 and Phase 2. Processed demolition debris would be temporarily stockpiled on site. Demolition debris, such as concrete and rebar, would be recycled to the extent possible and remaining materials would be hauled for disposal at an approved landfill. Demolition sites that would either have new facilities constructed in the same location or would be backfilled to bring the site up to grade as the adjacent areas.

2 PROJECT DESCRIPTION

2.6.2 Construction Activities in Public Rights-of-Way

In Phase 2, the Central North Aqueduct pipeline would be installed in public rights-of-way, typically by open trench construction. A short section of jack and bore construction would be used at the crossing of San Pablo Creek. The following sections describe both construction methods.

Open Trench Construction

Open trench construction would consist of the following activities:

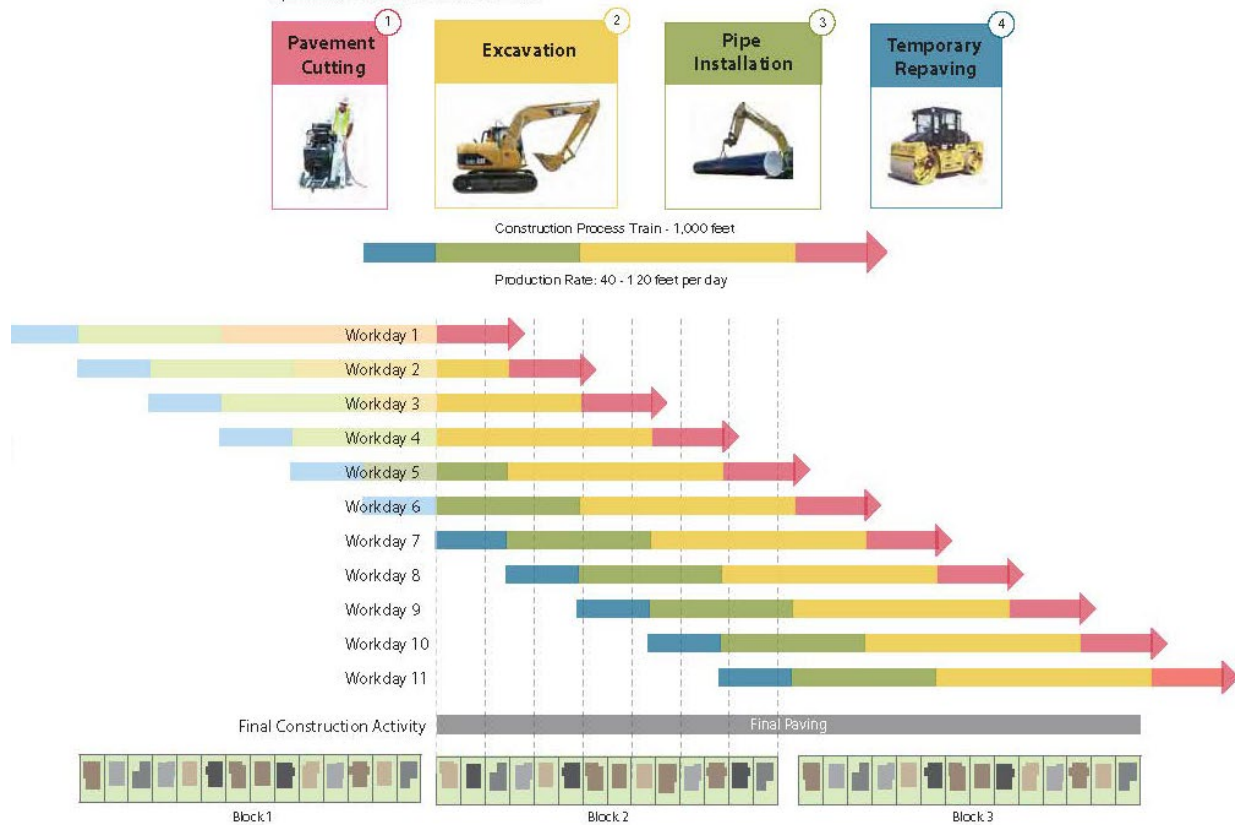
- utility location/potholing
- pavement saw-cutting
- trench excavation
- soil removal and stockpiling
- pipeline installation
- trench backfilling and temporary paving application
- pressure testing and pipeline disinfection
- repaving

A minimum construction corridor width of 35 feet would be needed to accommodate pipeline storage and allow trucks and equipment access along the trench. Other construction activities, such as installation of pipeline connections, could require larger excavations. Open trench construction in public roadways usually would necessitate the closure of at least one travel lane, depending on roadway width and the size of the pipeline and trench. Complete road closures to through traffic are anticipated for La Honda Road, D Avila Way, Glenlock Street, Rollingwood Drive, El Portal Drive from I-80 to Glenlock Street, and Road 20 from San Pablo Avenue to 21st Street where the entire roadway width would be required for construction of the pipeline. Approximately 40 to 120 feet of pipeline would be constructed and installed per day. The open trench construction process is illustrated on Figure 2-18.

The majority of Central North Aqueduct pipeline would be installed following standard pipeline installation methods. Earthquake resistant ductile iron pipeline or a flex-joint pipeline, pumping tee, and two isolation valves are proposed where the Central North Aqueduct pipeline crosses the Hayward Fault in Rollingwood Drive.

2 PROJECT DESCRIPTION

Figure 2-18 Open Trench Construction Activities and Production Rate



Source: (EBMUD, 2010b)

Most excavated soil would be hauled off site, and new materials would be imported for backfilling the excavations. Some excavated soil may be used as backfill around the pipeline instead of being hauled off site when the existing soil characteristics are acceptable. The excavated soil may be mixed with cement, to improve soil characteristics for trench backfilling around the pipeline. Phase 2 Central North Aqueduct pipeline construction would require excavation of approximately 60,000 CY of material.

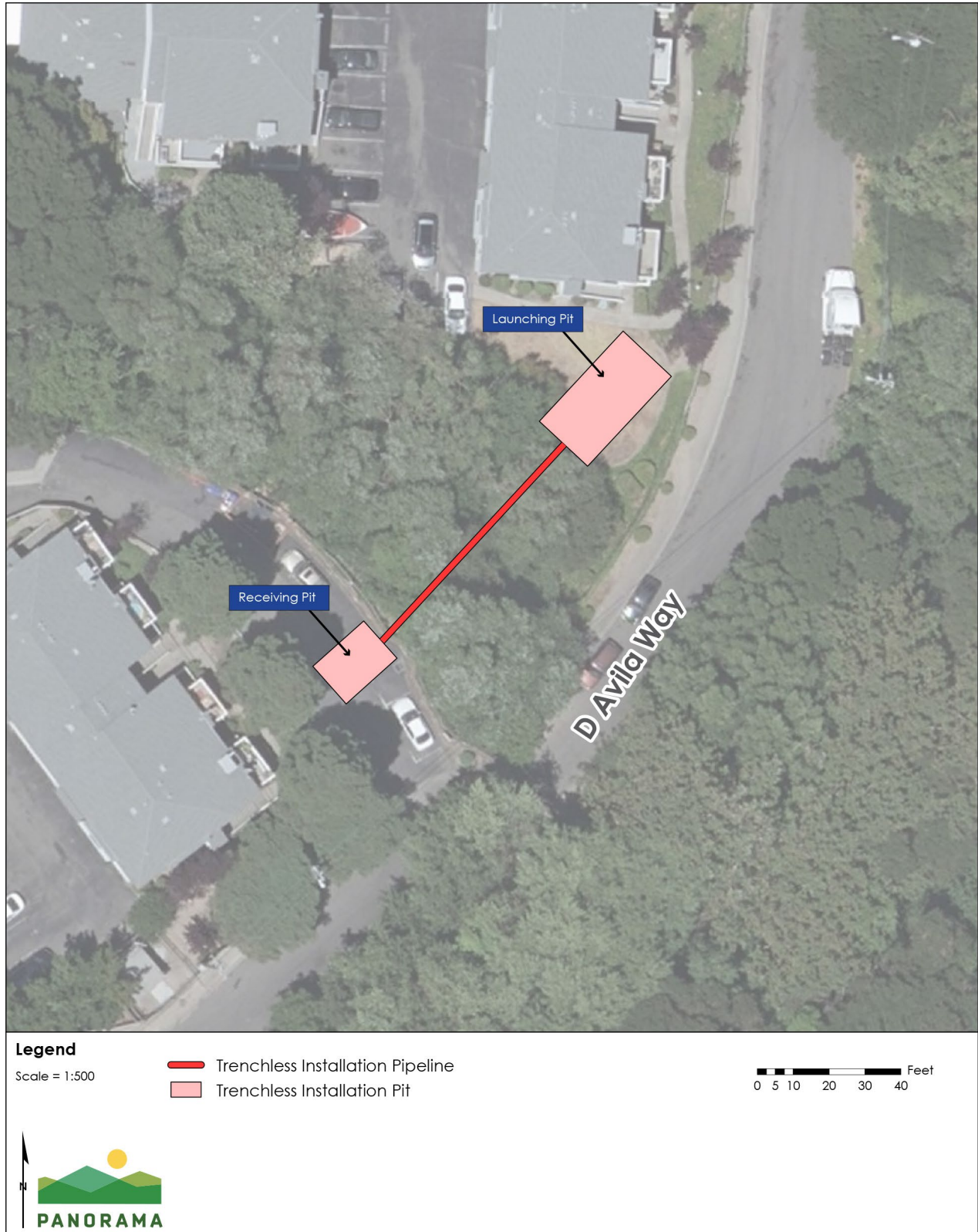
Pipeline trenches would typically be approximately 11 feet deep and 7 feet wide. Pipeline staging would be on roadways adjacent to the pipeline alignment. Before installation, sections of the pipeline would be laid out along the alignment. The pipeline then would be lowered into the trench, and the sections would be welded together. The trench then would be backfilled, and sections of the pipeline would be pressure-tested and disinfected via chlorination before repaving.

Jack and Bore Construction

The jack and bore method (also known as horizontal auger boring) would be used at the Central North Aqueduct pipeline crossing of San Pablo Creek as shown on Figure 2-19. The jack and bore method would consist of the following activities:

2 PROJECT DESCRIPTION

Figure 2-19 Launching and Receiving Pits for Jack and Bore Construction



2 PROJECT DESCRIPTION

- excavating a temporary launching and receiving pit
- constructing a temporary jacking platform in the launching pit
- drilling or jacking a casing through the earth under the creek to be avoided
- installing the new pipeline in the casing
- connecting the new pipeline to pipeline segments on either end
- backfilling the launching and receiving pit and temporary paving
- pressure testing and disinfecting the pipeline
- repaving

Jack and bore work would require a launching pit approximately 40 feet long by 14 feet wide by 56 ft deep and receiving pit approximately 18 feet long by 12 feet wide by 56 feet deep.

Additional disturbance would occur adjacent to the launching and receiving pits for worksite space, for a total of approximately 0.06 acres of disturbance. Vibratory driven sheet piles would be used to ensure the stability of the pit walls. Soil removed from the pits would either be re-used or loaded directly into dump trucks and hauled away for disposal. If existing soil is not adequate for backfilling, new backfill material would be imported. Pipeline staging would be on roadways adjacent to the pipeline alignment. After backfilling, the pipeline would be flushed, pressure-tested, and disinfected via chlorination.

Dewatering

Dewatering would be required during open trench and jack and bore construction, to create a dry work area in any areas where groundwater is encountered in the open trench or jack and bore pits. As needed, groundwater would be pumped out and treated in accordance with state and federal regulations before discharge to the storm drain.

2.6.3 Construction Equipment and Trips

Project Equipment

Construction equipment that would be used during Project construction are listed in Table 2-7.

Table 2-7 Project Construction Equipment

Equipment	Number of Equipment Used	Average Use (Hours/Day)	Approximate Number of Workdays	Equipment Size (horsepower)
Phase 1 SOWTP				
Compressor	3	3	185	10
Forklift	2	3	604	100
Long reach forklift	2	2	413	125
Bobcat	1	3	224	65
Backhoe	2	4	165	150
Excavator	3	3	541	400

2 PROJECT DESCRIPTION

Equipment	Number of Equipment Used	Average Use (Hours/Day)	Approximate Number of Workdays	Equipment Size (horsepower)
D3 dozer	2	6	100	150
Loader	2	4	189	250
Large compactor	1	8	33	25
Small compactor	1	8	85	15
Water truck	1	1	82	275
Crane	2	3	742	300
Manlift	8	3	454	100
Welding machine	8	3	435	25
Cutting torch	2	5	227	25
Pipe fitter tools	2	5	228	10
Pile driving rig	1	8	45	300
Pier driving rig	2	4	80	300
Concrete boom pump truck	3	3	108	350
Paving equipment	5	8	20	300
Jack and bore	1	8	50	300
Fuel truck	1	8	1,029	300
Daily admin and supervision deliveries	2	6	1,029	300
Dump truck (14 CY)	28	1	744	400
Haul truck	3	2	165	325
Concrete trucks	26	1	302	350
Porta-can truck	1	8	1,029	200
Phase 2 SOWTP				
Compressor	2	4	271	10
Forklift	4	2	510	100
Long reach forklift	2	3	313	125
Bobcat	2	1	100	65
Backhoe	2	3	65	150
Excavator	2	4	162	400

2 PROJECT DESCRIPTION

Equipment	Number of Equipment Used	Average Use (Hours/Day)	Approximate Number of Workdays	Equipment Size (horsepower)
Loader	2	4	25	250
Large compactor	1	8	20	25
Small compactor	3	3	115	15
Water truck	1	2	134	275
Crane	4	2	720	300
Driller	3	8	23	300
Manlift	15	2	444	100
Trencher	1	8	5	75
Welding machine	11	2	422	25
Cutting torch	4	2	214	25
Pipe fitter tools	4	2	250	10
Pier drilling rig	3	4	20	300
Concrete boom truck	2	4	42	350
Paving equipment	5	8	10	300
Fuel truck	1	8	692	325
Daily admin and supervision deliveries	1	8	666	300
Dump truck (14 CY)	29	2	212	400
Haul truck	3	2	220	325
Concrete trucks	15	1	108	350
Porta-can truck	1	8	692	200
D3 Dozer	1	4	6	150
Phase 2 Central North Aqueduct Pipeline				
Air Compressor	1	8	222	2327
Excavator	2	8	273	18
Dump Truck (10 CY)	7	8	273	300
Crane	2	4	273	195
Wheel Loader	2	4	273	311
Generator	1	8	12	363

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Equipment	Number of Equipment Used	Average Use (Hours/Day)	Approximate Number of Workdays	Equipment Size (horsepower)
Light Plant Generator	1	8	12	12
Water Treatment Plant Electric	1	8	12	15
Pipeline Carrier	1	8	2	100
Welding Machine	2	84	273	45
Ventilation Fan	1	8	12	100
Drill (Horizontal Boring)	1	8	10	189
Grout Plant	1	8	2	80
Plate Compactor	1	8	20	95
Vibratory Roller	1	8	50	90

Source: (Brown and Caldwell, 2021; EBMUD, 2022d)

Vehicle Trips

Traffic generated by Project construction would include worker vehicle trips, haul truck trips, and delivery trips. Truck and delivery trips would include the following vehicle types:

- equipment deliveries (UPS, FedEx, and vendor freight)
- fuel trucks
- portable toilet trucks
- dump trucks
- haul trucks
- concrete trucks

All construction traffic, including personnel, would use one of the two SOWTP entrances off Amend Road. Traffic during the demolition phase would access the existing reclaim site via D Avila Way or La Honda Road.

Estimated counts for worker vehicle and truck trips during Phase 1 and Phase 2 construction are shown in Table 2-8

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Table 2-8 Worker Vehicle Trips and Truck Trips

Year	Maximum Daily Worker Vehicle Trips ^a	Average Daily Worker Vehicle Trips	Maximum Daily Truck Trips	Average Daily Truck Trips
Phase 1				
2030 ^b	20	10	39	13
2031	25	16	116	20
2032	26	18	91	21
2033	25	18	139	42
2034 ^c	23	13	21	11
Phase 2^d				
Phase 2 SOWTP				
2045	11	6	94	6
2046	24	16	69	16
2047	27	17	103	14
2048 ^e	24	15	70	22
Phase 2 Central North Aqueduct^e				
2046	52	52	184	151
2047	52	52	184	151

Notes:

^a One trip equals drive in plus drive out.

^b Construction in 2030 would start in July, for a total of 6 months.

^c Construction in 2034 would end in October, for a total of 10 months.

^d Construction of Phase 2 would begin after 2045; For truck and worker trip estimates, Phase 2 construction was conservatively assumed to start in 2045 as a placeholder only since the start date of Phase 2 has not yet been determined. Construction in 2045 would start in January, for a total of 12 months.

^e Construction in 2048 would end in September, for a total of 9 months.

^f Assumes concurrent construction by two crews.

Source: (EBMUD, 2022e)

Construction truck traffic would access the SOWTP site from Interstate 80 via San Pablo Dam Road and Appian Way. Truck traffic also could access the Project site during construction from Highway 24 via Camino Pablo/San Pablo Dam Road. Phase 1 construction would generate a maximum of approximately 139 trucks daily traveling to the SOWTP site during peak construction. Phase 2 construction would generate a maximum of approximately 103 trucks daily traveling to the SOWTP site. Central North Aqueduct pipeline construction would

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generate a maximum of approximately 184 trucks daily with trucks traveling to two active construction areas (approximately 92 trucks at each construction site) during peak construction.

2.6.4 Construction Schedule and Hours

As shown in Table 2-8, Phase 1 construction is scheduled to begin in 2030 and be completed in 2034. Phase 2 construction is expected to begin in 2045 at the earliest but may be delayed or may not occur if water demands are not realized.

Construction typically would occur between 7 a.m. and 7 p.m., Monday through Friday, and typically would include 8-hour workdays. Extended work hours, such as a 6 a.m. start for concrete pours and weekend work may occasionally be required. No nighttime construction is anticipated at the SOWTP site. Nighttime work may be required for the Central North Aqueduct pipeline at busy intersections and due to encroachment permit conditions. To the extent feasible, construction of the Central North Aqueduct pipeline along Road 20 in proximity to the William T. Helms Middle School would be scheduled in coordination with the middle school to occur when school is not in session. Construction personnel may arrive and depart 30 minutes before or after regular construction work times.

Trucks with loads wider than 10 feet are not allowed on highways in San Francisco and vicinity between the hours of 7 a.m. and 9 a.m., and between 4 p.m. and 6 p.m., per Section 502.2 of the Transportation Permits Manual (Caltrans, 1995).

2.7 Operations and Maintenance

2.7.1 Operations

Water Treatment Chemical Use

The following chemicals currently used for treatment and disinfection would continue to be added throughout the SOWTP process:

- Potassium permanganate for oxidation added to untreated water
- Sodium hypochlorite for disinfection added to untreated water, upstream of rapid mix upstream of flocculation, and downstream of ozone contactors
- Cationic polymer for flocculation injected at both rapid mix upstream of flocculation and downstream of ozone contactors
- Alum for coagulation added at both rapid mix upstream of flocculation and downstream of ozone contactors
- Ozone for taste and odor removal added in ozone contactors
- Hydrogen peroxide for advanced oxidation added in ozone contactors
- Sodium hypochlorite for disinfection added upstream of clearwell
- Caustic soda for pH control added upstream of clearwell

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- Fluoride for fluoridation added upstream of clearwell
- Ammonia for chloramine formation (distribution system disinfection) added downstream of clearwell

Phase 1 Project improvements would require the addition of solids conditioning polymer upstream of the SFBW flocculation/sedimentation basins and upstream of the gravity thickeners to aid in flocculation and thickening processes.

Phase 2 Project improvements would require the addition of more solids conditioning polymer upstream of the solids dewatering building for the dewatering process.

Power Required for Operations

The existing SOWTP operations require approximately 2,630 megawatt hours (MWh) of electricity per year on average. Phase 1 would require an increase of approximately 1,400 MWh per year for SOWTP operation. Phase 2 would require an increase of approximately 3,400 MWh per year for a total estimated increase in use of 4,800 MWh annually relative to existing conditions. The current SOWTP power infrastructure is anticipated to have sufficient capacity to support the operation of Phase 1 and Phase 2 improvements. However, new breakers and protective relays would be required. The Pacific Gas and Electric Company's distribution system that currently is serving the SOWTP is anticipated to have sufficient capacity to supply the additional loads under all future scenarios. The new motor control centers that would be required to support the new facilities would be housed in the new polymer and power building.

Operational Discharges

With the completion of Phase 1 improvements, settled solids from the sedimentation basin, SFBW equalization basins, and SFBW treatment process would be thickened and discharged to the sewer. After Phase 2 improvements, thickened and dewatered solids would be hauled off site as needed. On peak treatment capacity days, removal of the thickened and dewatered solids is expected to generate approximately 16 truck trips per day.

The consolidated maintenance building would connect to the existing sewer pipelines on site for bathrooms, showers, and sinks. The existing on site sewer pipelines would discharge in the existing West County Wastewater District sewer collection system.

Stormwater Management

Stormwater at the SOWTP currently flows to San Pablo Creek through existing catch basins, stormwater drain pipelines, surface swales, and direct surface runoff. The Project would create approximately 5 acres of new impervious surfaces. Stormwater flow control improvements including a stormwater drain and stormwater retention basin have been incorporated into the Project design as described in Section 2.5.1. The stormwater control improvements would be designed consistent with the Contra Costa Clean Water Program Stormwater C.3 Guidebook, which sets standards to prevent increases in run-off flows that are consistent with the requirements of the Municipal Regional Stormwater NPDES Permit. The overall stormwater runoff after the Project would not exceed pre-Project runoff volumes and stormwater would continue to flow into San Pablo Creek.

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Lighting

New motion-activated LED lights would be installed on the exterior of buildings and structures, along walkways, and in the new parking areas as shown on Figure 2-20. Lights along the fence line typically would be installed on 20-foot-tall poles. All light poles would have shielded light fixtures that would direct light downwards to minimize light trespass. New building and pole-mounted lights would be on at low levels at nighttime but would brighten temporarily with motion. Wall-mounted lights would be installed outside the consolidated maintenance building and along the gravity thickeners, SFWB equalizations basins, dewatering building, and FTW equalization basin. Motion lighting, stair lighting, and low lighting also would be used throughout the Project area.

2.7.2 Maintenance

Maintenance of the new facilities and structures would be similar to maintenance of the existing facilities and structures at the SOWTP. Landscape maintenance for new and existing landscape would include mowing, pruning of trees, and potential replacement of plants, if needed to maintain the function of the landscaping. The SOWTP is inspected routinely, and maintenance activities are conducted as needed to ensure proper function of the facility.

2.7.3 Operation and Maintenance Staffing

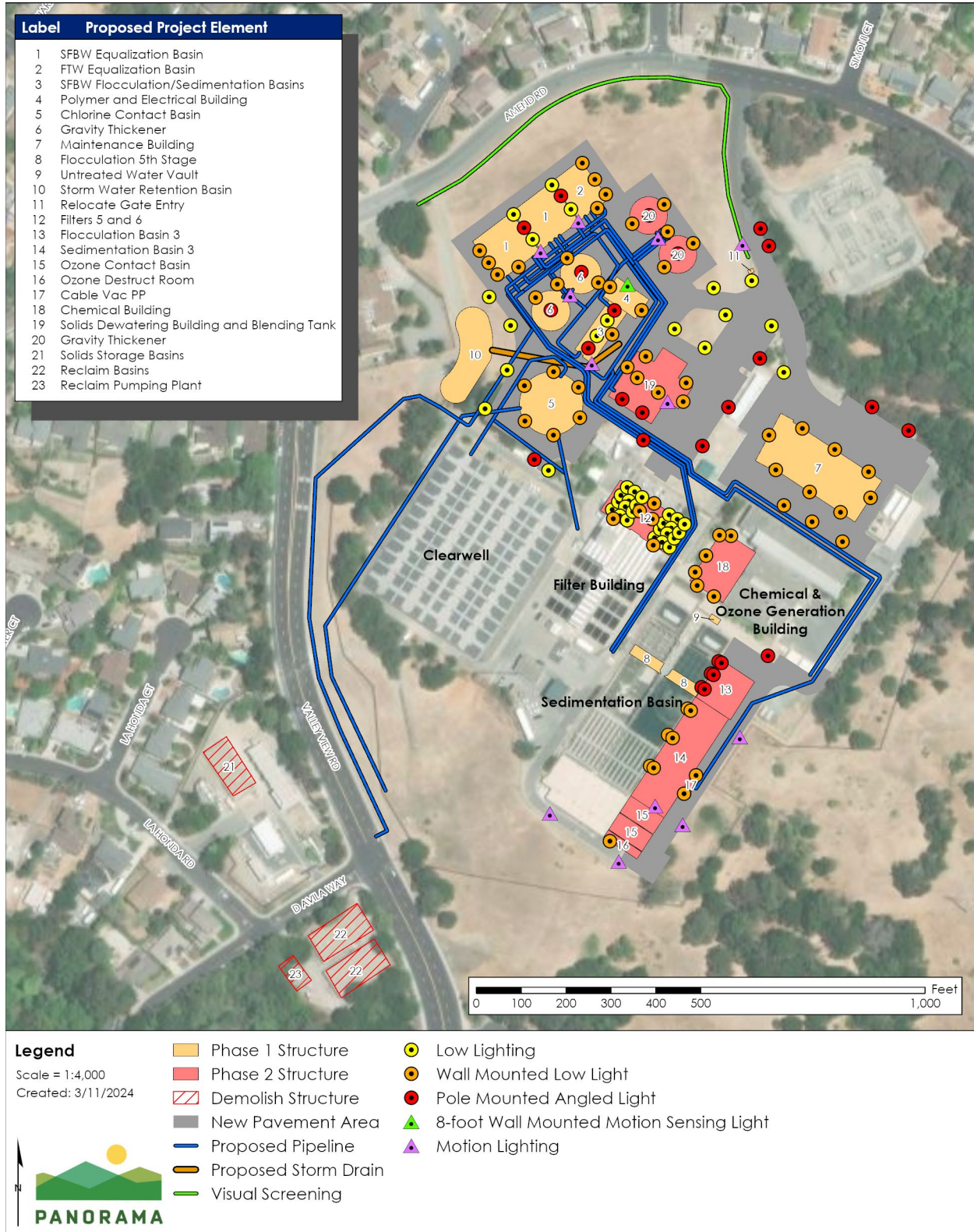
Maintenance activities would be conducted by new and existing staff. The Project improvements would require approximately three additional staff for long-term operations. The Project improvements would also require approximately nine additional maintenance staff.

2.8 Changes in Easements and Rights-of-Way

No permanent property acquisition would be required at SOWTP for the Project. New rights-of-way and/or easements would be required for the Central North Aqueduct pipeline alignment for jack and bore and highway crossings.

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Figure 2-20 Lighting Plan



Source: (EBMUD, 2023e)

2.9 EBMUD Practices and Procedures

EBMUD has incorporated a number of standard construction specifications and Engineering Standard Practices into the Project. These standard specifications and practices are designed to address typical characteristics of EBMUD construction projects and are not project-specific or tailored to the unique characteristics of the Project. These standard specifications and practices, which are applicable to all EBMUD construction projects and reflect generally applicable EBMUD standard operating procedures, are described in this section and included in Appendix C.

EBMUD maintains several Standard Specifications related to environmental conditions, including the following:

- **01 35 24, Project Safety Requirements.** This section includes provisions for the safety of the public and construction workers related to hazards and hazardous materials (EBMUD, 2021d).
- **01 32 36, Video Monitoring and Documentation.** This section requires the contractor to provide audio-video recording of the Project impact areas.
- **01 35 44, Environmental Requirements.** This section includes provisions related to water quality, dust and emissions control, noise and vibration control, and hazardous materials control (EBMUD, 2023f).
- **01 35 45, Biological, Cultural, and Paleontological Requirements.** This section includes provisions related to the protection of biological, cultural, and paleontological resources (EBMUD, 2023g).
- **01 55 26, Traffic Regulation.** This section includes provisions for the regulation of traffic during construction and compliance with applicable traffic regulations requirements (EBMUD, 2017c).
- **01 74 05, Cleaning.** This section requires compliance with local ordinances and anti-pollution laws, as well as requires that the project construction site be kept free of waste materials and rubbish (EBMUD, 2015).
- **02 82 13, Asbestos Control Activities.** This section includes requirements for the handling, removal, and proper disposal of asbestos-containing materials resulting from project construction activities (EBMUD, 2014b).
- **02 83 13, Lead Hazard Control Activities.** This section includes requirements for the handling, removal, and proper disposal of lead-containing hazardous materials resulting from project construction activities and includes provisions for hazardous materials controls (EBMUD, 2016b).
- **32 92 19.16, Hydraulic Seeding.** This section defines requirements for hydroseeding of areas disturbed during construction (EBMUD, 2016c).
- Engineering Standard Practices related to environmental conditions include the following:
- **Engineering Standard Practice 512.1, Water Main Design Criteria.** The practice establishes criteria for design of water pipelines and establishes minimum requirements for pipeline construction materials (EBMUD, 2023h).

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- **Engineering Standard Practice 550.1, Seismic Design Requirements.** The practice minimum criteria for seismic design of all EBMUD facilities, including offices, operating centers, water and wastewater treatment plants, water and other liquids storage structures, pumping plants, retaining walls, underground vaults, pipelines, and other structures (EBMUD, 2018).
- **Procedure 600.** The procedure defines EBMUD practices for public outreach and notification, including advance notice prior to construction activities.

2.10 Permits and Approvals

Permits and authorizations that could be required for construction of the Project are listed in Table 2-9. Under Section 53091 of the California Government Code, local agency building and zoning ordinances do not apply to projects involving the location or construction of facilities for the production, generation, storage, treatment, or transmission of water. However, EBMUD's practice is to work with local jurisdictions and neighboring communities during Project planning, and to consider local environmental protection policies for guidance.

Table 2-9 Potentially Required Permits

Agency/Stakeholder	Type of Jurisdiction	Type of Approval
U.S. Army Corps of Engineers	Federal	Clean Water Act, Section 404 permit required for project-related fill within waters of the U.S., including wetlands
U.S. Fish and Wildlife Service	Federal	Section 7 consultation required for potential project effects on threatened, endangered, or candidate plant and wildlife species
State Historic Preservation Office	State	Section 106 consultation required for potential project effects on historic properties
California Department of Fish and Wildlife	State	Streambed Alteration Agreement required for potential project discharge of materials to any river, stream, or lake, including any activity that may substantially affect fish and wildlife resources
State Water Resources Control Board	State	National Pollution Discharge Elimination System (NPDES) Construction General Permit for construction disturbance greater than 1 acre
San Francisco Bay Regional Water Quality Control Board	State	Clean Water Act, Section 401 Water Quality Certification for potential project discharge of fill within waters of the U.S. and authorization for discharges to waters of the state, including wetlands, and a General Low-Threat Discharge Permit for dewatering discharge
Bay Area Air Quality Management District	State	Authority to Construct and Permit to Operate an ozone system

2 PROJECT DESCRIPTION

Agency/Stakeholder	Type of Jurisdiction	Type of Approval
California Division of Drinking Water	State	Domestic Water Supply Permit
Contra Costa County	County	Encroachment Permit
City of Richmond	City	Encroachment Permit
City of San Pablo	City	Encroachment Permit

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3 Environmental Setting, Impacts, and Mitigation Measures

3.0 Introduction and Environmental Analysis

3.0.1 Impacts Not Found to be Significant

In March 2022, EBMUD prepared an Initial Study (IS), to provide the public and Responsible and Trustee Agencies reviewing the Project with information about the Project's potential impacts on the environment. (refer to Appendix A). Based on the evaluation of impacts in the IS, it was determined that the Sobrante Water Treatment Plant Reliability Improvements Project (Project) would have no impacts and or less than significant impact on:

- Agriculture and Forestry
- Mineral Resources
- Population and Housing
- Public Services
- Recreation
- Utilities and Service Systems

A detailed discussion of these environmental resources has been excluded from the EIR. The IS evaluation also found that the project would have no impact on Land Use and Planning; however, the EIR includes an evaluation of impacts on Land Use and Planning resources due to comments from the public about the potential impacts on land use.

3.0.2 Organization of Chapter 3

The IS identified potentially significant impacts on 13 environmental resources that required further study to determine whether such impacts would be significant, and if so, whether they could be mitigated to less-than-significant levels. Based on the IS completed for the Project and comments from the public, the following 14 environmental resources are studied in detail in this Environmental Impact Report (EIR):

- 3.1 Aesthetics
- 3.2 Air Quality
- 3.3 Biological Resources
- 3.4 Cultural Resources
- 3.5 Energy
- 3.6 Geology, Soils, and Seismicity
- 3.7 Greenhouse Gas Emissions
- 3.8 Hazards and Hazardous Materials
- 3.9 Hydrology and Water Quality

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- 3.10 Land Use and Planning
- 3.11 Noise and Vibration
- 3.12 Transportation
- 3.13 Tribal Cultural Resources
- 3.14 Wildfire

3.0.3 Organization of Discussion of Environmental Resources

For each environmental resource, this EIR evaluates the environmental impacts of the Project. Sections 3.1 through 3.14 discuss the environmental impacts that may result with approval and implementation of the Project. The IS, provided in Appendix A, includes a discussion of all the other environmental resources and explains why the Project would have no impact or less than significant impact (e.g., Utilities and Service Systems) on those resources. Each environmental resource section contains the following components:

1. **Environmental Setting** describes the setting as related to a specific environmental resource. The setting information covers the areas that would be affected by the Project: the Sobrante Water Treatment Plant (SOWTP) site and surrounding neighborhood, the Cities of San Pablo and Richmond, and the unincorporated communities of El Sobrante and Rollingwood in Contra Costa County.
2. **Regulatory Framework** provides an overview of relevant federal, State, and local laws, regulations, ordinances, and East Bay Municipal Utility District (EBMUD) standard construction specifications, practices, and procedures applicable to each environmental resource.
3. **Impact Analysis** includes the following subsections:
 - a. Methodology for Analysis, which describes the approach used in analyzing the potential impacts;
 - b. Significance Criteria, based on those criteria identified in the IS Checklist in Appendix G of the State California Environmental Quality Act (CEQA) Guidelines but modified or supplemented as appropriate to address the Project impacts; and
 - c. Impacts and Mitigation Measures, which evaluates impacts and identification of mitigation measures, if needed (the impact analysis is presented by a numbered impact summary statement that corresponds to the environmental resource).

Each impact statement concludes with a determination of the level of significance before and after any identified mitigation measures are implemented. Impacts that would exceed identified threshold levels of significance criteria would be significant. In describing the significance of impacts, the following categories of significance are used:

- **Significant and Unavoidable.** Adverse environmental consequences that would exceed the significance criteria identified for the resource, even after feasible mitigation measures are applied and/or an adverse effect that could be significant and for which no feasible mitigation measure has been identified.

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- **Less than Significant with Implementation of Mitigation Measures.** Potentially significant adverse environmental consequences that could be reduced to less-than-significant levels through implementation of identified mitigation measures.
- **Less than Significant.** Potential adverse environmental consequences have been identified. However, they are not so adverse as to meet the significance criteria for the resource. Therefore, no mitigation measures are required.
- **No Impact.** No adverse environmental consequence would occur for the resource, or the consequences would be negligible or undetectable. Therefore, no mitigation measures are required.

3.0.4 Approach to Analysis to Cumulative Impacts

CEQA Requirements

CEQA requires consideration of cumulative impacts. A cumulative impact would occur when the Project evaluated in the EIR combined with other projects and caused related impacts. Cumulative impacts, as defined in Section 15355 of the State CEQA Guidelines, refer to two or more individual effects that, when considered together, are considerable, or that compound or increase other environmental impacts. The cumulative impact from several projects would be a change in the environment that would result from the incremental impact of the Project when added to other closely related past, present, or reasonably foreseeable future projects. Pertinent guidance for cumulative impact analysis is provided in Section 15130 of the State CEQA Guidelines, as follows:

- An EIR shall discuss cumulative impacts of a project when the project's incremental effect is "cumulatively considerable" (i.e., the incremental effects of an individual project are considerable when viewed in connection with effects of past, current, and probable future projects, including those outside the control of the agency, if necessary).
- An EIR should not discuss impacts where the project evaluated in the EIR would not contribute.
- The discussion of cumulative impacts shall reflect the severity of the impacts and their likelihood of occurrence, but the discussion need not be as detailed as it is for the effects attributable to the project alone.
- A project's contribution is less than cumulatively considerable, and thus not significant, 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 focus of analysis should be on the cumulative impact to which the identified other projects contribute, rather than on attributes of the other projects that do not contribute to the cumulative impact.

The cumulative impact analysis for each individual environmental resource is included at the end of the chapter for each resource.

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Approach to Analysis

For evaluation of cumulative impacts, this EIR uses a list of past, present, and probable future projects producing related or cumulative impacts, based on the time frame associated with Project construction, as described in Section 15130 of the State CEQA Guidelines. The cumulative analysis evaluates the potential for the Project and past, present, and probable future projects in the Project area or projected development to result in cumulative impacts. Because most of the impacts of the Project would occur during construction, the analysis of cumulative impacts focuses on other projects that could be constructed at the same time in the city of Richmond, city of San Pablo, and the unincorporated communities of Contra Costa County. Potential cumulative operational impacts are considered as appropriate.

Information about future planned development was obtained from the City of Richmond General Plan, City of San Pablo General Plan, County of Contra Costa General Plan, Contra Costa Transportation Authority, CEQANet, Caltrans, and EBMUD.

Cumulative Projects

Table 3.0-1 lists potential projects planned for construction in the general vicinity of the SOWTP and Central North Aqueduct pipeline. The locations of these projects are shown in Figure 3.0-1.

Table 3.0-1 Planned Projects in Vicinity of SOWTP and Central North Aqueduct Pipeline

	Planned Projects	Project Description	Construction Date
1	Central Pressure Zone Pipeline Location: City of Richmond and City of San Pablo Agency: EBMUD	A new 36-inch transmission pipeline will be installed on 23rd Street in the cities of Richmond and San Pablo. The preferred pipeline alignment is approximately 10,200 feet long and would connect to existing pipelines on Nevin Avenue in Richmond and Road 20 in San Pablo.	2034 to 2037
2	23rd Street Streetscape Improvements/23rd Street Commercial Corridor Location: City of Richmond Agency: City of Richmond	Improvement will occur on 23rd Street from Costa Avenue to Bissell Avenue.	Ongoing
3	Wildcat Pumping Plant/El Portal Drive at Road 20 Location: City of San Pablo Agency: EBMUD	A new 25-million-gallon-per-day Wildcat Pumping Plant will be constructed.	2026 to 2028
4	I-80/San Pablo Dam Road Interchange Improvements Location: City of San Pablo. County of Contra Costa Agency: Contra Costa Transportation Authority	The I-80/San Pablo Dam Road interchange will be reconstructed, including modifications to the El Portal Drive and McBryde Avenue ramps.	2025 to 2026

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	Planned Projects	Project Description	Construction Date
5	North Reservoir Replacement/ 2831 Moyers Drive Location: City of Richmond Agency: EBMUD	The 70-million-gallon open cut reservoir will be replaced with concrete tanks.	2033 to 2038
6	Pearl Pumping Plant Rehabilitation/ Barth Avenue and Capitol Hill Avenue, Richmond Location: City of Richmond Agency: EBMUD	The 0.3-million-gallon-per-day pumping plant in Richmond will be downsized and rehabilitated with new mechanical and electrical equipment.	2030 to 2033
7	Hilltop Plaza Upgrades/ I-80 and Richmond Parkway Location: City of Richmond Entity: Prologis	Development will be oriented along streets with medians and wide sidewalks. Narrower pedestrian-friendly roadways will connect existing and new open spaces and destinations. A network of new residential and neighborhood streets will support a centrally located community activity area. Open spaces such as Hilltop Lake Park and new neighborhood parks, and transit plazas and entry squares, can create enriched public areas that complement adjoining private areas. New development will create a highly visible and accessible regional retail and employment destination, complemented by higher density residential development. The changed area will grow as a major activity center and sales tax generator for the City, by adding density and intensity to the existing parking field.	Ongoing, as described in the City of Richmond General Plan
8	San Pablo Dam Road and Bailey Road Signal Hardware Upgrades Location: Contra Costa County Agency: Contra Costa Transportation Authority	Work generally consists of updating signal hardware including installing Advanced Dilemma Detection Zone systems, improve pedestrian crossing signal hardware, installing LED signal lights, and retroreflective backplates at nine intersections on San Pablo Dam Road between El Portal Drive and Castro Ranch Road and two intersections on Bailey Road from Willow Pass to Canal Road.	Winter 2023
9	Pinole Creek Bank Erosion Project Location: City of Pinole Agency: Contra Costa Public Works	The creek bank repairs will include excavation, soil off-haul, import fill, rock slope protection, water diversion, and cofferdams.	2024

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	Planned Projects	Project Description	Construction Date
10	San Pablo Avenue Bridge Replacement Location: City of Pinole Agency: City of Pinole	As part of the bridge replacement, alternative intersection configurations are to be analyzed to improve the safety and flow of motorists, transit, bicyclists, and pedestrians through this intersection. In addition, some improvements to San Pablo Creek, which flows under the intersection, may be incorporated into the project.	2026 to 2028
11	Water Treatment Plant Chemical Safety Systems Improvement Project Location: Contra Costa and Alameda County Agency: EBMUD	The project will design safety systems at Orinda, Lafayette, Walnut Creek, Sobrante, and Upper San Leandro WTPs and the Briones Disinfection Facility to address life safety and emergency response, systems, chemical spill prevention, workplace safety, and process reliability.	2023 to 2031
12	Verde Reservoir Rehabilitation/ Replacement end of Monte Verde Drive Location: Contra Costa County Agency: EBMUD	The existing 0.9-million-gallon steel reservoir will be rehabilitated or replaced.	2025 to 2027
13	Bob Dabney Plaza - New Mixed-Use Multi-Family Residential Development Location: City of Richmond Agency: City of Richmond	The project is a new five-story apartment building to be constructed on a 10,560-square-foot site located at 100 & 106 W. MacDonald Avenue. The Project will consist of four stories of residential space for a total of 36 units.	2024 to 2026
14	Richmond-San Rafael (RSR) Bridge Open Road Tolling (ORT) and I-580 Westbound High Occupancy Vehicle (HOV) Lane Project Location: City of Richmond (I-580 from PM 0.2 to PM 6.3) Agency: Bay Area Toll Authority (BATA)	The project would provide safety and operational improvements on westbound I-580 approaching the RSR Bridge by reinstating a previous westbound I-580 HOV lane through Richmond to encourage carpooling and transit ridership.	2024 to 2026
15	Olinda Road Crosswalk Improvements Project Location: Contra Costa County Agency: Contra Costa County	The project consists of constructing a new pedestrian crossing facility on Olinda Road between Archery Way and Castro Ranch Road. The project is approximately 70 feet east of Olinda Elementary School. The pedestrian crossing facility will consist of a crosswalk, a speed table, Americans with Disabilities Act (ADA) compliant curb ramps, and rectangular rapid flashing beacons.	2026

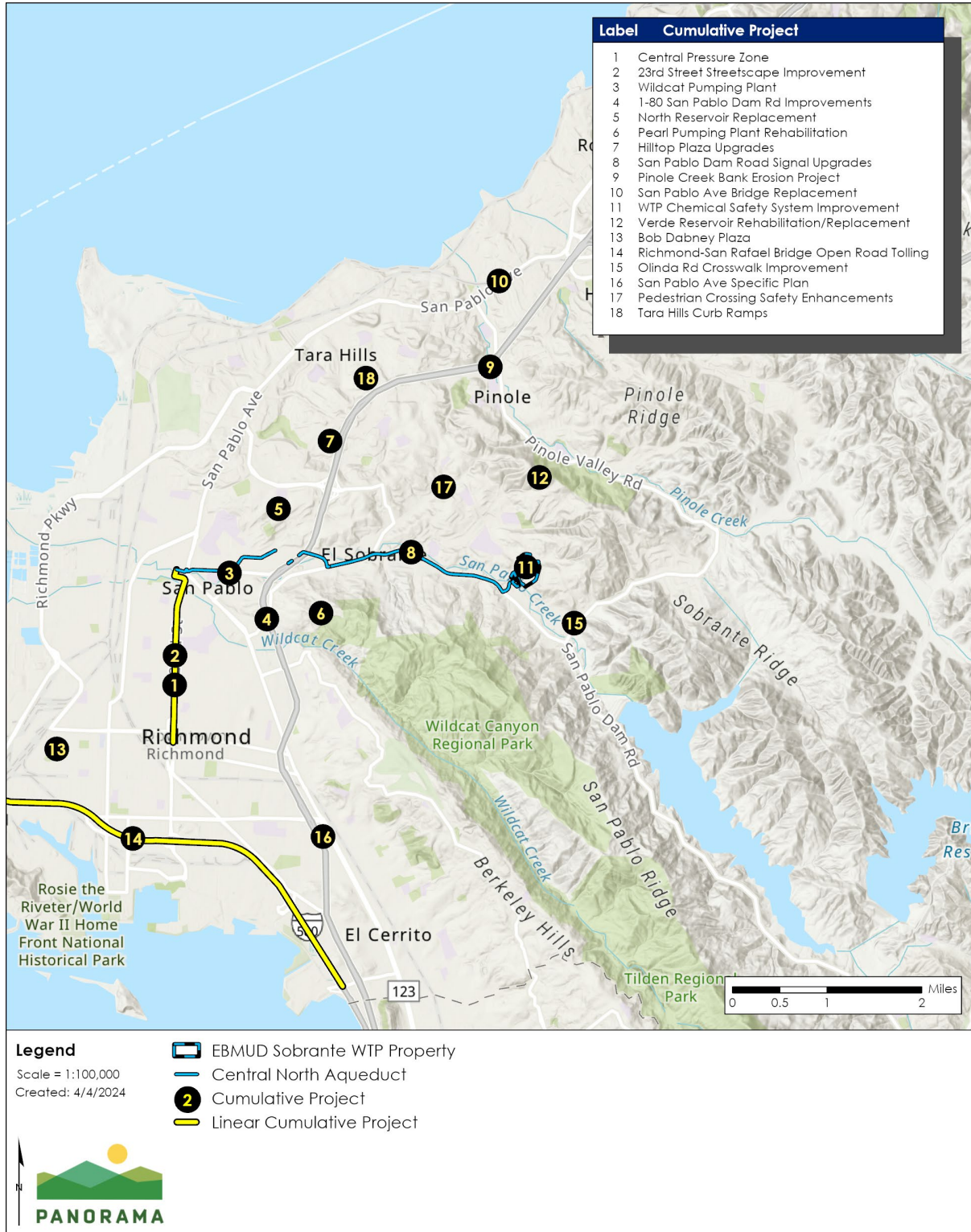
3 ENVIRONMENTAL ANALYSIS

	Planned Projects	Project Description	Construction Date
16	San Pablo Avenue Specific Plan – 1711-1755 Eastshore Blvd. Development Location: City of El Cerrito Agency: City of El Cerrito	The project would include the construction of a new 222,000 square foot, 6-story multi-family residential building with a total of 305 dwelling units, 63 auto parking spaces, bicycle parking, public open space, private open space, and various amenities for residents. Project impacts have been previously analyzed under the SPASP program EIR (2014) and the SPASP Supplemental EIR (2022), and no new significant impacts or substantially more severe significant impacts would result.	2024 - 2026
17	Pedestrian Crossing Safety Enhancements – Appian Way at Fran Way	The purpose of this project is to construct pedestrian crosswalk enhancements to improve pedestrian safety and to increase driver awareness at the existing crosswalk at the intersection of Appian Way and Fran Way in unincorporated El Sobrante. This project will ensure safe travel for pedestrians while maintaining other modes of transportation such as bicycling and transit.	Spring 2025
18	Curb Ramps – Tara Hills on Shawn Drive	The project consists of installing 12 curb ramps at selected intersections in the Tara Hills area. Improvements include removal and replacement of existing concrete valley gutter and asphalt concrete, removal and installation of thermoplastic pavement markings and installation of 1 rectangular rapid flashing beacons.	Summer 2024 to Fall 2024

Sources: (City of Richmond, 2022; City of Pinole, 2022; City of El Cerrito, 2022; EBMUD, 2024; Contra Costa Transportation Authority, 2024; Contra Costa County Public Works, 2022b; Contra Costa Public Works, 2022a; California Department of Transportation, 2024; Contra Costa Public Works, 2024; Contra Costa County, 2024)

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Figure 3.0-1 Location of Planned Projects



Sources: (City of Richmond, 2022; City of Pinole, 2022; City of El Cerrito, 2022; EBMUD, 2024; Contra Costa Transportation Authority, 2024; Contra Costa County Public Works, 2022b; Contra Costa Public Works, 2022a; California Department of Transportation, 2024; Contra Costa Public Works, 2024; Contra Costa County, 2024)

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3.1 Aesthetics

This section describes the physical, environmental, and regulatory setting for aesthetic resources, identifies the significance criteria for determining environmental impacts, and evaluates potential impacts on aesthetic resources that could result from implementation of the Project. This section includes photographs to show the existing visual conditions in the Project area from various public vantage points and visual renderings at different time periods after construction of the Project.

3.1.1 Environmental Setting

Concepts and Terminology

Terms used in the characterization of aesthetic conditions are defined as follows:

- Visual Character is the natural and human-made features of a site and general visual attributes. Visual character provides context for the public's perception of visual quality.
- Visual Quality is the overall visual impression or attractiveness of a site or locale as determined by specific elements (e.g., color, variety, vividness, coherence, uniqueness, harmony, pattern). For the aesthetic analysis, the visual quality of a site or locale is categorized in one of the following three levels:
 - Low—The location is lacking in natural or cultural visual resource amenities typical of the region. A site with low visual quality will have aesthetic elements that are perceptibly uncharacteristic of the surrounding area.
 - Moderate—The location is typical or characteristic of the region's natural or cultural visual amenities. A site with moderate visual quality maintains the visual character of the surrounding area, with aesthetic elements that do not stand out as either contributing to or detracting from the visual character of an area.
 - High—The location has visual resources that are unique or exemplary of the region's natural or cultural scenic amenities. A site with high visual quality is likely to stand out as particularly appealing and makes a notable positive contribution to the visual character of an area.
- Viewers include potentially affected individuals in the visual study area (defined below). Land uses that derive value from the quality of their settings are potentially sensitive to changes in visual conditions.
- Viewer Exposure is how visible a site is situated from public viewpoints. Viewer exposure considers some or all of the following factors: landscape visibility (i.e., the ability to see the landscape); viewing distance (i.e., the proximity of viewers to the Project); viewing angle (whether the Project would be viewed from a superior, inferior, or level line of sight); extent of visibility (whether the line of sight is open

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and panoramic to the Project area or restricted by terrain, vegetation, and/or structures); and duration of view.

- Visual Sensitivity indicates how susceptible a site is to visual change. Visual sensitivity is rated as high, moderate, or low, and is determined based on the combined factors of visual quality, viewer types, number of viewers, and viewer exposure to the Project. Higher visual sensitivity is associated with sites with a higher visual quality and with a greater potential for changes to degrade or detract from the visual character of a public view.
- Scenic Highways and Routes include any stretch of public roadway that is designated as a scenic corridor by a federal, state, or local agency.
- Scenic Vistas are designated viewing areas or areas known for high scenic quality. Scenic vistas may be designated by a federal, state, or local agency. Scenic vistas also can include an area that is designated, signed, and accessible to the public solely for viewing and sightseeing.

Regional Setting

The Project area is located within unincorporated Contra Costa County and the cities of Richmond and San Pablo. The Project vicinity is characterized by residential, commercial, and light industrial development with open space areas at Sobrante Ridge Regional Preserve and Wildcat Regional Park, visible in the hills north, south, and east of the Project area. The topography of the Project area is relatively flat, and the surrounding area is characterized by rolling hills and undeveloped open areas.

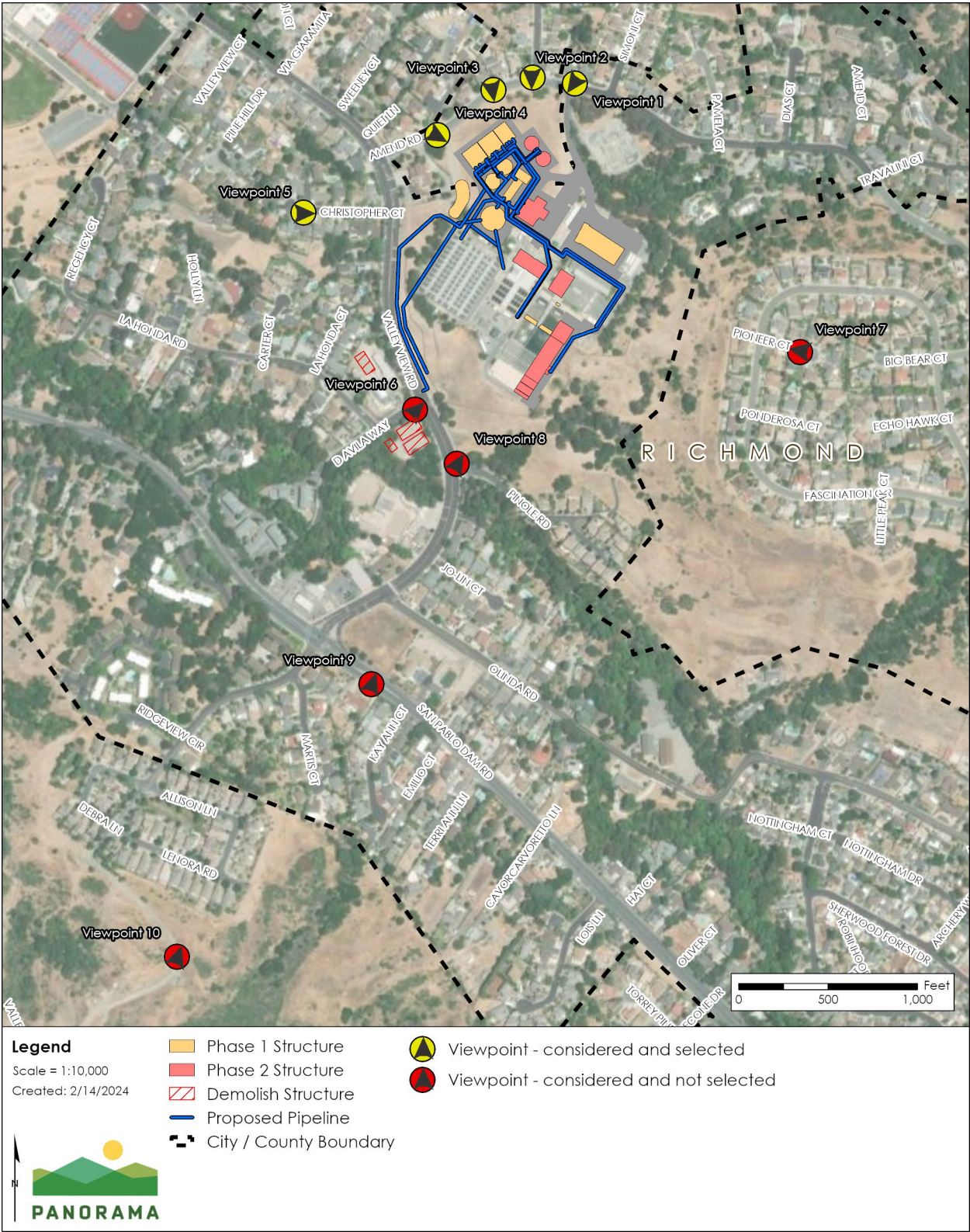
Visual Study Area

The area surrounding the SOWTP site is characterized visually by a combination of distant open space and suburban neighborhoods of single-family homes. The SOWTP site is screened or partially screened from some neighboring areas by topography and/or native trees, including blue elderberry, toyon, coast redwood, and manzanita, as well as trees observed in residential areas including strawberry trees, southern magnolia, and other fruit trees. The existing SOWTP facilities are set back from nearby homes along Heavenly Ridge Lane, Amend Road, and Christopher Court by an undeveloped portion of the SOWTP site.

A site reconnaissance of the Project area was performed in 2021, to identify the visual study area and take representative photographs of existing visual conditions; 9 public viewpoints were considered during the initial site reconnaissance. An additional public viewpoint was considered along Amend Road in 2022, in response to a public request for an additional viewpoint along Amend Road. No viewpoints were considered for the Central North Aqueduct pipeline because the pipeline would be buried underneath existing roadways. The viewpoints that were considered in the vicinity of the SOWTP site are shown on Figure 3.1-1 and photographs from these viewpoints are presented in Viewpoints 1 to 10.

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Figure 3.1-1 Location of Viewpoints



Source: (EBMUD, 2024)

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Viewpoint 1: Entry Road, Looking South



Viewpoint 2: Heavenly Ridge Road at Amend, Looking South



Viewpoint 3: Upper Amend Road, Looking South



Viewpoint 4: Lower Amend Road, Looking South



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Viewpoint 5: Christopher Court, Looking East



Viewpoint 6: Valley View Road, Looking Northeast



Viewpoint 7: View from Fascination Circle, Looking West



Viewpoint 8: View from Valley View Road, Looking North



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Viewpoint 9: San Pablo Dam Road, Looking North



Viewpoint 10: Valley View at Wildcat Canyon, Looking Northeast



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Consideration of Viewpoints

The 10 viewpoints that were identified during the initial site reconnaissance in 2021 and subsequent evaluation in 2022 were considered for their visual sensitivity, based on visual quality and viewer exposure. The visual sensitivity of each viewpoint is summarized in Table 3.1-1. Five viewpoints with the highest visual sensitivity to changes from the Project were selected for visual rendering and detailed analysis. The selected viewpoints are discussed in detail in the Project setting that follows.

Table 3.1-1 Visual Sensitivity

Viewpoint	Approximate Distance from Project Site ^a	Visual Quality	Viewer Exposure	Visual Sensitivity
Viewpoint 1	Adjacent	Moderate. Dominant public views include the SOWTP, public roads, hillside, and landscaping.	Low to moderate. Short duration and low exposure for motorists and cyclists, and longer duration and moderate exposure for pedestrians.	Moderate. Moderate visual quality and viewer duration. Direct views of the Project area. Viewpoint selected for analysis.
Viewpoint 2	Adjacent	Moderate. Dominant public views include landscaping, public roads, SOWTP, and hillside.	Low to moderate. Short duration and low exposure for motorists and cyclists, and longer duration and moderate exposure for pedestrians.	Moderate. Moderate visual quality and viewer duration. Direct views of the Project area. Viewpoint selected for analysis.
Viewpoint 3	Adjacent	Moderate. Dominant public views include undeveloped land, SOWTP, and hillside.	Low to moderate. Short duration and low exposure for motorists and cyclists, and longer duration and moderate exposure for pedestrians.	Moderate. Moderate visual quality and viewer duration. Direct views of the Project area. Viewpoint selected for analysis.
Viewpoint 4	Adjacent	Moderate. Dominant public views include public roads, open field, landscaping, and hillside.	Low to moderate. Short duration and low exposure for motorists and cyclists, and longer duration and moderate exposure for pedestrians.	Moderate. Moderate visual quality and viewer duration. Direct views of the Project area. Viewpoint selected for analysis.
Viewpoint 5	0.1 mile	Moderate. Dominant public views include public roads, landscaping, and residential structures.	Low to moderate. Short duration and low exposure for motorists and cyclists, and longer duration and moderate exposure for pedestrians.	Low. Views of the Project area would be in the middle ground and partially screened by landscaping and buildings in the foreground. Viewpoint selected for analysis.
Viewpoint 6	Adjacent	Low. Dominant public views include	Very low. With the exception of the	None. Project facilities would not be visible from

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Viewpoint	Approximate Distance from Project Site ^a	Visual Quality	Viewer Exposure	Visual Sensitivity
		the public road and sidewalk, grassy hillslope and trees, fencing, landscaping, and utility poles and lines.	roadways for the buried Central North Aqueduct pipeline, the Project area is not visible from the public viewpoint.	the public viewpoint. Therefore, the viewpoint was not selected.
Viewpoint 7	0.15 mile	Moderate. Dominant public views include the public road, sidewalk, landscaping, and residential structures.	None. The Project area is not visible from the public viewpoint.	None. Project facilities would not be visible from the public viewpoint. Therefore, the viewpoint was not selected.
Viewpoint 8	Adjacent	Low. Dominant public views include the grassy hillslope, public road, landscaping, and residential structures.	None The Project area is not visible from the public viewpoint.	None. Project facilities would not be visible from the public viewpoint. Therefore, the viewpoint was not selected.
Viewpoint 9	0.25 mile	Low. Dominant public views include the public road, fencing, residential structures, landscaping, and the hillsides in the background.	Very low Limited public views of the Project area Phase 2 facilities are in the middle ground.	Very low. Phase 1 Project facilities would not be visible from the public vantage point. Phase 2 Project facilities would have very limited visibility within the context of the existing SOWTP infrastructure and would be at a distance from the public viewpoint. Therefore, the viewpoint was not selected.
Viewpoint 10	0.5 mile	Moderate. Dominant public views include the open space and scattered residential structures.	Very Low. From the distance of the public viewpoint, the Project area is not easily discernible in the background.	Very low. Project facilities would have very limited public visibility from the viewpoint and would be at a distance. Therefore, the viewpoint was not selected.

Notes:

- ^a Distance from the SOWTP property boundaries. Does not reflect the distance to the Project facilities that would be constructed.

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Selected and Scenic Viewpoints

Viewpoint 1 – Entry Road

Viewpoint 1 is located along the entrance road to the SOWTP site from Amend Road between Heavenly Ridge Lane and Simon Court, looking south.

Visual Character

A view of the Project site is shown in the photo of Viewpoint 1. The foreground includes the crash barrier, signs marking the SOWTP site, surrounding native and non-native trees, grassland, roadway, and shrubs. Views of the existing structures at the SOWTP are visible in the middle ground and are somewhat screened by topography and vegetation. Views of hills and open space areas are visible in the background and backdrop the views of the existing SOWTP structures. Viewpoint 1 is on a higher elevation than the SOWTP site and looks south to the existing SOWTP facilities.

Visual Quality

Viewpoint 1 has moderate visual quality, with undeveloped areas in portions of the view mixed with different architectural elements, including the crash barrier in the foreground and white SOWTP structures in the middle ground. The existing SOWTP structures are minimally screened by native and non-native trees, and the adjacent Pacific Gas and Electric Company (PG&E) substation is screened from view by topography. Although the existing SOWTP facilities are the primary man-made structures visible from Viewpoint 1, they are low profile and in the middle ground view. The open space in the background is a backdrop to the man-made structures in the view and improves the general visual quality of the area.

Viewer Exposure

Views from Viewpoint 1 would be experienced by the public when driving, walking, or biking along Amend Road, which extends along the northern boundary of the SOWTP site. Exposure would be low for motorists and cyclists, and moderate for pedestrians. Motorists and cyclists generally would be focused on the road conditions in front of them and less likely to be focused on side-angle views of the Project. Pedestrians would have a longer duration for viewing as they walked along the sidewalk across from the entryway.

Visual Sensitivity Conclusion

The visual quality of Viewpoint 1 is moderate, and the exposure conditions are low to moderate. The visual sensitivity to changes in the foreground or middle ground view would be moderate because of the moderate visual quality and viewer duration.

Viewpoint 2 – Heavenly Ridge Lane

Viewpoint 2 is located at the intersection of Heavenly Ridge Lane and Amend Road, across Amend Road from the SOWTP property and within a suburban neighborhood, looking south.

Visual Character

A view of the Project site is shown in the photo of Viewpoint 2. The view includes the neighborhood roadways, curb, sidewalk, and trees and grassland in the foreground. White

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SOWTP infrastructure is visible in the middle ground, screened partially by trees along Amend Road. The backdrop to the structure is views of the open space on the hills. Viewpoint 2 is on a higher elevation than the SOWTP site and looks south toward the SOWTP site.

Visual Quality

Viewpoint 2 has moderate visual quality, with views of the roadway and trees along Amend Road dominating in the foreground. The existing SOWTP structures are the dominant features that are visible in the middle ground because of the color contrast of the white structures with the open space in the background. The open space in the background is a backdrop to the man-made structures in the view and increases the general visual quality of the area.

Viewer Exposure

Views from Viewpoint 2 would be experienced by the public when driving, biking, or walking along Heavenly Ridge Lane and Amend Road. Exposure would be low for motorists and cyclists, and moderate for pedestrians. Motorists generally would be focused on the road and driving conditions in front of them and less likely to be focused on views of the SOWTP. Pedestrians would have a longer duration for viewing as they walked along the sidewalk on Heavenly Ridge Lane and Amend Road.

Visual Sensitivity Conclusion

The visual quality of Viewpoint 2 is moderate, and the exposure conditions are low to moderate. Therefore, visual sensitivity to changes in the foreground or middle ground would be moderate because of the moderate visual quality and viewer duration.

Viewpoint 3 – Amend Road High

Viewpoint 3 is along Amend Road, directly adjacent to the SOWTP site and looking south.

Visual Character

A view of the Project site is shown in the photo of Viewpoint 3. Grassland and trees are in the foreground. The white SOWTP infrastructure that is visible in the middle ground is partially screened by trees along Amend Road. The existing SOWTP infrastructure is backdropped by views of open space in the hills, with some development to the southeast. Viewpoint 3 is at a higher elevation than the existing facilities and looks south toward the SOWTP site.

Visual Quality

Viewpoint 3 has moderate visual quality, with views of the grassland and trees in the foreground. The existing white SOWTP infrastructure is visible in the middle ground, which contrasts with the open space areas in the background. In the background, the open space in the hills is a backdrop to the man-made structures in the view and increases the general visual quality of the area.

Viewer Exposure

Views from Viewpoint 3 would be experienced by the public when driving, biking, or walking along Amend Road. Exposure would be low for motorists and cyclists as their attention would

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be on the roadway more than on the side view, while exposure would be moderate for pedestrians who may be walking around the area.

Visual Sensitivity Conclusion

The visual quality of Viewpoint 3 is moderate, and the exposure conditions are low to moderate. Therefore, the visual sensitivity to changes in the foreground or middle ground view would be moderate because of the moderate visual quality and viewer duration.

Viewpoint 4 – Amend Road Low

Viewpoint 4 is along Amend Road, northwest of the SOWTP site.

Visual Character

A view of the Project site is shown in the photo of Viewpoint 4 and includes neighborhood roadways, the curb, trees, SOWTP unpaved access road, and grassland in the foreground. Residential development on the hills and open space areas is visible in the middle ground and background. Some power poles are skylined in the view because the viewpoint looks up, toward the hill slopes. Viewpoint 4 also looks south toward the SOWTP site.

Visual Quality

Viewpoint 4 has moderate visual quality, with views of the grasslands and unpaved access road dominating in the foreground. The trees and scattered residences are the dominant features in the middle ground. The visual quality is moderate because of the limited man-made structures that are visible, but the view includes power poles along the hill slope.

Viewer Exposure

Views from Viewpoint 4 would be experienced by the public when driving, biking, or walking. Exposure would be low for motorists and cyclists, and moderate for pedestrians. Motorists generally would be focused on the road and driving conditions and less likely to be focused on views of the SOWTP site. Pedestrians would have a longer duration for viewing the SOWTP site as they walk along Amend Road.

Visual Sensitivity Conclusion

The visual quality of Viewpoint 4 is moderate, and the exposure conditions are low to moderate. Therefore, the visual sensitivity to changes in the foreground or middle ground view would be moderate because of the moderate visual quality and viewer duration.

Viewpoint 5 – Christopher Court

Viewpoint 5 is located in the middle of Christopher Court, looking east to the SOWTP site.

Visual Character

A view of the Project site is shown in the photo of Viewpoint 5. The foreground includes views of residential single-family houses, neighborhood roadways, curbs, sidewalks, and trees. Grasslands and the Richmond Fire Station property are visible in the middle ground. Open space and scattered residences on the hills are visible in the background. Viewpoint 5 is at a higher elevation than the SOWTP site and looks east toward the SOWTP site.

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Visual Quality

Viewpoint 5 has moderate visual quality, with man-made structures including residential single-family houses, neighborhood roadways, curbs, sidewalks, and trees dominating the view in the foreground. Grasslands and the Richmond Fire Station property are visible in the middle ground. The open space in the hills in the background generally improves the visual quality.

Viewer Exposure

Viewpoint 5 would be experienced by the public when driving, biking, or walking along Christopher Court. Exposure would be low for motorists and cyclists because it would be short duration, while exposure would be moderate for pedestrians walking along the road. The existing vegetation and structures in the view partially screen views of the SOWTP site and reduce the view exposure.

Visual Sensitivity Conclusion

The visual sensitivity to changes in the middle ground view of the SOWTP site would be low, because of the limited number of viewers traveling along Christopher Court, the generally short duration for viewing while traveling along Christopher Court, the distance to the SOWTP site, and the screening of views by vegetation and existing development.

Scenic Vistas

Contra Costa County scenic vistas in the Project vicinity include (1) scenic ridges, hillsides, and rock outcroppings; and (2) the San Francisco Bay/Delta estuary system (Contra Costa County, 2010). The Project area is not visible from the San Francisco Bay/Delta estuary system. The Project area is not visible from any scenic vistas in Sobrante Ridge Regional Park or Kenney Grove Regional Recreation Area due to intervening topography and vegetation. The SOWTP is visible from San Pablo Ridge, located approximately 2.7 miles south of the existing SOWTP and the Old Nimitz Trail, located approximately 0.57 miles south of the existing SOWTP, which are considered scenic vistas.

Scenic Highways and Routes

No designated or eligible state scenic highways are in proximity to the Project area. Contra Costa County has designated all of San Pablo Dam Road as a scenic route (Contra Costa County, 2005).

Lighting and Glare

Sources of light in the Project vicinity include streetlights, lighting at the existing SOWTP facilities, vehicle headlights, and lighting on residential structures, commercial buildings, and parking lots.

Glare primarily is a daytime occurrence, caused by the reflection of sunlight or artificial light from highly polished surfaces, such as window glass or reflective materials, and to a lesser degree, from broad expanses of light-colored surfaces. Glare also can be produced during evening and nighttime hours by artificial light that is directed toward a light-sensitive land use. Existing sources of glare in the Project vicinity include windows and metallic objects at the

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SOWTP and in the adjacent residential areas as well as residences and commercial buildings along the proposed Central North Aqueduct.

3.1.2 Regulatory Framework

This section describes federal, state, and local policies and regulations related to aesthetics.

Federal Policies and Regulations

No applicable federal regulations are related to aesthetics.

State Regulations

California State Scenic Highway Program

The California Scenic Highway Program, maintained by the California Department of Transportation (Caltrans), was created by the State Legislature in 1963. The purpose of the program is to protect and enhance the natural scenic beauty of California highways and adjacent corridors through special conservation treatment. State laws governing the Scenic Highway Program are included in Sections 260 through 263 of the Streets and Highways Code. A highway may be designated as scenic depending on how much of the natural landscape can be seen by travelers, the scenic quality of the landscape, and the extent to which development intrudes on the traveler's enjoyment of the view. The State Scenic Highway System includes a list of highways that either are eligible for designation as scenic highways or have been officially designated. The status of a proposed state scenic highway changes from eligible to officially designated when 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 as a Scenic Highway.

Local Regulations

Under Section 53091 of the California Government Code, local agency building and zoning ordinances do not apply to projects involving the location or construction of facilities for the production, generation, storage, treatment, or transmission of water. However, EBMUD's practice is to work with local jurisdictions and neighboring communities during project planning, and to consider local environmental protection policies for guidance.

Contra Costa County General Plan

The *Contra Costa County General Plan* ((Contra Costa County, 2020; Contra Costa County, 2005) serves as the applicable general plan document for the area in which the Project site is located. The *Contra Costa County General Plan* Land Use Element contains the following contains the following goals and policies relevant to aesthetics (Contra Costa County, 2005):

Goal 3-G: To discourage development on vacant rural lands outside of planned urban areas which is not related to agriculture, mineral extraction, wind energy, or other appropriate rural uses; discourage subdivision down to minimum parcel size of rural lands that are within, or accessible only through, geologically unstable areas; and to protect open hillsides and significant ridgelines.

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Policy 3-12: Preservation and buffering of agricultural land should be encouraged as it is critical to maintaining a healthy and competitive agricultural economy and assuring a balance of land uses. Preservation and conservation of open space, wetlands, parks, hillsides, and ridgelines should be encouraged as it is crucial to preserve the continued availability of unique habitats for wildlife and plants, protect unique scenery, and provide a wide range of recreational opportunities for county residents.

The *Contra Costa County General Plan Conservation Element* contains the following goals and policies relevant to aesthetics (Contra Costa County, 2005):

Policy 8-1: Resource utilization and development shall be planned within a framework of maintaining a healthy and attractive environment.

Policy 8-21: The planting of native trees and shrubs shall be encouraged in order to preserve the visual integrity of the landscape, provide habitat conditions suitable for native wildlife, and ensure that a maximum number and variety of well-adapted plants are sustained in urban areas.

The *Contra Costa County General Plan Open Space Element* contains the following goals and policies relevant to aesthetics (Contra Costa County, 2005):

Goal 9-A: To preserve and protect the ecological, scenic, cultural/historic, and recreational resource lands of the county.

Policy 9-2: Historic and scenic features, watersheds, natural waterways, and areas important for the maintenance of natural vegetation and wildlife populations shall be preserved and enhanced.

Policy 9-4: Where feasible and desirable, major open space components shall be combined and linked to form a visual and physical system in the county.

The *Contra Costa County General Plan Transportation and Circulation Element* defines scenic routes as roads, streets or freeways that traverse scenic corridors of a relatively high visual or cultural value. It consists of both the scenic corridor and the public right-of-way. The closest scenic route to the Project area is San Pablo Dam Road. The Transportation and Circulation Element contains the following goals and policies relevant to aesthetics (Contra Costa County, 2005)

Goal 5-P: To identify, preserve and enhance scenic routes in the County.

Policy 5-47: Scenic corridors shall be maintained with the intent of protecting attractive natural qualities adjacent to various roads throughout the county.

Policy 5-49: Scenic views observable from scenic routes shall be conserved, enhanced, and protected to the extent possible.

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Policy 5-51: Multiple recreation use, including trails, observation points, and picnicking spots, where appropriate, shall be encouraged along scenic routes.

Policy 5-53: Design flexibility shall be encouraged as one of the governing elements for aesthetic purposes in the construction of roads within the scenic corridor.

Policy 5-54: For lands designated for urban use along scenic routes, planned unit developments shall be encouraged in covenant with land development projects.

Policy 5-55: Provide special protection for natural topographic features, aesthetic views, vistas, hills and prominent ridgelines at "gateway" sections of scenic routes. Such "gateways" are located at unique transition points in topography or land use, and serve as entrances to regions of the County.

Policy 5-56: Aesthetic design flexibility of development projects within a scenic corridor shall be encouraged.

City of Richmond General Plan

The *City of Richmond General Plan* does not designate scenic vistas. The Conservation, Natural Resources, and Open Space Element of the General Plan (City of Richmond, 2011) defines how the City of Richmond will sustain a healthy network of open space and natural resources. *City of Richmond General Plan* Conservation Element contains the following goal, relevant to aesthetics (City of Richmond, 2012):

Goal CN2: Conserved Open Space. Conserve open space to ensure that Richmond's expansive shoreline, network of parklands, trails, hillsides, and undeveloped natural areas remain viable in supporting biological communities and providing sanctuary for future generations. Conserve open space, expand public access to open space, where appropriate, and acquire additional lands where feasible. Continue to protect surrounding hills and viewsheds as character-defining features that provide scenic backdrops, as well as publicly accessible trails and vistas.

City of Richmond Municipal Code

Article 15.04.604, Lighting and Illumination, of the City of Richmond Zoning Ordinance controls outdoor lighting and reduces impacts related to excessive lighting and glare, to maintaining adequate visibility and safety, and to conserving energy (City of Richmond, 1988).

City of San Pablo General Plan

The *San Pablo General Plan 2030* (City of San Pablo, 2011) serves as the applicable general plan document for the area in which the Project site is located. Relevant goals and policies in *San Pablo General Plan 2030* Land Use and Physical Design Element are listed as follows (City of San Pablo, 2011):

LU-I-9: Encourage new residential, commercial, and related forms of development in a manner which fosters both day and appropriate nighttime activity; visual presence on the street level; appropriate lighting; and minimally obstructed view areas.

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Relevant policies in the *San Pablo General Plan 2030* Open Space and Conservation Element are as follows (City of San Pablo, 2011):

OSC-I-2: Continue to identify, preserve, and enhance scenic vistas to and from hillside areas and other visual resources. New development should be designed to minimize obstructions of scenic vistas and preserve or enhance important attributes of view corridors.

OSC-I-7: Preserve and protect undeveloped hillside areas for their potential habitat value and as a visual and open space resource.

EBMUD Standard Construction Specifications

EBMUD's Standard Construction Specifications and Procedures apply to all contractors completing work for EBMUD, and to work completed by EBMUD staff. The following EBMUD practices and procedures are applicable to aesthetics:

- **EBMUD Standard Construction Specification 01 32 36, Video Monitoring and Documentation, Sections 1.1, 1.2, and 3.1(C)**

EBMUD Standard Construction Specification 01 31 36, Video Monitoring and Documentation, requires the contractor to provide audio-video recording of the project (EBMUD, 2017b):

- Section 1.1, Summary
 - Audio-video documentation utilizing digital recording of surface features, supplemented by photography, which may be taken along the entire length of the project and may include work and storage areas, adjacent properties, and/or intersecting roadways.
 - Prior to audio-video recording of the project, all areas to be inventoried shall be investigated visually with notations made of items not readily visible by audio-video recording or supplemental photographic methods
- Section 1.2, Site Survey Audio Video Recording Requirements
 - The Contractor shall employ a qualified videographer, experienced in taking properly documented and annotated video to perform the Pre-Construction Site Survey, which shall be completed within 20 days after the issuance of the Notice to Proceed. The Pre-Construction Site Survey shall be completed and accepted prior to EBMUD issuance of the Notice to Commence Field Work (NTCFW).
 - Prior to commencement of the Pre-Construction Site Survey recording, the Contractor shall notify EBMUD in writing within 48 hours of the recording. EBMUD will provide a designated representative to accompany and observe audio-video recording operations. Audio-video recording completed without a District Representative present will be unacceptable unless specifically authorized in writing and in advance by EBMUD.
 - Provide a copy of the Pre-Construction Site Survey to EBMUD for review and comment. The Survey shall include all audio-video recordings, photography, annotations and all documentation. If EBMUD determines that critical areas are

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missing from the survey, the Contractor shall provide additional recording and documentation of the requested area and locations.

- Post-Construction Site Survey: The Contractor shall perform a Post-Construction Site Survey of the same areas recorded in the Pre-Construction Site Survey following the same path/route of the Pre-Construction Site survey. EBMUD will review post-construction survey findings with the Contractor and develop a complete listing of project site restoration requirements to be accomplished by the Contractor. Prior to commencement of Post-Construction Site Survey recording, the Contractor shall notify EBMUD in writing within 48-hours of the recording. EBMUD will provide a designated representative to accompany and observe audio-video recording operations. Audio-video recording completed without an EBMUD Representative present will be unacceptable unless specifically authorized in writing and in advance by EBMUD.
- The Contractor shall be responsible for repairing any damage or defects not documented as existing prior to construction.
- Section 3.1(C), Views and Narratives Required
 - Such coverage may include, but not be limited to, existing driveways, sidewalks, pavement, curbs, gutters, ditches, berms, roadways, landscaping, trees, culverts, headwalls, and retaining walls, fencing, gates, handrails, signage, manholes, vaults, utility boxes, lighting, traffic signals and controls, loop detectors, landscaping, irrigation controllers, street furniture, buildings, equipment, appurtenances, structures, and other existing features etc. located within the work zone.
- **EBMUD Standard Construction Specification 01 35 44, Environmental Requirements, Sections 1.1(B), and 3.9(A).**

EBMUD Standard Construction Specification 01 35 44, Environmental Requirements sets forth the contract requirements for environmental compliance to which construction crews must adhere, including provisions for site maintenance and lighting. Specific planning documents and procedures related to aesthetics that are required by EBMUD are described as follows (EBMUD, 2023):

- Section 1.1(B), Site Activities
 - Following completion of Work, remove ditches, dikes, or other ground alterations made by the Contractor. The ground surfaces shall be returned to their former condition, or as near as practicable, in EBMUD's opinion.
 - Prevent visible dust emissions from leaving the work areas.
- Section 3.9(A), Lighting Used During Nighttime Work
 - Ensure that temporary stationary lighting used during nighttime construction is only used when needed. All lighting used for nighttime construction shall be designed, installed, and operated to minimize glare that affects traffic near the work zone or that causes annoyance or discomfort for residences near the work

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zone. Lighting fixtures shall be shielded, located, and aimed to provide the required level of illumination and uniformity in the work zone without the creation of unnecessary glare.

- **EBMUD Standard Construction Specification 01 35 45, Biological, Cultural, and Paleontological Resource Requirements Sections 3.2(B)**

EBMUD Standard Construction Specification 01 35 45, Biological, Cultural, and Paleontological Resources Requirements sets forth the contract requirements for environmental compliance to which construction crews must adhere, including provisions for tree protection. Specific planning documents and procedures related to aesthetics that are required by EBMUD are described as follows (EBMUD, 2023a).

- Section 3.2(B), Tree Protection
 - Locations of trees to be removed and protected are shown in the construction drawings. Pruning and trimming shall be completed by the Contractor and approved by EBMUD. Pruning shall adhere to the Tree Pruning Guidelines of the International Society of Arboriculture.
 - Erect exclusion fencing five feet outside of the drip lines of trees to be protected. Erect and maintain a temporary minimum 3-foot high orange plastic mesh exclusion fence at the locations as shown in the drawings. The fence posts shall be six-foot minimum length steel shapes, installed at 10-feet minimum on center, and be driven into the ground. The Contractor shall be prohibited from entering or disturbing the protected area within the fence except as directed by EBMUD. Exclusion fencing shall remain in place until construction is completed and EBMUD approves its removal.
 - No grading, construction, demolition, trenching for irrigation, planting or other work, except as specified herein, shall occur within the tree protection zone established by the exclusion fencing installed shown in the drawings. In addition, no excess soil, chemicals, debris, equipment or other materials shall be dumped or stored within the tree protection zone.
 - In areas that are within the tree drip line and outside the tree protection zone that are to be traveled over by vehicles and equipment, the areas shall be covered with a protective mat composed of a 12-inch thickness of wood chips or gravel and covered by a minimum ¾-inch-thick steel traffic plate. The protective mat shall remain in place until construction is completed and EBMUD approves its removal.
 - Tree roots exposed during trench excavation shall be pruned cleanly at the edge of the excavation and treated to the satisfaction of the Certified Arborist.
 - Any tree injured during construction shall be evaluated as soon as possible by the Certified Arborist, and replaced as deemed necessary by the Certified Arborist.

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- **EBMUD Standard Construction Specification 01 74 05, Cleaning, Section 3.2(B) and 3.3(K)**

EBMUD Standard Construction Specification 01 74 05, Cleaning, sets forth the contract requirements for cleaning of job sites, including controls onsite related to maintaining cleanliness. Measures related to aesthetics during construction, are described as follows (EBMUD, 2023b):

- Section 3.2(B), Cleaning During Construction
 - Dispose of all refuse off EBMUD property as often as necessary so that at no time shall there be any unsightly or unsafe accumulation of rubbish.
- Section 3.3(K), Final Cleaning
 - Remove from EBMUD property all temporary structures and all material, equipment, and appurtenances not required as a part of, or appurtenant to, the completed work.

3.1.3 Impact Analysis

Methodology for Analysis

Aesthetic resources generally are defined as the natural and built landscape that is visible from public views. As described above, visual character is a combination of the natural landscape (e.g., topography, vegetation, landforms) and built features (e.g., roads, buildings, structures). The visual quality impact analysis is based on field observations, along with photographs from the Project area, Project maps, visual simulations of Project elements, and other relevant data in the record. The impact analysis identifies potential temporary (short-term) and permanent (long-term) impacts on scenic vistas or the visual character and quality of the Project site as seen from various public viewpoints in the Project vicinity.

Visual simulations and renderings were prepared as part of the SOWTP Aesthetics Conceptual Design Report, provided in Appendix D. Figures 3.1-2 through 3.1-21 show the existing view, the view immediately after construction (Year 0), the views approximately 5 years after construction (Year 5) with a moderate level of tree and shrub growth, and the views approximately 10 years after construction (Year 10) of Project facilities from the five selected viewpoints. Year 10 visual simulations include simulations of Phase 2 infrastructure because the infrastructure would be constructed more than 10 years after Phase 1, when tree and shrub growth would have reached maturity. The Project would add new landscaping that would include installation of trees, shrubs, and berms at varying heights to screen views of SOWTP Phase 1 and Phase 2 infrastructure. Significance Criteria

Consistent with Appendix G of the *CEQA Guidelines*, an impact on aesthetics would be considered significant if the Project would:

1. Have a substantial adverse effect on a scenic vista.
2. Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway.

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3. In nonurbanized areas, substantially degrade the existing visual character or quality public views of the of the site and its surroundings (public views are those that are experienced from publicly accessible vantage points), or in an urbanized area, conflict with applicable zoning and other regulations governing scenic quality.
4. Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area.

The approach to evaluating the effects of the Project under each CEQA significance criterion is briefly clarified as follows:

- ***Have a substantial adverse effect on a scenic vista.*** This criterion applies only to projects that would be on or disrupt access to a scenic vista or would result in visual changes within the scenic vista's viewshed. Scenic vistas may be recognized officially or designated (e.g., within local planning documents or the Caltrans Scenic Highway Program), or the scenic vista may be informal (e.g., mountain peaks or coastal bluffs). Effects would be considered substantial if the Project would appreciably damage or remove the visual qualities that make the view unique, unobstructed, and/or exemplary.
- ***Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway.*** Damage to a scenic resource would be substantial if the damage would be reasonably perceptible to affected viewers, as seen from a scenic highway, and when the damage would degrade appreciably one or more of the aesthetic qualities contributing to a scenic setting.
- ***In nonurbanized areas, substantially degrade the existing visual character or quality of public views of the of the site and its surroundings (public views are those that are experienced from publicly accessible vantage points), or in an urbanized area, conflict with applicable zoning and other regulations governing scenic quality.*** Degradation of visual character or quality of public views would be considered substantial if the Project would appreciably alter, impede, or remove the characteristics that provide high visual quality.
- ***Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area.*** New sources of light or glare would have substantial adverse effects on views in the area if they are new nighttime lighting or create substantial glare from structures or finishes.

Figure 3.1-2 Existing View of the Project Site from SOWTP Viewpoint 1



Figure 3.1-3 Visual Simulation of the Project Site from SOWTP Viewpoint 1 – Year 0



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Figure 3.1-4 Visual Simulation of the Project Site from SOWTP Viewpoint 1 –Year 5



Figure 3.1-5 Visual Simulation of the Project Site from SOWTP Viewpoint 1 –Year 10



Figure 3.1-6 Existing View of the Project Site from SOWTP Viewpoint 2



Figure 3.1-7 Visual Simulation of the Project Site from SOWTP Viewpoint 2 – Year 0



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Figure 3.1-8 Visual Simulation of the Project Site from SOWTP Viewpoint 2 – Year 5



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Figure 3.1-9 Visual Simulation of the Project Site from SOWTP Viewpoint 2 – Year 10



Figure 3.1-10 Existing View of the Project Site from SOWTP Viewpoint 3



Figure 3.1-11 Visual Simulation of the Project Site from SOWTP Viewpoint 3 – Year 0



Figure 3.1-12 Visual Simulation of the Project Site from SOWTP Viewpoint 3 – Year 5



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Figure 3.1-13 Visual Simulation of the Project Site from SOWTP Viewpoint 3 –Year 10



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Figure 3.1-14 Existing View of the Project Site from SOWTP Viewpoint 4



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Figure 3.1-15 Visual Simulation of the Project Site from SOWTP Viewpoint 4 – Year 0



Figure 3.1-16 Visual Simulation of the Project Site from SOWTP Viewpoint 4 –Year 5



Figure 3.1-17 Visual Simulation of the Project Site from SOWTP Viewpoint 4 –Year 10



Figure 3.1-18 Existing View of the Project Site from SOWTP Viewpoint 5



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Figure 3.1-19 Visual Simulation of the Project Site from SOWTP Viewpoint 5 – Year 0



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Figure 3.1-20 Visual Simulation of the Project Site from SOWTP Viewpoint 5 –Year 5



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Figure 3.1-21 Visual Simulation of the Project Site from SOWTP Viewpoint 5 – Year 10



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Impacts and Mitigation Measures

Impact AES-1: Have a substantial adverse effect on a scenic vista. (*Criterion 1*)

The proposed SOWTP facilities would not be visible from Sobrante Ridge Regional Park, approximately 0.82 miles northeast of the SOWTP, or from the Kenney Grove Regional Recreation Area, approximately 1.35 miles southeast of the SOWTP, because of the distance and topography that would screen the Project facilities. The Project would be visible from portions of the Old Nimitz Trail, approximately 1.1 miles to the southwest of the SOWTP, and from the San Pablo Ridge, approximately 2.2 miles to the south of the SOWTP. However, views from the Old Nimitz Trail and San Pablo Ridge would show only the southern portion SOWTP site, where Project improvements would be adjacent to and dwarfed by the existing facilities. The proposed structures would not be noticeable at a distance of 1 to 2 miles away. Phase 1 construction would occur in the northern portion of the SOWTP site, and the Phase 1 development area generally is not visible from the Old Nimitz Trail or San Pablo Ridge because of intervening topography and residential development, and the taller existing SOWTP structures that would block views of the new Project facilities. Phase 2 construction would occur in both the northern and southern portion of the SOWTP site and would be partially visible from the Old Nimitz Trail or San Pablo Ridge; however, the improvements proposed in Phase 2 would be adjacent to and dwarfed by the existing facilities. Because of the distance, topography, and existing development between the Project and the Old Nimitz Trail and San Pablo Ridge, the impact on a scenic vista would be hardly perceptible and less than significant.

The Central North Aqueduct pipeline would be buried beneath existing roadways. The existing roadway would be resurfaced on completion of construction, and the pipeline would not be visible. Therefore, no impact would occur.

Significance Determination before Mitigation

Less than significant.

Mitigation Measures

None required.

Impact AES-2: Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway. (*Criterion 2*)

Construction

No state scenic highways are in or near the Project area (Caltrans, 2018). San Pablo Dam Road is designated as a locally scenic route (Contra Costa County, 2020). The SOWTP site is visible from a small stretch of San Pablo Dam Road, as shown from Viewpoint 9. The Phase 1 facilities are not visible from San Pablo Dam Road, and the Phase 2 facilities would be shorter in height than the existing SOWTP facilities and would not be noticeable from San Pablo Dam Road. The Central North Aqueduct pipeline would be within San Pablo Dam Road from D Avilla Way to El Portal Drive. The Central North Aqueduct pipeline would be constructed within the public right-of-way (ROW), and motorists traveling along San Pablo Dam Road temporarily could see

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construction equipment, soil stockpiles, and the open construction trench when Project construction is occurring. Views of Project construction activities would be temporary and limited to the active work area (approximately 14 days in each area).

As detailed in the Project Description, a number of EBMUD standard practices and procedures applicable to all EBMUD projects have been incorporated into the Project, including Standard Construction Specification 01 32 36, Video Monitoring and Documentation. Standard Construction Specification 01 32 36, Video Monitoring and Documentation, Section 1.2 requires pre-construction and post-construction documentation of roadway conditions and repair of the roadway to pre-construction conditions, which would include resurfacing disturbed areas of San Pablo Dam Road to pre-construction conditions.

Because the contractor would implement EBMUD Standard Construction Specification 01 32 36, Video Monitoring and Documentation which requires the contractor to provide pre-construction and post-construction documentation of roadway conditions and because of the temporary nature of the Central North Aqueduct pipeline construction, the construction would not substantially degrade scenic resources along San Pablo Dam Road and the impact on the scenic roadway would be less than significant. The EBMUD Practices and Procedures Monitoring and Reporting Plan (Appendix C) lists the applicable standard specifications language.

Operation

The SOWTP site has minimal visibility from San Pablo Dam Road, as seen from Viewpoint 9. The Phase 1 facilities would not be visible from San Pablo Dam Road and would not affect scenic views from San Pablo Dam Road. The Phase 2 facilities would be shorter in height than the existing SOWTP facilities and would not be discernible from the viewing angle on San Pablo Dam Road. The Central North Aqueduct pipeline would be installed underground, beneath the roadway, and would not be visible during Project operation. Because of the minimal visibility of Phase 2 infrastructure from San Pablo Dam Road, the impact on scenic resources from the scenic roadway would be less than significant.

Significance Determination before Mitigation

Less than significant.

Mitigation Measures

None required.

Impact AES-3: In non-urbanized areas, 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) or in an urbanized area, conflict with applicable zoning and other regulations governing scenic quality. (*Criterion 3*)

Construction

Project construction activities would require vegetation removal, earthwork, stockpiling of material, and the use of heavy equipment. Equipment and staging for construction of the new

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Project facilities at the SOWTP site would be accessed from the existing Amend Road entrance and a secondary temporary construction entrance from Amend Road, adjacent to the Richmond Fire Station property.

From Amend Road and Heavenly Ridge Lane (Viewpoints 1 through 4), construction of the new fence, landscaping, berm, noise barrier, and facilities would be visible. The noise barrier along Amend Road would be temporary and expected to screen the majority of the Phase 1 construction area during construction. However, soil stockpiles and disturbance as well as construction equipment and trucks would be visible to the public from public vantage points adjacent to the facility, and from Heavenly Ridge Lane looking toward the facility. Phase 1 construction would last approximately 5 years and is estimated to commence in 2030 and end in 2034. Phase 2 construction would last approximately 4 years. The impact on visual quality from construction debris and soil disturbance areas would be potentially significant.

The Central North Aqueduct pipeline would be located in an urbanized area in unincorporated Contra Costa County, city of Richmond and the city of San Pablo and construction activities would therefore not conflict with zoning or other regulations governing scenic quality.

As detailed in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, have been incorporated into the Project, including Standard Construction Specification 01 32 36, Video Monitoring and Documentation, Sections 1.1, 1.2, and 3.1(C), Standard Construction Specification 01 35 44, Environmental Requirements, Section 1.1(B), Standard Construction Specification 01 35 45, Biological, Cultural, and Paleontological Resource Requirements Sections 3.2(B), and Standard Construction Specification 01 74 05, Cleaning, Section 3.2(B) and 3.3(K). EBMUD Standard Construction Specification 01 32 36, Sections 1.1, 1.2, and 3.1(C), require a video survey of the site conditions before the start of construction and repair of all temporary disturbance areas, and video documentation following construction, to verify that the Project site is maintained in as orderly and clean a condition as possible throughout construction. EBMUD Standard Construction Specification 01 35 44, Environmental Requirements, Section 1.1(B) requires EBMUD to restore areas of temporary disturbance such as parking areas and stockpiling areas, EBMUD Standard Construction Specification 01 35 45, Biological, Cultural, and Paleontological Resource Requirements Section 3.2(B) defines procedures to preserve trees that are not subject to removal for the Project including trees along Amend Road, and EBMUD Standard Construction Specification 01 74 05, Cleaning, Sections 3.2(B) and 3.3(K) require removal of all debris and proper cleaning of the construction site.

Because the contractor would implement with the requirements of Standard Construction Specification 01 32 36, Video Monitoring and Documentation, Sections 1.1, 1.2, and 3.1(C), Standard Construction Specification 01 35 44, Environmental Requirements, Section 1.1(B), Standard Construction Specification 01 35 45, Biological, Cultural, and Paleontological Resource Requirements Section 3.2(B), and Standard Construction Specification 01 74 05, Cleaning Sections 3.2(B) and 3.3(K) which require video documentation, maintaining a clean and orderly construction site, and preservation of trees, the impact from construction on visual character

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and quality from public views would be less than significant. The EBMUD Practices and Procedures Monitoring and Reporting Plan (Appendix C) lists the applicable standard specifications language.

Operation

Phase 1 facilities would not be visible from vantage points south or east of the SOWTP site. The Phase 2 facilities would have minimal visibility from areas south and at a distance of 0.25 miles or more from the SOWTP site. The Phase 2 structures that would be visible from areas south of the Project site would be shorter than the existing SOWTP facilities and would not be prominent within the viewshed. The impact on the visual quality of public vantage points in areas south and east of the Project site would be less than significant due to the distance to the Project and minimal change represented by the visible Project elements from the public vantage points. The analysis below discusses Project impacts on visual quality at public vantage points north and west of the Project site.

The Central North Aqueduct pipeline would be located in an urbanized area in unincorporated Contra Costa County, city of Richmond, and the city of San Pablo and construction activities would therefore not conflict with zoning or other regulations governing scenic quality.

Viewpoints North of SOWTP

Phase 1 facilities that would be visible from public vantage points during operation would include the equalization basins, gravity thickeners, power and polymer building, chlorine contact basin, new areas of paving/concrete, the security fence surrounding the new facilities, a berm, and a wrought-iron fence, which would be visible from Amend Road, Heavenly Ridge Lane, and Christopher Court. The retaining wall, berm, and landscaping would be installed between the new water treatment facilities and Amend Road, to provide visual screening of the new facilities. Trees and shrubs would be planted along the earthen berm facing Amend Road, along the entrance to the SOWTP, and around the stormwater retention basin, to provide visual screening. Small shrubs would be planted along Amend Road and the entrance road to the SOWTP. Ten years or more after Phase 1 construction is complete, Phase 2 infrastructure including the dewatering building and gravity thickeners would be installed in the area near Amend Road.

Phase 1 facilities would be visible from the public vantage points along the entrance road to the SOWTP (Viewpoint 1), Heavenly Ride Lane (Viewpoint 2), and Amend Road (Viewpoint 3 and Viewpoint 4) immediately following construction. The Phase 1 facilities would be partially screened from Viewpoint 1 and Viewpoint 2 by existing trees and the hill slope along the entrance road immediately after construction, as shown in Figures 3.1-3 and 3.1-7. Phase 1 facilities would be open to public views along Amend Road immediately after construction, as shown in Figures 3.1-11 and 3.1-15. The proposed landscaping would provide screening of the Phase 1 facilities within 5 years after construction (Figures 3.1-4, 3.1-8, 3.1-12 and 3.1-16). By 10 years after construction, the Phase 1 and Phase 2 Project facilities would be almost completely screened by landscaping from the entrance road and Heavenly Ridge Lane, as shown in Figures 3.1-5 and 3.1-9 and mostly screened by Project landscaping from Amend Road as shown in

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Figures 3.1-13 and 3.1-17. The landscape screening would reduce Project impacts on visual quality as viewed from the entrance road, Heavenly Ridge Lane, and Amend Road. Because the landscaping screens the Project features and reduces the Project impact on visual quality, a significant impact on visual quality could occur if the landscaping did not survive and the trees failed to mature and effectively screen the Project facilities or if the existing trees along Amend Road were damaged during construction and not replaced.

As detailed in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, have been incorporated into the Project, including Standard Construction Specification 01 35 45, Biological, Cultural, and Paleontological Resource Requirements Sections 3.2(B), which defines procedures to preserve trees that are not subject to removal for the Project including trees along Amend Road and requires replacement of injured trees. Mitigation Measure AES-1 requires EBMUD to monitor tree health after landscape implementation and replace failing trees to ensure that the landscaping effectively screens the Project facilities.

Because EBMUD Standard Construction Specification 01 35 45, Biological, Cultural, and Paleontological Resource Requirements, Section 3.2(B) requires preservation of trees that would not be impacted by the Project and Mitigation Measure AES-1 would ensure effectiveness of the Project landscape screening, and the landscaping would effectively screen views of Project facilities, the Project impact on visual quality to public vantage points north of the Project site would be less than significant. The EBMUD Practices and Procedures Monitoring and Reporting Plan (Appendix C) lists the applicable standard specifications language. The Mitigation Monitoring and Reporting Plan (Appendix C) includes the applicable mitigation measures to be implemented and the timing for implementation.

Viewpoints West of SOWTP

Viewpoint 5 from Christopher Court, as shown in Figure 3.1-18, does not have a direct view of the existing SOWTP facilities and the view is generally of single-family homes along Christopher Court, with portions of the existing Richmond Fire Station buildings visible behind the residential homes and landscaping. The SFBW flocculation and sedimentation basin and dewatering building would be visible from Viewpoint 5 as shown in Figures 3.1-19, 3.1-20 and 3.1-21. Because of the distance between Viewpoint 5 and the Project site and the Project structures would match the architectural style of the existing Richmond Fire Station buildings the Project facilities would not substantially degrade the visual character or quality of the area and would blend into the surrounding viewshed. The Project impact on visual quality from Christopher Court would be less than significant.

Significance Determination before Mitigation

Potentially significant.

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Mitigation Measures

Mitigation Measure AES-1: Landscape Maintenance

The contractor shall inspect all tree materials that are used for Project landscaping to ensure the health of trees and shrubs prior to planting. Any root bound, diseased, or otherwise unhealthy trees or shrubs shall be replaced prior to planting.

EBMUD will provide supplemental irrigation of all landscaped areas for a period of five (5) years following landscaping. Damage to the irrigation lines shall be repaired to ensure the irrigation is properly functioning during the dry season (April to October). EBMUD will conduct monitoring of all Project landscaping one year after planting and will replace in-kind any trees that are damaged, diseased, or failing to grow. All replaced, shrubs and trees shall be inspected for health prior to planting.

Significance Determination after Mitigation

Because Mitigation Measure AES-1 would be implemented to ensure the success of the landscape plantings, which would screen views of the Project facilities, the impact on visual character or quality would be reduced to less than significant.

Impact AES-4: The potential to create a new source of substantial light or glare which would adversely affect day or nighttime views in the area. (*Criterion 4*)

Construction

Construction would generally occur between 7:00 a.m. and 7:00 p.m., Monday through Friday. No routine nighttime construction is expected for Phase 1 and Phase 2, although some temporary extended workdays may be required for large concrete pours or temporary shutdowns/outages. Lighting also may be necessary for construction during some portions of the day during winter months, when construction could start before sunrise or extend after sunset. In addition, nighttime work may be required for the Central North Aqueduct pipeline at busy intersections and tie-in locations.

As detailed in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, have been incorporated into the Project, including Standard Construction Specification 01 35 44, Section 3.9(A), Lighting Used During Nighttime Work, which requires that any lighting required during extended workdays would be designed and operated to minimize disturbance to traffic or residences and avoid unnecessary glare.

Because EBMUD Standard Construction Specification 01 35 44, Environmental Requirements, Section 3.9(A), Lighting Used During Nighttime Work, has been incorporated into the Project and includes measures to reduce nuisance lighting during nighttime construction, and because the Project would have limited lighting needs during construction, Project construction would not create a new source of substantial light or glare that would adversely affect day or nighttime views in the area and the impact would be less than significant. The EBMUD Practices and Procedures Monitoring and Reporting Plan (Appendix C) lists the applicable standard specifications language.

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Operation and Maintenance

The new Project facilities that would be visible from offsite would have concrete, stucco, and red-tiled surfaces, which would not create glare. Lighting would be installed as described in the Project Description, Section 2.7-1 and shown on Figure 2-20. The new Project lighting would be installed for safety and provide safe access for the operation and maintenance staff traveling between buildings and structures. The new security lighting would have shielded light fixtures that would direct light downwards to minimize light trespass and minimize light spillage to the surrounding neighborhood while still providing sufficient light for operation and maintenance staff. New building and pole-mounted lights would be on at low levels at nighttime but would brighten temporarily with motion. Because the new lighting would be shielded and on at low levels to minimize light pollution on adjacent areas and would be on motion sensors to brighten only temporarily with motion, the Project would not create a new substantial source of light and the impact would be less than significant.

Significance Determination before Mitigation

Less than significant.

Mitigation Measures

None required.

3.1.4 Cumulative Impact Analysis

The SOWTP site is adjacent to existing open space and is bordered by single-family homes, with limited opportunities for other developments that could contribute to cumulatively significant visual impacts. Further, no cumulative projects are proposed within the viewshed of the SOWTP. Therefore, the cumulative aesthetic impact at the SOWTP site would be less than significant.

Three cumulative projects are proposed near or adjacent to the Central North Aqueduct Pipeline: the Central Pressure Zone Pipeline, Wildcat Pumping Plant, and San Pablo Dam Road Upgrades. The first two of two cumulative projects are EBMUD projects that would be subject to EBMUD standard practices and procedures. Because the Central North Aqueduct pipeline would be operating below the ground and would not create operational visual effects, it would not contribute to a cumulative effect on the surrounding projects or future projects and would not contribute to cumulative aesthetic impacts, therefore, the cumulative aesthetic impact would be less than significant.

3.1.5 References

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3.2 Air Quality

This section describes the physical, environmental, and regulatory setting for air quality and identifies the significance criteria for determining environmental impacts and evaluates the potential air quality impacts that could result from implementation of the Project. Air quality impacts depend on local conditions, the presence of receptors, and Project emissions. This section includes modeling to estimate the Project emissions associated with each Project phase, within the context of local conditions. Appendix E provides supporting information, including air quality modeling calculations and results.

3.2.1 Environmental Setting

Climate and Meteorology

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 Project area is in the cities of San Pablo and Richmond and the unincorporated communities of El Sobrante and Rollingwood, in Contra Costa County. Contra Costa County is within the boundaries of the San Francisco Bay Area Air Basin (SFBAAB). The SFBAAB encompasses a nine-county region (i.e., Alameda, Contra Costa, Santa Clara, San Francisco, San Mateo, Marin, and Napa counties, and the southern portions of Solano and Sonoma counties). The climate of the SFBAAB is determined mainly by a high-pressure system that almost always is present over the eastern Pacific Ocean off the West Coast of North America. In winter, the Pacific high-pressure system shifts to the south, allowing more storms to pass through the region. In summer and early fall, when few storms pass through the region, emissions within the SFBAAB can combine with abundant sunshine under the restraining influences of topography and atmospheric inversions¹ to create conditions that are conducive to the formation of photochemical pollutants, such as ozone (O₃), and secondary particulates, such as nitrates and sulfates.

More specifically, the Project area is approximately 6 miles east of San Francisco Bay in northern Alameda and western Contra Costa counties' climatological subregion. This subregion extends from Richmond to San Leandro, with San Francisco Bay as its western boundary, and its eastern boundary defined by the Oakland–Berkeley hills. In this subregion, marine air traveling through the Golden Gate, as well as across San Francisco and the San Bruno Gap (a gap in the Coastal Range between the ocean and the San Francisco Airport), is a dominant weather factor. The Oakland–Berkeley hills cause the westerly flow of air to split off to the north and south of

¹ In meteorology, an inversion refers to an increase in temperature with height, a departure from the usual trend of decrease in temperature with increasing altitude. Temperature inversions occur when the air above a certain level is warmer than the air below.

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Oakland, creating diminished wind speeds. The air pollution potential in this subregion is relatively low for portions of the area close to the San Francisco Bay, because of the generally good ventilation and less influx of pollutants from upwind sources (BAAQMD, 2017b).

The Project area is close to the Carquinez Strait region in Contra Costa County, which remains temperate because of its proximity to water and oceanic air flows. In winter, the average daily temperatures are mild, with fog common at night. The average summer temperatures typically are mild overnight and warm during the day, with cooler temperatures and stronger winds more common along the western coast of Contra Costa County. Wind speeds generally are low throughout the region, and winds typically blow from northwest to southwest. Rainfall in the Project area is highly variable and confined almost exclusively to the “rainy” period, from early November to mid-April. The annual rainfall averages between 18 and 23 inches across Contra Costa County (BAAQMD, 2019).

Criteria Air Pollutants

As required by the 1970 federal Clean Air Act (CAA), the United States Environmental Protection Agency (EPA) initially identified six criteria air pollutants that are pervasive in urban environments and for which state and federal health-based ambient air quality standards have been established. EPA calls these pollutants *criteria air pollutants* because the agency regulates them by specific public-health-based and welfare-based criteria that set permissible levels. The six criteria air pollutants originally identified by EPA are ozone, nitrogen dioxide (NO₂), carbon monoxide (CO), sulfur dioxide (SO₂), particulate matter (PM), and lead (Pb). The following discussion summarizes the potential health and welfare effects and typical sources of air pollutants and air toxins.

Ozone

Ozone is a respiratory irritant and an oxidant that increases susceptibility to respiratory infections and can cause substantial damage to vegetation and other materials. Ozone is a regional air pollutant because it is not emitted directly into the atmosphere but is a secondary air pollutant produced in the atmosphere through a complex series of photochemical reactions involving reactive organic gases (ROG), also referred to as volatile organic compounds (VOCs) and nitrogen oxides (NO_x). ROG or VOCs, and NO_x are known as precursor compounds for ozone. Substantial ozone production generally requires ozone precursors to be present in a stable atmosphere with strong sunlight for approximately 3 hours. Ozone concentrations tend to be higher in late spring, summer, and fall, when long sunny days combine with regional air subsidence inversions to create conditions conducive to the formation and accumulation of secondary photochemical compounds.

Volatile Organic Compounds

VOCs are any compounds of carbon, excluding CO, carbon dioxide (CO₂), carbonic acid, metallic carbides or carbonates, and ammonium carbonate, which participate in atmospheric photochemical reactions, and thus are a precursor of ozone formation. VOCs include a variety of chemicals, some of which may have short- and long-term adverse health effects. VOCs are emitted by a wide array of products, numbering in the thousands. Examples include paints and

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lacquers, paint strippers, cleaning supplies, building materials and furnishings, as well as fuel storage and use.

VOCs can cause eye, nose, and throat irritation; headaches, loss of coordination, and nausea; and damage to the liver, kidneys, and central nervous system. Some organics can cause cancer in animals; some are suspected or known to cause cancer in humans. The ability of organic chemicals to cause health effects varies greatly from those that are highly toxic, to those with no known health effect. As with other pollutants, the extent and nature of the health effect depends on many factors, including level of exposure and length of time exposed. Eye and respiratory tract irritation, headaches, dizziness, visual disorders, and memory impairment are among the immediate symptoms that some people have experienced, soon after exposure to some organics.

Nitrogen Oxides

Various oxides of nitrogen are formed during the combustion process in aircraft, truck, and automobile engines, when atmospheric nitrogen combines with oxygen. Nitric oxide (NO) and NO₂ are the most significant air pollutants and generally are referred to as NO_x. NO is a colorless and odorless gas that is relatively harmless to humans, quickly converts to NO₂, and can be measured. NO₂ is a reddish-brown gas that has been determined to be a lung irritant, capable of producing pulmonary edema. Inhaling NO₂ can lead to respiratory illnesses, such as bronchitis and pneumonia. Automobiles and industrial operations are the main sources of NO₂. NO₂ may be visible as a coloring component of a brown cloud on high pollution days, especially in conjunction with high ozone levels.

Carbon Monoxide

CO is a nonreactive pollutant that is a product of incomplete combustion of organic material. CO generally is associated with motor vehicle traffic, and in winter, with wood-burning stoves and fireplaces. High CO concentrations develop primarily in winter, when periods of light winds combine with the formation of ground-level temperature inversions (typically from evening through early morning). These conditions result in reduced dispersion of vehicle emissions. Motor vehicles also exhibit increased CO emission rates at low air temperatures.

When inhaled at high concentrations, CO combines with hemoglobin in the blood, reducing its oxygen-carrying capacity and resulting in reduced levels of oxygen reaching the brain, heart, and other body tissues. This condition is especially critical for people with cardiovascular diseases, chronic lung disease, or anemia. CO measurements and modeling were important in the early 1980s, when CO levels were exceeded regularly throughout California. However, more recently, CO measurements and modeling have not been a priority in most California air districts because of the retirement of older vehicles, fewer emissions from new vehicles, and improvements in fuels.

Sulfur Dioxide

SO₂ is a colorless, acidic gas with a strong odor. SO₂ is a combustion product of sulfur or sulfur-containing fuels, such as coal and diesel. SO₂ also is a precursor to the formation of atmospheric sulfate and PM and contributes to the potential formation of atmospheric sulfuric acid that can

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precipitate downwind as acid rain. SO₂ can irritate lung tissue and increase the risk of acute and chronic respiratory disease.

Particulate Matter

PM₁₀ and PM_{2.5} are particulate matter measuring 10 micrometers or less in diameter and 2.5 micrometers or less in diameter, respectively. PM₁₀ and PM_{2.5} represent fractions of particulate matter that can be inhaled into the air passages and lungs, causing adverse health effects. PM in the atmosphere results from many kinds of dust and fume-producing industrial and agricultural operations, fuel combustion, wood burning stoves and fireplaces, and atmospheric photochemical reactions. Some sources of PM, such as demolition, construction activities, and mining, generally are more local in occurrence, while others, such as vehicular traffic and wood burning stoves and fireplaces, have a more regional effect.

Very small particles of certain substances (e.g., sulfates and nitrates) can cause lung damage directly, or can contain adsorbed gases (e.g., chlorides or ammonium) that may be injurious to human health. Particulates also can damage materials and reduce visibility. Dust that is made of large particles (diameter greater than 10 micrometers) settles out rapidly and easily is filtered by human breathing passages. The large dust particles are of concern more as a soiling nuisance rather than as a health hazard. The remaining fractions, PM₁₀ and PM_{2.5}, are a health concern particularly at levels above the federal and California ambient air quality standards. PM_{2.5} (including diesel exhaust particles) is considered to have greater effects on health, because these particles are small enough to penetrate the deepest parts of the lungs.

Acute and chronic health effects associated with high particulate levels include the aggravation of chronic respiratory diseases, heart and lung disease, coughing, bronchitis, and respiratory illnesses in children. Mortality studies since the 1990s have shown a statistically significant direct association between mortality (premature deaths) and daily concentrations of PM in the air. Despite important gaps in scientific knowledge, a comprehensive evaluation of the research findings provides persuasive evidence that exposure to fine particulate air pollution has adverse effects on cardiopulmonary health.

Lead

Lead has a range of adverse neurotoxin health effects and formerly was released into the atmosphere via leaded gasoline products. The phase-out of leaded gasoline in California has resulted in dramatically decreased levels of atmospheric lead. The highest concentrations of lead in the air generally are found near lead smelters and general aviation airports; where piston aircraft use leaded fuel. Other stationary sources that generate lead emissions include waste incinerators, utilities, and lead-acid battery manufacturers. The maximum lead concentrations recorded in the Project area are below federal and California standards.

Toxic Air Contaminants

Toxic air contaminants (TACs) are airborne substances that are capable of causing short-term (acute) and/or long-term (chronic or carcinogenic; i.e., cancer-causing) adverse human health effects (i.e., injury or illness), even when present in relatively low concentrations. Potential

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human health effects of TACs include birth defects, neurological damage, cancer, and death. TACs include both organic and inorganic chemical substances.

TACs may be emitted from a variety of common sources, including gasoline stations, automobiles, dry cleaners, industrial operations, and painting operations. The current California list of TACs includes approximately 200 compounds, including diesel particulate matter (DPM) emissions from diesel-fueled engines that were identified as a TAC by California Air Resources Board (CARB) in 1998 (CARB, 2022a).

TACs are regulated under both state and federal laws. Federal laws use the term *hazardous air pollutants* (HAPs) to refer to the same types of compounds that are referred to as TACs under state law. Both terms encompass essentially the same compounds. Under the 1990 Federal Clean Air Act Amendments, 189 substances are regulated as HAPs (see Section 3.2.2, Regulatory Framework, for a description of how HAPs and TACs are regulated).

TACs do not have ambient air quality standards but are regulated by the BAAQMD using a risk-based approach which uses a health risk assessment (HRA) to determine what sources and pollutants to control as well as the degree of control. A HRA is an analysis of the exposure to toxic substances and human health risks from exposure to toxic substances, based on the potency of the toxic substances.²

Existing Air Quality

The Project area is within the jurisdiction of the Bay Area Air Quality Management District (BAAQMD). The BAAQMD operates a regional monitoring network that measures the ambient concentrations of the six criteria air pollutants. Existing and probable future levels of air quality in the Project area generally can be inferred from ambient air quality measurements conducted by the BAAQMD at its nearby monitoring stations. The closest monitoring station from the Project is the San Pablo (1865-D Rumrill Boulevard) monitoring station, which is approximately 2,000 feet south of the proposed Central North Aqueduct pipeline alignment, and approximately 4 miles west of the Sobrante Water Treatment Plant (SOWTP). The San Pablo station monitors all criterial pollutants (BAAQMD, 2021a).

Table 3.2-1 summarizes the most recent 3 years of data (2020 through 2022) from the BAAQMD's San Pablo air monitoring station for ozone, CO, NO₂, SO₂, PM₁₀, and PM_{2.5}. The state and national 24-hour and annual PM₁₀ standards were exceeded in 2020. The national 24-hour PM_{2.5} standard was exceeded in 2020 and 2022. PM₁₀ and PM_{2.5} concentrations in 2020 may

² A health risk assessment is required for permitting approval if the BAAQMD concludes that projected emissions of a specific toxic air contaminant from a proposed new or modified source suggests a potential public health risk. Such an assessment generally evaluates chronic, long-term effects, calculating the increased risk of cancer as a result of exposure to one or more TACs.

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have been adversely affected by wildfires. No other standards were exceeded during the 3-year period.

Table 3.2-1 Summary of Air Quality Data – San Pablo Air Monitoring Station (2020–2022)

Pollutant	State Standard ^a	Monitoring Data by Year			
		Federal Standard ^a	2020	2021	2022
Ozone					
Highest 1 Hour Average (ppm) ^b	0.090	N/A	0.081	0.086	0.064
Highest 8 Hour Average (ppm) ^b	0.070	0.070	0.064	0.061	0.057
Nitrogen Dioxide					
Highest 1 Hour Average (ppm) ^b	0.180	0.100	0.038	0.037	0.037
Annual Average (µg/m ³) ^b	0.030	0.053	0.007	0.006	0.007
Carbon Monoxide					
Highest 1 Hour Average (ppm) ^b	20	35	2.8	1.3	1.3
Highest 8 Hour Average (ppm) ^b	9	9	1.9	0.9	0.8
Particulate Matter (PM ₁₀)					
Highest 24-Hour Average (µg/m ³) ^b	50	150	114 ^a	37	39
State Annual Average (µg/m ³) ^b	20	N/A	21.0 ^a	19.1	19.4
Particulate Matter (PM _{2.5})					
Highest 24-Hour Average (µg/m ³) ^b	N/A	35	146 ^a	29	37 ^a
State Annual Average (µg/m ³) ^b	12	12	11.1	9.1	9.9

Notes:

^a Values in **bold** are in excess of at least one applicable standard.

^b Generally, state standards and national standards are not to be exceeded more than once per year.

ppm = parts per million; µg/m³ = micrograms per cubic meter.

Source: (BAAQMD, 2021b; USEPA, 2021)

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Odors

Although offensive odors from stationary sources rarely cause any physical harm, they are unpleasant and can lead to public distress, generating complaints to local governments. The occurrence and severity of odor impacts depend on the nature, frequency, and intensity of the source; wind speed and direction; and the sensitivity of receptors.

The BAAQMD provides examples of odor sources, which include wastewater treatment plants, landfills, confined animal facilities, composting stations, food manufacturing plants, refineries, and chemical plants. The BAAQMD's significance criteria for odors are subjective and are based on the number of odor complaints generated by a project. Generally, the BAAQMD considers any project with the potential to frequently expose members of the public to objectionable odors to cause a significant impact. One odor complaint was reported for the SOWTP to the BAAQMD in the last five years (BAAQMD, 2022a).

Sensitive Receptors

Some receptors are more sensitive than others to air pollutants. The reasons for greater sensitivity include pre-existing health problems, proximity to emissions source, or the duration of exposure to air pollutants. Land uses such as schools, day care centers, hospitals, and convalescent homes are more sensitive than the general public to poor air quality because the population groups associated with these uses have increased susceptibility to respiratory distress and other air quality-related health problems. People engaged in strenuous work or exercise also have increased sensitivity to poor air quality. The CARB has identified the following people as most likely to be affected by air pollution: children less than 14 years of age, the elderly over 65 years of age, athletes, and those with cardiovascular and chronic respiratory diseases. These groups are classified as sensitive population groups.

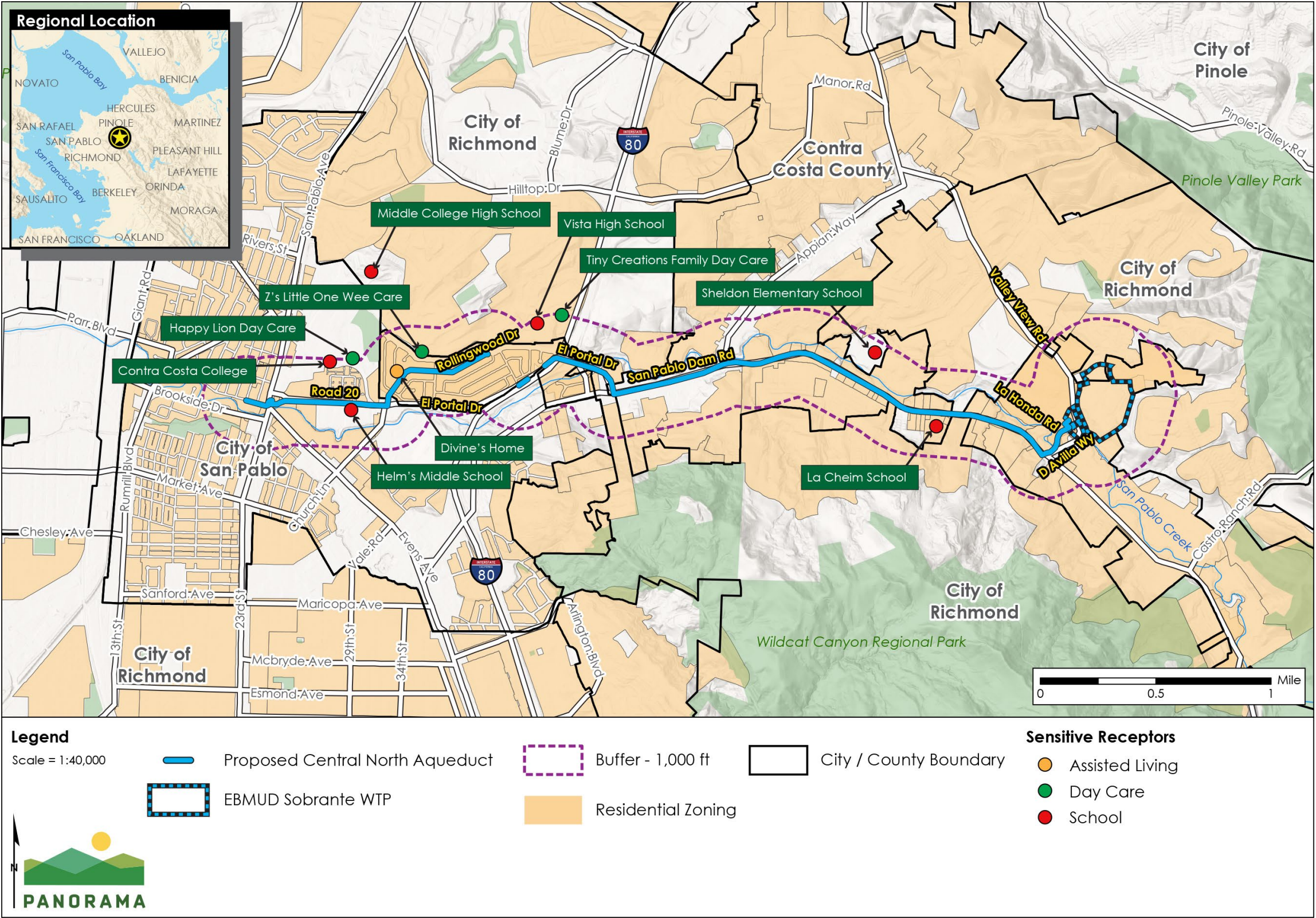
Residential areas are more sensitive to air quality conditions than commercial and industrial areas because people generally spend longer periods at their residences, resulting in greater exposure to ambient air quality conditions. According to the BAAQMD, workers are not considered sensitive receptors because all employers must comply with regulations set by the Occupational Safety and Health Administration (OSHA) to ensure the health and well-being of their employees.

BAAQMD considers the relevant zone of influence for an assessment of air quality health risks to be within 1,000 feet of a project site. Sensitive receptors and land uses within 1,000 feet of the Project are shown on in Figure 3.2-1. The SOWTP is in proximity to residential zoned land. The Central North Aqueduct pipeline alignment is within 1,000 feet of residential zoned land, La Cheim School (El Sobrante Campus), Sheldon Elementary School, Vista High School, Tiny Creations Family Day Care, Z's Little One Wee Care, Happy Lion Day Care Center, Contra Costa College, Middle College High School, and Helms Middle School. One assisted care facility, Divine's Home, is approximately 200 feet from the Central North Aqueduct pipeline alignment.

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Figure 3.2-1 Map of Sensitive Receptors and Land Uses



Source: (Maxar, 2021; USGS, 2012; Contra Costa County Department of Information Texhnology, 2017; Menendian, Stephen, Samir Gambhir, Karina French, Arthur Gables, 2020) (Google, Inc., 2022)

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3.2.2 Regulatory Framework

This section describes federal, state, regional, and local policies and regulations related to air quality that apply to the Project.

Federal Policies and Regulations

The EPA is responsible for implementing the programs established under the federal CAA, such as establishing and reviewing the National Ambient Air Quality Standards (NAAQS) and judging the adequacy of State Implementation Plans (SIPs). However, it has delegated the authority to implement many of the federal programs to states, while retaining an oversight role to ensure that the programs continue to be implemented.

Clean Air Act and Air Quality Standards

Air pollution is regulated by both national and state ambient air quality standards, and by emission limits for individual sources of air pollutants. As required by the CAA, EPA has identified criteria pollutants and established NAAQS to protect public health and welfare. NAAQS have been established for ozone, CO, NO₂, SO₂, PM₁₀, PM_{2.5}, and lead. To protect human health and the environment, EPA has set “primary” and “secondary” maximum ambient thresholds for each of the criteria pollutants. Primary thresholds were set to protect human health, particularly sensitive receptors. Secondary standards were set to protect the natural environment and prevent the deterioration of animals, crops, vegetation, and buildings. The NAAQS are defined as the maximum acceptable concentration that may be reached, but not exceeded more than once per year. California has adopted more stringent State Ambient Air Quality Standards for most of the criteria air pollutants.

Attainment Status

Under amendments to the CAA, EPA has classified air basins or portions thereof as either “attainment” or “nonattainment” for each criteria air pollutant, based on whether or not the national standards have been achieved. The California CAA, which is patterned after the federal CAA, also requires areas to be designated as “attainment” or “nonattainment” for the state standards. Thus, areas in California have two sets of attainment/nonattainment designations: one set for the national standards and one set for the state standards.

Table 3.2-2 shows both sets of ambient air quality standards and the SFBAAB-designated attainment status for each standard.

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Table 3.2-2 Ambient Air Quality Standards and San Francisco Bay Area Air Basin Attainment Status

Pollutant	Averaging Time	State Standard		National Standard	
		Concentration	Attainment Status	Concentration	Attainment Status
Ozone (O ₃)	1-Hour	0.09 ppm	Nonattainment	–	–
	8-Hour	0.070 ppm	Nonattainment	0.07 ppm	Nonattainment
Carbon Monoxide (CO)	1-Hour	20 ppm	Attainment	35 ppm	Attainment
	8-Hour	9.0 ppm	Attainment	9 ppm	Attainment
Nitrogen Dioxide (NO ₂)	1-Hour	0.18 ppm	Attainment	0.1 ppm	Attainment
	Annual	0.030 ppm	Attainment	0.053 ppm	Attainment
Sulfur Dioxide (SO ₂)	1-Hour	0.25 ppm	Attainment	0.075 ppm	Attainment
	24-Hour	0.04 ppm	Attainment	--	Attainment
Respirable Particulate Matter (PM ₁₀)	24-Hour	50 µg/m ³	-Nonattainment	150 µg/m ³	Unclassified
	Annual	20 µg/m ³		–	–
Fine Particulate Matter (PM _{2.5})	24-Hour	–	Nonattainment	35 µg/m ³	Nonattainment
	Annual	12 µg/m ³	Nonattainment	12 µg/m ³	Unclassified/Attainment
Lead (Pb)	30-day average	1.5 µg/m ³	Attainment	–	Attainment
	3-month rolling	–	Attainment	0.15 µg/m ³	Attainment

Notes:

ppm = parts per million; µg/m³= micrograms per cubic meter

If the air quality meets or is cleaner than the state or national standard, it is designated “attainment”; areas that don’t meet the state or national standard are designated “nonattainment” and are shown in bold. In some cases, EPA is not able to determine an area’s status after evaluating the available information and those areas are designated “unclassified.”

Source: (BAAQMD, 2022b)

State Regulations

California Air Resources Board

The CARB is responsible for establishing and reviewing the state standards, compiling the California SIP and securing approval of the SIP from the EPA, conducting research and planning, and identifying TACs. The CARB also regulates mobile sources of emissions in California, such as that from construction equipment, trucks, and automobiles, and oversees the activities of California’s air quality management districts, which are organized at the county or regional level. County or regional air quality management districts primarily are responsible for regulating stationary sources at industrial and commercial facilities within their geographic areas, and for preparing the air quality plans that are required under the federal CAA and California CAA.

In 1983, the California legislature adopted Assembly Bill (AB) 1807, establishing a process for identifying TACs and providing the CARB with the authority for developing retrofit air toxics

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control measures on a statewide basis. Air toxics in California also are regulated because of another State law, the Air Toxics “Hot Spots” Information and Assessment Act of 1987, or AB 2588, as described next.

Health Risk Assessments

The Air Toxics “Hot Spots” Information and Assessment Act of 1987 (AB 2588) seeks to identify and evaluate risks from air toxics sources but does not directly regulate air toxics emissions. Under the Air Toxics “Hot Spots” Information and Assessment Act of 1987, TAC emissions from individual facilities are quantified and prioritized. “High-priority” facilities are required to perform a HRA and, if specific thresholds are violated, communicate the results to the public in the form of notices and public meetings. Depending on the risk levels, emitting facilities are required to implement varying levels of risk reduction measures.

The BAAQMD implements AB 2588 and is responsible for prioritizing facilities that emit air toxics, reviewing HRAs, and implementing risk reduction procedures. Pursuant to the requirements of AB 2588, the BAAQMD publishes an air toxics emissions inventory that details the TAC emissions of facilities throughout its jurisdiction.

California Public Resources Code

Sections 21000–21189.57 (Environmental Quality) in Division 13 of the California Public Resources Code requires that a project within 0.25 mile of a school that involves construction or alteration of a facility that reasonably may be anticipated to emit hazardous air emissions, and that may impose a health or safety hazard to persons who would attend or would be employed at the school, must meet all requirements per Section 15186 (b)(1)(2) of the state *CEQA Guidelines*.³ The lead agency must consult with the affected school district or districts regarding the potential impact of the project on the school and notify the affected school district(s) of the Project in writing, not less than 30 days before approval or certification of the Negative Declaration or Environmental Impact Report.

Regional Regulations

Bay Area Air Quality Management District

The BAAQMD is the agency with jurisdiction over the nine-county region in the SFBAAB. The Association of Bay Area Governments (ABAG) and the Metropolitan Transportation Commission (MTC), county transportation agencies, cities and counties, and various non-governmental organizations also join in the efforts to improve air quality through a variety of programs. These programs include adoption of regulations and policies as well as implementation of educational and public outreach programs. The BAAQMD also is responsible for attaining and/or maintaining air quality in the SFBAAB within federal and state air quality standards. Specifically, the BAAQMD has the responsibility to monitor ambient air

³ 2019 CEQA Statutes and Guidelines, http://resources.ca.gov/ceqa/docs/2019_CEQA_Statutes_and_Guidelines.pdf

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pollutant levels throughout the Bay Area, and to develop and implement strategies to attain the applicable federal and state standards.

Any person or facility that puts in place, builds, erects, installs, modifies, modernizes, alters, or replaces any article, machine, equipment, or other contrivance, the use of which may cause, reduce, or control the emission of air contaminants, first must secure written authorization from the BAAQMD in the form of an Authority to Construct, unless the source specifically is excluded or exempt from permit requirements. The BAAQMD permit process is a preconstruction review and approval process. Review by the BAAQMD is conducted after the equipment is designed, but before it is installed.

BAAQMD CEQA Air Quality Guidelines

The BAAQMD *CEQA Air Quality Guidelines* advise lead agencies on how to evaluate potential air quality impacts, including establishing quantitative and qualitative thresholds of significance.

In 2022, BAAQMD adopted revised *CEQA Air Quality Guidelines* (BAAQMD, 2022b). The revised guidelines provide nonbinding recommendations intended to assist lead agencies in evaluating the potential for projects and plans to generate air pollutants that contribute the degradation of regional air quality, increase the exposure of local populations to harmful pollutants, and contribute to climate change. The *CEQA Air Quality Guidelines* include project-level thresholds of significance for criteria air pollutants for which the SFBAAB is in non-attainment (BAAQMD, 2022b).

Air Quality Plans

The federal CAA and California CAA require plans to be developed for areas designated as nonattainment (with the exception of areas designated as nonattainment for the state PM₁₀ standard).

On April 20, 2017, BAAQMD released the *2017 Clean Air Plan* (BAAQMD, 2017a). The *2017 Clean Air Plan* provides a roadmap for BAAQMD's efforts over the next few years to reduce air pollution and protect public health and the global climate. The primary goals of the plan are to protect public health and the climate. The plan includes a range of proposed control measures, which consist of actions to reduce combustion-related activities, decrease fossil fuel combustion, improve energy efficiency, and decrease emissions of potent greenhouse gases (GHGs). The *2017 Clean Air Plan* updates the *Bay Area 2010 Clean Air Plan* and complies with state air quality planning requirements as codified in the California Health and Safety Code. The SFBAAB is designated non-attainment for both the 1- and 8-hour State ozone standards. In addition, emissions of ozone precursors in the SFBAAB contribute to air quality problems in neighboring air basins. Under these circumstances, state law requires the Clean Air Plan to include all feasible measures to reduce emissions of ozone precursors and reduce the transport of ozone precursors to neighboring air basins.

The *2017 Clean Air Plan* contains 85 measures to reduce several pollutants: ozone precursors, PM, air toxics, and/or GHGs. Other measures focus on a single type of pollutant, potent GHGs

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such as methane and black carbon, or harmful fine particles that affect public health. The 2017 *Clean Air Plan* control measures can be grouped into the following categories:

- Stationary
- Transportation
- Energy
- Building
- Agricultural
- Natural and Working Lands
- Waste Management
- Water
- Super GHG

Community Air Risk Evaluation

The BAAQMD's Community Air Risk Evaluation (CARE) program was initiated in 2004 to evaluate and reduce health risks associated with exposure to outdoor air toxics in the Bay Area. Based on the findings in the latest report, DPM accounts for approximately 85 percent of the cancer risk from airborne toxics. Carcinogenic compounds from gasoline-powered cars and light-duty trucks also were identified as significant contributors. The most important sources of cancer risk-weighted emissions were combustion-related sources of DPM, including on-road mobile sources (31 percent), construction equipment (29 percent), and ships and harbor craft (13 percent). A 75 percent reduction in DPM was predicted between 2005 and 2015, when the inventory accounted the CARB's diesel regulations. Overall, cancer risk from TACs dropped by more than 50 percent between 2005 and 2015, when emissions inputs accounted for state diesel regulations and other reductions (BAAQMD, 2014b).

Modeled cancer risks from TACs were highest near sources of DPM: near core urban areas, along major roadways and freeways, and near maritime shipping terminals. Peak modeled risks were determined to be east of San Francisco, near West Oakland, and the maritime Port of Oakland. The BAAQMD has identified seven affected communities in the Bay Area, including western Contra Costa County and the cities of Richmond and San Pablo (west of Interstate 80).

The portion of the Project within the city of Richmond and unincorporated Contra Costa County is within the CARE program's affected communities in the Bay Area (Community Air Risk Evaluation Program, 2014). The health impacts in the Bay Area, as determined both by pollution levels and existing health vulnerabilities in a community, are approximately 160 at risk of cancer per million people. The health impacts for communities within the Project area are summarized in Table 3.2-3.

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Table 3.2-3 Existing Cancer Risk in Vicinity of the Project Area

Location	Risk of cancer (per million people)
City of Richmond	218
Contra Costa County community of El Sobrante	117
City of San Pablo	167

Source: (BAAQMD, 2014a)

Air Toxics Program

The BAAQMD's Air Toxics Program integrates federal and state air toxics mandates with local goals that have been established by the BAAQMD's Board of Directors. The program consists of several elements that are designed to identify and reduce public exposure TACs. Proposed projects are reviewed for potential health impacts, with the requirement that significant new/modified sources use the Best Available Control Technology (BACT) to minimize TAC emissions. All applications for new or modified permits are reviewed for air toxics impacts, in accordance with the BAAQMD's Risk Management Policy and BAAQMD Regulation 2, Rule 5: New Source Review of Toxic Air Contaminants.

Local Policies and Regulations

Under Section 53091 of the California Government Code, local agency building and zoning ordinances do not apply to projects involving the location or construction of facilities for the production, generation, storage, treatment, or transmission of water. However, EBMUD's practice is to work with local jurisdictions and neighboring communities during project planning, and to consider local environmental protection policies for guidance.

Contra Costa County General Plan

The *Contra Costa County General Plan* outlines the County's goals for physical growth, conservation, and community life in the unincorporated county area, and contains the policies and actions determined to be necessary to achieve those goals. The *Contra Costa County General Plan* was adopted in 1991 and has been reconsolidated twice, once for 1990 to 2005 and again for 2005 to 2020 (Contra Costa County, 2020). The following goals, policies, and measures related to air quality are included as a part of the *Contra Costa County General Plan*, Conservation Element:

Goal 8-AA: To meet Federal Air Quality Standards for all air pollutants.

Goal 8-AB: To continue to support federal, state and regional efforts to reduce air pollution in order to protect human and environmental health.

Goal 8-AC: To restore air quality in the area to a more healthful level.

Policy 8-103: When there is a finding that a proposed project might significantly affect air quality, appropriate mitigation measures shall be imposed.

Policy 8-104: Proposed projects shall be reviewed for their potential to generate hazardous air pollutants.

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Implementation Measure - Development Review Process 8-dl: Review major development applications for consistency with regional air quality plan assumptions.

Implementation Measure - Development Review Process 8-dm: Review major development applications to ensure that buffer zones are provided between major air pollution sources (freeways, industry, etc.) or sources of hazardous pollutants and sensitive receptors such as hospitals, convalescent homes, and residences.

City of Richmond General Plan

The *City of Richmond General Plan 2030* contains 15 elements addressing land use, economic development, housing, transportation, climate change, public safety, arts and culture, and open space conservation strategies. The *City of Richmond General Plan 2030* provides a comprehensive framework for developing a healthy city and healthy neighborhoods (City of Richmond, 2012). The following goals, policies, and actions related to air quality are included as a part of the *City of Richmond General Plan*, Conservation and Natural Resources element:

Goal CN4 – Improved Air Quality: Take steps to improve and maintain air quality for the benefit the health and vitality of residents and the local economy. In alignment with state emission reduction goals and in cooperation with the BAAQMD, pursue regional collaboration to reduce emissions from all sources.

Policy CN4.1 – Air Quality: Support regional policies and efforts that improve air quality to protect human and environmental health and minimize disproportionate impacts on sensitive population groups. Work with businesses and industry, residents, and regulatory agencies to reduce the impact of direct, indirect, and cumulative impacts of stationary and non-stationary sources of pollution such as industry, the port, railroads, diesel trucks and busy roadways. Fully utilize Richmond’s police power to regulate industrial and commercial emissions. Ensure that sensitive uses such as schools, childcare centers, parks and playgrounds, housing and community gathering places are protected from adverse impacts of emissions. Continue to work with stakeholders to reduce impacts associated with air quality on disadvantaged neighborhoods and continue to participate in regional planning efforts with nearby jurisdictions and the BAAQMD to meet or exceed air quality standards. Support regional, state and federal efforts to enforce existing pollution control laws and strengthen regulations.

Action CN4.A - Bay Area Air Quality Management District Partnership: Continue to work with the BAAQMD to meet or exceed air quality standards set in the BAAQMD’s *Clean Air Plan* and to ensure projects incorporate feasible mitigation measures if not already provided for through proposed project design.

City of San Pablo General Plan

The *San Pablo General Plan 2030* provides a vision of the future San Pablo by establishing guidelines that reflect city policies, goals, and efforts while enhancing quality of life. The *San Pablo General Plan 2030* serves as a blueprint for the future, outlines policies that guide development and conservation, and provides the basis for establishing detailed plans and implementing programs, such as development standards and specific plans (City of San Pablo,

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2011). The following policies related to air quality are included as a part of the *San Pablo General Plan*, Open Space and Conservation element:

Guiding Policy OSC-G-7: Protect and improve the air quality in San Pablo.

Implementing Policy OSC-I-18: Work with the BAAQMD to develop and implement a *Community Risk Reduction Plan* to address the exposure of sensitive populations to toxic air contaminant emissions in San Pablo.

Implementing Policy OSC-I-20: Require developers to use best management practices (BMPs) to reduce particulate emissions and dust associated with construction activities as a condition for approval of subdivision maps, site, plans, and grading permits. These BMPs include, but are not limited to, regular materials and vehicle tire watering, covering, and dust prevention measures during clearing, grading, earth-moving, or excavation operations.

Implementing Policy OSC-I-23: Continue to support the BAAQMD's efforts to monitor and control air pollutants from stationary sources.

EBMUD Standard Construction Specifications and Procedures

EBMUD's Standard Construction Specifications apply to all contractors conducting work for EBMUD, and to work completed by EBMUD staff. The following EBMUD practices and procedures are applicable to air quality.

- **EBMUD Standard Construction Specification 01 35 44, Environmental Requirements, Sections 1.4(F), 3.5, and 3.6**

EBMUD Standard Construction Specification 01 35 44, Environmental Requirements, includes practices and procedures for reducing air quality and emissions including dust emissions from construction related activities, described as follows (EBMUD, 2023):

- Section 1.4(F), Dust Control and Monitoring Plan
 - Submit a plan detailing the means and methods for controlling and monitoring dust generated by demolition and other work on the site for EBMUD's acceptance prior to any work at the jobsite.
 - Identify methods to comply with all applicable regulations including but not limited to the Bay Area Air Quality Management District (BAAQMD) visible emissions regulation and Public Nuisance Rule.
 - Outline practices for preventing dust emissions and procedures to be used during operations and maintenance activities.
 - Include measures for the control of paint overspray and abrasive blasting emissions, including, but not limited to containment, ventilation systems and monitoring for damage and leaks.
 - Describe equipment and methods used to monitor compliance with the plan.
- Section 3.5, Air Quality Control

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- Implement all necessary air pollutant construction measures per the BAAQMD “Basic Construction Mitigation Measures” (BAAQMD CEQA Guidelines May 2017), including, but not limited to the following:
 - All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day.
 - 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.
 - All vehicle speeds on unpaved roads shall be limited to 15 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 5 minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations [CCR]). Clear signage shall be provided for construction workers at all access points.
 - All construction equipment shall be maintained and properly tuned in accordance with manufacturer’s specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation.
 - The contractor shall post an EBMUD-furnished, publicly visible sign with EBMUD and BAAQMD contact information regarding dust complaints.
- Implement all necessary air pollutant construction measures per the BAAQMD “Additional Construction Mitigation Measures” (BAAQMD CEQA Guidelines May 2017) including but not limited to the following:
 - All exposed surfaces shall be watered at a frequency adequate to maintain minimum soil moisture of 12 percent. Moisture content can be verified by lab samples or moisture probe.
 - All excavation, grading, and/or demolition activities shall be suspended when average wind speeds exceed 20 mph.
 - Wind breaks (e.g., trees, fences) shall be installed on the windward side(s) of actively disturbed areas of construction. Wind breaks should have at maximum 50 percent air porosity.
 - Vegetative ground cover (e.g., fast-germinating native grass seed) shall be planted in disturbed areas as soon as possible and watered appropriately until vegetation is established.
 - The simultaneous occurrence of excavation, grading, and ground-disturbing construction activities on the same area at any one time shall be limited. Activities shall be phased to reduce the amount of disturbed surfaces at any one time.

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- All trucks and equipment, including their tires, shall be washed off prior to leaving the site.
- Site accesses to a distance of 100 feet from the paved road shall be treated with a 6- to 12-inch compacted layer of wood chips, mulch, or gravel.
- Sandbags or other erosion control measures shall be installed to prevent silt runoff to public roadways from sites with a slope greater than one percent.
- Minimizing the idling time of diesel-powered construction equipment to two minutes.
- The project shall develop a plan demonstrating that the off-road equipment (more than 50 horsepower) to be used in the construction project (i.e., owned, leased, and subcontractor vehicles) would achieve a project wide fleet-average 20 percent NO_x reduction and 45 percent PM reduction compared to the most recent ARB fleet average. Acceptable options for reducing emissions include the use of late model engines, low-emission diesel products, alternative fuels, engine retrofit technology, after-treatment products, add-on devices such as particulate filters, and/or other options as such become available.
- Use low VOC (i.e., ROG) coatings beyond the local requirements (i.e., Regulation 8, Rule 3: Architectural Coatings).
- Requiring that all construction equipment, diesel trucks, and generators be equipped with Best Available Control Technology for emission reductions of NO_x and PM.
- Requiring all contractors use equipment that meets CARB's most recent certification standard for off-road heavy duty diesel engines.
- Implement all necessary EBMUD air pollutant construction measures, including but not limited to the following:
 - Gravel or apply non-toxic soil stabilizers on all unpaved access roads, parking areas and staging areas at construction sites. Submit specifications for any dust palliatives applied to unpaved roads to EBMUD.
 - Water and/or cover soil stockpiles daily.
 - All transitions from soil to a paved road shall have best management practices applied to prevent drag out of soil.
 - Water used for dust control shall not run off the job site and cause erosion or other issues.
 - Use of recycled water for dust control is encouraged.
 - Use line power instead of diesel generators at all construction sites where line power is available.
 - Temporary sources of air emissions (such as portable pumps, compressors, generators, etc.) shall be electrically powered unless the use of such equipment is not practical, feasible, or available.
 - All portable engines and equipment units used as part of construction shall be properly registered with the California Air Resources Board or otherwise permitted by the appropriate local air district, as required.

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- Minimize the use of diesel generators where possible.
- Follow applicable regulations for fuel, fuel additives, and emission standards for stationary, diesel-fueled engines.
- Locate generators at least 100 feet away from adjacent homes, schools, and parks.
- Perform regular low-emission tune-ups on all construction equipment, particularly haul trucks and earthwork equipment.
- On road and off-road vehicle tire pressures shall be maintained to manufacturer specifications. Tires shall be checked and re-inflated at regular intervals.
- Demolition debris shall be recycled for reuse to the extent feasible. See the Construction and Demolition Waste Disposal Plan paragraphs above for requirements for wood treated with preservatives (TWW).
- Section 3.6 Dust Monitoring During Demolition and Construction
 - Provide air monitoring along the perimeter of the job site. A minimum of 4 stations, one on each side of the EBMUD property, shall be established, capable of continuous measurement of total particulate concentration when any dust generating activity is occurring.
 - Conduct real-time air monitoring at appropriate locations onsite based on wind direction, type of construction activity, and sensitive receptors to ensure dust control measures are effective.
 - All environmental and personal air sampling equipment shall be in conformance with the Association of Industrial Hygiene and National Institute of Safety and Health (NIOSH) standards.
 - All analysis shall be completed by an ELAP certified laboratory for the specific parameters of interest.
 - The Contractor shall provide to EBMUD, within 72 hours of sampling, all test results.
 - The dust control system shall comply with the requirements of this section and any applicable laws and regulations. Specific limitations that shall be met include the following:
 - Ringelmann No. 1 Limitation: Contractor shall not emit from any source for a period or periods aggregating more than three minutes in any hour, a visible emission which is as dark or darker than No. 1 on the Ringelmann Chart, or of such opacity as to obscure an observer's view to an equivalent or greater degree.
 - Opacity Limitation: Contractor shall not emit from any source for a period or periods aggregating more than three minutes in an hour an emission equal to or greater than 20% opacity as perceived by an opacity sensing device, where such device is required by BAAQMD regulations.

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- **EBMUD Standard Construction Specification 02 82 13, Asbestos Control Activities, Sections 1.1, 1.5, 1.6, 3.1, and 3.2**

EBMUD Standard Construction Specification 02 82 13, Asbestos Control Activities, includes practices and procedures for removing asbestos associated with construction-related activities, described as follows (EBMUD, 2014).

- Section 1.1, Compliance and Intent
 - Furnish all labor, materials, facilities, equipment, services, employee training and testing, permits, and agreements necessary to perform the asbestos removal in accordance with these specifications and with the latest regulations from the U.S. Environmental Protection Agency (EPA), the Occupational Safety and Health Administration (OSHA), the Bay Area Air Quality Management District (BAAQMD), the Cal/EPA Department of Toxic Substance Control, the California Department of Occupational Safety and Health (DOSH), and other federal, state, county, and local agencies. Whenever there is a conflict or overlap of the above references, the most stringent provision is applicable.
 - During demolition procedures, the Contractor shall protect against contamination of soils, water, adjacent residences and properties, and the airborne release of hazardous materials and dusts. The Contractor will incur the costs associated with the implementation of controls and, if necessary, remediation. The Contractor shall be responsible for all necessary cleanup of contaminated areas/properties to pre-work condition and for all associated costs. It is the Contractor's responsibility to confirm and document the quantities of asbestos material to be removed.
 - Asbestos materials uncovered during the demolition activities shall be disposed of in an approved manner complying with all applicable federal, state, and local regulations. Appropriate waste manifests shall be furnished to EBMUD as per Sections 01 35 24 – Project Safety Requirements, and 01 35 44 – Environmental Requirements. Materials are conveyed to the Contractor "as is," without any warranty, expressed or implied, including but not limited to, any warranty to marketability or fitness for a particular purpose, or any purpose.
- Section 1.5, Submittals
 - Project Safety and Health Plan: The Contractor shall provide a Project Safety and Health Plan prior to project initiation as specified in Section 01 35 24.
 - Submit a detailed plan of the procedures proposed for use in complying with the regulations included in this specification. The plan shall include the location and layout of decontamination areas, the sequencing of asbestos work, the interface of trades involved in the performance of work, disposal plan including location of approved disposal site, and a detailed description of the methods to be employed to control pollution. Expand upon the use of portable HEPA ventilation system, method of removal to prohibit visible emissions in work area, and packaging of removed asbestos debris. Include asbestos abatement in the Construction and Demolition Waste Disposal Plan, in accordance with Section 01 35 44.

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- Certificates of Compliance: Submit certification that equipment required to contain airborne asbestos fibers conform to ANSI Z9.2.
- Section 1.6 Submittals (Job in Progress)
 - Provide to EBMUD, within 72 hours of sampling, test results of the personal air sampling described in Article 3.2.
 - Provide to EBMUD, results of required air sampling established at property and project boundaries within 72 hours of sampling, and measures the contractor has taken to improve non-conforming outcomes based on the results.
- Section 3.1, Initial Area Isolation
 - Demarcate the demolition area and specific hazard zones where asbestos removal occurs. Post warning signs and labels as required by Cal-EPA, BAAQMD, Cal OSHA Section 1529, and additional signs and warnings as directed by EBMUD.
 - Ensure asbestos hazards remain on site for proper abatement and disposal procedures. Ensure worker activity (access and egress) does not cause asbestos hazards to leave the project boundaries.
- Section 3.2, Work Activities
 - General Procedures: Perform all asbestos related work and comply with the general safety and health provisions in conformance with Cal/OSHA Title 8 CCR Section 1529. For asbestos abatement work, use general work practices, work practices for encapsulation as specified in 34 CFR Part 231 Appendix C, applicable CAL OSHA requirements, and other appropriate work procedures approved by the Environmental Protection Agency (EPA).
 - Suppress air-borne particulates using a minimum of two misting units operated simultaneously from the following product series given below:
 - Monsoon Atomizing Misting System, Buffalo Turbine, www.buffaloturbine.com
 - Or equal as approved by EBMUD
 - Ensure air borne asbestos limits are not exceeded and are compliance with U.S. Environmental Protection Agency (EPA), the Occupational Safety and Health Administration (OSHA), the Bay Area Air Quality Management District (BAAQMD), the Cal/EPA Department of Toxic Substance Control, the California Department of Occupational Safety and Health (DOSH), and other federal, state, county, and local agencies requirements for airborne emissions.
 - Monitoring: Monitoring of airborne concentrations of asbestos shall be in accordance with Title 8CCR section 1529, and BAAQMD requirements.
 - Baseline air monitoring shall be conducted prior to demolition work and prior to asbestos related work. Base air measurements shall be established at the property boundary in the east, west, north and south coordinates.
 - If monitoring shows airborne concentrations greater than regulatory asbestos control limits, stop all work, correct the conditions causing the excessive levels, and notify EBMUD immediately.

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- Conduct at a minimum one set of post-asbestos removal/demolition air monitoring established at the property boundary and in the same location of baseline monitoring in the east, west, north and south coordinates.
- **EBMUD Procedure 600**
 - Designates a Public Affairs liaison to respond to construction-related issues, including noise. Contact information for the Public Affairs liaison (i.e., phone number, email address) and capital project site address will be provided via conspicuous signage at construction sites, on all advance notifications, and on the District project website. The Public Affairs liaison will coordinate with the construction project manager/engineer and any contractors to resolve any issues.
 - Notifies residents at least seven days (and preferably fourteen days) in advance of potentially disruptive construction activities (e.g., noise, traffic, parking); notifications will include the activities' geographical extent and estimated duration. The Public Affairs liaison will coordinate with the project manager/engineer and any contractors to provide advance notification via email, mailed notices, door-hangers, social media, or other means, as appropriate.

3.2.3 Impact Analysis

Methodology for Analysis

The air quality analysis is consistent with the methods described in the BAAQMD *CEQA Air Quality Guidelines* (BAAQMD, 2022b). Intermittent (short-term construction emissions that occur from such activities as removal of structures, site-grading, and building construction) and long-term air quality impacts related to Project were evaluated by estimating daily and annual emissions (i.e., mobile, area, stationary, and fugitive sources) from construction and operational activities. The construction emissions were determined based on the information in the *Sobrante Water Treatment Plant Constructability Report Technical Memorandum* (Brown and Caldwell, 2021) and addendums (EBMUD, 2022b) and *Central North Aqueduct Alignment Study* (EBMUD, 2022a). Regulatory models used to estimate air quality impacts for the Project included the following:

- California Emissions Estimator Model (CalEEMod) Version 2020.4.0 (CAPCOA, 2021): CalEEMod is a statewide land use emissions computer model to quantify potential criteria pollutant and GHG emissions associated with both construction and operations from a variety of land use projects. The model quantifies direct emissions from construction and operation activities (including vehicle use), as well as indirect emissions, such as GHG emissions from energy use, solid waste disposal, vegetation planting and/or removal, and water use.
- CARB Emissions Factor (EMFAC) (CARB, 2022c) emissions inventory model: CARB EMFAC is used to calculate emission inventories and emission rates for motor vehicles operating on roads in California.
- CARB OFFROAD (CARB, 2022b) emissions inventory model: CARB OFFROAD is used to calculate emission inventories and emission rates for off-road equipment, such as loaders, excavators, and off-road haul trucks operating in California.
- The construction emission estimates for the Central North Aqueduct pipeline were prepared using the Sacramento Metropolitan Air Quality Management District's

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Roadway Construction Emissions Model Version 9 (Sacramento Metropolitan Air Quality Management District, 2018). The roadway model is recommended for assessing the air emissions of linear construction projects, such as roadways, transmission lines, and pipelines.

- AERMOD (American Meteorological Society/EPA Regulatory Model, Version 21112): AERMOD is an atmospheric dispersion model that simulates point, area, volume, and line emissions sources, and has the capability to include simple, intermediate, and complex terrain along with meteorological conditions and multiple receptor locations (USEPA, 2022; USEPA, 2005). AERMOD commonly is executed to yield 1-hour maximum and annual average concentrations (in $\mu\text{g}/\text{m}^3$) at each receptor.

Air emissions modeling output worksheets are provided in Appendix E. The emissions generated from Project construction activities would include:

- Dust (including PM_{10} and $\text{PM}_{2.5}$) primarily from “fugitive” sources (i.e., emissions released through means other than through a stack or tailpipe), such as dust generated during material handling and travel on unpaved surfaces.
- Combustion exhaust emissions of criteria air pollutants (ROG, NO_x , CO, PM_{10} , and $\text{PM}_{2.5}$), primarily from operation of heavy off-road construction equipment, haul trucks (primarily diesel-operated), and construction worker automobile trips (primarily gasoline-operated).
- VOCs as ROGs, primarily from “fugitive” sources, such as architectural coating and paving.

Health Risk Assessment

A HRA is an analysis of the exposure to toxic substances and human health risks from exposure to toxic substances, based on the potency of the toxic substances. The HRA includes a quantitative analysis of Project construction emissions, given the proximity of construction activity on the SOWTP site to sensitive receptors and duration of construction activity at the SOWTP site. The analysis evaluates whether the Project would cause health risks at nearby receptors that exceed the BAAQMD thresholds. A HRA was conducted for the Project, following the California Office of Environmental Health Hazard Assessment’s (OEHHA) Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments (OEHHA, 2015). Appendix E provides the HRA methods, exposure parameters, and assumptions.

OEHHA specifies that because of the uncertainty in assessing cancer risk from very short-term exposures, it does not recommend assessing cancer risk for projects lasting less than 2 months. OEHHA recommends that exposure from projects longer than 2 months, but less than 6 months, be assumed to last 6 months, while exposure from projects lasting more than 6 months should be evaluated for the duration of the project.

Project construction activities would occur in two phases. At the SOWTP, Phase 1 construction is scheduled to begin in 2030 and be completed in 2034, followed by Phase 2 construction from 2045 to 2048. Construction of the Central North Aqueduct pipeline would occur in Phase 2 and

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would not occur for more than 2 months at any one location, with the exception of the jack and bore activities, which would occur for a 3-month period at the jack and bore pits. Therefore, a HRA was conducted for construction at the SOWTP site and the Central North Aqueduct pipeline jack and bore activities.

Significance Criteria

Consistent with Appendix G of the *CEQA Guidelines*, an impact would be considered significant if the Project would:

1. Conflict with or obstruct implementation of the applicable air quality plan.
2. 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.
3. Expose sensitive receptors to substantial pollutant concentrations.
4. Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.

BAAQMD Significance Thresholds

Impacts from Project construction are evaluated by comparing estimated construction emissions to the BAAQMD significance thresholds for construction, see Table 3.2-4. The thresholds of significance for risks and hazards were designed to ensure that no individual project (or source) creates a significant adverse impact and that no sensitive receptor endures a significant adverse impact from any individual project. As the SFBAAB is currently designated as a nonattainment area for ozone and particulate matter, a project would result in a significant air quality impact if the project were to exceed the identified project-level thresholds of significance.

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Table 3.2-4 Air Quality Thresholds of Significance (Project Level)

Construction Related*		Operational	
Criteria Air Pollutants and Precursors (Regional)			
Pollutant	Average Daily Emissions (lb/day)	Average Daily Emissions	Maximum Annual Emissions (tpy)
ROG	54	54	10
NO _x	54	54	10
PM ₁₀	82 (exhaust)	82	15
PM ₁₀ /PM _{2.5} (fugitive dust)	Best management practices**	None	
Local CO	None	9.0 ppm (8-hour average), 20.0 ppm (1-hour average)	
Local Risks and Hazards			
Risks and hazards for new sources and receptors (cumulative threshold)	Same as operational thresholds*	Cancer Risk: > 100 in a million (from all local sources) Non-cancer: > 10.0 Hazard Index (chronic, from all local sources) PM _{2.5} : > 0.8 µg/m ³ annual average (from all local sources)	OR Compliance with Qualified <i>Community Risk Reduction Plan</i>
Risks and hazards for new sources and receptors (individual project)	Same as operational thresholds*	Increased Cancer Risk >10.0 in a million Increased Non-cancer > 1.0 Hazard Index (chronic or acute) PM _{2.5} increase: > 0.3 µg/m ³ annual average	OR Compliance with Qualified <i>Community Risk Reduction Plan</i>
Odors	None	Five confirmed complaints per year averaged over 3 years	

Notes:

µg/m³ = micrograms per cubic meter; CO = carbon monoxide; lb/day = pounds per day; NO_x = oxides of nitrogen; PM_{2.5} = fine particulate matter with an aerodynamic resistance diameter of 2.5 micrometers or less; PM₁₀ = respirable particulate matter with an aerodynamic resistance diameter of 10 micrometers or less; ppm = parts per million; ROG = reactive organic gases; TACs = toxic air contaminants; tpy = tons per year; VMT = vehicle miles traveled.

* The BAAQMD recommends for construction projects that require less than 1 year to complete, lead agencies should annualize impacts over the scope of actual days that peak impacts would occur rather than over the full year. Additionally, for phased projects that results in concurrent construction and operational emissions. Construction-related exhaust emissions should be combined with operational emissions for all phases where construction and operations overlap.

** PM₁₀/PM_{2.5} (fugitive dust) is also recognized to impact local communities. The BAAQMD strongly recommends implementing all feasible fugitive dust management practices especially when construction projects are located near sensitive communities, including schools, residential areas, or other sensitive land uses. As explained below, EBMUD Standard Construction Specifications and Procedures for reducing dust and air pollutants are equivalent to BAAQMD BMPs.

Source: (BAAQMD, 2022b)

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BAAQMD recommends that analyses of fugitive dust emissions focus on implementation of dust control measures rather than comparing estimated levels of fugitive dust to a quantitative significance threshold. The BAAQMD considers implementation of the BAAQMD-recommended mitigation measures for fugitive dust sufficient to ensure that the impact from construction-related fugitive dust is reduced to a less-than-significant level (BAAQMD, 2022b).

Health Risk Assessment Thresholds

The OEHHA is responsible for identifying TACs, which are defined as pollutants that “may cause or contribute to an increase in deaths or in serious illness, or which may pose a present or potential hazard to human health” (Health and Safety Code Section 39655). TACs are emitted into the air from a wide range of sources, including diesel engines, cars, trucks, industrial processes, and gas stations. TACs are assessed locally and separated into carcinogens and noncarcinogens based on the nature of the physiological effects associated with exposure to the pollutant. Cancer risk is expressed as excess cancer cases per one million exposed individuals, typically over a lifetime of exposure. Noncarcinogenic substances differ in that reference exposure levels (RELs) have been developed to determine the level of exposure below which no adverse health impact is believed to occur. OEHHA develops the RELs on a pollutant-by-pollutant basis for use in risk assessments. TACs are regulated in California primarily through state and local risk management programs. The BAAQMD determined that a project would have a cumulatively considerable impact if it resulted in (BAAQMD, 2022b):

- An excess cancer risk level of more than 10 in a million; or
- A non-cancer hazard index greater than 1.0 (acute or chronic); or
- An incremental increase of greater than 0.3 $\mu\text{g}/\text{m}^3$ annual average $\text{PM}_{2.5}$.

The cumulative threshold addresses the potential that a project would have a cumulative significant impact if the aggregate total of all past, present, and foreseeable future sources within a 1,000-foot radius (or greater where appropriate) results in (BAAQMD, 2022b):

- An excess cancer risk level of more than 100 in a million; or
- A non-cancer hazard index greater than 10.0 (chronic); or
- An annual average of $\text{PM}_{2.5}$ greater than 0.8 $\mu\text{g}/\text{m}^3$.

Alternatively, a project that demonstrates compliance with an adopted *Qualified Community Risk Reduction Plan* may be found to have a less than significant impact, even if the above thresholds are met. Conversely, for a project in areas where a *Community Risk Reduction Plan* has been adopted, inconsistency with the *Community Risk Reduction Plan* would demonstrate a significant impact (BAAQMD, 2022b).

Impacts and Mitigation Measures

Impact AQ-1: Conflict with or obstruct implementation of the applicable air quality plan (*Criterion 1*).

The BAAQMD CEQA Guidelines recommend that a project’s consistency with the current air quality plan be evaluated using the following three criteria:

- The project supports the goals of the applicable air quality plan.
- The project includes applicable control measures from the air quality plan.

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- The project does not disrupt or hinder implementation of any control measures from the air quality plan.

If it can be concluded with substantial evidence that a project would be consistent with the above three criteria, then the BAAQMD considers it to be consistent with air quality plans prepared for the Bay Area (BAAQMD, 2017b).

The BAAQMD's 2017 *Clean Air Plan* is the most recently adopted air quality plan in the SFBAAB. The primary goals of the 2017 *Clean Air Plan* are to attain air quality standards, reduce population exposure, protect public health in the Bay Area, reduce GHG emissions, and protect the climate. The 2017 *Clean Air Plan* includes a range of control measures, which consist of actions to reduce combustion-related activities, decrease fossil fuel combustion, improve energy efficiency, and decrease emissions of potent GHGs. Numerous measures address the reduction of several pollutants: ozone precursors, PM, air toxics, and/or GHGs. Other measures focus on a single type of pollutant, super GHGs such as methane and black carbon, or harmful fine particles that affect public health.

The recommended guidance for determining whether a project supports the goals in the current clean air plan is to compare Project-estimated emissions with the BAAQMD thresholds of significance. If Project emissions would not exceed the thresholds of significance after the application of all feasible mitigation measures, the Project would be consistent with the goals of the 2017 *Clean Air Plan*. Construction and operational impacts of the Project are discussed next, which then are used to evaluate consistency with the 2017 *Clean Air Plan*.

Construction

Phase 1 construction activities are anticipated to begin in 2030 and be completed in 2034. Phase 2 construction would start in 2045 at the soonest and take approximately four years. Demolition activities associated with Phase 1 would involve removing approximately 17,500 square feet of structures, including the solids storage basin, reclaim basin, and pumping plant. Fugitive dust emissions were determined based on a disturbance area of approximately 13.2 acres (Phase 1) and approximately 12.4 acres (Phase 2).

Although construction emissions are considered to be short term and temporary, they would have the potential to be a significant impact with respect to air quality, particularly when construction extends over a long period and/or when sensitive receptors are close by. PM (i.e., PM₁₀ and PM_{2.5}) are among the pollutants of greatest local concern with respect to construction activities. Particulate emissions from construction activities could lead to adverse health effects and nuisance concerns, such as reduced visibility and soiling of exposed surfaces. Particulate emissions could result from a variety of construction activities, including excavation, grading, vehicle travel on paved and unpaved surfaces, and vehicle and equipment exhaust. Construction emissions of PM could vary greatly, depending on the level of activity, the specific operations taking place, the number and types of equipment operated, local soil conditions, weather conditions, and the amount of earth disturbance.

Emissions of ozone precursors ROG and NO_x primarily would be generated from construction equipment exhaust and mobile sources and would vary as a function of the number of daily

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vehicle trips, the types and number of heavy-duty, off-road equipment used, and the intensity and frequency of their operation. In addition, construction-related ROG emissions also would result from the application of asphalt and architectural coating; the amount of these emissions would vary, depending on the amount of paving or coating that would occur each day.

The average daily construction period emissions (i.e., total construction period emissions divided by the number of construction days) were compared to the BAAQMD significance thresholds. Table 3.2-5 shows the estimated short-term construction emissions associated with the Project and compares those emissions to the BAAQMD's significance thresholds for construction exhaust emissions. All construction-related emissions would be below the BAAQMD significance thresholds. BAAQMD also recommends that all projects implement the basic construction mitigation measures to ensure a project's impacts on air quality are less than significant even when project construction emissions are below the numeric significance thresholds.

Table 3.2-5: Estimated Maximum Average Daily Construction Emissions by Phase (pounds per day)

Condition/Year	ROG	NO _x	PM ₁₀	PM _{2.5}	CO
Phase 1 Uncontrolled	2.47	20.9	1.00	0.44	20.1
Phase 1 Controlled ^a	2.48	19.7	0.97	0.41	30.9 ^b
Phase 2 Uncontrolled	5.03	49.1	2.23	1.09	41.5
Phase 2 Controlled ^a	4.10	47.2	2.23	1.08	67.6 ^b
Significance Threshold	54	54	82	54	---
Exceeds Threshold?	No	No	No	No	No

Notes:

- ^a Amounts are shown in pounds per day.
- ^b Controlled emissions assumes implementation of EBMUD Standard Construction Specification 01 35 44, Environmental Requirements.
- ^c The control technology and combustion efficiency are focused on reducing NO_x emissions and PM emissions because these are tied to health impacts. However, the NO_x and PM emission reductions are at the expense of CO increases and minor ROG increases (pollutants for which the Bay Area is in attainment).
- ^d Construction emissions calculated were estimated with construction of Phase 1 starting in 2026 and construction of Phase 2 starting in 2035. The current project schedule estimates Phase 1 construction would start in 2030 and Phase 2 construction would start in 2045 at the soonest. Because equipment and vehicle operational efficiencies increase overtime, the earlier start date for construction conservatively presents a worst-case estimate of construction emissions and actual emissions would be less due to availability of higher efficiency vehicles and equipment in the future.

Source: (RCH Group, 2022).

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As detailed in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, have been incorporated into the Project, including EBMUD's Standard Construction Specification 01 35 44, Environmental Requirements, Section 1.4(F) and Section 3.5. Standard Construction Specification 01 35 44, Section 1.4(F), Dust Control and Monitoring Plan, and Standard Construction Specification 01 35 44, Section 3.5, Air Quality Control, require a dust control plan and implementation of dust control practices that address the BAAQMD's basic construction mitigation measures for dust and emissions controls and requires use of low VOC (i.e., ROG) architectural coatings to reduce ROG emissions during construction and maintenance. All demolition activities for asbestos-containing structures would be conducted in accordance with the requirements of EBMUD Standard Construction Specification 02 82 13, Asbestos Control Activities, Sections 1.1, 1.5, 1.6, 3.1, and 3.2, which would ensure compliance with the procedures required by the BAAQMD for the safe removal and disposal of asbestos-containing material. Additionally, EBMUD Procedure 600 would inform the nearby residences and provide a number for construction-related issues such as dust to resolve any issues.

Because Section 1.4(F), Dust Control and Monitoring Plan, and 3.5, Air Quality Control, of Standard Construction Specification 01 35 44, and Standard Specification 02 82 13, Asbestos Control Activities, Sections 1.1, 1.5, 1.6, 3.1, and 3.2 and EBMUD Procedure 600 would be incorporated into the Project and would provide compliance with the BAAQMD's basic construction mitigation measures as well as BAAQMD procedures for safe removal and disposal of asbestos-containing material, and because construction would not exceed the BAAQMD numeric threshold for air quality criteria air pollutants, the Project would be consistent with all applicable control strategies in the *2017 Clean Air Plan*, and the Project would have a less-than-significant impact with respect to conflicting with or obstructing implementation of the applicable air quality plan. The EBMUD Practices and Procedures Monitoring and Reporting Plan (Appendix C) lists the applicable standard specifications language.

Operation

Combustion exhaust emissions of criteria air pollutants would occur from operational vehicle travel including employee, light-duty truck, and delivery vehicle trips. Appendix E provides detailed emission calculations. Annual vehicle trips are anticipated to increase by 5,352 employee vehicle trips, 3,546 light duty truck trips, and 394 delivery truck trips (EBMUD, 2022c).

Operational employee vehicle and light duty trucks trip lengths were assumed to be 10.8 miles per one way trip per day. Delivery truck trip lengths were assumed to be 6.8 miles per one way trip per day. Paved road dust, brake wear, and tire wear particulate emissions also were accounted and included in the analysis, using EMFAC emission factors and methodologies.

Estimated daily and annual operational emissions that would be associated with the Project are shown in Table 3.2-6 and Table 3.2-7, and are compared to the BAAQMD's thresholds of significance. The Project's operational emissions would be below the BAAQMD's significance thresholds and would be less than significant.

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Table 3.2-6: Estimated Daily Operational Emissions (pounds)

Condition	ROG	NO _x	PM ₁₀	PM _{2.5}	CO
Project Daily Emissions	0.51	0.15	0.09	0.03	0.74
Significance Threshold	54	54	82	54	---
Exceeds Threshold?	No	No	No	No	No

Note: Amounts are shown in pounds.

Source: (RCH Group, 2022)

Table 3.2-7: Estimated Annual Operational Emissions (ton)

Condition	ROG	NO _x	PM ₁₀	PM _{2.5}	CO
Project Annual Emissions	0.09	0.02	0.01	<0.01	0.10
Significance Threshold	10	10	15	10	---
Exceeds Threshold?	No	No	No	No	No

Note: Measurements in tons.

Source: (RCH Group, 2022)

Because the operational emissions would not exceed the BAAQMD thresholds, the Project would be consistent with the 2017 *Clean Air Plan* and the Project would have a less-than-significant impact with respect to conflicting with or obstructing implementation of the applicable air quality plan.

Significance Determination before Mitigation

Less than significant.

Mitigation Measure

None required.

Impact AQ-2: 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. (*Criterion 2*)

Construction

The San Francisco Bay Area is designated as a nonattainment area for ozone and for the State's PM₁₀ standards, and for the State's and national (annual average and 24-hour) PM_{2.5} standards (Table 3.2-2). As previously discussed under Impact AQ-1, the BAAQMD has established thresholds of significance for air pollutants and their precursors to attain and maintain ambient air quality standards (Table 3.2-4).

By definition, regional air pollution generally is a cumulative impact. Emissions from present and future projects would contribute to the region's adverse air quality on a cumulative basis.

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No single project would be sufficient in size, by itself, to result in non-attainment of air quality standards. Instead, a project's individual emissions would contribute to existing cumulative air quality impacts (BAAQMD, 2017b). The project-level thresholds for criteria air pollutants are based on levels that would result in a cumulatively considerable net increase in criteria air pollutants if they were exceeded. Projects that would result in criteria pollutant emissions below these significance thresholds would result in a less than cumulatively considerable increase in criteria air pollutants.

As shown in Table 3.2-5 under Impact AQ-1, the Project's construction-related emissions for both Phase 1 and Phase 2 would not exceed the BAAQMD construction-related criteria air pollutant significance thresholds for ozone, PM₁₀, or PM_{2.5}. Because the Project's emissions would not exceed the BAAQMD project-level thresholds for criteria air pollutants, the Project would not result in a cumulatively considerable net increase in ozone, PM₁₀, or PM_{2.5} during construction resulting in a less than significant impact.

Operation

As shown in Table 3.2-6 and Table 3.2-7, under Impact AQ-1, the Project's operational emissions would not exceed the BAAQMD daily operation emission thresholds or the annual operational emission thresholds for ozone, PM₁₀, or PM_{2.5}. Because the Project would not exceed the BAAQMD project-level threshold for ozone, PM₁₀, or PM_{2.5}, the Project would not result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is non-attainment resulting in a less than significant impact.

Significance Determination before Mitigation

Less than significant.

Mitigation Measure

None required.

Impact AQ-3: Expose sensitive receptors to substantial pollutant concentrations. (Criterion 3)

Construction

Toxic Air Contaminants and Localized PM_{2.5} Concentrations

Project construction activities would produce TACs, primarily as DPM and PM_{2.5} emissions from the exhaust of diesel-fueled construction equipment (e.g., loaders, backhoes, cranes) as well as heavy-duty truck trips. These emissions could result in elevated concentrations of DPM and PM_{2.5} at nearby receptors. Exposure of receptors in the Project vicinity to these elevated concentrations could lead to an increase in the risk of cancer or other health impacts.

As discussed earlier, the SOWTP site is surrounded by residential uses and the jack and bore site for the Central North Aqueduct is adjacent to residences. Because of the expected Project construction duration and proximity to sensitive receptors, the potential would exist for construction-related DPM emissions to exceed the BAAQMD's risk and hazard significance thresholds of 10 excess cancer cases in a million, a hazard index of 1 for chronic and acute non-cancer risks, and an annual PM_{2.5} concentration of 0.3 µg/m³. Consequently, an HRA was

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conducted to determine the level of risk that could be generated from construction-related TACs and PM_{2.5} at nearby receptors.

The maximum off-site DPM and PM_{2.5} annual concentrations as modeled using AERMOD at the nearest receptor on Amend Road would be 0.88 µg/m³ which would be considered the Maximum Exposed Individual Receptor for the Project. As shown in Table 3.2-8, uncontrolled hazard impact and cancer risk for adult receptors would not exceed the BAAQMD *CEQA Air Quality Guidelines*' significance threshold. However, the cancer risk to child receptors and PM_{2.5} concentration would exceed the threshold of 10 in a million and 0.3 µg/m³, respectively. However, these would be the resultant risks from uncontrolled emissions from construction equipment. As detailed in the Project Description, a number of EBMUD standard practices and procedures applicable to all EBMUD projects would be incorporated into the Project, including Standard Construction Specification 01 35 44, Section 3.5, Air Quality Control, which requires all construction equipment, diesel trucks, and generators to be equipped with BACT for emission reductions of NO_x and PM and that the Project wide fleet-average would achieve 20 percent NO_x reduction and 45 percent PM reduction compared to the most recent CARB fleet average.

Implementation of Specification 01 35 44, Section 3.5, Air Quality Control, in the analysis assumes the use of engines that would meet the Tier 4 Final Standards, EPA's most stringent standards for off-highway diesel engines, as the BACT for all construction equipment. Tier 4 engines or installation of Level 3 verified diesel emission control strategies would be expected to reduce emissions by 85 percent compared to uncontrolled emissions (CARB, 2022d). Table 3.2-8 shows that with implementation of EPA Tier 4 engines and BACT, cancer risk for children and PM_{2.5} concentrations would not exceed the BAAQMD thresholds.

Table 3.2-8: Estimated Construction Health Impacts with and without Control Measures

Source	Cancer Risk (child/adult)	Hazard Impact	PM _{2.5} Concentrations (µg/m ³)
Proposed Project Construction	11.0/0.99	0.01	0.88
Significance Threshold	10	1.0	0.3
Exceeds Threshold?	Yes	No	Yes
Proposed Project Construction with control measures	9.18/0.81	0.01	0.10
Significance Threshold	10	1.0	0.3
Exceeds Threshold?	No	No	No

Source: (RCH Group, 2022)

Because Standard Construction Specification 01 35 44, Section 3.5, Air Quality Control, would be incorporated into the Project and would include implementation of EPA Tier 4 engines and BACT to reduce emissions, the Project would not expose receptors to substantial pollutant

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concentrations and the impact would be less than significant. The EBMUD Practices and Procedures Monitoring and Reporting Plan, provided in Appendix C, lists the applicable standard specifications language.

Criteria Air Pollutants

The Project would generate criteria pollutant emissions of ROG, NO_x, and PM, as discussed under Impact AQ-1. Because ozone formation occurs through a complex photo-chemical reaction between its precursors NO_x and ROG in the atmosphere with the presence of sunlight, the impacts of ozone typically are considered on a basin-wide or regional basis instead of a local basis. Therefore, the health-based ambient air quality standards for ozone are as concentrations of ozone and not as tonnages of their precursor pollutants (i.e., NO_x and ROG). It is not necessarily the tonnage of precursor pollutants emitted that causes human health effects, but the concentration of resulting ozone or PM. Meteorology, the presence of sunlight, seasonal impacts, and other complex chemical factors all combine to determine the ultimate concentration and location of ozone (South Coast Air Quality Management District, 2014; San Joaquin Valley Air Pollution Control District, 2014). Because the Project would not exceed the numeric indicator for ROG and NO_x emissions during either construction or operation, it is unlikely that Project ROG and NO_x emissions could result in an increase in ground-level ozone concentrations in proximity to the Project or elsewhere in the air basin; therefore, the impact would be less than significant.

Operations

Project operations primarily would generate trips for employees and hauling of dewatered solids during Phase 2 from the site. These emission sources would not generate a significant amount of TAC emissions during operation (see Table 3.2-7). Therefore, the Project would not result in significant health impacts on nearby sensitive receptors during operation. Operational emissions of criteria air pollutants from the Project would be minimal and the impact would be less than significant.

Significance Determination before Mitigation

Less than significant.

Mitigation Measure

None required.

Impact AQ-4: Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people. (*Criterion 4*)

Construction

During Project construction, the exhaust from diesel-fueled construction equipment would generate some odors. These emissions typically would dissipate quickly and would be unlikely to affect a substantial number of people. Construction-related odors would be temporary, local, and would not persist on the Project's completion. Therefore, a substantial number of receptors would not be affected at any given time during construction.

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Operation

The use of chlorine at the chlorine contact basin could result in generation of some odor. Chlorine already is in use at the SOWTP. The increased use of chlorine at the SOWTP would be expected to be minimal and proportional to the increase in water treated at the SOWTP. The Project also would include handling solids that would be removed during the treatment process. As discussed in the Project Description, solids would be contained in covered bins and would be removed from the site. Because the proposed increase in chlorine use would be minimal, and because all solids would be contained in bins and would not be stored in the open air, the impact from odors would be less than significant.

Significance Determination before Mitigation

Less than significant.

Mitigation Measure

None required.

3.2.4 Cumulative Impact Analysis

Criteria Air Pollutant Emissions

By definition, regional air pollution generally is a cumulative impact. Emissions from past, present, and future projects would contribute to the region's adverse air quality on a cumulative basis. No single project would be sufficient in size, by itself, to result in non-attainment of air quality standards. Instead, a project's individual emissions would be considered to contribute to existing cumulative air quality impacts (BAAQMD, 2017c). The project-level thresholds for criteria air pollutants are based on levels that would result in a cumulatively considerable net increase in criteria air pollutants if they are exceeded. Projects that would result in criteria pollutant emissions below these significance thresholds would result in a less than cumulatively considerable increase in criteria air pollutants. All the cumulative projects listed in Table 3.0-1 would be within the San Francisco Bay Area Air Basin. Projects that have already been constructed would have contributed to the region's existing air quality. Projects whose construction could overlap with the Project, including the Central Pressure Zone Pipeline, Wildcat Pumping Plant, North Reservoir Replacement, and Pearl Pumping Plant Rehabilitation would contribute emissions to the region's adverse air quality on a cumulative basis and would be expected to include mitigation to reduce the impacts to not exceed the BAAQMD's construction-related criteria air pollutant significance thresholds. As shown in Table 3.2-5, the Project's construction-related emissions would not exceed the BAAQMD's construction-related criteria air pollutant significance thresholds. Therefore, because the Project's emissions (Impact AQ-2) would not exceed the project-level thresholds for criteria air pollutants, the Project would not result in a cumulatively considerable contribution to regional air quality impacts. The cumulative impact would be less than significant.

Health Risks

The BAAQMD *CEQA Air Quality Guidelines* recommend an assessment of cumulative health risk impacts. Therefore, in addition to Project construction, possible local stationary or vehicular source emissions should be added to the concentration to determine the cumulative total.

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Specifically, the *CEQA Guidelines* require that existing stationary and mobile emissions sources within 1,000 feet of a project area be considered. Therefore, any potential cumulative health risk would derive from Project activities plus any existing identified risk sources in the Project vicinity.

The BAAQMD has developed a Google Earth application that maps the locations of all stationary sources in the region that the BAAQMD permits. For each source, the application lists the name of the source, the conservative screening level cancer risk, and the PM_{2.5} concentration values. According to the BAAQMD's records (BAAQMD, 2022c), three permitted stationary sources are within 1,000 feet of the Project. Two of the sources are the existing SOWTP and Maloney Pumping Plant, and they are included in the cumulative analysis because the SOWTP would be in operation while Project construction is occurring. Therefore, health risks associated with these sources have been included to determine the cumulative health risks. Table 3.2-9 shows the cumulative health risks (i.e., cancer risk, annual average PM_{2.5} emissions, and non-cancer [chronic hazards]) associated with these sources.

As shown in Table 3.2-9, the cumulative health risks from exposure of sensitive receptors in the Project vicinity to existing and proposed sources within 1,000 feet of the Project area would not exceed the BAAQMD's cumulative health risk significance thresholds. Therefore, cumulative health risks would be less than significant and the Project's contribution to cumulative health risks would not be cumulatively considerable.

Table 3.2-9 Cumulative Cancer and Non-Cancer Risks and PM_{2.5} Concentrations

Source	Cancer Risk (cases in 1 million)	Average Annual PM _{2.5} Concentration (µg/m ³)	Chronic Hazard (Hazard Index)
Proposed Project Construction (with control measures)	9.18	0.10	0.01
EBMUD existing SOWTP	9.69	0.279	0.016
EBMUD–Maloney Pumping Plant	0.35	0.005	0.002
Golden Gas Petroleum (gas station)	27.54	0.0	0.132
Cumulative Risk Maximum	46.76	0.384	0.16
Significance Threshold	100	0.8	1
Exceeds Threshold?	No	No	No

Source: (BAAQMD, 2022c)

As discussed under Impact AQ-1, after becoming operational, Project facilities would not significantly increase emissions of criteria air pollutants over existing conditions, and therefore would not contribute to a cumulative impact. The Project also would not be a source of TACs or

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PM_{2.5} emissions because no emissions sources (i.e., diesel-fueled equipment) would exist, and therefore Project operation would not contribute to cumulative risk and hazard impacts.

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3.3 Biological Resources

This section describes the physical, environmental, and regulatory setting for biological resources, identifies the significance criteria for determining environmental impacts, and evaluates the potential impacts on biological resource that could result from implementation of the Project. Biological resources include plant and wildlife species, especially those considered special-status species (including rare, threatened, or endangered species), sensitive natural communities, and sensitive habitats (e.g., streams and wetlands). Appendix F provides supporting biological resources information, including special-status species evaluations and an aquatic resources delineation for the Project.

3.3.1 Environmental Setting

Concepts and Terminology

The definitions below are those used by federal and state regulatory agencies in regulations and laws that apply to the Project.

- **Diameter at Breast Height (dbh):** The diameter of a tree trunk measured 4.5 feet above the ground. For multi-stemmed trees, dbh is calculated as two-thirds the sum of aggregated stem diameters.
- **Special-Status Species:** For this document, special-status species include the following:
 - Plant, fish, and wildlife species listed as threatened or endangered under the federal Endangered Species Act (FESA; 50 Code of Federal Regulations [CFR] 17), and species that are candidates for listing under the statutes.
 - Species protected by California Fish and Game Code (CFGC), including nesting birds and fully protected species.
 - Plant, fish, and wildlife species listed as threatened or endangered under the California Endangered Species Act (CESA); and the laws and regulations for implementing CESA as defined in CFGC Section 2050 et seq. and the California Code of Regulations (CCR) 14 CCR Section 670.1 et seq., and candidates for listing under CFGC Section 2068.
 - Species meeting the definition of “rare” or “endangered” under *CEQA Guidelines* 14 CCR Section 15125 (c) and/or 14 CCR Section 15380, including plants on California Native Plant Society (CNPS) Lists 1A, 1B, 2A, 2B, 3, and 4.
 - United States Fish and Wildlife Service (USFWS) Birds of Conservation Concern.
 - “Species of Special Concern,” as designated by the California Department of Fish and Wildlife (CDFW) and required under 14 CCR Section 15380.
 - Avian species protected under the Migratory Bird Treaty Act (MBTA) of 1918, as revised December 2017.

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- Other species that are considered sensitive or important by resource agencies and/or the scientific community.
- **Sensitive Natural Community:** A sensitive natural community is a biological community that is regionally rare, provides important habitat opportunities for wildlife, is structurally complex, or is in other ways of special concern to local, state, or federal agencies. Most sensitive natural communities are given special consideration because they perform important ecological functions, such as maintaining water quality and providing essential habitat for plants and wildlife. Some plant communities support a unique or diverse assemblage of plant species, and therefore are considered sensitive from a botanical standpoint. The most current version of CDFW's List of California Terrestrial Natural Communities (CDFW, 2023) indicates which natural communities are sensitive (i.e., ranked S1 to S3).
- **Protected Tree:** Contra Costa County defines protected trees in the Contra Costa County Tree Protection and Preservation Ordinance (Chapter 816-6) as:
 - Where the tree to be cut down, destroyed or trimmed by topping is adjacent to or part of a riparian, foothill woodland or oak savanna area, or part of a stand of four or more trees, measures twenty inches or larger in circumference (approximately 6.5 inches in diameter) as measured four and one-half feet from ground level, and is included in the following list of indigenous trees: *Acer macrophyllum* (Bigleaf Maple), *Acer negundo* (Box Elder), *Aesculus californica* (California Buckeye), *Alnus Rhombifolia* (White Alder), *Arbutus menziesii* (Madrone), *Heteromeles arbutifolia* (Toyon), *Juglans Hindsii* (California Black Walnut), *Juniperus californica* (California Juniper), *Lithocarpus densiflora* (Tanoak or Tanbark Oak), *Pinus attenuata* (Knobcone Pine), *Pinus sabiniana* (Digger Pine), *Platanus Racemosa* (California Sycamore), *Populus fremontii* (Fremont Cottonwood), *Populus trichocarpa* (Black Cottonwood), *Quercus agrifolia* (California or Coast Live Oak), *Quercus chrysolepis* (Canyon Live Oak), *Quercus douglasii* (Blue Oak), *Quercus kelloggii* (California Black Oak), *Quercus lobata* (Valley Oak), *Quercus wislizenii* (Interior Live Oak), *Salix lasiandra* (Yellow Willow), *Salix laevigata* (Red Willow), *Salix lasiolepis* (Arroyo Willow), *Sambucus callicarpa* (Coast Red Elderberry), *Sequoia sempervirens* (Coast Redwood), *Umbellularia californica* (California Bay or Laurel);
 - Within any undeveloped property or area designated for recreation or open space area:
 - Any tree measuring 20 inches or larger in circumference, measured 4.5 feet from ground level;
 - Any multi-stemmed tree with the sum of the circumferences measuring 40 inches or larger, measured 4.5 feet from ground level; or
 - Any significant grouping of trees, including groves of four or more trees.

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- **Jurisdictional Waters:** Jurisdictional waters are classified as either “waters of the United States” or “waters of the State”:
 - ***Waters of the United States:*** The U.S. Army Corps of Engineers (USACE) regulates “waters of the United States” (WOTUS) under Section 404 of the Clean Water Act (CWA). WOTUS are defined broadly as waters susceptible to use in commerce, including interstate waters and wetlands, all other waters (intrastate water bodies, including wetlands), and their tributaries (33 CFR 328.3). Potential wetland areas are identified by the presence of: (1) hydrophytic vegetation, (2) hydric soils, and (3) wetland hydrology. Areas that are inundated for sufficient duration and depth to exclude the growth of hydrophytic vegetation are subject to Section 404 jurisdiction as “other waters” and often are characterized by an ordinary high-water mark (generally naturally occurring lakes, rivers, and streams). The placement of fill material into WOTUS, (including wetlands) generally requires an Individual or Nationwide Permit from the USACE under Section 404 of the CWA, and a water quality certification from the state under Section 401 of the CWA.
 - ***Waters of the State.*** The term “waters of the State” (WOS) is defined by the Porter-Cologne Water Quality Control Act (Porter-Cologne Act) as “any surface water or groundwater, including saline waters, within the boundaries of the state.” The Regional Water Quality Control Board (RWQCB) protects all waters in its regulatory scope but has special responsibility for wetlands, riparian areas, and headwaters, which have high resource value, are vulnerable to filling, and are not protected by systematically other programs. RWQCB jurisdiction includes “isolated” wetlands and waters that are not “waters of the United States” and are not regulated by USACE under Section 404. If a project does not require a federal permit but does involve dredge or fill activities that may result in a discharge to Waters of the State, the RWQCB regulates the dredge and fill activities under its state authority in the form of Waste Discharge Requirements.
- **Wildlife Movement Corridor:** A wildlife movement corridor is defined as an area that connects suitable wildlife habitat areas in a region otherwise fragmented by rugged terrain, changes in vegetation, or human disturbance. Natural features—such as canyon drainages, ridgelines, or areas with vegetation cover—provide corridors for wildlife travel. Wildlife movement corridors provide access to mates, food, and water; allow the dispersal of individuals away from high population density areas; and facilitate the exchange of genetic traits between populations. Wildlife movement corridors are considered sensitive by resource and conservation agencies.
- **Habitat Conservation Plan:** A Habitat Conservation Plan (HCP) is a planning document that is designed to accommodate economic development to the extent possible by authorizing the limited and unintentional take of listed species when it occurs incidental to otherwise lawful activities. An HCP is designed not only to

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help landowners and communities, but also to provide long-term benefits to species and their habitats. HCPs are developed under section 10(a)(1)(B) of the FESA and describe the anticipated effects of a proposed “taking,” how those impacts will be minimized and mitigated, and how the conservation measures included in the HCP will be funded.

- **Natural Community Conservation Plan:** A Natural Community Conservation Plan (NCCP) identifies and provides for the regional protection of plants, animals, and their habitats, while allowing compatible and appropriate economic activity. The NCCP program is implemented by CDFW as part of the Natural Community Conservation Planning Act (Fish and Game Code Section 2800).
- **Critical Habitat:** Critical habitat consist of areas (i) occupied by a threatened or endangered species at the time it was listed, (ii) that contain the physical or biological features that are essential to the conservation of endangered and threatened species, and (iii) that may need special management or protection. Critical habitat also may include areas that were not occupied by the species at the time of listing but are essential to its conservation (FESA 7[a][2]). Critical habitat is designated by USFWS for species protected under the FESA.

Data Collection

Literature and Database Review

The following literature sources and databases were reviewed to determine the special-status plant and wildlife species and sensitive natural communities and critical habitat that may occur or have been documented to occur in the Project vicinity, including the Central North Aqueduct pipeline jack and bore locations:

- USFWS Information for Planning and Consultation (IPaC) search (USFWS, 2020), and Critical Habitat Portal (USFWS, 2021)
- CNPS On-line Inventory of Rare and Endangered Plants of California for Richmond, California and eight surrounding U.S. Geological Survey (USGS) 7.5-minute quadrangles (CNPS, 2020)
- National Marine Fisheries Service (NMFS) On-line Species List Query (NMFS, 2020)
- USFWS National Wetlands Inventory (USFWS, 2021)
- CDFW California Natural Diversity Database (CNDDDB) for the Project area and a 3-mile buffer (CNDDDB, 2023)
- Aerial photographs using Google Earth (2020)

Biological Surveys

The biological survey area included all habitat types within the SOWTP site Project disturbance areas (Figure 3.3-1). Staff performed both desktop and in-field assessments to evaluate the presence of and/or likelihood of occurrence of sensitive resources on the SOWTP site. No biological surveys were performed within the Central North Aqueduct pipeline alignment

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Figure 3.3-1 Biological Survey Area



Source: (Maxar, 2021; Contra Costa County Department of Information Texhnology, 2017; Sequoia Ecological Consulting, Inc., 2023)

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because the pipeline is within roadways and the jack and bore pits are located adjacent to San Pablo Creek but within a paved area and an unvegetated disturbed area that do not contain biological resources.

Rare Plant Survey

Rare plant surveys were conducted in the biological survey area on May 10, June 3, and August 4, 2021, to document the presence or absence of rare plant species. Rare plant surveys were conducted during the appropriate flowering period for rare and special-status plants known to occur in the region of the biological survey area and in accordance with CDFW (2018), CNPS (2001), and USFWS (2000) published survey guidelines. Surveys were conducted by walking transects across the biological survey area. Surveys were floristic, i.e., to the individual species level, and all species observed during the surveys were noted and identified to the highest possible level necessary to determine rarity status. Samples of plants that could not be identified in the field were taken back to the lab and keyed using the Jepson Manual (Baldwin, et al., 2012) and/or Plants of the San Francisco Bay Region (Beidleman & Kozloff, 2014). The nomenclature used for plant names is consistent with the Jepson eFlora Project (2020).

Reconnaissance Survey

A reconnaissance biological survey was conducted in the biological survey area on October 4, 2021, and a supplemental survey was conducted for the Phase 2 staging area and access road on July 12, 2023. During the reconnaissance surveys, the biologist conducted a survey of the SOWTP site, characterized the vegetation communities present on the site, and documented plant and wildlife species that were observed. The plant nomenclature followed the Jepson Manual (Baldwin, et al., 2012), and the wildlife nomenclature followed CDFW's Complete List of Amphibian, Reptile, Bird, and Mammal Species in California (2016). Plant communities were classified following A Manual of California Vegetation (Sawyer, Keeler-Wolf, & Evens, 1995).

Tree Survey

Tree inventories were conducted by certified arborists within the SOWTP site April 21, 2021, May 7, 2021, June 15, 2021, July 6, 2021, and October 17, 2023. The tree survey included the following for all trees within the survey area ((Merrill Morris Partners, 2023)):

- Identifying all trees by species
- Tagging and locating the trees
- Measuring and recording the dbh for each tree
- Evaluating the health and structural condition
- Noting defects in the tree structure, insects, or disease
- Assessing tree suitability for preservation

The results of the tree inventory and assessment are provided in Appendix B.

Wetland Delineation

An aquatic resource delineation was conducted in the biological survey area on July 20, 2021 (Sequoia Ecological Consulting, 2022) (Appendix F) and a supplemental delineation was conducted for the Phase 2 staging area and access road on July 12, 2023 (Sequoia Ecological

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Consulting, 2023). The biological survey area was field-checked for indicators of hydrophytic vegetation, wetland hydrology, and hydric soils. The aquatic resource delineation was conducted in accordance with the USACE Wetlands Delineation Manual (USACE, 1987) and Arid West Regional Supplement (USACE, 2008). Based on the presence or absence of field indicators—including hydrophytic vegetation, wetland hydrology, and hydric soils—the limits of wetlands and other potential WOTUS and WOS were determined. A wetland delineation was not conducted for the Central North Aqueduct pipeline or jack and bore pits because of the absence of vegetation and indicators of wetlands within the Central North Aqueduct pipeline.

3.3.2 Existing Conditions

The SOWTP site contains native and non-native vegetation communities and developed areas. Vegetation communities within the biological survey area are shown on Figure 3.3-2 and are described in Table 3.3-1. The plant and wildlife species that were observed in the biological survey area are listed in Appendix F. The Central North Aqueduct pipeline is located in developed roadways, and the jack and bore pits are located in a paved area and a disturbed area that do not contain any vegetation communities, adjacent to San Pablo Creek. Due to the developed nature of the Central North Aqueduct pipeline area, no biological resource surveys were conducted for the Central North Aqueduct pipeline.

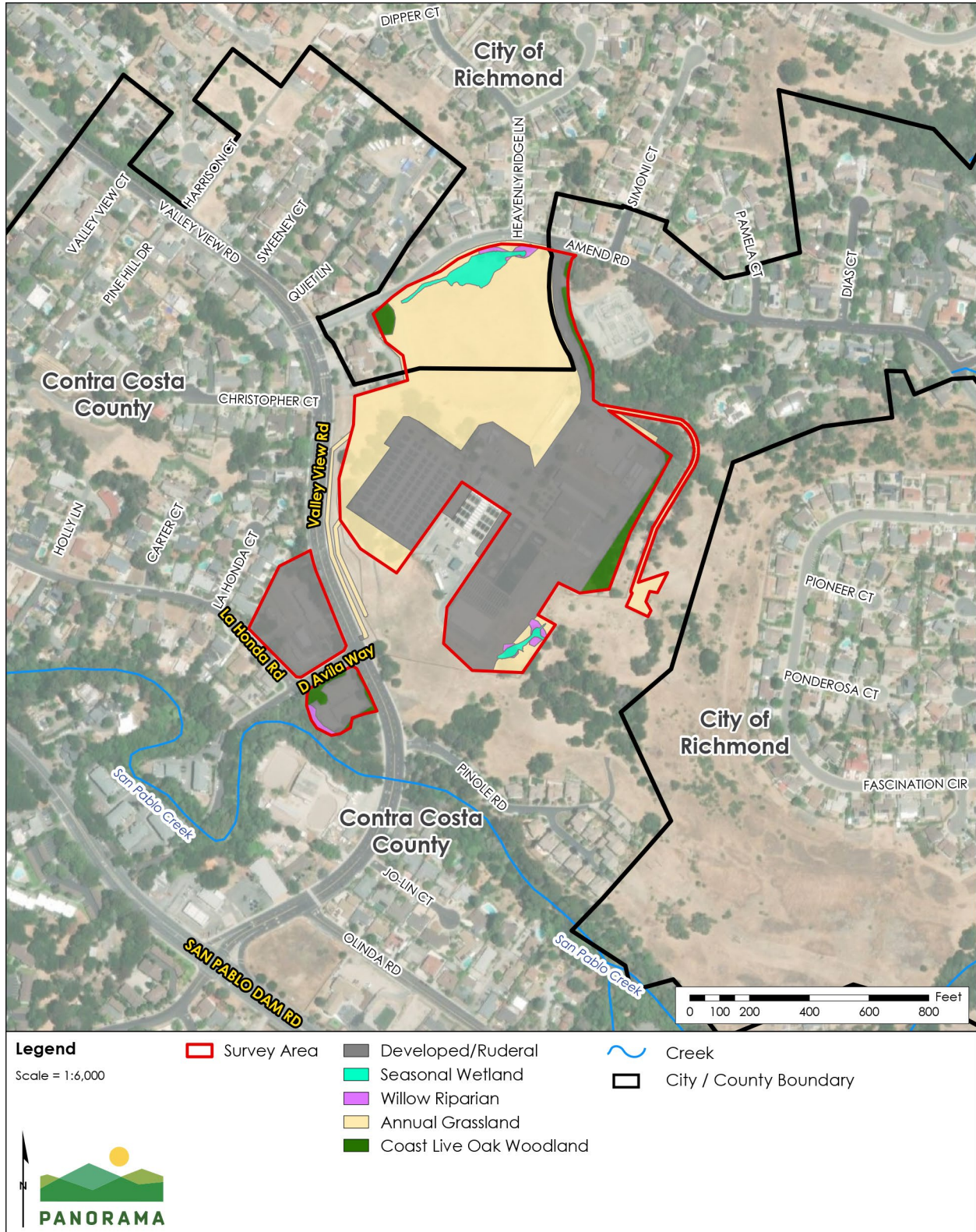
Special-Status Species

The potential for the special-status species that were identified in the literature and database review to occur in the Project area was evaluated according to the following criteria:

- *No Potential*. Habitat in the survey area is clearly unsuitable for the species' requirements (i.e., foraging, breeding, cover, substrate, elevation, hydrology, plant community, site history, disturbance regime).
- *Low Potential*. Few of the habitat components meeting the species' requirements are present, and/or the majority of habitat in and adjacent to the survey area is unsuitable or very poor quality. The species is not likely to occur on the site.
- *Moderate Potential*. Some of the habitat components meeting the species' requirements are present, and/or only some of the habitat in or adjacent to the survey area is unsuitable. The species has a moderate probability of being found on the site.
- *High Potential*. All of the habitat components meeting the species' requirements are present and/or most of the habitat in or adjacent to the survey area is highly suitable. The species has a high probability of being found on the site.
- *Present*. Species is observed on the site or has been recorded (i.e., CNDDDB, other reports) on the site recently.

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Figure 3.3-2 Vegetation Communities and Land Covers in the Biological Survey Area



Source: (Sequoia Ecological Consulting, 2021; Sequoia Ecological Consulting, 2023; Sequoia Ecological Consulting, 2022)

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Table 3.3-1 Vegetation Communities Within the Biological Survey Area

Type	Description of Vegetation Community and Location Within the Biological Survey Area
Ruderal	Ruderal vegetation communities are groupings of plants that thrive in areas disturbed by human activity. Dominant grass and forb species that were observed within ruderal communities in the biological survey area included bristly ox-tongue (<i>Helminthotheca echinoides</i>), Canada horseweed (<i>Erigeron canadensis</i>), stinkwort (<i>Dittrichia graveolens</i>), wild oat (<i>Avena</i> sp.), ripgut brome (<i>Bromus diandrus</i>), field bindweed (<i>Convolvulus arvensis</i>), broad leaf filaree (<i>Erodium botrys</i>), sharp-leaved fluellin (<i>Kickxia elatine</i>), prickly lettuce (<i>Lactuca serriola</i>), and coastal tarweed (<i>Madia sativa</i>). Ornamental trees and shrubs, such as cotoneaster (<i>Cotoneaster</i> sp.), star jasmine (<i>Jasminum multiflorum</i>), strawberry tree (<i>Arbutus unedo</i>), southern magnolia (<i>Magnolia grandiflora</i>), and fruit trees (<i>Prunus</i> and <i>Pyrus</i> spp.), were abundant in the developed areas, but some native species, such as blue elderberry (<i>Sambucus nigra</i> spp. <i>caerulea</i>), toyon (<i>Heteromeles arbutifolia</i>), coast redwood (<i>Sequoia sempervirens</i>), and manzanita (<i>Arctostaphylos</i> sp.), also were observed. Ruderal vegetation communities were found throughout the biological survey area, in or adjacent to developed areas.
Non-native Annual Grassland	Non-native annual grassland vegetation consists of non-native grasses and forbs. Plant species found in this habitat conform to the <i>Avena</i> spp.- <i>Bromus</i> spp. Herbaceous Semi-Natural Alliance (Sawyer, Keeler-Wolf, & Evens, 2009). Most species observed in the non-native annual grassland vegetation community have an annual duration and are adapted to disturbance. The non-native annual grassland habitat includes wild oat, soft chess (<i>Bromus hordeaceus</i>), ripgut brome, Italian ryegrass (<i>Festuca perennis</i>), field bindweed, spring vetch (<i>Vicia sativa</i>), English plantain (<i>Plantago lanceolata</i>), summer mustard (<i>Hirschfeldia incana</i>), bird's-foot trefoil (<i>Lotus corniculatus</i>), and wild radish (<i>Raphanus sativus</i>). Non-native annual grasslands were observed in the northern, southern, and western edges of the biological survey area.
Coast Live Oak Woodland	Coast live oak woodland consist of areas dominated by coast live oak canopy, with an understory composed of shrubs and herbaceous species such as poison oak and Himalayan blackberry. Non-native grasses and forbs also were observed within the coast live oak woodland understory. Coast live oak woodland was found in the northwest and east portion of the biological survey area and along San Pablo Creek.
Seasonal Wetland	Seasonal wetlands are dominated by hydrophytic plant species. Wetland plant species observed included Italian ryegrass, bulrush (<i>Schoenoplectus</i> sp.), Mediterranean barley (<i>Hordeum marinum</i> ssp. <i>gussoneanum</i>), creeping wildrye (<i>Elymus triticoides</i>), common velvetgrass (<i>Holcus lanatus</i>), curly dock (<i>Rumex crispus</i>), willow herb (<i>Epilobium ciliatum</i>), and emergent species such as broadleaf cattail (<i>Typha latifolia</i>), iris-leaved rush (<i>Juncus xiphioides</i>), and spreading rush (<i>Juncus patens</i>). The wetlands were observed within two depressional areas in the biological survey area, adjacent to willow riparian vegetation communities.
Willow Riparian	The willow riparian habitat is aligned with the <i>Salix gooddingii</i> – <i>Salix laevigata</i> Forest and Woodland Alliance (Sawyer et al. 2009). Willow riparian habitat in the biological survey area consisted of a canopy of red willow (<i>Salix laevigata</i>) and box elder (<i>Acer negundo</i>) as well as California buckeye (<i>Aesculus californica</i>), and California bay laurel (<i>Umbellularia californica</i>). The understory included English ivy (<i>Hedera helix</i>) and field hedge parsley (<i>Torilis arvensis</i>). Understory species generally were consistent with adjacent seasonal wetland and non-native grassland. Willow riparian habitat was observed on the northeast and south edge of the biological survey area, along seasonal wetlands. Willow riparian habitat also was found along San Pablo Creek.

Source: (Sequoia Ecological Consulting, 2021)

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Special-Status Plants

Sixteen special-status plant species have been documented within 3 miles of the SOWTP site according to CNDDDB (2023), CNPS (2020), and IPaC (USFWS, 2020). Of the sixteen special-status plants that occur in proximity to the Project area, four occupy habitats that occur within the biological survey area (Table 3.3-2). No special-status plant species were observed during the focused rare plant surveys. Appendix F provides a list of all rare and special-status plant species that were evaluated for potential to occur on the SOWTP site.

Table 3.3-2 Special-Status Plant Species with Potential to Occur on the SOWTP Site

Scientific Name	Common Name	Listed Status	Habitat Requirements	Potential for Occurrence
<i>Amsinckia lunaris</i>	Bent-flowered fiddleneck	1B.2	Occurs in coastal bluff scrub, cismontane woodland, and valley and foothill grassland at elevations of 10 to 1,640 feet.	Low potential. Grassland habitats are annual and highly disturbed. The species was absent during focused surveys.
<i>Cordylanthus mollis</i> ssp. <i>mollis</i>	soft bird's-beak	FE	Occurs in coastal prairie habitat, in grasslands on coastal terraces below 330 feet.	Low potential. Grassland habitats are annual and highly disturbed. The species was absent during focused surveys.
<i>Dirca occidentalis</i>	Western leatherwood	1B.2	Occurs in mesic areas within broad-leaved upland forest, closed-cone coniferous forest, chaparral, cismontane woodland, North Coast coniferous forest, riparian forest, and riparian woodland at elevations of 80 to 1,395 feet. Grows on moist and shaded slopes.	Low potential. Potentially suitable habitat occurs within the willow riparian areas on the south side of the SOWTP site. Species was absent during focused surveys.
<i>Helianthella castanea</i>	Diablo helianthella	1B.2	Occurs in azonal, rocky soils often in partial shade within broad-leaved upland forest, chaparral, cismontane woodland, coastal scrub, riparian woodland, and valley and foothill grassland at elevations of 195 to 4,265 feet.	Low potential. Potentially suitable habitat occurs within the grassland and willow riparian areas on the project site. The species was absent during focused surveys.

Notes:

^a CNPS Rare Plant Rank 1B = plants rare, threatened, or endangered in California, or elsewhere

^b FE = federally listed as endangered species

Source: (CNPS, 2020)

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Special-Status Wildlife

Twenty-eight special-status wildlife species have been documented within 3 miles of the Project area according to CNDDDB (2023) records and IPaC (2020). Of the special-status wildlife species documented within proximity to the site, five have the potential to occur within the habitat on the Project site. Table 3.3-3 summarizes the special-status wildlife species with some potential to occur in the Project area. Appendix F provides a list of special-status wildlife species that were evaluated for potential to occur in the Project area.

Table 3.3-3 Special-status Wildlife Species with Potential to Occur in the Project Area

Scientific Name, Common Name	Listed Status	Habitat Requirements	Potential for Occurrence
Reptiles and Amphibians			
<i>Emys marmorata</i> Western pond turtle	SSC	Occur in slow-moving rivers and streams (e.g., in oxbows), lakes, reservoirs, permanent and ephemeral wetlands, stock ponds, and sewage treatment plants. Prefers aquatic habitat with refugia such as undercut banks and submerged vegetation and requires emergent basking sites such as mud banks, rocks, logs, and root wads to thermoregulate their body temperature.	Low Potential. No suitable habitat occurs on the SOWTP site and the potential for occurrence at San Pablo Creek is low adjacent to the SOWTP site and jack and bore site because of limited basking sites.
<i>Rana draytonii</i> California red-legged frog	FT, SSC	Occurs in semi-permanent or permanent water at least 2 feet deep, bordered by emergent or riparian vegetation, and upland grassland, forest, or scrub habitats for aestivation and dispersal.	Low Potential. No upland habitat with burrowing potential occurs within 300 feet of San Pablo Creek. Breeding habitat at San Pablo Creek is limited and low quality because of limited pools in the creek.
Birds			
<i>Falco peregrinus anatum</i> American peregrine falcon	FP	Inhabits a variety of habitats ranging from wetland, coastal shorelines, and islands, to deserts, forests, and urban areas. Nests on cliffs, rocky outcrops, bare ground, and human-made structures, such as bridges, buildings, and other tall, prominent structures.	Low Potential. Limited occurrences are found within 3 miles; however, suitable nesting habitat occurs within structures and trees on the SOWTP site.

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Scientific Name, Common Name	Listed Status	Habitat Requirements	Potential for Occurrence
Mammals			
<i>Antrozous pallidus</i> pallid bat	SSC	Occurs in deserts, grasslands, shrublands, woodlands, and forests. Most common in open, dry, habitats with rocky areas for roosting. The roost must protect bats from high temperatures. Very sensitive to disturbance of roosting sites.	Low Potential. Marginal roosting habitat occurs in the trees on the SOWTP site.
<i>Neotoma fuscipes annectens</i> San Francisco dusky-footed woodrat	SSC	Inhabits oak and riparian woodlands with a well-developed understory as well as chaparral scrub habitats, where its conical stick nests are often visible. Nests can be found on the ground beneath sheltering vegetation or aboveground in tree canopies.	Low Potential. No dens were detected during the 2021 survey, and marginally suitable habitat occurs on the SOWTP site. The understory beneath the oak canopy was underdeveloped and unlikely to provide sufficient shade.

Notes:

- ^a FT = Federally listed as threatened species
- ^b SSC = State of California species of special concern
- ^c FP = State of California fully protected

Source: (Sequoia Ecological Consulting, 2021)

Sensitive Natural Communities

Of the four vegetation communities observed in the biological survey area, coast live oak woodland, willow riparian, and seasonal wetlands are considered sensitive natural communities by CDFW (2023).

Riparian Habitat

Riparian habitat occurs adjacent to San Pablo Creek, along the west edge of the biological survey area. San Pablo Creek flows south and west of the SOWTP, serving as the primary drainage in the area. Riparian habitat primarily consists of a canopy of red willow and box elder, with an understory consistent with the adjacent seasonal wetland and non-native grassland. The Central North Aqueduct pipeline crosses San Pablo Creek and associated riparian corridor adjacent to D Avila Way. Riparian woodland vegetation communities occur in the biological survey area, along swales and ephemeral drainages as discussed previously. The riparian woodland vegetation community occurs in isolated patches in the biological survey area and lacks a connected riparian corridor to San Pablo Creek.

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Wetlands

Two seasonal wetlands occur in the biological survey area. One seasonal wetland is along a swale that emerges below a culvert outfall under Amend Road. The swale drains southwest, broadens into a seep/swale complex, and then narrows into a more defined swale that drains into a culvert under an unpaved access road. The culvert discharges into an ephemeral drainage. The second wetland emerges from a culvert outfall at the south edge of the biological survey area adjacent to the sedimentation basins and drains southwest across a fill terrace via a ditch/swale, and discharges into a culvert.

Wildlife Corridors

The Project area is within an urbanized area of the cities of Richmond and San Pablo and unincorporated Contra Costa County. San Pablo Creek is the nearest wildlife corridor in proximity to the Project area. San Pablo Ridge Regional Park is approximately 0.3 mile east of the SOWTP site and is connected to open space areas through the hills of the East Bay that serve as a wildlife corridor.

Habitat Conservation Plan

EBMUD adopted the East Bay Municipal Utility District Low Effect Habitat Conservation Plan in 2008 (EBMUD, 2008). The EBMUD HCP provides coverage for take of certain federally listed species, associated with certain EBMUD ongoing operation and maintenance activities. The HCP does not cover construction of major capital projects, such as the Project. No other HCPs have been adopted that cover the Project area.

Natural Community Conservation Plan

No adopted NCCPs include the Project area or cover Project activities (CDFW, 2019).

3.3.3 Regulatory Framework

This section describes federal, state, and local policies and regulations related to biological resources that may apply to the Project.

Federal Policies and Regulations

Endangered Species Act and Migratory Bird Treaty Act

USFWS implements the FESA (16 U.S. Code [U.S.C.] Section 1531 et seq.) and MBTA (16 U.S.C. Section 703-712). Under these acts, USFWS has jurisdiction over migratory birds, candidate species, and species proposed or listed as threatened or endangered. All birds that are native to North America are protected under the MBTA, which prohibits the purposeful killing, possessing, or trading of migratory birds, nests, and eggs, except as otherwise provided under 16 U.S.C. Section 703–712 (e.g., regulated take of game species). Enacted in 1973, the FESA prohibits the take, possession, sale, or transport of proposed, candidate, or listed species. “Take” is broadly defined as “...the action of harassing, harming, pursuing, hunting, shooting, wounding, killing, trapping, capturing, or collecting, or attempting to engage in any such conduct.” Projects that would result in take of any species that are federally listed as threatened or endangered are required to obtain authorization from NMFS and/or USFWS through

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Section 7 (interagency consultation) or Section 10(a) (Incidental Take Permit) of the FESA, depending on whether the federal government is involved in permitting or funding the project.

Clean Water Act, Section 404

Under Section 404 of the CWA, USACE and the U.S. Environmental Protection Agency (EPA) regulate the discharge of dredge or fill material into WOTUS, including wetlands and lakes, rivers, streams, and their tributaries. For regulatory purposes, “wetlands” are defined as areas “...inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions” (33 CFR 328.3, 40 CFR 230.3). Impacts to WOTUS are regulated under Section 404 of the CWA, for which USACE and EPA have enforcement responsibility. Applicants must obtain a permit from USACE under Section 404 of the CWA for all discharges of dredge or fill material into WOTUS before proceeding with a proposed action. The water quality-related aspects of the CWA have been delegated to the California Water Resources Control Board (SWRCB) and the RWQCBs; those regulations are discussed next.

Clean Water Act, Section 401

Under Section 401 of the CWA, every applicant seeking a Section 404 permit is required to obtain water quality certification, which is issued by the SWRCB and is intended to verify that the proposed activity will comply with State water quality standards. The San Francisco Bay RWQCB has primary authority for implementing Section 401 of the federal CWA and California’s Porter-Cologne Water Quality Control Act for the Bay Area. These statutes regulate water quality conditions by establishing processes for developing and implementing planning, permitting, and enforcement authority for waste discharges to land and water. The San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan) establishes beneficial uses for surface and groundwater resources and sets regulatory water quality objectives that are designed to protect those beneficial uses (RWQCB, 2011).

State Policies and Regulations

CEQA Guidelines Section 15380

Section 15380(b) of *CEQA Guidelines* states that a species not listed on the federal or state list of protected species may be considered rare or endangered if the species can be shown to meet certain criteria. Section 15380(b) addresses projects that may significantly affect a species that is not yet listed by USFWS or CDFW but is under consideration for listing (e.g., a candidate species). CEQA enables an agency to protect a species from significant project impacts until the respective government agencies have had an opportunity to list the species as protected, if warranted. In general, plants appearing on CRPR List 1 (plants believed to be extant and rare, threatened, or endangered plants in California) and List 2 (rare, threatened, or endangered plants in California but more numerous elsewhere) are considered to meet CEQA’s Section 15380 criteria.

California Endangered Species Act

CDFW administers the CESA. Furthermore, Section 2080 of the CFGC prohibits take of any species that the Fish and Wildlife Commission determines to be an endangered species or a

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threatened species. However, the CESA allows take that is incidental to otherwise lawful development projects.

Sections 2081(b) and (c) of the CESA allow CDFW to issue an Incidental Take Permit for a State-listed threatened or endangered species only if specific criteria are met. These criteria are stated in Title 14 of CCR, Sections 783.4(a) and (b) as follows:

- The authorized take is incidental to an otherwise lawful activity.
- The effects of the authorized take are minimized and fully mitigated. The measures required to minimize and fully mitigate the effects of the authorized take:
 - Are roughly proportional in extent to the effect of the taking on the species.
 - Maintain the applicant's objectives to the greatest extent possible.
 - Are capable of successful implementation.
- Adequate funding is provided to implement the required minimization and mitigation measures and to monitor compliance with and the effectiveness of the measures.
- Issuance of the permit will not jeopardize the continued existence of a state-listed species.

Under Section 2081, Incidental Take Permits cannot be issued for species that are “fully protected” under state law. Several state-listed species also are listed as threatened or endangered under the CESA.

Lake or Streambed Alteration Agreement

Under Section 1602 of the CFGC, CDFW regulates activities that would alter the flow or change or use any material from the bed, channel, or bank of any perennial, intermittent, or ephemeral river, stream (such as San Pablo Creek), or lake. A Section 1602 Lake or Streambed Alteration Agreement is required before implementing any activity that would discharge material to a lake or stream, or that would substantially affect riparian vegetation. CDFW's jurisdiction under Section 1602 extends to the drip line of the riparian-dependent vegetation.

Native Plant Protection Act

The Native Plant Protection Act of 1977 prohibits importing rare and endangered plants into California, taking rare and endangered plants, and selling rare and endangered plants. CDFW may permit the take of state-listed rare plants using the same procedures and under the same conditions as Incidental Take Permits, voluntary local programs, NCCPs, Safe Harbor agreements, and Scientific/Educational/Management permits (14 CCR Section 786.9[d]). Removal of rare plants by publicly or privately owned public utilities may occur in compliance with certain provisions of the Native Plant Protection Act (CFGF Section 1913).

California Fish and Game Code – Sections 3503, 3503.5, 3513, and 4150

Section 3503 of the CFGC states that it is unlawful to take, possess, or needlessly destroy the nests or eggs of any bird except as otherwise provided by the CFGC or any regulation made pursuant thereto. Section 3503.5 of the CFGC protects all birds of prey (raptors) and their eggs

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and nests. Section 3513 states that it is unlawful to take or possess any migratory nongame bird as designated in the MBTA. Section 4150 of the CFGC states that all non-game mammals or parts thereof may not be taken or possessed except as otherwise provided in the code or in accordance with regulations adopted by the California Fish and Game Commission. Section 4150 applies to all bat species.

Porter-Cologne Water Quality Control Act

Water Code Section 13260 of the Porter-Cologne Water Quality Control Act requires that, “any person discharging waste, or proposing to discharge waste, within any region that could affect the waters of the state” file a report of discharge with the RWQCB. WOS are defined in the Porter-Cologne Act (Water Code Section 13050[e]) as “any surface water or groundwater, including saline waters, within the boundaries of the state.”

Local Regulations

Under Section 53091 of the California Government Code, local agency building and zoning ordinances do not apply to projects involving the location or construction of facilities for the production, generation, storage, treatment, or transmission of water. However, EBMUD’s practice is to work with local jurisdictions and neighboring communities during project planning, and to consider local environmental protection policies for guidance.

Contra Costa County General Plan

The *Contra Costa County General Plan* outlines the County’s goals for physical growth, conservation, and community life in the unincorporated Contra Costa County area and contains the policies and actions necessary to achieve those goals. The *Contra Costa County General Plan* was adopted in 1991 and has been reconsolidated twice, once for 1990 to 2005 and again for 2005 to 2020 (Contra Costa County, 2020). The following goals, policies, and measures related to biological resources are included as a part of the *Contra Costa County General Plan* Conservation Element:

Vegetation and Wildlife Policy 8-6. Significant trees, natural vegetation, and wildlife populations generally shall be preserved.

Vegetation and Wildlife Policy 8-7. Important wildlife habitats which would be disturbed by major development shall be preserved, and corridors for wildlife migration between undeveloped lands shall be retained.

Vegetation and Wildlife Policy 8-9. Areas determined to contain significant ecological resources, particularly those containing endangered species, shall be maintained in their natural state and carefully regulated to the maximum legal extent. Acquisition of the most ecologically sensitive properties within the County by appropriate public agencies shall be encouraged.

Vegetation and Wildlife Policy 8-10. Any development located or proposed within significant ecological resource areas shall ensure that the resource is protected.

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Vegetation and Wildlife Policy 8-12. Natural woodlands shall be preserved to the maximum extent possible in the course of land development.

Vegetation and Wildlife Policy 8-13. The critical ecological and scenic characteristics of rangelands, woodlands, and wildlands shall be recognized and protected.

Vegetation and Wildlife Policy 8-15. Existing vegetation, both native and non-native, and wildlife habitat areas shall be retained in the major open space areas sufficient for the maintenance of a healthy balance of wildlife populations.

Vegetation and Wildlife Policy 8-17. The ecological value of wetland areas, especially the salt marshes and tidelands of the bay and delta, shall be recognized. Existing wetlands in the County shall be identified and regulated. Restoration of degraded wetland areas shall be encouraged and supported whenever possible.

Contra Costa County Tree Ordinance

Contra Costa County Tree Protection and Preservation Ordinance (1994) (Chapter 816-6) prohibits removal of protected trees under certain circumstances. The definition of a protected tree includes:

- Where the tree to be cut down, destroyed or trimmed by topping is adjacent to or part of a riparian, foothill woodland or oak savanna area, or part of a stand of four or more trees, measures twenty inches or larger in circumference (approximately 6.5 inches in diameter) as measured four and one-half feet from ground level, and is included in the following list of indigenous trees: *Acer macrophyllum* (Bigleaf Maple), *Acer negundo* (Box Elder), *Aesculus californica* (California Buckeye), *Alnus Rhombifolia* (White Alder), *Arbutus menziesii* (Madrone), *Heteromeles arbutifolia* (Toyon), *Juglans Hindsii* (California Black Walnut), *Juniperus californica* (California Juniper), *Lithocarpus densiflora* (Tanoak or Tanbark Oak), *Pinus attenuata* (Knobcone Pine), *Pinus sabiniana* (Digger Pine), *Platanus racemosa* (California Sycamore), *Populus fremontii* (Fremont Cottonwood), *Populus trichocarpa* (Black Cottonwood), *Quercus agrifolia* (California or Coast Live Oak), *Quercus chrysolepis* (Canyon Live Oak), *Quercus douglasii* (Blue Oak), *Quercus kelloggii* (California Black Oak), *Quercus lobata* (Valley Oak), *Quercus wislizenii* (Interior Live Oak), *Salix lasiandra* (Yellow Willow), *Salix laevigata* (Red Willow), *Salix lasiolepis* (Arroyo Willow), *Sambucus callicarpa* (Coast Red Elderberry), *Sequoia sempervirens* (Coast Redwood), *Umbellularia californica* (California Bay or Laurel);
- Within any undeveloped property or area designated for recreation or open space area:
 - Any tree measuring 20 inches or larger in circumference, measured 4.5 feet from ground level;
 - Any multi-stemmed tree with the sum of the circumferences measuring 40 inches or larger, measured 4.5 feet from ground level;
 - Any significant grouping of trees, including groves of four or more trees

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The ordinance requires submittal of an application for a tree permit for projects that propose to trench, grade, or fill within the dripline of any protected tree, or cut down, destroy, trim by topping, or remove any protected tree.

City of Richmond General Plan

The *City of Richmond General Plan 2030* contains 15 elements addressing land use, economic development, housing, transportation, climate change, public safety, arts and culture, and open space conservation strategies. The *City of Richmond General Plan 2030* provides a comprehensive framework for developing a healthy city and healthy neighborhoods (City of Richmond, 2012). The following goals, policies, and measures related to biological resources are included as a part of the *City of Richmond General Plan 2030* Conservation Natural Resources and Open Space Element:

Goal CN1 Preserved and Restored Natural Habitat and Biodiversity – Policy CN1.1: Habitat and Biological Resources Protection and Restoration. Protect resources to maximize the efficacy of natural systems and encourage sustainable development practices and conservation measures to ensure a healthy natural environment. Protect wetlands from direct and indirect impacts of new and existing development and infrastructure. Ensure that direct and indirect impacts to wetland habitats are minimized by environmentally sensitive project siting and design. Protect and restore creek corridors and riparian areas to ensure they function as healthy wildlife habitat and biological areas. At a minimum, require mitigation of impacts to sensitive species ensuring that a project does not contribute to the decline of the affected species populations in the region. Identify mitigations in coordination with the U.S. Fish and Wildlife Service, the California Department of Fish and Wildlife and other regulatory agencies.

Goal CN1 Preserved and Restored Natural Habitat and Biodiversity – Action CN1.F: Special Status Species Protection Methods. Implement the special status survey methods of the California Department of Fish and Wildlife, U.S. Fish and Wildlife Service, Contra Costa County Department of Agriculture and CEQA requirements.

Goal CN6 A Healthy Urban Environment – Policy CN6.2: Protection and Expansion of Tree Resources. Protect native trees, heritage trees and oak woodlands.

City of San Pablo General Plan

The *City of San Pablo General Plan 2030* provides a vision of how San Pablo should be in the future by establishing guidelines that reflect city of San Pablo policies, goals, and efforts while enhancing quality of life. The *City of San Pablo General Plan 2030* serves as a blueprint for the future, outlines policies that guide development and conservation, and provides the basis for establishing detailed plans and implementing programs, such as development standards and

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specific plans (City of San Pablo, 2011). The following policies relevant to noise are included in the *City of San Pablo General Plan 2030* Open Space and Conservation Element:

Implementing Policy OSC-I-8 Nesting Bird Guidelines. If site work or construction (i.e., ground clearing or grading, including removal of trees or shrubs) activities are to occur during the nesting bird season (February 1 through August 31), the City will require a pre-construction survey by a qualified wildlife biologist, assessing potential special-status bird nesting habitat within 500 feet of the project site, no more than two weeks in advance of the planned activity. All identified nests should be buffered from the construction activity as recommended by the biologist and confirmed by City staff, in accordance with the nature of the construction and nesting activities.

Implementing Policy OSC-I-9 Bat Detection. For any development projects involving removal of mature trees and/or demolition of vacant buildings (both potential habitats for special-status bats), require a pre-construction survey by a qualified wildlife biologist to determine if bats are present using an acoustic detector. Require implementation of feasible recommendations of the biologist on removal of trees with signs of bat activity during a period least likely to adversely affect the bats, or the creation of a “no disturbance” buffer, if a viable alternative.

EBMUD Standard Construction Specifications

EBMUD’s standard construction specifications and procedures apply to all contractors completing work for EBMUD, and to work completed by EBMUD staff. The following EBMUD practices and procedures are applicable to biological resources.

- **EBMUD Standard Construction Specification 01 35 44, Environmental Requirements, Sections 1.1(B), 1.4(A, B, and E), and Section 3.2**

EBMUD’s Standard Construction Specification 01 35 44, Environmental Requirements, sets forth the contract requirements for environmental compliance to which construction crews must adhere, including provisions for protection water quality during construction, as follows (EBMUD, 2023a):

- Section 1.1(B), Site Activities
 - Protect storm drains and surface waters from impacts of project activity.
 - Store materials and wastes such as demolition material, soil, sand, asphalt, rubbish, paint, cement, concrete, or washings thereof, oil or petroleum products, or earthen materials in a manner to prevent it from being washed by rainfall or runoff outside the construction limits.
 - Reuse or dispose of excess material consistent with all applicable legal requirements and disposal facility permits.
 - Clean up all spills and immediately notify EBMUD in the event of a spill.
 - Equip stationary equipment such as motors, pumps, and generators with drip pans.

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- Divert or otherwise control surface water and waters flowing from existing projects, structures, or surrounding areas from coming onto the work and staging areas. The method of diversions or control be adequate to ensure the safety of stored materials and of personnel using these areas.
- Following completion of Work, remove ditches, dikes, or other ground alterations made by the Contractor. The ground surfaces shall be returned to their former condition, or as near as practicable, in EBMUD's opinion.
- Prevent visible dust emissions from leaving the work area.
- Maintain construction equipment in good operating condition to reduce emissions.
- Handle, store, apply, and dispose of any chemical or hazardous material used in the performance of the Work in a manner consistent with all applicable federal, state, and local laws and regulations.
- Section 1.4(A), Stormwater Management
 - Submit the Notice of Intent, Storm Water Pollution Prevention Plan (SWPPP), and all other documents prepared for compliance with the General Construction Storm Water Permit (NPDES No. CAS000002) to EBMUD and upload them in the SWRCB's Storm Water Multi-Application & Report Tracking System (SMARTS).
 - EBMUD will electronically acknowledge appropriate submittals in SMARTS after review.
 - Contractor shall pay for all registration and annual fees under this permit/program.
 - Submit a Storm Water Management Plan that describes measures that shall be implemented to prevent the discharge of contaminated storm water runoff from the jobsite. Contaminants to be addressed include, but are not limited to soil, sediment, concrete residue, pH less than 6.5 or greater than 8.5, and any other contaminants known to exist at the jobsite location as described in Document 00 31 24 – Materials Assessment Information.
- Section 1.4(B), Water Control and Disposal Plan
 - Plan shall describe measures for containment, handling, treatment (as necessary), and disposal of discharges such as groundwater (if encountered), runoff of water used for dust control, stockpile leachate, tank heel water, wash water, sawcut slurry, test water and construction water.
- Section 1.4(E), Spill Prevention and Response Plan
 - Submit plan detailing the means and methods for preventing and controlling the spilling of known hazardous substances used on the jobsite or staging areas.
 - Include a list of the hazardous substances proposed for use or generated by the Contractor on site, including petroleum products.
 - Define measures that will be taken to prevent spills, monitor hazardous substances, and provide immediate response to spills.

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- Include provisions for notification of EBMUD or alternate contact and appropriate agencies including phone numbers; spill-related worker, public health, and safety issues; spill control, and spill cleanup.
- Map showing hazardous materials project-related storage locations, names of the hazardous materials, and volumes/quantities.
- Submit a Safety Data Sheet (SDS) for each hazardous substance proposed to be used prior to delivery of the material to the jobsite.
- Section 3.2, Storm Water
 - Conduct all inspections, sampling, reporting, and other required provisions in the SWPPP.
 - Upload all necessary documents to SMARTS to comply with the Construction General Permit.
 - Follow all provisions in local storm water permits and/or rules during construction.
 - Maintain sufficient best management practices or other controls as outlined in the storm water management plan to prevent impacts to storm water from pollution including soil, dust, stored hazardous materials, and construction activities.
- **EBMUD Standard Construction Specification 01 35 45, Biological, Cultural, and Paleontological Requirements, Sections 3.1 and 3.2 (B, C, D, and E)**

EBMUD's Standard Construction Specification 01 35 45, Biological, Cultural, and Paleontological Requirements, sets forth the contract requirements for environmental compliance to which construction crews must adhere, including protection of biological resources during construction including the following (EBMUD, 2023b):

- Section 3.1, Training and Certification
 - Before beginning construction, all Contractor personnel involved in ground-disturbing activities are required to attend an environmental training program provided by EBMUD, of up to one day for site supervisors, foremen and project managers and up to 30 minutes for non-supervisory Contractor personnel. Contractor general personnel will receive a worker environmental awareness training.
 - The Contractor is responsible for ensuring that all workers requiring environmental training are identified to EBMUD.
 - Prior to accessing or performing construction work, the identified Contractor personnel shall:
 - Sign a wallet card provided by EBMUD verifying that the Contractor personnel has attended the appropriate level of training relative to their position; have understood the contents of the environmental training, and shall comply with all project environmental requirements.

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- Display an environmental training hard hat decal (provided by EBMUD after completion of the training) at all times.
- Section 3.2(B), Tree Protection
 - Locations of trees to be removed and protected are shown in the construction drawings. Pruning and trimming shall be completed by the Contractor and approved by EBMUD. Pruning shall adhere to the Tree Pruning Guidelines of the International Society of Arboriculture.
 - Erect exclusion fencing five feet outside of the drip lines of trees to be protected prior to ground disturbing activities. Erect and maintain a temporary minimum 3-foot high orange plastic mesh exclusion fence at the locations as shown in the drawings prior to ground disturbing activities. The fence posts shall be six-foot minimum length steel shapes, installed at 10-foot minimum on center, and be driven into the ground. The Contractor shall be prohibited from entering or disturbing the protected area within the fence except as directed by EBMUD. Exclusion fencing shall remain in place until construction is completed and EBMUD approves its removal.
 - No grading, construction, demolition, trenching for irrigation, planting or other work, except as specified herein, shall occur within the tree protection zone established by the exclusion fencing installed shown in the drawings. In addition, no excess soil, chemicals, debris, equipment or other materials shall be dumped or stored within the tree protection zone.
 - In areas that are within the tree dripline and outside the tree protection zone that are to be traveled over by vehicles and equipment, the areas shall be covered with a protective mat composed of a 12-inch thickness of wood chips or gravel and covered by a minimum ¾-inch thick steel traffic plate. The protective mat shall remain in place until construction is completed and EBMUD approves its removal.
 - Tree roots exposed during trench excavation shall be pruned cleanly at the edge of the excavation and treated to the satisfaction of a certified arborist provided by EBMUD.
 - Any tree injured during construction shall be evaluated as soon as possible by a certified arborist provided by EBMUD, and replaced as deemed necessary by the certified arborist.
- Section 3.2(C), Special-Status Plant Populations
 - In addition to the training identified in Article 3.1 above, special-status plant population training will include a description of the sensitive plant species in the Project vicinity, including natural history and habitat, the general protection measures to be implemented to protect the species, and a delineation of the limits of the work areas. Identified Contractor personnel will be required to sign documents stating that they understand that take of special-status plant species and destruction or damage of their habitat would be a violation of state and federal law.

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- In the spring prior to construction, the Designated Biologist will conduct preconstruction sensitive plant surveys in all areas where ground disturbance will occur. Any observed sensitive plant species will be mapped and flagged for avoidance where feasible. EBMUD will notify CDFW upon discovery of any sensitive plant species during preconstruction surveys.
- Sensitive plant species shall be avoided, or impacts shall be minimized by limiting ground disturbance where sensitive plants are present.
- To minimize impacts on sensitive vegetation immediately adjacent to designated construction areas, EBMUD will designate areas containing sensitive vegetation as restricted areas.
- Section 3.2(D), Protection of Birds Protected Under the Migratory Bird Treaty Act and Roosting Bats
 - Provide 30 days' written notice to the Engineer prior to ground disturbing activities, pruning, and trimming.
 - EBMUD will conduct biological reconnaissance in advance of construction and will conduct biologic monitoring during construction as necessary.
 - Protected Bird or Bat Species:
 - If protected species or suitable habitat for protected species is found during biological surveys, identified Contractor personnel shall complete the training below in addition to the training identified in Article 3.1:
 - Watch a video at an EBMUD-designated location, conducted by the Designated Biologist. The program will discuss all sensitive habitats and sensitive species that may occur within the project work limits, including the responsibilities of the Contractor's personnel, applicable mitigation measures, and notification requirements.
 - Birds Protected under the Migratory Bird Treaty Act (MBTA):
 - It is unlawful to pursue, hunt, take, capture, or kill any migratory bird without a permit issued by the U.S. Department of the Interior.
 - If ground disturbing activities occur between February 1 and August 31, during the nesting season, EBMUD will conduct a preconstruction survey for nesting birds within 7 days prior to construction to ensure that no nest will be disturbed during construction.
 - If active nests of migratory bird species (listed in the MBTA) are found within the project site, or in areas subject to disturbance from construction activities, an avoidance buffer to avoid nest disturbance shall be constructed. The buffer size shall be determined by EBMUD in consultation with CDFW and is based on the nest location, topography, cover, and species' tolerance to disturbance.
 - If an avoidance buffer is not achievable, the Designated Biologist will monitor the nest(s) to document that no take of the nest (nest failure) has occurred. Active nests shall not be taken or destroyed under the MBTA and,

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for raptors, under the CDFW Code. If it is determined that construction activity is resulting in nest disturbance, work should cease immediately, and the Contractor shall notify EBMUD who will consult with the Designated Biologist and appropriate regulatory agencies.

- If preconstruction surveys indicate that nests are inactive or potential habitat is unoccupied during the construction period, no further action is required. Trees and shrubs within the construction footprint that have been determined to be unoccupied by special-status birds or that are located outside the avoidance buffer for active nests may be removed. Nests initiated during construction (while significant disturbance from construction activities persist) may be presumed to be unaffected, and only a minimal buffer, determined by the Designated Biologist, would be necessary.
- Roosting Bats:
 - If ground disturbing activities occur between March 1 and July 31, during the bat maternity period, EBMUD will conduct a preconstruction survey for roosting bats within two weeks prior to construction to ensure that no roosting bats will be disturbed during construction.
 - If roosting surveys indicate potential occupation by a special-status bat species, and/or identify a large day roosting population or maternity roost by any bat species within 200 feet of a construction work area, the Designated Biologist will conduct focused day- and/or night-emergence surveys, as appropriate.
 - If active maternity roosts or day roosts are found within the project site, or in areas subject to disturbance from construction activities, an avoidance buffers shall be constructed. The buffer size will be determined by EBMUD in consultation with CDFW.
 - If a non-breeding bat roost is found in a structure scheduled for modification or removal, the bats shall be safely evicted, under the direction of the Designated Biologist in consultation with CDFW to ensure that the bats are not injured.
 - If preconstruction surveys indicate that no roosting is present, or potential roosting habitat is unoccupied during the construction period, no further action is required. Trees and shrubs within the construction footprint that have been determined to be unoccupied by roosting bats, or that are located outside the avoidance buffer for active roosting sites may be removed. Roosting initiated during construction is presumed to be unaffected, and no buffer would be necessary.
- Section 3.2(E), Project-Specific Wildlife Species
 - California Red-legged Frog
 - Seven days prior to construction activities, the Project area will be surveyed for California red-legged frog by the Designated Biologist. Surveys of the

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Project area will be repeated if a lapse in construction activity of two weeks or greater occurs.

- If the California red-legged frog is observed at the construction site at any time during construction, work shall cease immediately until the frog leaves the work area on its own or is relocated outside of the work area by the Designated Biologist. Any sightings and any incidental take will be reported to the USFWS and CDFW immediately by EBMUD.
- San Francisco dusky-footed woodrat
 - A preconstruction survey will be performed by the Designated Biologist within seven days prior to the start of ground-disturbing activities to identify the locations of active San Francisco dusky-footed woodrat nests within the project boundary. Any woodrat nests detected will be mapped and flagged for avoidance by the Designated Biologist.
 - If active nests are determined to be present, avoidance measures will be implemented first. Because San Francisco dusky-footed woodrats are year-round residents, avoidance mitigation is limited to restricting project activities to avoid direct impacts to San Francisco dusky-footed woodrats and their active nests to the extent feasible. A minimum ten-foot buffer should be maintained between project construction activities and each nest to avoid disturbance. In some situations, a smaller buffer may be allowed if, in the opinion of the Designated Biologist, removing the nest would be a greater impact than that anticipated as a result of project activities.
 - If an unoccupied woodrat nest is found within the site and it cannot be avoided, the nest should be disassembled by hand by the Designated Biologist. The nest materials should be relocated off site outside of the wildlife exclusion fencing to prevent rebuilding.
 - If occupied nests are found within the site, and a litter of young is found or suspected, the nest shall be left alone for two to three weeks before a recheck to verify that young are capable of independent survival before proceeding with nest dismantling. Dismantling shall be done by hand, allowing any animals to escape either along existing woodrat trails or toward other available habitat.
 - EBMUD will notify CDFW of any nests, unoccupied or occupied, before they are dismantled.

3.3.4 Impact Analysis

Methodology for Analysis

Impacts on biological resources are identified and evaluated based on relevant *CEQA Guidelines* and local standards, policies, and guidelines; on the likelihood that special-status species, sensitive habitats, wetlands and waters, and wildlife corridors are present in the Project area; and on the likely effects that Project construction and operation may have on these resources.

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Because construction would not begin until 2030 for Phase 1 or 2045 or later for Phase 2, special-status plant species that were absent during the focused surveys are considered in the impact analysis, as the potential exists for future occurrence. Appendix F provides the full list of species that were included as part of the database search.

This section analyzes potential impacts on biological resources from the Project construction phase (short-term) and the operations and maintenance phase (long-term). The analysis addresses potential direct, indirect, and cumulative impacts of the Project on special-status species and other protected biological resources, wetlands and other waters, and potential Project conflicts with local policies. Direct impacts are those resulting from the Project that would occur at the same time and place. Indirect impacts are those resulting from the Project that would occur later in time or farther removed in the distance while still reasonably foreseeable and related to the Project. Impact analyses typically characterize effects on biological resources as temporary or permanent, with a permanent impact referring to areas that are developed or otherwise precluded from restoration to a pre-Project state.

The word “substantial” as used in the significance criteria that is discussed next is defined by the following three principal components:

- Magnitude and duration of the impact.
- Uniqueness of the affected resource (rarity).
- Susceptibility of the affected resource to disturbance.

The approaches to the analyses of impacts related to Project construction and operations are described next under their respective headings.

Significance Criteria

Consistent with Appendix G of the *CEQA Guidelines*, an impact would be considered significant if the Project would:

1. 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 CDFW or USFWS.
2. 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.
3. 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.
4. 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.
5. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.

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6. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state Habitat Conservation Plan.

Criteria Requiring No Further Evaluation

One criterion listed above that is not applicable to actions associated with the Project is identified below, along with the supporting rationale as to why further consideration is unnecessary and a “no impact” determination is appropriate:

Criterion 6: Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan. No adopted HCPs, NCCPs, or other local, regional, or state HCPs are applicable to the Project or apply to the Project area (CDFW, 2019). Therefore, there would be no impact associated with conflicts with an HCP or NCCP.

3.3.5 Impacts and Mitigation Measures

Impact BIO-1: 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 CDFW or USFWS. (Criterion 1)

Construction

Special-Status Plants

The non-native grassland and willow riparian habitats on the SOWTP site provide marginally suitable habitat for the special-status plants listed in Table 3.3-2. The Project is not expected to affect any population of special-status plants because of their absence during the focused surveys in 2021; however, construction is not scheduled to start until 2030 for Phase 1 or 2045 for Phase 2, at the soonest. Although unlikely, the possibility exists that a special-status plant could establish in the area before Phase 1 or Phase 2 construction. If a special-status plant were to occur on the site at the time of construction, the plant could be affected by grading and vegetation removal activities, which would be a significant impact.

As detailed in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, have been incorporated into the Project, including Standard Construction Specification 01 35 45, Biological, Cultural, and Paleontological Requirements, Section 3.1, Training and Certification, and Section 3.2(C), Special-Status Plant Populations. EBMUD Standard Construction Specification 01 35 45, Biological, Cultural, and Paleontological Requirements, Section 3.1, Training and Certification, requires environmental awareness training for all construction workers. EBMUD Standard Construction Specification 01 35 45, Biological, Cultural and Paleontological Requirements, Section 3.2(C), Special-Status Plant Populations requires specific worker training on special-status plant populations and species as well as pre-construction surveys for sensitive plants by a Designated Biologist and avoidance of any sensitive plants by flagging and restricting access to areas containing sensitive plants.

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Because implementation of Standard Construction Specification 01 35 45, Biological, Cultural, and Paleontological Requirements Section 3.1 and 3.2(C) would require worker training, preconstruction surveys for special-status plants, and avoidance of any observed special-status plants, the impact on special-status plants would be less than significant. The EBMUD Practices and Procedures Monitoring and Reporting Plan (Appendix C) lists the applicable standard specification language.

California Red-Legged Frog and Western Pond Turtle

Direct Effects. No suitable habitat exists for California red-legged frog or western pond turtle on the SOWTP site or Central North Aqueduct pipeline. San Pablo Creek contains marginally suitable habitat for California red-legged frog and western pond turtle. California red-legged frog and western pond turtle have been documented traveling as far as 500 meters (1,640 feet) from suitable habitat but generally occur within 100 meters (328 feet) of suitable habitat (CDFW, 2000; J.B. Bulger, 2003). Because of the developed nature of the Project area and presence of roads and houses, limited upland habitat is available in the Project area in proximity to San Pablo Creek. The only activities in proximity to San Pablo Creek with contiguous overland habitat to San Pablo Creek would include demolition of the existing reclaim pumping plant facilities on D Avila Way, west of Valley View Road, and construction of temporary sending and receiving pits for Central North Aqueduct pipeline jack and bore activities adjacent to D Avila Way and D'Avila Woods Apartments. The demolition activities would occur within the fenced and graveled/developed areas of the existing reclaim pumping plant, where California red-legged frog and western pond turtle would not occur because of the absence of refugia/cover or burrows. Demolition of the existing facilities would have a less-than-significant impact on California red-legged frog and western pond turtle because all demolition activities would be conducted within existing developed areas and would not have the potential to encounter or harm either species. The jack and bore sending pit north of San Pablo Creek would be in a disturbed area, directly adjacent to the riparian corridor, and would not have any physical separation from the San Pablo Creek riparian corridor. California red-legged frog potentially could be burrowing within the sending pit area during construction. Furthermore, California red-legged frog or western pond turtle potentially could enter the work area during the jack and bore activities, and the activities or presence of the pit could cause injury or mortality of a California red-legged frog or western pond turtle, which would be a significant impact.

As detailed in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, have been incorporated into the Project, including Standard Construction Specification 01 35 45, Biological, Cultural, and Paleontological Requirements, Section 3.2(E), Project-Specific Protected Wildlife Species. EBMUD Standard Construction Specification 01 35 45, Biological, Cultural, and Paleontological Requirements, Section 3.2(E), Project Specific Wildlife Species requires a pre-construction survey for California red-legged frog within seven days prior to construction and cessation of work activities if a California red-legged frog is observed at the construction site. While Standard Construction Specification 01 35 45, Biological, Cultural, and Paleontological Requirements, Section 3.2(E) would reduce the

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potential for a California red-legged frog to be harmed by construction activities, the jack and bore pit would be an open pit that a California red-legged frog could fall into if one were to enter the jack and bore area. There are no EBMUD standard practices and procedures for western pond turtle that address the jack and bore pit. The potential impact on California red-legged frog and western pond turtle would remain significant after implementation of the Standard Construction Specification.

To mitigate the impact on California red-legged frog and western pond turtle, EBMUD would implement Mitigation Measure BIO-1, requiring installation of temporary exclusion fencing to prevent both species from entering the Central North Aqueduct pipeline jack and bore pits during construction.

Because Mitigation Measure BIO-1 would require installation of exclusion fence to ensure California red-legged frog and western pond turtle do not enter the work area during construction, the impact would be reduced to less than significant. The EBMUD Practices and Procedures Monitoring and Reporting Plan (Appendix C) lists the applicable standard specification language. The Mitigation Monitoring and Reporting Plan (Appendix C) includes the applicable mitigation measures to be implemented and the timing for implementation.

Indirect Effects. Project construction would require grading, excavation, staging, and stockpiling of soils and other soil-disturbing activities in the Project area or near San Pablo Creek. These activities could discharge sediment downstream, which potentially could affect aquatic habitat for California red-legged frog and western pond turtle. Damage to California red-legged frog or western pond turtle habitat from increased sedimentation or pollution would be a significant impact.

As detailed in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, have been incorporated into the Project, including Standard Construction Specification 01 35 44, Environmental Requirements. EBMUD Standard Construction Specification 01 35 44 Environmental Requirements, Section 1.1(B), Site Activities, Section 1.4(A), Stormwater Management, Section 1.4(B), Water Control and Disposal Plan, Section 1.4(E), Spill Prevention and Response Plan, and Section 3.2, Storm Water specify procedures and requirements to manage stormwater on the site, prevent and control spills of hazardous materials, and implement sediment and erosion control best management practices (BMPs), which would effectively avoid discharge of sediment or pollutants into San Pablo Creek.

Because EBMUD would implement Standard Construction Specification 01 35 44, Environmental Requirements, Sections 1.1(B), Section 1.4, and Section 3.2, which specify procedures to avoid discharge of sediment or other pollutants into San Pablo Creek, the impact on California red-legged frog and western pond turtle habitat at San Pablo Creek would be reduced to less than significant. The EBMUD Practices and Procedures Monitoring and Reporting Plan (Appendix C) lists the applicable standard specification language.

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American Peregrine Falcon

American peregrine falcon may nest in or near the SOWTP site, on buildings or trees. The Project could cause damage or destruction of an American peregrine falcon nest if a falcon was nesting on structures that would be demolished or trees that would be removed as part of the Project at the time of demolition or tree removal. Construction activity, including the use of heavy equipment, could disrupt the falcon's breeding behavior if it was nesting in proximity to the construction area. Destruction or disturbance of an American peregrine falcon nest during the nesting season (February through August) could lead to nest abandonment or poor reproductive success, which would be a significant impact.

As detailed in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, have been incorporated into the Project, including Standard Construction Specification 01 35 45, Biological, Cultural, and Paleontological Requirements. Standard Construction Specification 01 35 45, Biological, Cultural, and Paleontological Requirements, Section 3.1, Training and Certification requires environmental training for all contractor personnel. Standard Construction Specification 01 35 45, Biological, Cultural, and Paleontological Requirements, Section 3.2(D), Protection of Birds Protected Under the Migratory Treaty Act and Roosting Bats, requires preconstruction surveys for nesting birds during any construction activities from February 1 to August 31, delineation of avoidance zones from active bird nests in coordination with CDFW, and monitoring of any bird nests within the buffer zone by a Designated Biologist, so that no take (nest failure) would occur. EBMUD and its contractor also would be required to comply with the MBTA, which prohibits destruction of any migratory bird nest.

Because EBMUD will comply with the MBTA and implement Standard Construction Specification 01 35 45, Biological, Cultural, and Paleontological Requirements, Section 3.1, Training and Certification and Section 3.2(D), Protection of Birds Protected Under the Migratory Treaty Act and Roosting Bats which requires preconstruction surveys for nesting birds, delineation of avoidance zones from active bird nests in coordination with CDFW, and monitoring of any bird nests within the buffer zone by a Designated Biologist, the impact on American peregrine falcon, including the potential destruction of nesting habitat, eggs, or occupied nests, direct mortalities of young, and the abandonment of nests with eggs or young birds before fledging would be reduced to less than significant. The EBMUD Practices and Procedures Monitoring and Reporting Plan (Appendix C) lists the applicable standard specification language.

Pallid Bat

Roosting habitat for pallid bat may be present in buildings and tree hollows on the SOWTP site. Mature trees and human-made structures would be present in construction and demolition areas. Construction activities may result in the removal or disturbance of hibernation or maternal bat roost sites, from tree removal, ground disturbance, noise, or human intrusion during the roosting season (approximately March through July) on the SOWTP site. Removal or disturbance of a maternal bat roost could result in direct mortality and reduction in reproductive success, which would be a significant impact.

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As detailed in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, have been incorporated into the Project, including Standard Construction Specification 01 35 45, Biological, Cultural, and Paleontological Requirements. Standard Construction Specification 01 35 45, Biological, Cultural, and Paleontological Requirements, Section 3.1, Training and Certification requires environmental training for all contractor personnel. Standard Construction Specification 01 35 45, Biological, Cultural, and Paleontological Requirements, Section 3.2(D), Protection of Birds Protected under the Migratory Treaty Act and Roosting Bats, includes provisions for preconstruction roosting bat surveys during the maternity season, avoidance of maternal roosts during the maternal season, delineation of avoidance buffer zones, and eviction of non-maternal roosts before structure modification or removal.

Because EBMUD would implement Standard Construction Specification 01 35 45, Biological, Cultural, and Paleontological Requirements, Section 3.1, Training and Certification and Section 3.2(D), Protection of Birds Protected under the Migratory Treaty Act and Roosting Bats which includes provisions for preconstruction roosting bat surveys during the maternity season, avoidance of maternal roosts during the maternal season, delineation of avoidance buffer zones, and eviction of non-maternal roosts before structure modification or removal, the impact on special-status and common roosting bats, including the destruction of potential roosting habitat, occupied roosts, direct mortalities of young, and the abandonment of roosts with non-volant young, would be reduced to less than significant. The EBMUD Practices and Procedures Monitoring and Reporting Plan (Appendix C) lists the applicable standard specification language.

San Francisco Dusky-Footed Woodrat

San Francisco dusky-footed woodrat has the potential to occupy trees in the Project area. Removal of trees could result in destruction of nests and mortality of the San Francisco dusky-footed woodrat, which would be a significant impact.

As detailed in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, have been incorporated into the Project, including Standard Construction Specification 01 35 45, Biological, Cultural, and Paleontological Requirements. Standard Construction Specification 01 35 45, Biological, Cultural, and Paleontological Requirements, Section 3.2(E), Project-Specific Protected Wildlife Species requires preconstruction surveys for San Francisco dusky-footed wood rat, flagging and avoidance of nests, and appropriate dismantling of nests, after notifying CDFW.

Because EBMUD would implement Standard Construction Specification 01 35 45, Biological, Cultural, and Paleontological Requirements, Section 3.2(E), Project-Specific Protected Wildlife Species, which requires a preconstruction survey for San Francisco dusky-footed woodrat and defines approaches for avoidance and relocation of nests if San Francisco dusky-footed woodrat occurs on the site, the impact on San Francisco dusky-footed woodrat would be reduced to less than significant. The EBMUD Practices and Procedures Monitoring and Reporting Plan (Appendix C) lists the applicable standard specification language.

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Operation

After the Project is operational, operation and maintenance activities on the SOWTP site would be limited to the areas developed for the Project. Operation and maintenance would not cause habitat loss and would not encroach on habitat for any special-status species. Operation and maintenance activities would not impact special-status plants, California red-legged frog, western pond turtle, or San Francisco dusky-footed woodrat because the developed SOWTP area would not contain any habitat for special-status species. Although American peregrine falcon or pallid bat could nest or roost in or around the SOWTP site, operation and maintenance activities would not impact American peregrine falcon or pallid bat because any special-status species that choose to nest or roost in the developed Project area would be acclimated to the ongoing operation of the Project and would not be disturbed by the ongoing activities.

Significance Determination before Mitigation

Potentially significant.

Mitigation Measures

Mitigation Measure BIO-1: California Red-Legged Frog and Western Pond Turtle

No more than 24 hours before the date of initial ground disturbance and exclusion fence installation for the Central North Aqueduct pipeline jack and bore pits, a preconstruction survey for California red-legged frog and western pond turtle shall be conducted by a Designated Biologist within the jack and bore pit disturbance areas.

If any California red-legged frog or potential burrows, or western pond turtle are found, the contractor shall allow the California red-legged frog or western pond turtle to leave the work area on its own or adjust the work area limits to avoid the California red-legged frog or western pond turtle. If avoidance is infeasible, EBMUD shall obtain any required USFWS permit/approval required to relocate the individual(s).

Temporary exclusion fencing shall be installed around the limits of the Central North Aqueduct pipeline northern jack and bore work area, so that special-status amphibians, reptiles, and mammals cannot enter the work area. Installation of exclusion fencing shall occur under the supervision of the Designated biologist and immediately following a clearance survey of the area. The exclusion fencing shall have a minimum aboveground height of 30 inches, and the bottom of the fence shall be keyed in at least 4 inches deep and backfilled with soil, sandbags, gravel, or other means to prevent wildlife from passing under the fencing. Exclusion fencing shall be installed to prevent species entry into active work areas, and to mark the limits of construction disturbance at equipment staging areas, site access routes, construction equipment and personnel parking areas, debris storage areas, and any other areas that may be disturbed.

The exclusion fencing shall be installed in a manner that reduces the potential for trapping migrating wildlife and for wildlife climbing over the fence, such as having the top of the fencing curved over on the outside of the fence. The exclusion fencing shall

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remain in place and be maintained for the duration of construction activities at the Central North Aqueduct pipeline northern jack and bore pit. Any damage to the exclusion fence shall be repaired within 48 hours of the observed damage.

Significance Determination after Mitigation

Less than significant. Mitigation Measures BIO-1 includes preconstruction surveys and installation of exclusion fencing to avoid impacts on California red-legged frog and western pond turtle which would effectively avoid and reduce the impact on special-status species to less than significant.

Impact BIO-2: Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the CDFW or USFWS. (*Criterion 2*)

Construction

Riparian Habitat

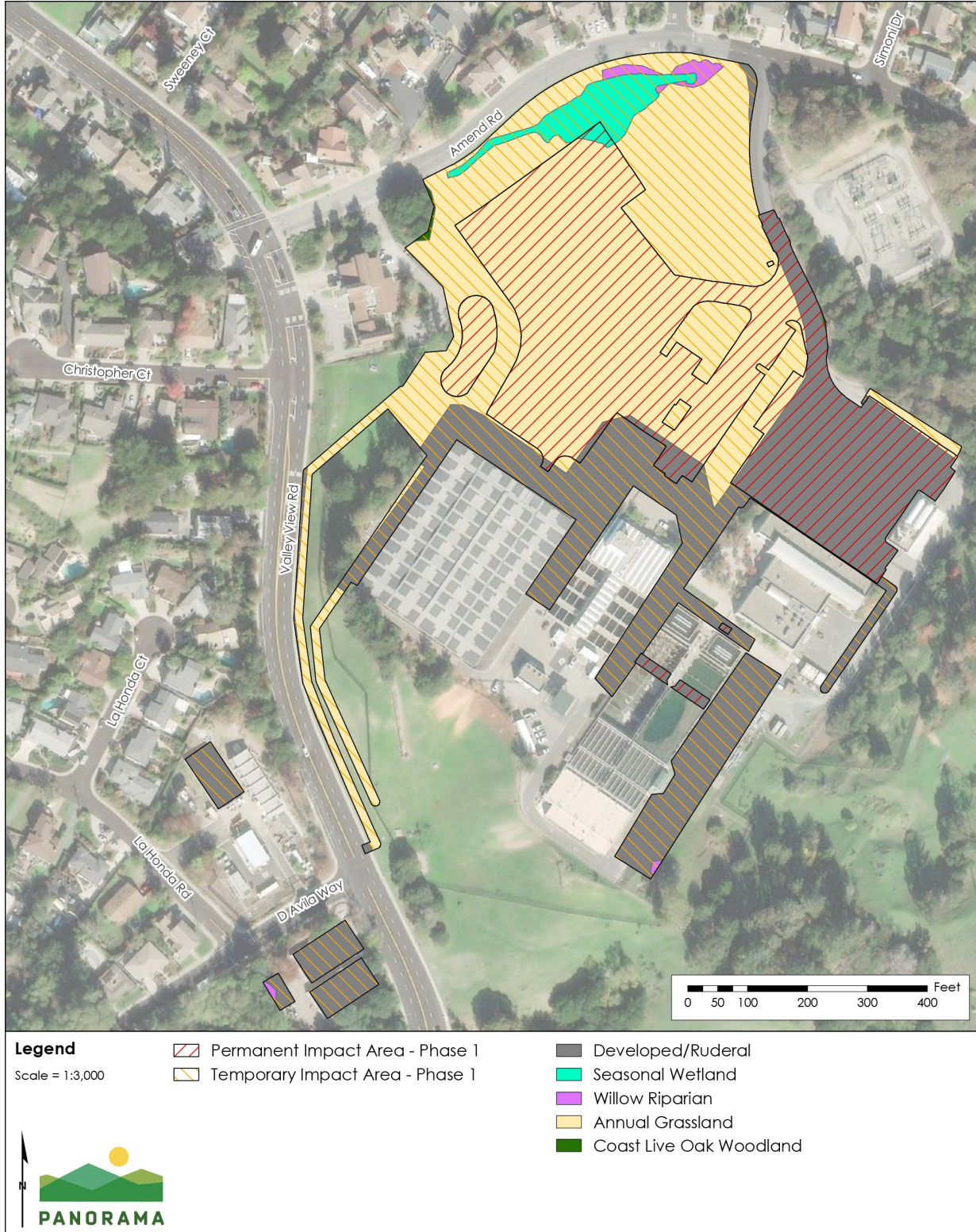
The Project area is adjacent to San Pablo Creek and riparian habitat within San Pablo Creek at the reclaim pumping plants along D Avila Way and at the crossing of San Pablo Creek along D Avila Way. Furthermore, the willow riparian habitat on the SOWTP site could meet the definition of riparian habitat; however, the willow riparian habitat lacks a direct connection between the SOWTP site and San Pablo Creek. Due to the lack of direct connection between the onsite willow riparian areas and a stream or creek, the impact on willow riparian habitat is addressed next under Sensitive Natural Communities. The activities adjacent to San Pablo Creek riparian habitat would include demolition of facilities within the existing disturbed areas at the reclaim pumping plant and temporary jack and bore activities for the Central North Aqueduct pipeline, which would occur fully within a disturbed area (refer to Figure 2-18 in the Project Description). Because the Project would not disturb or remove any riparian habitat along San Pablo Creek, the Project construction activities impact on riparian habitat would be less than significant.

Sensitive Natural Communities

Project construction would have the potential to both temporarily and permanently impact sensitive natural communities of willow riparian habitat, oak woodlands, and seasonal wetlands. Phase 1 temporary and permanent construction impacts on vegetation communities are shown on Figure 3.3-3, and Phase 2 temporary and permanent impacts on vegetation communities are shown on Figure 3.3-4. The temporary and permanent impacts on each vegetation community are summarized in Table 3.3-4.

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Figure 3.3-3 Phase 1 Vegetation Community Impacts



Source: (Maxar, 2021; WTP Improvements Group Design Division, 2021; Contra Costa County Department of Information Technology, 2017; Sequoia Ecological Consulting, Inc., 2022)

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Figure 3.3-4 Phase 2 Vegetation Community Impacts



Source: (Maxar, 2021; WTP Improvements Group Design Division, 2021; Contra Costa County Department of Information Technology, 2017; Sequoia Ecological Consulting, Inc., 2022)

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Table 3.3-4 Sensitive Vegetation Community Impacts by Construction Phase

Sensitive Natural Community	Temporary Impact	Permanent Impact
Phase 1		
Willow Riparian	0.09 acre	N/A
Oak Woodland	0.01 acre	N/A
Seasonal Wetland	0.33 acre	0.11 acre
Phase 2		
Willow Riparian	0.08 acre	0.01 acre
Oak Woodland	0.05 acre	N/A
Seasonal Wetland	0.05 acre	0.03 acre

Both Phase 1 and Phase 2 construction would result in temporary disturbance of sensitive natural communities, including willow riparian, seasonal wetland, and oak woodland habitat. Temporary disturbance of sensitive natural communities would be a significant impact if the sensitive natural community is not properly protected during construction and restored to pre-project conditions. Any permanent disturbance from development of facilities in sensitive natural communities would be a significant impact.

As detailed in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, have been incorporated into the Project, including Standard Construction Specification 01 35 45, Biological, Cultural, and Paleontological Requirements. EBMUD's Standard Construction Specification 01 35 45, Biological, Cultural, and Paleontological Requirements, Section 3.2(B), Tree Protection requires exclusion fencing around protected trees to minimize direct impacts for the duration of construction activities. Within these tree protection zones, ground disturbing activities also would be excluded, while dumping or storage of materials and equipment would be prohibited to avoid indirect impacts on trees. For areas outside the exclusion fencing but within the tree dripline, protective mats would be installed to cover any areas that may be accessed by vehicles and equipment.

Because EBMUD would implement Standard Construction Specification 01 35 45, Biological, Cultural, and Paleontological Requirements, Section 3.2(B), Tree Protection, which requires exclusion fencing around protected trees to minimize direct impacts for the duration of construction activities, the temporary impact on oak woodland habitat would be less than significant. The EBMUD Practices and Procedures Monitoring and Reporting Plan (Appendix C) lists the applicable standard specification language.

Temporary and permanent impacts on willow riparian and seasonal wetland sensitive natural communities would be significant. EBMUD would implement Mitigation Measure BIO-2 and Mitigation Measure BIO-3 to address temporary and permanent impacts on willow riparian and seasonal wetland habitats.

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Mitigation Measure BIO-2 includes procedures to protect willow riparian and seasonal wetland habitats from temporary impacts to the extent feasible, and to restore temporarily impacted willow riparian and seasonal wetland areas to pre-Project conditions. Mitigation Measure BIO-3 requires compensatory mitigation for any permanent impacts on willow riparian and seasonal wetland areas. Because EBMUD would implement Mitigation Measures BIO-2 and BIO-3, which include procedures to protect willow riparian and seasonal wetland habitats from temporary impacts to the extent feasible and restore temporarily impacted willow riparian and seasonal wetland areas to pre-Project conditions and require compensatory mitigation through enhancement or creation of habitat for any permanent impacts on willow riparian and seasonal wetland areas, the impact on willow riparian and seasonal wetlands would be less than significant with mitigation. The Mitigation Monitoring and Reporting Plan (Appendix C) includes the applicable mitigation measures to be implemented and the timing for implementation.

Operation

Operation of the Project would include maintenance of Project facilities in developed areas. The operation and maintenance activities would not include any ground disturbance or vegetation management within riparian habitat or other sensitive natural communities; therefore, no operation or maintenance impact on riparian habitat or sensitive natural communities would occur.

Significance Determination before Mitigation

Potentially significant.

Mitigation Measures:

Mitigation Measure BIO-2: Willow Riparian and Seasonal Wetland Habitat Protection and Restoration

To the extent feasible, all areas of willow riparian habitat and seasonal wetlands shall be avoided during final Project design and construction. Construction limit fencing shall be used to limit the extent of construction to approved work areas. Construction mats shall be applied to the ground surface in areas of temporary disturbance within willow riparian and seasonal wetland habitats. Mats shall be applied before any vehicle activity in the area, to avoid rutting in wetland and willow riparian habitat.

A preconstruction survey, including photos at five photo points that are representative of the temporarily impacted sensitive natural communities and transect monitoring, shall be conducted in the areas of temporary willow riparian and seasonal wetland impacts to document the following immediately before construction:

- Species composition and percentage cover of each dominant and subdominant species; and
- Relative cover of non-native species within each sensitive natural community.

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All areas of temporary impact within willow riparian and seasonal wetland habitats shall be restored to pre-project conditions. The seasonal wetland and willow riparian area shall be planted with a native vegetation mix that is characteristic of the vegetation community. The planting palette for the seasonal wetland and willow riparian area shall be provided by a restoration specialist to EBMUD for submittal to CDFW for review and approval before construction. Temporarily disturbed areas shall be monitored annually for up to five years and maintained until the following success criteria have been met:

- The area has a minimum of 80 percent vegetative cover with native willows and associated species in willow riparian areas and native hydrophytic vegetation typical of seasonal wetlands in the seasonal wetland areas.
- Non-native species cover shall not exceed pre-project conditions/cover.

EBMUD will cause an annual monitoring report to be completed and submitted to EBMUD and CDFW for up to five years and until success criteria are met. The annual monitoring report shall include the results of photo documentation at the defined preconstruction photo points as well as document performance of the restoration relative to the success criteria. Any corrective actions needed to meet the success criteria shall be documented in the annual report and shall be implemented within the following year. Any areas that fail to meet the success criteria after five years of monitoring shall be treated as permanent impacts and require compensatory mitigation, in compliance with Mitigation Measure BIO-3.

Mitigation Measure BIO-3: Sensitive Natural Community Compensatory Mitigation

Permanent impacts on willow riparian habitat and seasonal wetlands shall be compensated through on-site or off-site enhancement or creation of willow riparian habitat and seasonal wetland habitat. Permanent impacts on willow riparian and seasonal wetland habitat shall be compensated through enhancement of willow riparian habitat/seasonal wetlands at a minimum 2:1 ratio (enhancement: impact) or creation of willow riparian habitat/seasonal wetlands at a minimum 1:1 ratio. Mitigation credits may be purchased from a CDFW and RWQCB-approved mitigation bank if on-site mitigation is not feasible.

If EBMUD conducts mitigation through habitat enhancement or creation, a riparian and wetland mitigation plan shall be prepared that address the following parameters:

- Baseline conditions within the mitigation site
- Proposed mitigation site conditions
- Mitigation methods (e.g., habitat creation or enhancement)
- Planting plan
- Methods for invasive weed control
- Methods to establish the desired mitigation site conditions

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- Maintenance, including trash removal, invasive weed removal, and repair of any damage to the mitigation site
- Adaptive management procedures
- Monitoring methods

The enhanced or created riparian and wetland habitat shall meet the following success criteria:

- Minimum of 70 percent vegetated cover with native willow riparian vegetation for willow riparian mitigation and native wetland vegetation for seasonal wetland mitigation
- Less than 3 percent invasive weed cover
- Wetland hydrology and soil conditions in the compensatory wetland mitigation areas

Annual monitoring shall be conducted for the mitigation habitats and shall include surveys for native vegetation cover, photo documentation at defined photo-monitoring locations, and monitoring for invasive species and any other habitat stressors.

Monitoring will be conducted for the first five years or until success criteria are met.

An annual report shall be submitted to CDFW by January 31st following the reporting year. The annual report shall provide the results of annual habitat monitoring, recommendations for any corrective actions needed to meet success criteria, and a description of any corrective actions taken in the previous reporting year.

Significance Determination after Mitigation

Less than significant. Mitigation Measures BIO-2 and BIO-3 include habitat restoration to address temporary impacts on willow riparian and seasonal wetland habitat, and compensatory habitat mitigation to replace any permanently impacted willow riparian and seasonal wetland habitats, which reduces the impact to less than significant.

Impact BIO-3: 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. (*Criterion 3*)

Construction

The seasonal wetlands in the Project area are subject to state jurisdiction and potentially subject to federal jurisdiction. Project construction would result in temporary and permanent impacts on seasonal wetlands, as discussed under Impact BIO-2. Temporary impacts on seasonal wetlands (temporary soil disturbance and permanent impacts including discharge of fill to seasonal wetlands) would be significant. EBMUD would implement Mitigation Measure BIO-2 and Mitigation Measure BIO-3, which specify procedures for restoring temporarily impacted seasonal wetlands to pre-project conditions and compensatory habitat mitigation for any permanent impacts on seasonal wetlands. In addition, EBMUD would comply with the requirements of any required state or federal permits for impacts on state or federally protected wetlands.

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Because EBMUD would implement Mitigation Measure BIO-2 and Mitigation Measure BIO-3, requiring restoration of temporarily impacted seasonal wetlands and compensatory mitigation for any permanent impacts on seasonal wetlands, the impact on wetlands would be less than significant with mitigation incorporated. The Mitigation Monitoring and Reporting Plan (Appendix C) includes the applicable mitigation measures to be implemented and the timing for implementation.

Operation

Project operation and maintenance would not include any ground disturbance or impacts on wetlands in the Project area; therefore, no impact would occur on state or federally protected wetlands associated with discharge of fill. Operation of the Project would involve maintenance of Project facilities in developed areas. Although the Project would include construction of a retention basin, the retention basin would be designed to receive runoff from the developed impervious surfaces that would be constructed in Phase 1. The Project would not block the source of hydrology for the wetlands adjacent to Amend Road, which would receive runoff discharge via a culvert under Amend Road and would not block runoff from the culvert on the south edge of the property. The operation and maintenance activities would not include any ground disturbance or vegetation management within state or federally protected wetlands; therefore, operational impacts on state or federally protected wetlands would be less than significant.

Significance Determination before Mitigation

Potentially significant.

Mitigation Measures

Refer to Mitigation Measure BIO-2, Willow Riparian and Seasonal Wetland Protection and Restoration, and Mitigation Measure BIO-3, Willow Riparian and Seasonal Wetland Compensatory Mitigation.

Significance Determination after Mitigation

Less than significant. Mitigation Measure BIO-2 requires wetland restoration for temporary impacts on wetlands, and implementation of Mitigation Measure BIO-3 would require compensatory wetland mitigation for all permanent impacts on state or federal wetlands, which effectively would reduce the impact on wetlands to less than significant.

Impact BIO-4: 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. (*Criterion 4*)

The Phase 1 Project facilities would be adjacent to the existing SOWTP site in an undeveloped area along Amend Road. The Phase 1 Project facilities would be bordered by the existing SOWTP site, a fire station along Valley View Road, a PG&E substation, roadways, and existing residential development along Amend Road. The extension of the SOWTP facilities in Phase 1, including the security fencing around the proposed facilities, would not create a significant barrier to any native wildlife movement because the undeveloped portion of the SOWTP site is

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currently surrounded by development, which effectively blocks native migratory species' use of the area. In Phase 2, the facilities would be within the existing SOWTP fencing and adjacent to the Phase 1 facilities and would not block species' migration. Because the Project area would be adjacent to existing development areas and not used for wildlife movement, Project development within the SOWTP site would not create a barrier to native wildlife migration and the impact on wildlife migration would be less than significant.

Most of the Central North Aqueduct pipeline would be within existing roadways and would have no impact on wildlife movement. The Project would use jack and bore construction methods to install the Central North Aqueduct pipeline beneath San Pablo Creek, the nearest native wildlife nursery site and migration corridor to the Project area. The Project would not install any structures within San Pablo Creek and would not create a barrier to native wildlife or fish movement along San Pablo Creek. The Central North Aqueduct pipeline construction would have no impact on wildlife migration or nursery sites.

The Project would involve ground-disturbing activities that would have the potential to cause sedimentation or erosion that potentially could cause a discharge of sediment or pollution to San Pablo Creek and affect native wildlife nursery sites in San Pablo Creek.

As detailed in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, have been incorporated into the Project, including Standard Construction Specification 01 35 44, Environmental Requirements, Section 1.1(B), Site Activities, Section 1.4(A), Stormwater Management, Section 1.4(B), Water Control and Disposal Plan, Section 1.4(E), Spill Prevention and Response Plan, and Section 3.2, Storm Water, specify procedures and requirements to manage stormwater on the site, prevent and control spills of hazardous materials, and implement sediment and erosion control BMPs, which would effectively avoid discharge of sediment or pollutants to San Pablo Creek.

Because EBMUD would implement Standard Construction Specification 01 35 44, Environmental Requirements, Sections 1.1(B), Section 1.4, and Section 3.2, which specify procedures to avoid discharge of sediment or other pollutants to San Pablo Creek, the impact on native wildlife nursery sites would be less than significant. The EBMUD Practices and Procedures Monitoring and Reporting Plan (Appendix C) lists the applicable standard specification language.

Significance Determination before Mitigation

Less than Significant.

Mitigation Measures

None are required.

Impact BIO-5: Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance. (*Criterion 5*)

Under Section 53091 of the California Government Code, EBMUD, as a local agency and utility district, is not subject to local building and zoning ordinances for projects involving

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construction of facilities for the production, generation, storage, treatment, or transmission of water.

Construction

Wetland Policies

The City of Richmond adopted policy CN1.1, which includes protecting wetlands from direct and indirect impacts and minimizing direct and indirect impacts on wetland habitats. The Project has been optimized by EBMUD to minimize impacts on wetlands to the extent feasible. However, as discussed under Impact BIO-3, the Project would result in temporary and permanent impacts on wetlands adjacent to Amend Road and within the city of Richmond, which would be a significant impact under the City of Richmond policy. EBMUD would implement Mitigation Measures BIO-2 and BIO-3, which require restoration of temporary impacts on wetlands and compensatory mitigation for all permanent impacts on wetlands. Because EBMUD would implement Mitigation Measures BIO-2 and BIO-3, requiring restoration and compensatory mitigation for impacts on wetlands, the conflict with the City of Richmond's policy would be less than significant with mitigation incorporated. The Mitigation Monitoring and Reporting Plan (Appendix C) includes the applicable mitigation measures to be implemented and the timing for implementation.

Contra Costa County, through the Conservation Element of the *Contra Costa County General Plan*, has adopted Vegetation and Wildlife Policy 8-17, requiring that existing wetlands in the County be identified and regulated. As discussed under Impact BIO-3, the wetlands in the Project area have been surveyed and identified are under state jurisdiction and would be regulated. Therefore, the Project would comply with Contra Costa County Policy 8-17.

Tree Protection Policies

The City of Richmond has adopted Policy CN 6.2, protecting native trees, heritage trees, and oak woodlands, and Contra Costa County has adopted the Contra Costa County Tree Protection and Preservation Ordinance. Project construction would involve removal of 78 trees on the SOWTP site that are within the Phase 1 or Phase 2 construction areas. In addition, 24 trees are adjacent to the area of pipeline trenching and could be impacted by trenching within the root zone of the tree. Only three of the trees that would be removed are located in the city of Richmond, and all of the trees that would be removed in the city of Richmond are in poor health; therefore, the Project would not conflict with City of Richmond Policy CN 6.2. The Project would remove 33 trees in Contra Costa County that exceed 6.5 inches dbh (20 inches circumference) and meet the definition of "protected" trees under the Contra Costa County Tree Protection and Preservation Ordinance. The Project would plant 56 native trees as part of the landscape plan. The proposed native trees planting would replace the removed and potentially impacted "protected" trees. In addition, the Project would protect the majority of the existing trees on the SOWTP site.

As detailed in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, have been incorporated into the Project, including Standard Construction Specification 01 35 45, Biological, Cultural, and Paleontological Requirements.

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EBMUD's Standard Construction Specification 01 35 45, Biological, Cultural, and Paleontological Requirements, Section 3.2(B), Tree Protection, requires adding exclusion fencing around protected trees to minimize direct impacts for the duration of construction activities. Within these tree protection zones, ground-disturbing activities also would be excluded, while dumping or storage of materials and equipment would be prohibited to avoid indirect impacts on trees. For areas outside the exclusion fencing but within the tree dripline, protective mats would be installed to cover any areas that may be accessed by vehicles and equipment.

Because EBMUD would comply with Standard Construction Specification 01 35 45, Biological, Cultural, and Paleontological Requirements, Section 3.2(B), Tree Protection, which requires adding exclusion fencing around protected trees to minimize direct impacts for the duration of construction activities, and because the Project would include native tree plantings that would replace trees removed during construction, the tree removal would not conflict with the Contra Costa County Tree Protection and Preservation Ordinance and the impact would be less than significant. The EBMUD Practices and Procedures Monitoring and Reporting Plan (Appendix C) lists the applicable standard specification language.

Operation

No vegetation removal, disturbance of wetlands, or other activity that potentially could conflict with a policy or ordinance protecting biological resources would occur during Project operation. No impact would occur.

Significance Determination before Mitigation

Potentially significant.

Mitigation Measures

Refer to Mitigation Measure BIO-2, Willow Riparian and Seasonal Wetland Protection and Restoration, and Mitigation Measure BIO-3, Willow Riparian and Seasonal Wetland Compensatory Mitigation.

Significance Determination after Mitigation

Less than significant. Mitigation Measure BIO-2 would require wetland restoration for temporary impacts on wetlands, and implementation of Mitigation Measure BIO-3 would require compensatory wetland mitigation for all permanent impacts on wetlands, in compliance with the City of Richmond Policy CN1.1, which effectively would reduce the impact on local policies or ordinances protecting biological resources to less than significant.

3.3.6 Cumulative Impact

This section presents an analysis of the cumulative effects of the Project in combination with other present and reasonably foreseeable future projects that could cause cumulatively considerable impacts on biological resources.

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As previously described, the Project would not conflict with the provisions of an adopted HCP, NCCP, or other local, regional, or state HCP. Accordingly, the Project would not contribute to cumulative impacts related to this topic, which are not described further.

Eighteen infrastructure and development projects are planned in the general vicinity of the Project. Refer to Table 3.0-1 for a comprehensive list of potential projects planned for construction in the general vicinity of the Project. For the cumulative analysis, projects that could present cumulatively considerable impacts related to biological resources are those that would involve visual or noise disturbance, soil or drainage disturbance, riparian or wetland disturbance, or tree removal during construction in proximity to, and in a similar time frame as construction of the Project. Of the eighteen infrastructure and development projects planned to occur in the general vicinity of the Project, three EBMUD projects potentially could overlap with the Project's proposed construction time frame and would occur within 1 mile of the Project: the Central Pressure Zone Pipeline, North Reservoir Replacement Project, and the Pearl Pumping Plant Rehabilitation. As with the Project, the cumulative projects would be required to protect potentially present sensitive biological resources, or otherwise implement EBMUD Standard Construction Specification 01 35 44, including a project SWPPP, as referenced in this section. These projects would include excavation and trenching and other construction activities to replace the water infrastructure in roadways and other areas that have been disturbed previously and routinely are exposed to a high level of human activity.

The geographic area that would be affected by the Project and its potential to contribute to cumulative impacts on biological resources would be limited to the area within 1 mile of the Project. The area surrounding the Project is dominated by human development, including Interstate 80, residential and mixed-use neighborhoods, and public streets. The Project impacts on biological resources would take place over a relatively small area, over a limited duration of time, and would include implementation of EBMUD Standard Construction Specifications detailed in the Project Description and the mitigation measures proposed in this Environmental Impact Report (EIR). During the construction phase, impacts on biological resources associated with the Project would include potential impacts on special-status plants, impacts on California red-legged frog or western pond turtle, visual and noise disturbance on American peregrine falcon and roosting bats (if present), a temporary reduction in habitat available for nesting birds and roosting bats because of tree removal during construction, and impacts on San Francisco dusky-footed woodrat. When combined with potential construction impacts of other projects in the vicinity, these effects would be less than significant after implementing Standard Construction Specification 01 35 45, Biological, Cultural, and Paleontological Requirements, Section 3.1, Training and Certification, Section 3.2(B), Protected Trees, Section 3.2(C), Special-Status Plant Populations, Section 3.2(D) Protection of Birds Protected Under the Migratory Bird Treaty Act and Roosting Bats, Section 3.2(E), Project-Specific Protected Wildlife Species, and Mitigation Measure BIO-1: California red-legged frog and western pond turtle. Furthermore, following completion of the Project, the SOWTP site trees removed during construction would be replaced with landscape plantings. Accordingly, impacts on birds, roosting bats, and the San

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Francisco dusky-footed woodrat and their habitats, from tree removal would be limited in time and space, because the Project's replanting plan would replace the trees removed.

During Project construction, impacts on riparian habitat or other sensitive natural communities or state or federally protected wetlands associated with temporary soil disturbance and other construction activities would be limited in time and space. Permanent impacts on sensitive vegetation communities from the Project would be less than 0.1 acre. The cumulative projects may include similar sensitive riparian habitat and other sensitive natural communities because the sensitive natural communities that would be impacted by the Project are present throughout this region. Compliance with EBMUD's Standard Construction Specification 01 35 45, Biological, Cultural, and Paleontological Requirements, Section 3.2(B), Tree Protection and implementation of Mitigation Measure BIO-2, Willow Riparian and Seasonal Wetland Habitat Protection and Restoration, and Mitigation Measure BIO-3, Sensitive Natural Community Compensatory Mitigation would reduce the Project's contribution to cumulative effects. Similarly, any impacts on riparian habitat or other sensitive natural communities or on state or federally protected wetlands associated with the cumulative projects would be reduced through standard mitigation and permitting for wetlands. Thus, Project construction and operation when combined with the impacts of other projects to be constructed close to the Project, would not present significant adverse impacts or accumulate additional impacts that would be cumulatively significant.

During both the construction and operational phases, the activities proposed in the Project area and the cumulative projects would not substantially interfere with the movement of wildlife species or impede the use of wildlife nursery sites, because the construction impacts would occur over a relatively small area, over a short duration of time and would be within built environments that do not act as wildlife migration corridors.

Under Section 53091 of the California Government Code, EBMUD, as a local agency and utility district, is not subject to local land use zoning ordinances for projects involving facilities for the production, generation, storage, treatment, or transmission of water. Therefore, impacts on biological resources from conflicts with local land use policies would not considerably contribute to cumulative effects related to biological resources when taking into consideration the effects from nearby cumulative projects.

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3.4 Cultural Resources

This section describes the physical, environmental, and regulatory setting for cultural resources, identifies the significance criteria used for determining environmental impacts, and evaluates the potential impacts on cultural resources that could result from implementation of the Project. Cultural resources include architectural resources, prehistoric and historic-era archaeological resources, and human remains. This section is based on information contained in a Cultural Resources Assessment Report (PaleoWest, LLC, 2022; PaleoWest, LLC, 2023). Tribal cultural resources are addressed in Section 3.13.

3.4.1 Environmental Setting

Definitions

The definitions below are those used by federal and state agencies in regulations and laws that apply to the Project.

- Architectural resources include buildings, structures, objects, and historical districts. Residences, cabins, barns, lighthouses, military-related features, industrial buildings, and bridges are examples of architectural resources. An architectural resource can be considered a historical property if it is at least 50 years old and listed in, or eligible for listing in, the National Register of Historic Places (NRHP) or the California Register of Historic Resources (California Register).
- Archaeological resources consist of prehistoric and historic-period archaeological resources.
 - **Prehistoric archaeological resources** consist of village sites, temporary camps, lithic scatters, roasting pits/hearths, milling features, petroglyphs, rock features, and burial sites. Associated artifacts include obsidian and chert flaked-stone tools (e.g., projectile points, knives, scrapers) or toolmaking debris; culturally darkened soil (“midden”) containing fire-altered rocks, artifacts, or shellfish remains; and stone milling equipment (e.g., mortars, pestles, handstones, milling slabs).
 - **Historic-period archaeological resources** consist of townsites, homesteads, agricultural or ranching features, mining-related features, refuse concentrations, and features or artifacts associated with early military and industrial land uses. An archaeological resource also can be considered a historical property if it is at least 50 years old and listed in, or eligible for listing in, the NRHP or the California Register.
- **Human remains** include skeletal remains, burial remains, cremation remains, and/or associated objects.

3.4 CULTURAL RESOURCES

Cultural Setting

Natural Setting

The Project is in the East Bay, in the cities of Richmond and San Pablo and unincorporated Contra Costa County. The Sobrante Water Treatment Plant (SOWTP) site is in an undeveloped area that is surrounded by residential and industrial land uses, including the existing SOWTP facility, and the Central North Aqueduct pipeline would be within roadways surrounded by residential and commercial land uses.

The San Francisco Bay and the surrounding region contain an abundance of natural resources, which was advantageous to Native Americans and early Euro-Americans. A variety of migratory and year-round resident birds used the bay and associated creeks and marshes as habitat for nesting and feeding. Salmonids and other fish historically were present in local creeks, and the San Francisco Bay still is considered important fish habitat. Deer, elk, and waterfowl were plentiful in prehistory, as were marine resources, such as seals, otters, abalone, mussels, oysters, and clams. Franciscan chert was an easily obtainable local raw material for stone tools. The closest obsidian sources were Annadel and Napa Glass Mountain, both north of the San Francisco Bay Area (PaleoWest, LLC, 2022).

Prehistory Context

No archaeological evidence of Early Holocene human occupation predating 10,000 Before Present¹ has been discovered in the San Francisco Bay Area; however, evidence exists of occupation of the San Francisco Bay Area during the Middle Holocene. This evidence includes occupation sites with diverse assemblages in Contra Costa County, which demonstrate that San Francisco Bay Area's populations participated in widespread California and Great Basin interaction (PaleoWest, LLC, 2022).

The beginning of the Late Holocene is characterized by the Early Period, which coincides with the founding or expansion of large shellmounds surrounding the San Francisco Bay. Sites west of the Project area on the bay shore or adjacent to the surrounding wetlands indicate subsistence reliance on marine resources, including fish, mammals, and a diverse set of shellfish (e.g., oysters, mussels, horn snails). Early Period interior sites exhibit greater reliance on terrestrial mammals and freshwater fish, although shellfish still appear in assemblages (PaleoWest, LLC, 2022).

The Middle Period is marked by the climax of shellmound construction in the San Francisco Bay Area and a diminished emphasis on shellfish exploitation and a higher reliance on terrestrial mammals (PaleoWest, LLC, 2022). During the Middle Period, people from the San Joaquin

¹ Before Present is a timescale used mainly in archaeology, geology, and other scientific disciplines to specify when events occurred relative to the origin of practical radiocarbon dating in the 1950s.

3.4 CULTURAL RESOURCES

Valley moved through the Amador–Livermore Valley and the San Ramon and Walnut Creek valleys into the interior portions of the San Francisco Bay Area.

The Late Period is the most well documented era in San Francisco Bay Area prehistory and is characterized by development of the social, economic, and political systems that were observed by early Spanish explorers and colonizers on arrival in California. Spanish explorers ultimately disrupted the Augustine Pattern lifeways, which included intricate trade systems, bow and arrow technology, and elaborate regalia, in the latter half of the eighteenth century (PaleoWest, LLC, 2022).

Ethnographic Context

The Spanish explorers, colonists, and missionaries who populated the East Bay in the 1770s referred to the local indigenous populations as Huchiun or Juchiun. Spanish diaries and records suggest that many seasonal and permanent villages were in the San Pablo–Richmond area, and at least two villages were documented during Spanish exploration of the Huchiun along Wildcat and San Pablo creeks. The first was likely at the present location of Alvarado Park on Wildcat Creek, approximately 2.5 miles southwest of the SOWTP site, while the second was on San Pablo Creek, near the library of El Sobrante (PaleoWest, LLC, 2022). A seasonal village has been reported at Garrity Creek, approximately 3 miles northwest of the SOWTP site. Other communities have been described on the lower San Pablo Creek, on Pinole Creek, and at Selby (PaleoWest, LLC, 2022).

Between 1779 and 1793, nearly 100 Huchiuns joined Mission Dolores across the San Francisco Bay in modern-day San Francisco. In summer 1794, Spanish priests at Mission Dolores actively sought out villages on the east side of the San Francisco Bay to convert occupants to Catholicism. By the end of 1794, Huchiuns accounted for 28 percent of the total Mission Dolores population. A severe epidemic plagued the Native American population at the mission in spring 1795, causing the mass flight of Huchiuns back to their East Bay villages. As punishment, the Spanish military leaders attacked two Huchiun villages in the present-day city of Richmond, forcing the fugitive tribes to rejoin Mission Dolores. (PaleoWest, LLC, 2022)

After the events of 1794 to 1795, only four Huchiuns had come willingly to Mission Dolores for baptism between 1796 and 1799. In 1800, a small group of 14 Huchiuns were baptized and another 65 moved to the mission in 1801. Other large groups of Huchiuns were baptized in 1803 and 1805, including mixed parties with the first large groups of Huchiun-Aguastos from the present-day Rodeo area and the Mare Island vicinity of present-day Vallejo. By 1800, approximately 150 Huchiuns still were living in their East Bay villages, but by summer 1806, the Huchiun villages were empty. (PaleoWest, LLC, 2022)

Historic Background

Contra Costa County and City of Richmond Development

The Project area was part of two ranchos—Rancho El Sobrante and Rancho San Pablo—during the Mexican period, before the United State (U.S.) annexation of California. Rancho San Pablo was an approximately 18,000-acre Mexican land grant given to Francisco Castro in 1823, and

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Rancho El Sobrante was an approximately 21,000-acre Mexican land grant given to brothers Juan Jose and Victor Castro (and sons of Francisco Castro) in 1841. Like many other ranchos during the Mexican period, the Castro lands were trespassed by Anglo-American squatters. Court litigation to survey and certify the boundary of Rancho El Sobrante was finalized in 1882, but to pay lawyer and court fees, parts of the rancho were sold to Anglo-Americans, and the Castro family holdings were reduced to 549 acres by 1894. (PaleoWest, LLC, 2022)

The new Anglo-American landowners created new roads, established their own ranches, and built hotels and schools. The narrow-gauge California and Nevada Railroad, which originated at Emeryville with a proposed terminus in Utah, cut through the former ranchos, nearly paralleling San Pablo Creek and modern-day San Pablo Dam Road in 1887; however, the area remained sparsely populated into the early twentieth century, until bayside industry increased in Contra Costa County.

Bayside industry grew after the Castro family holdings were settled in a decree in 1894. In 1898, real estate agent Augustine Macdonald approached the Santa Fe Railroad Company in the planning stages of a western terminus and proposed Point Richmond as the terminal site. After his meeting, he purchased 550 acres on Point Richmond and surveyed and platted a new townsite that he called City of Richmond (PaleoWest, LLC, 2022). The Santa Fe Railroad selected Point Richmond as the western terminus of the line in 1899; the Southern Pacific Railroad constructed a freight depot, and in September 1901, Standard Oil, through its subsidiary the Pacific Coast Oil Company, established what became the third largest refinery in the U.S. in the city of Richmond (PaleoWest, LLC, 2022).

By 1940, the Standard Oil refinery had a workforce of nearly 3,000 employees and the refinery was pivotal to Richmond's pre-World War II economy. Wartime production, refineries, and manufacturing boomed in the 1940s. Contra Costa County shipyards and other war-related industries attracted thousands of people to the region, and the county nearly tripled its population between 1940 and 1950 (PaleoWest, LLC, 2022). During wartime, new housing developments sprang up in the hills off Appian Way, to meet the housing demands of shipyard and other wartime workers, centered in the nearby city of Richmond.

In the immediate post-war period, Earl "Flat Top" Smith developed housing subdivisions with distinctive flat roofs along San Pablo Dam Road, and by 1955, residential tract homes in large subdivisions had become commonplace, with much of the single-family housing stock constructed from the mid-1950s to mid-1970s along Appian Way, and San Pablo Dam and Valley View roads. In the 1950s and 1960s, the City of Richmond annexed substantial portions of land on the outskirts of El Sobrante. The resulting suburban growth into the hillsides required utilities and other services to extend into these once rural, undeveloped areas. Additional residential development spread eastward in the post-war period, but was somewhat hindered by the topography and forestation of Sobrante Ridge (City of Richmond, 2012; PaleoWest, LLC, 2022). (Leykam, 1989)

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The Rollingwood and Wilart Park subdivisions resulted from wartime initiatives to construct low-cost housing for defense workers. Though federal underwriting of private suburban subdivisions predating World War II, the wartime program employed new constructions techniques and business management that would lay the foundation for the San Francisco Bay Area post-war housing market. The Rollingwood and Wilart Park subdivisions reflect suburban development patterns of the period.

East Bay Municipal Utility District

Before the formation of EBMUD, water was supplied to area residents from numerous disjointed, privately owned waterworks. Although some consolidation in the area led to the creation of San Pablo Reservoir between 1916 and 1921, a cohesive, large-scale water system was needed to provide residents with reliable water sources in years of drought. Following the 1906 earthquake, San Francisco claimed lands in the Sierra Nevada for the hotly contested Hetch Hetchy Reservoir and its series of aqueducts and pipelines, to provide water to San Francisco customers, while water management on the east side of the bay remained disjointed. In 1921, the California State Legislature passed an act allowing multiple neighboring cities to form utility districts. In 1923, nine East Bay Area cities voted to form and join EBMUD, which originally consisted of Oakland, Berkeley, Alameda, San Leandro, Piedmont, Emeryville, Albany, El Cerrito, and Richmond (PaleoWest, LLC, 2022).

After EBMUD's formation, multiple studies and data analyses were undertaken to locate the most feasible water source for the East Bay, which was determined to be the Mokelumne River. A district water plan was drawn with a new dam at a reservoir approximately 93 miles northeast of Oakland that would serve as the main storage reservoir for the EBMUD water supply, requiring only nine miles of tunnels. After securing a \$39,000,000 bond in 1924, construction on the Pardee Dam, named after EBMUD's president, began in early 1926 and was completed in 1929. A year prior, EBMUD purchased the East Bay Water Company and secured the San Pablo Dam and Reservoir for the EBMUD system. Through construction of tunnels, aqueducts, reservoirs, and pumping plants, the first water delivery to EBMUD customers occurred on June 23, 1929 (PaleoWest, LLC, 2022).

Construction began on the SOWTP in 1962, and the Camanche and Briones reservoir dams were all completed in 1964. Three years later, the Walnut Creek Water Treatment Plant (WTP) was completed. EBMUD's service area has grown to span the area from Crockett in the north, south to Hayward city limits, and east to Blackhawk, covering approximately 332 square miles. The system today consists of two water storage reservoirs on the Mokelumne River, five terminal reservoirs, 91 miles of aqueducts, 4,200 miles of water mains, and six WTPs, serving 1.4 million customers (PaleoWest, LLC, 2022).

Sobrante Water Treatment Plant

Water deliveries from the Mokelumne River originally were treated at three EBMUD WTPs near the San Pablo, Chabot, and Upper San Leandro reservoirs.

3.4 CULTURAL RESOURCES

The 1960s SOWTP consisted of a filter building, clearwell, flocculation/sedimentation basins, small maintenance building, and chemical storage towers, and had a 40-million-gallon-per-day filtration capacity (PaleoWest, LLC, 2022).

In 1971, the San Francisco Bay Regional Water Quality Control Board (RWQCB) set standards and limits for waste discharge from the SOWTP that were enforced starting May 1974. To meet the new standards, EBMUD decided to dewater the alum sludge in solid-bowl centrifuges and reduce the operational capacity of the SOWTP (PaleoWest, LLC, 2022).

In 1979, federal requirements limiting concentrations of disinfection byproducts became effective. In 1989, additional federal regulations mandated specific treatment techniques for treating surface water. The SOWTP pre-dates these requirements and does not include modern processes to meet the requirements (e.g., there is no dedicated chlorine contact basin) but have modified operations to ensure that adequate disinfection credit is achieved by adding free-chlorine before filtration. However, this modification produces higher than necessary concentrations of disinfection byproducts. As a result, EBMUD has exceeded its internal goals for disinfection byproduct formation with water originating from SOWTP but meets or exceeds all regulatory goals.

In 1989, the first of several Surface Water Treatment Rules was applied to all public water systems and set treatment technique requirements as well as established maximum contaminant level goals for filtered surface water systems. As part of the effort to meet these new standards, EBMUD operations were modified to maintain a constant minimum capacity in the clearwell, ensuring adequate disinfection credit or contact time were achieved. However, the disinfection process can produce disinfection byproducts which are regulated under the Disinfectants and Disinfection Byproducts Rules, first published in 1998. Due to lack of a dedicated chlorine contact basin, EBMUD has exceeded its internal goals for disinfection byproduct formation with water originating from SOWTP but meets or exceeds all regulatory goals.

Existing Conditions

Northwest Information Center Database Search

On June 11, 2021 and January 20, 2022, staff at the Northwest Information Center (NWIC) at Sonoma State University completed a record search of the Project area (NWIC File No. 20-2172). The NWIC is the California Historical Resources Information System (CHRIS) repository, housing records for Contra Costa County. The records search included a review of cultural resource studies and recorded cultural resources within a 0.25-mile radius of the Project area.

The objectives of the records search were to: (1) determine whether known historic-era architectural resources have been recorded within or adjacent to the Project area, and whether known archaeological resources have been recorded within a 0.25 miles of the Project area; (2) assess the likelihood of unrecorded cultural resources in the Project area and vicinity based on historical references and the distribution of environmental settings of nearby sites; and (3) develop a context for the identification and preliminary evaluation of cultural resources. No

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previously recorded cultural resources are within the SOWTP site or within a 0.25-mile radius around the SOWTP. Nine cultural resources are adjacent to the proposed Central North Aqueduct pipeline alignment, including eight historic-period residential structures and one pre-contact (i.e., Native American) archaeological site (P-07-000068), as shown in Table 3.4-1. Sixteen cultural resources were identified within a 0.25-mile radius of the Central North Aqueduct pipeline, including eight pre-contact archaeological sites, one protohistoric site, and seven built-environment resources. The 16 sites within 0.25 mile of the Central North Aqueduct pipeline alignment are not discussed further because the Project would have no potential to affect those sites, based on the distance to the sites and buried nature of the Central North Aqueduct pipeline.

Table 3.4-1 Cultural Resources Adjacent to the Central North Aqueduct Pipeline Alignment

Trinomial	Resource Name	Age	Type	California Register of Historic Resources Eligibility
P-07-000068	CA-CCO-126	Prehistoric	Site	Potentially eligible
P-07-004601	3024 Avon Lane	Historic	Building	Ineligible
P-07-004602	3030 Avon Lane	Historic	Building	Ineligible
P-07-004603	3036 Avon Lane	Historic	Building	Ineligible
P-07-004604	3040 Avon Lane	Historic	Building	Ineligible
P-07-004605	3058 Judith Court	Historic	Building	Ineligible
P-07-004606	3066 Judith Court	Historic	Building	Ineligible
P-07-004610	3160 Rollingwood Drive	Historic	Building	Ineligible
P-07-004611	3168 Rollingwood Drive	Historic	Building	Ineligible

Source: (PaleoWest, LLC, 2022)

Site P-07-000068 was first recorded in 1950 by Martin A. Baumhoff and the University of California Archaeological Survey as a prehistoric occupation site on the south bank of San Pablo Creek and just north of San Pablo Dam Road. No results of this investigation exist, although 82 items were collected by Robert Fleming Heizer from the site on February 22, 1951, including flaked, ground, and battered stone, a charmstone, obsidian projectile points, faunal remains, marine shell, and human remains. Materials collected from the site, not including de-accessioned items, currently are housed at the Phoebe A. Hearst Museum of Anthropology at the University of California, Berkeley. In 2018, Far Western Anthropological Research Group surveyed the reported location of the site and conducted minimal subsurface testing within the shoulder of San Pablo Dam Road, with negative results. The three shovel test pits were excavated in the study area and just outside the plotted site boundary. Comparing historical aerial imagery from 1946 and 1959 with the original site map and photos in the site record suggests that the site may have been misplotted west of its current mapped location. The main

3.4 CULTURAL RESOURCES

portion of the site may have been collected and destroyed during construction of a home in 1950–1951 (PaleoWest, LLC, 2022).

Cultural deposits associated with site P-07-000068 likely were found on the surface or near surface. If present today, deposits likely would be found surrounding the nearby residences and possibly extending beneath San Pablo Dam Road at the contact between the native sediments and fill. The remaining thickness of these deposits would be related directly to the depth of grading associated with road construction.

The eight built environment resources adjacent to the Project area (P-07-004601, P-07-004602, P-07-004603, P-07-004604, P-07-004605, P-07-004606, P-07-004610, and P-07-004611) are single-family “minimal Ranch-style” residential buildings. All eight built environment resources were evaluated against California Register criteria and were determined to lack historical significance and integrity. Thus, the resources are not considered historical resources for CEQA.

Historic-Period Built Environment Survey

Under CEQA, built environment resources generally are considered historic-age if they were constructed more than 50 years ago. The most obvious built environment resources are historic-period buildings, but also include structures such as bridges, dams, mines, pipelines, and irrigation systems, and objects such as monuments and decorative landscape elements.

Intensive-level surveys of the built environment within the SOWTP site were completed on June 30, 2021 and September 24, 2021. The SOWTP was fully documented and evaluated against the California Register criteria and was determined to be ineligible for listing on the California Register because other than the Operations and Filtration Building and Maintenance Building, the buildings and structures at the SOWTP are utilitarian and do not exhibit strong architectural design characteristics that are illustrative of specific styles and do not have aesthetic value.

Archaeological Survey

The SOWTP area was surveyed by walking systematic transects, 33 to 49 feet apart, to identify cultural resources. No archaeological resources or indicators of buried archaeological deposits were observed during the survey (PaleoWest, LLC, 2022; PaleoWest, LLC, 2023). The Central North Aqueduct pipeline corridor is within existing paved roadways, except for the jack and bore pits that are within a previously developed area abutting a parking lot and an apartment complex side yard. Because of the developed nature of the Central North Aqueduct pipeline corridor, no pedestrian survey was conducted for this area.

Archaeological Buried Site Assessment

Pre-contact archaeological sensitivity was evaluated within the geologic and soil resources underlying the Project area. The Project area overlaps two depositional systems. The eastern 2.17 miles of the Project area includes the San Pablo Creek floodplain, and the western 1.6 miles includes the San Pablo Creek mouth and Bay Terrace alluvial fan. Each area is subject to unique depositional influences.

3.4 CULTURAL RESOURCES

San Pablo Creek Floodplain

The San Pablo Creek floodplain has low sensitivity for buried archaeological resources. Pre-contact resources discovered in the San Pablo Creek floodplain area would be restricted to the upper 1 to 2 feet of the original ground surface prior to twentieth century rural development and urbanization. Depending on road construction techniques, the surface may be capped or removed/reworked by grading. However, prehistoric site CA-CCO-126 (07-000068) is mapped near the Project area within the San Pablo Creek floodplain. Cultural deposits associated with site CA-CCO-126 (07-000068) are likely on the surface or buried in near-surface deposits (i.e., upper 1 to 2 feet of the original surface in the 1950s). Depending on construction techniques used in and along San Pablo Dam Road, near-surface deposits that potentially contain pre-contact archaeological material still may exist under San Pablo Dam Road.

Bay Terrace Alluvial fan

The Central North Aqueduct pipeline alignment within the Bay terrace alluvium is moderately sensitive for buried prehistoric resources. The alignment follows the historic-period course of San Pablo Creek, and these areas often are sensitive for pre-contact habitation and resource processing sites. Urbanization in the area will have resulted in the disturbance of any surface sediments and sites associated with the original ground surface. However, in natural levee deposits and at the upper or lower contact of fine-grained alluvial fan deposits, the potential exists for the preservation of prehistoric deposits with a high degree of integrity. Pre-contact materials may be found mixed throughout and in secondary context in coarse debris flow deposits. The potential depth of prehistoric deposits may extend through the entire vertical limits of the Project area in the areas with moderate buried site sensitivity.

Sacred Lands File Search and Native American Outreach

The Native American Heritage Commission (NAHC) was contacted on April 27, 2021 and February 18, 2022, with a request for a search of the Sacred Lands Files for the Project area. The NAHC responded on May 18, 2021 and April 4, 2022, respectively, with a list of Native American contacts. Letters were sent to Native American representatives on the NAHC list on July 9, 2021, and follow-up emails were sent on July 12, 2021 and March 25, 2022. Additional information on Native American outreach can be found in Section 3.13 Tribal Cultural Resources.

3.4.2 Regulatory Framework

This section describes federal, state, and local policies and regulations related to cultural resources that may apply to the Project.

Federal Policies and Regulations

National Historic Preservation Act of 1966, as Amended

Cultural resources are considered through the National Historic Preservation Act (NHPA) of 1966, as amended (54 U.S. Code [U.S.C.] Section 307103), and its implementing regulation, Protection of Historic Properties (36 Code of Federal Regulations [CFR] Part 800), the

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Archaeological and Historic Preservation Act of 1974, and the Archaeological Resources Protection Act of 1979. Before implementing an “undertaking” (e.g., issuing a federal permit), Section 106 of the NHPA requires federal agencies to consider the effects of the undertaking on historical properties, and to afford the Advisory Council on Historic Preservation and the State Historic Preservation Officer with a reasonable opportunity to comment on any undertaking that would adversely affect properties eligible for listing in the National Register of Historic Places (National Register). As indicated in Section 101(d)(6)(A) of the NHPA, properties of traditional religious and cultural importance to a tribe are eligible for inclusion in the National Register. Under the NHPA, a resource is considered significant if it meets the National Register listing criteria (36 CFR Section 60.4).

National Register of Historic Places

The National Register was established by the NHPA as “an authoritative guide to be used by federal, state, and local governments, private groups and citizens to identify the Nation’s historic resources and to indicate what properties should be considered for protection from destruction or impairment” (36 CFR Section 60.2). The National Register recognizes both historic-era and prehistoric archaeological properties that are significant at the national, state, and local levels.

To be eligible for listing in the National Register, a resource must be significant in American history, architecture, archaeology, engineering, or culture. Districts, sites, buildings, structures, and objects of potential significance must meet one or more of the following four established criteria (U.S. Department of the Interior, 1995):

- A. Are associated with events that have made a significant contribution to the broad patterns of our history;
- B. Are associated with the lives of persons significant in our past;
- C. 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
- D. Have yielded, or may be likely to yield, information important in prehistory or history.

Unless the property possesses exceptional significance, it must be at least 50 years old to be eligible for National Register listing (U.S. Department of the Interior, 1995).

In addition to meeting the criteria of significance, a property must have integrity. Integrity is defined as “the ability of a property to convey its significance” (U.S. Department of the Interior, 1995). The National Register recognizes seven qualities that, in various combinations, define integrity: location, design, setting, materials, workmanship, feeling, and association. To retain historical integrity, a property must possess several, and usually most, of these seven aspects. The retention of the specific aspects of integrity is paramount for a property to convey its significance.

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State Policies and Regulations

California Environmental Quality Act

Under CEQA (Public Resources Code [PRC] Section 21084.1), a project would have a significant effect on the environment if it causes a substantial adverse change in the significance of a historical resource. The State CEQA Guidelines (14 California Code of Regulations [CCR] Section 15064.5) recognize that a historical resource includes: (1) a resource listed in, or determined to be eligible by the State Historical Resources Commission, for listing in the California Register; (2) a resource included in a local register of historical resources, as defined in PRC Section 5020.1(k) or identified as significant in a historical resource survey meeting the requirements of PRC Section 5024.1(g); and (3) any object, building, structure, site, area, place, record, or manuscript that a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California may be considered to be a historical resource, provided the lead agency's determination is supported by substantial evidence in light of the whole record. The fact that a resource does not meet the three criteria outlined above does not preclude the lead agency from determining that the resource may be a historical resource, as defined in PRC Section 5020.1(j) or 5024.1.

If a lead agency determines that an archaeological site is a historical resource, then the provisions of PRC Section 21084.1 and State CEQA Guidelines Section 15064.5 apply. If a project may cause a substantial adverse change (defined as physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings so that the significance of the historical resource would be impaired materially) in the significance of a historical resource, then the lead agency must identify potentially feasible measures to mitigate these effects (14 CCR Section 15064.5[b][1], 15064.5[b][4]).

If an archaeological site does not meet the historical resource criteria contained in the State CEQA Guidelines, then the site may be treated in accordance with the provisions of Section 21083, if the site is a unique archaeological resource. As defined in PRC Section 21083.2, a "unique" archaeological resource is an archaeological artifact, object, or site for which it can be clearly demonstrated that without merely adding to the current body of knowledge, a high probability exists that it meets any of the following criteria:

- Contains information needed to answer important scientific research questions and there is a demonstrable public interest in that information;
- Has a special and 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.

If an archaeological site meets the criteria for a unique archaeological resource as defined in PRC Section 21083.2, then the site is to be treated in accordance with the provisions of PRC Section 21083.2, which state that if the lead agency determines that a project would have a significant effect on unique archaeological resources, the lead agency may require for

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reasonable efforts to be made to permit any or all of these resources to be preserved in-place (PRC Section 21083.1[a]). If preservation in-place is not feasible, mitigation measures shall be required.

If an archaeological resource is neither a unique archaeological nor a historical resource, then the effects of the project on those resources shall not be considered a significant effect on the environment (14 CCR Section 15064.5[c][4]).

California Register of Historical Resources

Created in 1992 and implemented in 1998, the California Register is “an authoritative guide in California to be used by state and local agencies, private groups, and citizens to identify the state’s historical resources and to indicate what properties are to be protected, to the extent prudent and feasible, from substantial adverse change.” Certain properties, including those listed in, or formally determined eligible for listing in, the National Register and California Historical Landmarks numbered 770 and higher, automatically are included in the California Register. Other properties that are recognized under the California Points of Historical Interest Program, identified as significant in historic resources surveys, or designated by local landmarks programs, may be nominated for inclusion in the California Register. A resource, either an individual property or a contributor to a historic district, may be listed in the California Register if the State Historical Resources Commission determines that it meets one or more of the following criteria, which are modeled on National Register criteria:

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

Furthermore, under State law (PRC Section 5024.1; 14 CCR Section 4852[c]), a cultural resource must retain integrity to be considered eligible for the California Register. Specifically, it must retain sufficient character or appearance to be recognizable as a historical resource and convey reasons of significance. Integrity is evaluated with regard to retention of such factors as location, design, setting, materials, workmanship, feeling, and association.

Typically, an archaeological site in California is recommended eligible for listing in the California Register based on its potential to yield information important in prehistory or history (Criterion 4). Important information includes chronological markers, such as projectile point styles or obsidian artifacts that can be subjected to dating methods, or undisturbed deposits that retain their stratigraphic integrity. Sites such as these have the ability to address research questions. However, archaeological sites also may be recommended eligible under California Register Criteria 1, 2, and/or 3.

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California Public Resources Code and Health and Safety Code

Native American Heritage Commission

PRC Section 5097.91 established the NAHC, the duties of which include inventorying places of religious or social significance to Native Americans and identifying known graves and cemeteries of Native Americans on private lands. PRC Section 5097.98 specifies a protocol to be followed when the NAHC is notified by a county coroner of a discovery of Native American human remains.

California Health and Safety Code Sections 7050 and 7052

California Health and Safety Code Section 7050.5 declares that, in the event of the discovery of human remains outside a dedicated cemetery, all ground disturbance must cease, and the County Coroner must be notified. California Health and Safety Code Section 7052 establishes a felony penalty for mutilating, disinterring, or otherwise disturbing human remains, except by relatives.

Local Policies and Regulations

Under Section 53091 of the California Government Code, local agency building and zoning ordinances do not apply to projects involving the location or construction of facilities for the production, generation, storage, treatment, or transmission of water. However, EBMUD's practice is to work with local jurisdictions and neighboring communities during project planning, and to consider local environmental protection policies for guidance.

Contra Costa County General Plan

The *Contra Costa County General Plan* outlines the County's goals for physical growth, conservation, and community life in the unincorporated area, and contains the policies and actions necessary to achieve those goals. The *Contra Costa General Plan* was adopted in 1991 and has been reconsolidated twice, once for 1990-2005 and again for 2005-2020 (Contra Costa County, 2020). The following goals, policies, and measures related to tribal and cultural resources are included as a part of the *Contra Costa County General Plan*, Open Space Element:

- ***Historic and Cultural Resources Policies Goal***. Identify and preserve important archaeological and historic resources within the county.
- ***Historic and Cultural Resources Policies Goal Policy 9-28***. Areas which have identifiable and important archaeological or historic significance shall be preserved for such uses, preferably in public ownership.
- ***Historic and Cultural Resources Policies Goal Policy 9-29***. Buildings or structures that have visual merit and historic value shall be protected.
- ***Development Review Process Policy 9-i***. Develop an archaeological sensitivity map to be used by staff in the environmental review process for discretionary permits to determine potential impacts upon cultural resources.
- ***Development Review Process Policy 9-j***. As a condition of approval of discretionary permits, include a procedure to be followed in the event that archaeological resources are encountered during development or construction.

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Contra Costa County Historic Resources Inventory

A historic resources inventory was compiled in 1976 by Contra Costa County, in coordination with local historical societies. The most recent version of the inventory was updated in July 2019 by the Contra Costa County Conservation and Development's Community Development Division (CDD), the Historical Landmarks Advisory Committee (HLAC), and local historical societies. The historic resources inventory is a list of buildings and sites with historic or architectural significance and is not considered a comprehensive listing of the County's historic resources. California Register criteria is used to determine eligibility for listing in the Contra Costa County Historic Resources Inventory. The County HLAC has drafted a historic preservation ordinance and recommended that it be adopted as part of the Zoning Code update through Envision 2040 (Contra Costa County Historical Landmarks Advisory Committee, 2023).

City of Richmond General Plan

The *City of Richmond General Plan 2030* contains 15 elements addressing land use, economic development, housing, transportation, climate change, public safety, arts and culture, and open space conservation strategies. The *City of Richmond General Plan 2030* provides a comprehensive framework for developing a healthy city and healthy neighborhoods (City of Richmond, 2012). The following goals, policies, and measures related to tribal and cultural resources are included as a part of the *City of Richmond General Plan 2030*, Historic Resources chapter:

- **Goal HR1.** Richmond has a rich history that is woven throughout the fabric of the community. Preserve historic resources and leverage them to enhance and build upon Richmond's historic character.
- **Historic Resource Inventory and Survey: Action HR1.C.** Historic Resource Inventory and Survey: Continue updating the comprehensive citywide inventory of historic resources and develop a citywide survey to identify structures that may be eligible for local, state, and national historic resource designation.

Richmond Historic Register

City of Richmond Municipal Code Chapter 6.06.060 provides Criteria for Designation in the City of Richmond Historic Structures Code. On the recommendation of the Historic Preservation Commission and the approval of the Richmond City Council, an object, building, structure, site, or area not already designated as a historic or archaeological resource may be so designated if it is found to meet any of the following criteria:

1. It exemplifies or reflects valued elements of the City of Richmond's cultural, social, economic, political, aesthetic, engineering, archaeological, or architectural history.
2. It is identified with persons or events important in local, state, or national history.
3. It reflects significant geographical patterns, including those associated with different eras of settlement and growth, particular transportation modes, or distinctive examples of park or community planning.
4. It embodies distinguishing characteristics of an architectural style, type, period, or method of construction, or is a valuable example of the use of indigenous materials or craftsmanship.

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5. It is representative of the notable work of a builder, designer, or architect whose style influenced the City of Richmond's architectural development.
6. A structure, site, or other improvement which meets any of the above criteria at the highest level, and whose loss would be a major loss to the City of Richmond, may be designated a Richmond Historic Landmark

City of San Pablo

The *San Pablo General Plan 2030* provides a vision of the future San Pablo by establishing guidelines that reflect city policies, goals, and efforts while enhancing quality of life. The *San Pablo General Plan 2030* serves as a blueprint for the future, outlines policies that guide development and conservation, and provides the basis for establishing detailed plans and implementing programs, such as development standards and specific plans (City of San Pablo, 2011). The following policies related to cultural resources are included as a part of the *San Pablo General Plan*, Open Space and Conservation element:

Guiding Policy OSC-G-6: Identify and preserve the cultural resources that are found within the City of San Pablo.

Implementing Policy OSC-I-15: Help to ensure that new development analyzes and avoids potential impacts to historic, archaeological, and paleontological resources by:

- Requiring a records review for development proposed in areas that are considered archaeologically or paleontologically sensitive;
- Requiring pre-construction surveys and monitoring during any ground disturbance for all development in areas of historic or archaeological sensitivity;
- Implementing appropriate measures as a condition of project approval – measures such as avoidance, preservation in place, excavation, documentation, and/or data recovery – to avoid any identified cultural resource impacts.

If historic, archaeological, or paleontological resources are accidentally discovered during construction, grading activity in the immediate area shall cease and materials and their surroundings shall not be altered or collected. A qualified archaeologist or paleontologist must make an immediate evaluation and avoidance measures or appropriate mitigation should be completed, according to CEQA Guidelines. The State Office of Historic Preservation has issued recommendations for the preparation of Archaeological Resource Management Reports that may be used as guidelines.

EBMUD Standard Construction Specifications

EBMUD's Standard Construction Specifications and Procedures apply to all contractors completing work for EBMUD, and to work completed by EBMUD staff. The following EBMUD practices and procedures are applicable to tribal and cultural resources.

- **EBMUD Standard Construction Specification 01 35 45, Biological, Cultural, and Paleontological Resource Requirements, Sections 3.1 and 3.3**

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EBMUD Standard Construction Specification 01 35 45, Biological, Cultural, and Paleontological Resource Requirements, includes safety practices and procedures to minimize effects on cultural resources (EBMUD, 2023a):

- Section 3.1, Training and Certification
 - Before beginning construction, all Contractor personnel involved in ground-disturbing activities are required to attend an environmental training program provided by EBMUD, of up to one day for site supervisors, foremen and project managers and up to 30 minutes for non-supervisory Contractor personnel. Contractor general personnel will receive a worker environmental awareness training.
 - The Contractor is responsible for ensuring that all workers requiring environmental training are identified to EBMUD.
 - Prior to accessing or performing construction work, the identified Contractor personnel shall:
 - Sign a wallet card provided by EBMUD verifying that the Contractor personnel has attended the appropriate level of training relative to their position; have understood the contents of the environmental training, and shall comply with all project environmental requirements.
 - Display an environmental training hard hat decal (provided by EBMUD after completion of the training) at all times.
- Section 3.3, Protection of Cultural and Paleontological Resources
 - Confidentiality of Information on Cultural and Paleontological Resources
 - In conjunction with Contractor's performance under this contract, the Contractor may obtain information as to the location and/or nature of certain cultural or paleontological resources, including Native American artifacts and remains. This information may be provided to the Contractor by EBMUD or a third party, or may be discovered directly by the Contractor through its performance under the contract. All such information shall be considered "Confidential Information" for the purposes of this Article.
 - Pursuant to California Government Code Section 6254.10, cultural resource information is protected from public disclosure. The Contractor agrees that the Contractor, its subcontractors, and their respective agents and employees shall not publish or disclose any Confidential Information to any person, unless specifically authorized in advance, in writing by the Engineer.
 - Conform to the requirements of statutes as they relate to the protection and preservation of cultural and paleontological resources. Unauthorized collection of prehistoric or historic artifacts or fossils along the Work Area, or at Work facilities, is strictly prohibited.
 - In addition to the training identified in Article 3.1.A above, identified Contractor personnel shall attend a cultural and paleontological resources training course provided by EBMUD of up to two hours. The training program

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will be completed in person or by watching a video, at an EBMUD designated location, conducted or prepared by a Qualified Archaeologist and/or Paleontologist. The program will discuss cultural and paleontological resources awareness within the project work limits, including the responsibilities of Contractor personnel, applicable mitigation measures, confidentiality, and notification requirements. Prior to accessing the construction site, or performing site work, identified Contractor personnel shall:

- Sign an attendance sheet provided by EBMUD verifying that all Contractor construction personnel involved in ground disturbing activities have attended the appropriate level of training; have read and understood the contents of the training; have read and understood the contents of the “Confidentiality of Information on Cultural and Paleontological Resources” document, and shall comply with all project environmental requirements.
- In the event that potential cultural or paleontological resources are discovered at the site of construction, the following procedures shall be instituted:
 - Discovery of prehistoric or historic-era archaeological resources requires that all construction activities shall immediately cease at the location of discovery and within 100 feet of the discovery.
 - The Contractor shall immediately allow EBMUD to evaluate the find. The Contractor is responsible for stopping work and notifying EBMUD and shall not recommence work until authorized to do so by EBMUD.
 - EBMUD will retain a qualified archaeologist to inspect the findings within 24 hours of discovery. If it is determined that the Project could damage a historical resource as defined by CEQA (or a historic property as defined by the National Historic Preservation Act of 1966, as amended), construction shall cease in an area determined by the archaeologist until a management plan has been prepared, approved by the Engineer, and implemented to the satisfaction of the archaeologist (and Native American representative if the resource is prehistoric, who shall be identified by the Native American Heritage Commission [NAHC]). In consultation with EBMUD, the archaeologist (and Native American representative) will determine when construction can resume.
 - Discovery of human remains requires that all construction activities immediately cease at, and within 100 feet of the location of discovery.
 - The Contractor shall immediately notify EBMUD who will engage a qualified archaeologist provided by EBMUD to evaluate the find. The Contractor is responsible for stopping work and notifying EBMUD and shall not recommence work until authorized to do so by EBMUD.
 - EBMUD will contact the County Coroner, who will determine whether or not the remains are Native American. If the remains are determined to be Native American, the Coroner will contact the Native American Heritage

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Commission (NAHC). The NAHC will then identify the person or persons it believes to be the most likely descendant from the deceased Native American, who in turn would make recommendations to EBMUD for the appropriate means of treating the human remains and any associated funerary objects. Otherwise, the County Coroner shall be allowed to complete their investigation and the Contractor shall not recommence work until authorized to do so by both the Coroner and EBMUD.

- If EBMUD determines that the cultural or paleontological resource discovery requires further evaluation, at the direction of Engineer, the Contractor shall suspend all construction activities at the location of the find and within a larger radius, as required.

3.4.3 Impacts Analysis

Methodology

Architectural Resources

Potential impacts on architectural resources are assessed by identifying whether Project implementation could affect resources that have been identified as historical resources for CEQA. Individual properties and districts that are identified as historical resources under CEQA include those that are significant because of their association with important events, people, or architectural styles or master architects, or for their informational value (California Register Criteria 1, 2, 3, and 4), and that retain sufficient historic integrity to convey their significance. After a resource has been identified as significant, it must be determined whether the Project impacts would “cause a substantial adverse change in the significance” of the resource (State CEQA Guidelines Section 15064.5[b]). A substantial adverse change in the significance of a historical resource means “physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of [the] historical resource would be materially impaired” (State CEQA Guidelines Section 15064.5[b][1]). A historical resource is materially impaired through the demolition or alteration of the resource’s physical characteristics that convey its historical significance, and that justify its inclusion in (or eligibility for inclusion in) the California Register or a qualified local register (State CEQA Guidelines Section 15064.5[b][2]).

To evaluate the Project’s potential effects on significant historic-age built cultural resources, a Cultural Resources Assessment Report for the Project area was completed in June 2022 (PaleoWest, LLC, 2022). The assessment included a literature review, a field survey to document historic-age architectural resources within the Project area, and evaluation of resources for eligibility for listing in the California Register of Historical Resources and the National Register.

Archaeological Resources

The significance of most prehistoric and historic-period archaeological sites usually is assessed under California Register Criterion 4. This criterion stresses the importance of the information

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potential contained within the site, rather than its significance as a surviving example of a type or its association with an important person or event. Archaeological resources may qualify as historical resources under the definition in Section 15064.5(a) of the State CEQA Guidelines, or they also may be assessed under CEQA as unique archaeological resources, defined as archaeological artifacts, objects, or sites that contain information needed to answer important scientific research questions (PRC Section 21083.2). A substantial adverse change in the significance of an archaeological resource is assessed similarly to other historical resources (i.e., whether the Project would result in the destruction or adverse material alteration of those physical resource characteristics that convey its significance under the appropriate criteria (State CEQA Guidelines Section 15064.5[b][2])).

Human Remains

Human remains, including those buried outside formal cemeteries, are protected under several State laws, including PRC Section 5097.98 and California Health and Safety Code Section 7050.5. This CEQA analysis considers whether the Project would cause impacts including the intentional disturbance, mutilation, or removal of interred human remains.

Significance Criteria

Consistent with *Appendix G* of the *State CEQA Guidelines*, an impact on cultural resources would be considered significant if the Project would:

1. Cause a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5.
2. Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5.
3. Disturb any human remains, including those interred outside of formal cemeteries.

Impacts and Mitigation Measures

Impact CUL-1: Cause a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5. (*Criterion 1*)

The following discussion focuses on architectural resources. Archaeological resources, including those that are potentially historical resources according to CEQA Guidelines Section 15064.5, are addressed under Impact CUL-2. No resources within the Project area meet the definition of historical resources pursuant to Section 15064.5. As described previously, all historic-era resources in proximity to the Project area, including the SOWTP, are ineligible for listing on the California Register. Additionally, the Project area does not contain any previously recorded pre-contact or historic-period archaeological sites. Therefore, the Project would not impact the significance of a historical resource.

Significance Determination before Mitigation

No Impact.

Mitigation Measure

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None required.

Impact CUL-2: Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5. (*Criterion 2*)

Construction

This section describes impacts on archaeological resources that potentially are historical resources according to Section 15064.5 of the State CEQA Guidelines, as well as unique archaeological resources, as defined in PRC Section 21083.2(g).

The Project area does not contain any previously recorded pre-contact or historic-period archaeological sites. However, records indicate one pre-contact site (P-07-000068) is adjacent to the Central North Aqueduct pipeline. The buried site sensitivity assessment indicates that archaeological deposits associated with the pre-contact site, should they still exist, would be in surface or near-surface deposits (i.e., 30 to 60 centimeters below ground surface). Such deposits may extend under the existing San Pablo Dam Road, where they may be encountered during construction of the Central North Aqueduct pipeline. Because resource P-07-000068 is a potentially eligible resource, Project encounters with deposits of pre-contact resource P-07-000068 would be a potentially significant impact.

The western portion of the Central North Aqueduct pipeline follows the historic course of San Pablo Creek, which is sensitive for pre-contact habitation and resource processing sites. While existing development would have disturbed the surface of these areas, in natural levee deposits and at the upper or lower contact of fine-grained alluvial fan deposits, the potential exists for the preservation of prehistoric deposits with a high degree of integrity. Pre-contact materials may be found mixed throughout and in secondary context in coarse debris flow deposits. The potential depth of prehistoric deposits may extend through the entire vertical limits of the Project area in the areas with moderate buried site sensitivity (i.e., Central North Aqueduct pipeline). Therefore, ground-disturbing activities proposed for the western portion of the Central North Aqueduct pipeline has the potential to impact cultural resources. The remainder of the Project area has low sensitivity for encountering buried archaeological resources.

As detailed in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, have been incorporated into the Project, including EBMUD's Standard Construction Specification 01 35 45, Biological, Cultural, and Paleontological Resource Requirements, Sections 3.1 and 3.3. Standard Construction Specification 01 35 45, Biological, Cultural, and Paleontological Resources, Section 3.1, Training and Certification, requires general preconstruction training for all personnel. Section 3.3, Protection of Cultural and Paleontological Resources requires conducting preconstruction cultural resources training for all construction personnel, and in the event that a cultural resource is identified during construction, all work within 100 feet of the resource shall be halted until a qualified archaeologist can review, identify, and evaluate the resource for its significance.

While Standard Construction Specification 01 35 45, Biological, Cultural, and Paleontological Resources, Section 3.3 would address the potential to encounter cultural resources in areas with

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low resource sensitivity, including the SOWTP site and eastern portion of the Central North Aqueduct pipeline, the Standard Construction Specification does not specifically require archaeological monitoring in sensitive areas, including in proximity to P-07-00068 or in areas with moderate sensitivity for buried resources. Even with implementation of the EBMUD Standard Construction Specification, it may be difficult for construction contractors to recognize buried archaeological resources. Therefore, the potential impact on buried archaeological resources in areas with moderate sensitivity and in proximity to known resources would remain potentially significant. Implementation of Mitigation Measure CR-1 would require archaeological monitoring in proximity to site P-07-00068 and in areas with moderate archaeological resource sensitivity, to mitigate potential adverse impacts on the archaeological resource.

Because the contractor would comply with Standard Construction Specification 01 35 45, Biological, Cultural, and Paleontological Resources, Section 3.1, Training and Certification, which requires general training and Section 3.3, Protection of Cultural and Paleontological Resources which requires preconstruction cultural resources training and implementation of procedures addressing the inadvertent discovery of archeological resources, and because implementation of Mitigation Measure CR-1 would require archaeological monitoring in proximity to archaeological resources and in areas with moderate sensitivity for buried archaeological resources, the Project construction impact on archaeological resources would be reduced to a less-than-significant level with mitigation incorporated. The EBMUD Practices and Procedures Monitoring and Reporting Plan (Appendix C) lists the applicable standard specification language. The Mitigation Monitoring and Reporting Plan (Appendix C) includes the applicable mitigation measures to be implemented and the timing for implementation.

Operation and Maintenance

No known archaeological resources are in proximity to the Project. Project operation and maintenance would not require ground disturbance that could result in impacts on archaeological resources. Therefore, operation and maintenance would not result in adverse change in the significance of any archaeological resource.

Significance Determination before Mitigation

Impacts on site P-07-000068 and buried archaeological resources in areas with moderate sensitivity for buried archaeological resources would be potentially significant.

Mitigation Measure

Mitigation Measure CR-1: Archaeological and Tribal Monitoring

During ground-disturbing construction activities of the Central North Aqueduct pipeline at the previously recorded site P-07-000068 and a 250-foot buffer from the site, a qualified archaeological and tribal monitor shall be present to inspect unexcavated sediments and soils for any sign of site P-07-000068 or other potential archaeological deposit. The archaeologist and tribal monitor shall notify EBMUD and its contractor of a discovery and EBMUD will direct its contractor to stop work in the vicinity of a discovery. The archaeologist will follow all regulations

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for the identification, evaluation, and recovery of any archaeological resources that cannot be avoided.

During ground-disturbing construction activities of the Central North Aqueduct pipeline in areas with moderate sensitivity for deeply buried pre-contact archaeological resources (e.g., Bay Terrace alluvium), a qualified archaeological and tribal monitor shall be present to inspect unexcavated sediments and soils for any sign of potential archaeological deposits bi-weekly (two times per week). The archaeologist and tribal monitor shall notify EBMUD and its contractor of a discovery and EBMUD will direct its contractor to stop work in the vicinity of a discovery. If the archaeologist has observed excavation to final depth in sufficient areas to adequately characterize that the Project area and the underlying sediments appear disturbed or other evidence to suggest that archaeological and tribal cultural deposits are highly unlikely, the qualified archaeologist may recommend, in consultation with EBMUD, a switch to periodic (spot-check) monitoring or cease inspections entirely.

If during bi-weekly inspections, the archaeologist identifies sensitive intact sediments that are likely to contain archaeological deposits, ground-disturbing activities shall be halted, and the qualified archaeologist shall develop an appropriate Archaeological Monitoring Plan in consultation with EBMUD. The Archaeological Monitoring Plan may include increased frequency of periodic archaeological inspections, full-time archaeological construction monitoring, or presence/absence testing in areas of heightened archaeological sensitivity. The archaeologist will follow all regulations for the identification, evaluation, and recovery of any archaeological resources that cannot be avoided.

Significance Determination after Mitigation

Implementation of Mitigation Measure CR-1 would require archaeological monitoring in proximity to known cultural resources and where resource sensitivity is moderate, so that resources are properly documented and avoided. The impact would be reduced to less than significant with mitigation incorporated.

Impact CUL-3: Disturb any human remains, including those interred outside of formal cemeteries. (*Criterion 3*)

Construction, Operation, and Maintenance

No human remains are known to exist in the Project area. Although the Project area is unlikely to contain human remains, the lack of surface and record indications does not preclude the possibility that human remains could be present, and inadvertently encountered and damaged, during Project construction. The presence of a cultural site in the Sacred Lands File also suggests that an increase is possible in the potential to encounter human remains in the Project area.

As detailed in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, have been incorporated into the Project, including EBMUD's Standard Construction Specification 01 35 45, Biological, Cultural, and Paleontological Resource Requirements. Section 3.1, Training and Certification, requires general preconstruction training for all construction cultural resource personnel. Section 3.3, Protection of Cultural and Paleontological Resources, which includes appropriate cultural resources management practices

3.4 CULTURAL RESOURCES

and complies with statutory requirements, outlines procedures in regard to the discovery of human remains, including that all construction activities shall immediately cease at the location of discovery and within 100 feet of the discovery and EBMUD shall contact the County Coroner to determine whether or not the remains are Native American. If the remains are determined to be Native American, the Coroner shall contact the NAHC. The NAHC then shall identify the person or persons it believes to be the most likely descendant from the deceased Native American, who in turn would make recommendations to EBMUD for the appropriate means of treating the human remains and any associated funerary objects. Otherwise, the County Coroner shall be allowed to complete their investigation and the Contractor shall not recommence work until authorized to do so by both the Coroner and EBMUD.

Because EBMUD's Standard Construction Specification 01 35 45, Biological, Cultural, and Paleontological Resource Requirements, Section 3.1, Training and Certification, which requires cultural resource training and Section 3.3, Protection of Cultural and Paleontological Resources requires implementation of procedures that address the inadvertent discovery of human remains and follows statutory law, the Project's impact related to human remains would be less than significant. The EBMUD Practices and Procedures Monitoring and Reporting Plan (Appendix C) lists the applicable standard specification language.

Significance Determination before Mitigation

Less than significant.

Mitigation Measure

None required.

3.4.4 Cumulative Impacts Analysis

The geographic scope of analysis for cumulative impacts on cultural resources encompasses planned future projects at the SOWTP and along the Central North Aqueduct pipeline. The Project would not contribute to significant cultural impacts at the SOWTP or along the Central North Aqueduct pipeline alignment except at the location of P-07-000068 and the western portion which has a moderate sensitivity for cultural resources. A cumulatively significant impact could result if incremental effects of the Project, after implementation of EBMUD's Standard Construction Specifications, combined with the impacts of planned projects, after implementation of their mitigation as applicable, cause a substantial adverse effect on the same cultural resource.

Federal, state, and local laws can generally protect cultural resources in most instances. The Central Pressure Zone Pipeline and Wildcat Pumping Plant Project are in the same roadways as the work at the Central North Aqueduct pipeline and could impact the same cultural resources if present in the areas with moderate sensitivity for cultural resources. These projects would be required to comply with the same provisions of CEQA and implement measures similar to those identified above (EBMUD's Standard Construction Specification 01 35 45, Biological, Cultural, and Paleontological Resource Requirements, Section 3.3, Protections of Cultural and Paleontological Resources) as they are both EBMUD projects. These measures would require

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protocols for responding in the event of inadvertent discovery of cultural resources. Additionally, the Wildcat Pumping Plant Mitigated Negative Declaration includes a mitigation measure that requires a qualified Native American monitor and archaeologist to inspect unexcavated sediments and soils for any sign of potential archaeological deposits (EBMUD, 2023b).

Through compliance with applicable regulations and implementation of standard construction specifications and mitigation measures, the Project would not have a cumulatively considerable contribution to adverse effects on cultural resources and the cumulative impact would be less than significant.

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3.5 Energy

This section describes the physical, environmental, and regulatory setting for energy resources, identifies the significance criteria for determining environmental impacts, and evaluates the potential impacts on energy resources that could result from implementation of the Project. The Project's effects on climate change related to energy use are discussed in Section 3.6, Greenhouse Gas (GHG) Emissions.

3.5.1 Environmental Setting

Data Collection

The amount of electricity, natural gas, and petroleum used and generated in California and imported from outside the state was determined by reviewing information prepared by the California Energy Commission (CEC), which is the state's primary energy policy and planning agency (CEC, 2022a).

Electricity and Natural Gas

In 2020, California's energy mix totaled approximately 272,576 gigawatt hours (GWh) of electricity, of which 70 percent was from in-state electricity generation and the remaining was imported from the northwestern and southwestern United States (U.S.). About 37 percent of the total energy used in California was produced by natural gas, with other sources including solar (13 percent), hydroelectric (12 percent), wind (11 percent), nuclear (9 percent), and coal (less than 3 percent). The remaining energy was produced by other sources such as geothermal and biomass sources (CEC, 2022a).

Pacific Gas and Electric Company (PG&E) is the local electricity and natural gas supplier in the city of Richmond and unincorporated Contra Costa County. PG&E provides natural gas and electric services to approximately 16 million people throughout a 70,000-square-mile service area in northern and central California (PG&E, 2022a). About 50 percent of PG&E's electrical generation is from renewable resources (e.g., wind, solar, geothermal, biomass, and small hydroelectric facilities (PG&E, 2022b).

East Bay Municipal Utility District (EBMUD) is a net energy generator, producing more energy through hydropower, solar power, and biogas production than is used by its water and wastewater facilities. EBMUD sells hydropower to electric power suppliers when the water system generates excess energy. EBMUD generates on average 150,000 megawatt-hours (MWh) of electricity annually at its two hydroelectric power plants. Currently, EBMUD has ten photovoltaic projects providing nearly 2 MW of photovoltaic capacity and producing up to 3,200 MWh of electricity annually. EBMUD is planning to construct the 5 MW Duffel Photovoltaic Renewable Energy Project in the city of Orinda, which will produce an estimated 10,000 MWh annually. After construction of the Duffel Photovoltaic Energy Project, EBMUD would produce 13,200 MWh of renewable energy annually. EBMUD's wastewater treatment plants can generate more than 55,000 MWh annually. EBMUD's sustainability practices

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minimize energy use and GHG emissions (EBMUD, 2022a). The existing SOWTP operation requires approximately 2,630 MWh of electricity per year (EBMUD, 2022b).

Petroleum

Of the petroleum used in California in 2021, 28.9 percent came from California, 14.9 percent from Alaska, and 56.2 percent from foreign sources. Petroleum used in California was refined to produce gasoline, diesel fuel, and a variety of other liquid petroleum products (CEC, 2022d).

Gasoline is the most used transportation fuel in California, with 97 percent of all gasoline consumed by light-duty cars, pickup trucks, and sport utility vehicles (CEC, 2022b). Diesel fuel is the second largest transportation fuel used in California, representing 17 percent of total fuel sales behind gasoline. Nearly all heavy-duty trucks, delivery vehicles, buses, trains, ships, boats and barges, and farm, construction, and heavy-duty military vehicles and equipment have diesel engines because diesel generates 12 percent more energy per gallon than gasoline and has fuel properties that prolong engine life, making it ideal for heavy-duty vehicle applications (CEC, 2022c). An estimated 15.4 billion gallons of gasoline and 3.1 billion gallons of diesel, including off-road diesel, were sold in California in 2019 (CEC, 2022b).

3.5.2 Regulatory Framework

This section describes federal, state, and local policies and regulations related to energy that may apply to the Project.

Federal Policies and Regulations

National Energy Conservation Policy Act of 2005

The National Energy Conservation Policy Act of 2005 sets equipment energy efficiency standards and seeks to reduce reliance on non-renewable energy resources and provide incentives to reduce current demand on these resources. For example, under the National Energy Conservation Policy Act of 2005, consumers and businesses can attain federal tax credits for purchasing fuel-efficient appliances and products, including hybrid vehicles; by constructing energy-efficient buildings; and by improving the energy efficiency of commercial buildings. In addition, tax credits are available for installation of qualified fuel cells, stationary microturbine power plants, and solar power equipment.

Energy and Independence Security Act of 2007 and the Corporate Average Fuel Economy Standards

The Energy and Independence Security Act of 2007 includes provisions to increase the supply of renewable alternative fuel sources by setting a mandatory Renewable Fuel Standard, which requires transportation fuel sold in the United States to contain a minimum of 36 billion gallons of renewable fuels annually by 2022. In addition, the law sets the Corporate Average Fuel Economy standards at 49 miles per gallon for passenger cars and light trucks by 2026.

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State Policies and Regulations

Senate Bill (SB) 350

SB 350 was enacted in October 2015 to establish a requirement for California to reduce the use of petroleum in cars by 50 percent, to generate half of its electricity from renewable resources, and to increase energy efficiency by 50 percent at new and existing buildings by 2030.

Title 24, California Energy Efficiency Standards

The Energy Efficiency Standards for Residential and Nonresidential Buildings specified in Title 24, Part 6 of the California Code of Regulations were established in 1978, in response to a legislative mandate to reduce California's energy consumption. The standards are updated periodically to allow consideration and possible incorporation of new energy efficiency technologies and methods. The CEC adopted the most recent update to the Energy Efficiency Standards in 2022. These new standards continue to improve on previous standards for new construction of, and additions and alterations to, residential and nonresidential buildings.

Local Policies and Regulations

Under Section 53091 of the California Government Code, local agency building and zoning ordinances do not apply to projects involving the location or construction of facilities for the production, generation, storage, treatment, or transmission of water. However, EBMUD's practice is to work with local jurisdictions and neighboring communities during project planning, and to consider local environmental protection policies for guidance.

Contra Costa County Climate Action Plan and Distributed Energy Resources Plan

The *Contra Costa County Climate Action Plan* outlines the county goals for energy efficiency and renewable energy. The Climate Action Plan includes energy efficiency goals for all County owned buildings and goals to increase the renewable energy sources throughout the county (Contra Costa County, 2020).

City of Richmond Community Energy and Emission Plan 2050

The *City of Richmond Community Energy and Emissions Plan 2050* outlines the City goals for energy efficiency and lower greenhouse gases emissions. The plan states that the City wants to focus on transitioning to electric vehicles and developing carbon neutral buildings.

City of San Pablo General Plan

The *City of San Pablo General Plan* outlines the City's goals for energy efficiency. The plan states general energy goals to lower the amount of energy usage in the city. The City of San Pablo intends to achieve this goal by encouraging residents to own energy efficient vehicles, increasing energy efficiency in homes and increasing solar energy production in the city.

EBMUD Sustainability and Resilience Policy

EBMUD adopted a sustainability policy in 2008, focusing on using resources (i.e., economic, environmental, and human) in a responsible manner that meets the needs of today without compromising the ability of future generations to meet the needs of tomorrow. The sustainability policy takes a holistic stance to minimize waste; conserve energy and natural

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resources; promote long-term economic viability; support the safety and well-being of employees, communities, and customers; and provide benefit to society (EBMUD, 2018).

EBMUD Strategic Plan

EBMUD's Strategic Plan outlines the goals, strategies, objectives, and key performance indicators that are used to manage natural resources, provide reliable, high-quality water and wastewater services at fair and reasonable rates for people in the East Bay, and preserve and protect the environment for future generations. The water quality and environmental protection goals in the Strategic Plan include strategies to address resource conservation, as follows (EBMUD, 2020b):

Water Quality and Environmental Protection, Strategy 4: Minimize impacts to the environment by reducing, recycling, re-using, and reclaiming waste, and by conserving natural resources.

- **Objective:** Identify and implement energy efficient projects.

EBMUD Climate Change Monitoring and Response Plan

EBMUD's Climate Change Monitoring and Response Plan helps EBMUD understand the potential threats from climate change, prepare adaptation strategies, and guide mitigation of GHG emissions, which contribute to climate change (EBMUD, 2021). The Climate Change Monitoring and Response Plan has established objectives for EBMUD, including encouraging and promoting cost-effective use and the generation of renewable energy, related to its water and wastewater operations.

EBMUD Climate Action Plan

EBMUD's Climate Action Plan addresses the impacts, vulnerabilities, mitigation measures, and adaptation strategies throughout EBMUD operations (EBMUD, 2021). To address impacts from climate change, EBMUD is preparing for more frequent and severe droughts and storms, reduced snowpack, warmer weather, longer wildfire seasons, increased water demand, and rising groundwater and sea levels. In addition, EBMUD is investing in renewable energy production, using alternative fuel vehicles, and setting aggressive goals for GHG emissions reductions.

EBMUD Energy Policy

EBMUD's Policy 7.07 on Energy (EBMUD, 2020b) is to:

- Encourage and promote energy management and energy efficient practices within EBMUD's water and wastewater system operations, service area, and watersheds.
- Reduce GHG emissions.
- Minimize reliance on fossil fuels.
- Provide reliable energy sources.
- Reduce energy costs.

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- Support EBMUD's goal for wastewater systems to eliminate GHG emissions for indirect emissions and reduce direct GHG emissions by 50 percent compared to 2000 levels by 2040.

Support EBMUD's goal for water systems to eliminate GHG emissions for indirect and direct emissions by 2030. To support the Energy Policy, EBMUD will:

- Efficiently use energy, including electricity, petroleum-based fuels, and natural gas to reduce costs and energy consumption, conserve natural resources, and minimize impacts on the environment.
- Increase its use and generation of renewable energy to preserve natural resources, reduce environmental pollution, and support EBMUD's mission to protect and preserve the environment for future generations.
- Secure reliable energy supplies at the most advantageous rates and implement economical projects to protect operations from interruptions and minimize future costs.
- Support the State of California's renewable energy goals.
- Promote its energy policy by informing staff and the public of its efforts to use energy efficiently, raising awareness of the nexus between water and energy, and increasing generation of renewable energy.

EBMUD Standard Construction Specifications and Procedures

EBMUD's Standard Construction Specifications and Procedures apply to all contractors who are completing work for EBMUD, and to work completed by EBMUD staff. The following EBMUD practices and procedures are applicable to energy.

- **EBMUD Standard Construction Specification 01 35 44 (Environmental Requirements), Section 3.5**

EBMUD Standard Construction Specification 01 35 44 (Environmental Requirements), requires implementation of the following measures that are aimed at reducing emissions, while also ensuring energy-efficient use of equipment (EBMUD, 2023):

- Section 3.5, Air Quality Control
 - Implement all necessary air pollutant construction measures per the Bay Area Air Quality Management District "Basic Construction Mitigation Measures" (BAAQMD CEQA Guidelines May 2017), including, but not limited to the following:
 - Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations [CCR]). Clear signage shall be provided for construction workers at all access points.
 - Implement all necessary air pollutant construction measures per the Bay Area Air Quality Management District "Additional Construction Mitigation

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Measures” (BAAQMD CEQA Guidelines May 2017) including but not limited to the following:

- Minimizing the idling time of diesel-powered construction equipment to two minutes.
- Requiring all contractors use equipment that meets CARB’s most recent certification standard for off-road heavy duty diesel engines.
- Implement all necessary EBMUD air pollutant construction measures, including but not limited to the following:
 - Use line power instead of diesel generators at all construction sites where line power is available.
 - Temporary sources of air emissions (such as portable pumps, compressors, generators, etc.) shall be electrically powered unless the use of such equipment is not practical, feasible, or available.
 - Minimize the use of diesel generators where possible.
 - Perform regular low-emission tune-ups on all construction equipment, particularly haul trucks and earthwork equipment.
 - On road and off-road vehicle tire pressures shall be maintained to manufacturer specifications. Tires shall be checked and re-inflated at regular intervals.
 - Demolition debris shall be recycled for reuse to the extent feasible. See the Construction and Demolition Waste Disposal Plan paragraphs above for requirements for wood treated with preservatives (TWW).

3.5.3 Impact Analysis

Methodology for Analysis

Consistent with Public Resources Code 21100(b)(3), this impact analysis evaluates the potential for the Project to result in a substantial increase in energy demand and/or wasteful use of fuel, water, or energy during Project construction, operation, and maintenance.

The analysis of construction impacts uses a qualitative approach to discuss energy demand from construction activities and describes conservation measures that would minimize the use of fuel, water, and energy to ensure that resources are not used in a wasteful manner.

The analysis of the operation and maintenance impacts uses a quantitative approach to discuss the change in energy demand because of the Project and describes measures that would minimize the use of energy to ensure that it is not used in a wasteful manner.

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Significance Criteria

Consistent with *Appendix G* of the *CEQA Guidelines*, an impact on energy resources would be considered significant if the Project would:

1. Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation.
2. Conflict with or obstruct a state or local plan for renewable energy or energy efficiency.

Impacts and Mitigation Measures

Impact ENG-1: Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation. (Criterion 1)

Construction

Project construction would require the use of fuels (primarily gasoline, diesel, and motor oil) for excavation, grading, and vehicle travel. Fuel would be used for construction worker commute trips, for material hauling trips to and from the Project area, and by construction equipment. Energy also would be used indirectly for production of construction materials.

Although the precise amount of construction energy consumption is uncertain, use of fuels would be consistent with typical construction and manufacturing practices. Fuels would not be used wastefully because doing so would not be economically sustainable for contractors. Fuel consumption by construction vehicles and equipment would comply with federal and state standards for vehicle fuel efficiency, because all vehicles and machinery that are sold in the U. S. and used in California must meet federal and state standards. Construction activities would minimize energy use as much as possible; EBMUD would store as much excavated soil on site as possible and re-use the soil as backfill where feasible, to minimize fuel consumption associated with haul trucks for soil disposal.

As detailed in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, would be incorporated into the Project, including Standard Construction Specification 01 35 44, Environmental Requirements. Standard Construction Specification 01 35 44 Section 3.5, Air Quality and Emissions Control, would require implementation of measures to reduce the inefficient use of fuels, including limiting idling, keeping engines properly tuned, maintaining appropriate tire pressure, requiring the use of alternative-fueled construction equipment, and recycling or re-using construction waste or demolition materials to the extent feasible.

Because Standard Construction Specification Section 3.5, Air Quality and Emissions Control, of EBMUD's Standard Construction Specification 01 35 44, Environmental Requirements, has been incorporated into the Project and includes best management practices (BMPs) for efficient use of construction-related fuels, the Project construction impacts related to energy use and impacts on energy resources would not be wasteful, inefficient, or unnecessary, and the impact would be

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less than significant. The EBMUD Practices and Procedures Monitoring and Reporting Plan) lists the applicable standard specifications language.

Operation and Maintenance

The existing SOWTP operation and maintenance requires approximately 2,630 MWh of electricity per year. Phase 1 would require an increase of approximately 1,420 MWh per year. Phase 2 would require additional energy use, for a total increase in SOWTP energy use of approximately 3,360 MWh annually relative to existing conditions. The current SOWTP power infrastructure has sufficient capacity to support the Phase 1 and Phase 2 improvements. However, new breakers and protective relays would be required for the Phase 1 and Phase 2 facilities. PG&E's distribution system that currently serves the SOWTP has sufficient capacity to supply the additional loads for Phase 1 and Phase 2 facilities. The Central North Aqueduct pipeline uses a gravity-based system to convey water from the SOWTP and no additional energy would be required for operation.

Although the Project would require additional energy annually for operation and maintenance, the increased energy would be required to meet the future projected water demand for the area, as detailed in EBMUD's 2050 Demand Study (EBMUD, 2020a). As noted in EBMUD's Climate Action Plan (EBMUD, 2021) EBMUD is investing in alternative fuel vehicles and setting aggressive goals for GHG reductions throughout its operations. The increase in energy use by the Project would not be wasteful, inefficient, or unnecessary resulting in a less than significant impact.

Significance Determination Before Mitigation

Less than significant.

Mitigation Measure

None required.

Impact ENG-2: Conflict with or obstruct a state or local plan for renewable energy or energy efficiency (*Criterion 2*)

Construction, Operation, and Maintenance

The Project would comply with federal and state standards for vehicle fuel efficiency because all vehicles and machinery that are sold in the U.S. are required to meet federal and state standards. The Project would not affect the generation or use of renewable energy. The Project would use minimal electricity for lighting and security systems, which would be provided by PG&E. PG&E is subject to the Renewable Portfolio Standard, requiring incorporation of renewable energy into its power sources. The Project would comply with other applicable energy efficiency policies or standards, including EBMUD standard practices and procedures and energy policies that require a variety of measures to reduce the inefficient use of fuels. The Project would not interfere with existing state or local programs intended to reduce energy use, such as the local programs that are in place for Contra Costa County, the City of Richmond, and the City of San Pablo. The local programs focus on encouraging energy efficiency in buildings and increases in renewable energy. EBMUD will incorporate energy efficient design into the

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proposed SOWTP buildings consistent with California Title 24 building standards. EBMUD has also implemented multiple renewable energy projects to increase renewable energy generation at its facilities, as discussed previously. Because the Project would comply with federal and state standards and applicable energy efficiency policies, practices, and procedures, the impact on renewable energy and efficiency would be less than significant.

Significance Determination Before Mitigation

Less than significant.

Mitigation Measure

None required.

3.5.4 Cumulative Impacts Analysis

The Project's energy impacts would be associated with use of energy during the construction phase and an increase in energy use during operation and maintenance. The following cumulative analysis focuses on other projects that could be constructed in unincorporated Contra Costa County, city of Richmond, and city of San Pablo in the Project vicinity during construction, operation, and maintenance. Based on information about current and pending projects from various agencies, there are eight projects in proximity to the Project with planned construction activities during the same timeframe as the Project. In addition, regional development of mixed use, residential, and commercial land uses is anticipated per the land use elements in the general plans of Contra Costa County, city of Richmond, and city of San Pablo.

Construction of the cumulative projects would result in consumption of fuels by construction equipment as well as by vehicles used for worker commutes and material hauling. However, as with the Project, use of these fuels would be consistent with standard construction and manufacturing practices and would not be considered wasteful or unnecessary. In addition, all construction vehicles and equipment would be required to comply with federal and state standards for vehicle fuel efficiency. Although the use of energy for construction would constitute an irreversible use of a finite resource, use of energy would not be considered a cumulatively significant impact, because the construction activities would be short term and construction practices and the equipment used would be consistent with applicable standards and regulations. The Project's contribution to the less-than-significant cumulative impact would be further reduced by implementation of EBMUD standard practices and procedures, applicable to all EBMUD projects, including Standard Construction Specification 01 35 44, Environmental Requirements.

Project operation and maintenance would result in increased use of energy compared with the current SOWTP energy use. Many of the cumulative projects also would require energy during the life of the Project, in particular any of the new mixed use, residential, and commercial developments that the county and cities plan for the region. EBMUD upgrades to water infrastructure, including the new Wildcat Pumping Plant water infrastructure planned in the region, would also likely require additional energy. Any new residential and commercial development would be required to comply with California's Energy Efficiency Standards,

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including continuing to reduce the overall use of energy for new projects. Any new EBMUD projects or upgrades would be required to follow California policies as well as EBMUD's Energy Policy 7.07. The energy used for the Project and all cumulative projects during operations would not be considered a cumulatively significant impact, because while they would require additional energy, they would meet the California requirements for energy efficiency and the energy requirements and would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency. The Project would not contribute considerably to any cumulative impact related to energy use.

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3.6 Geology, Soil, and Seismicity

This section describes the physical, environmental, and regulatory setting for geology, soil, seismicity, and paleontological resources, identifies the significance criteria used for determining environmental impacts, and evaluates the potential impacts on geology, soil, seismicity, and paleontological resources that could result from implementation of the Project.

3.6.1 Environmental Setting

Regional Setting

The Project is located in the East Bay, north of the Diablo Range and within the southern portion of the Coast Range, which is a series of north-northwest trending mountain ranges and valleys that were formed by relatively young uplift associated with the active San Andreas Fault zone. The Project region is bounded geologically to the east by the Great Valley and to the west by the Pacific Ocean. The topography of the Project region has been greatly influenced by the geologic development of the San Andreas Fault system over the last 30 million years (PaleoWest, LLC, 2022).

Project Setting

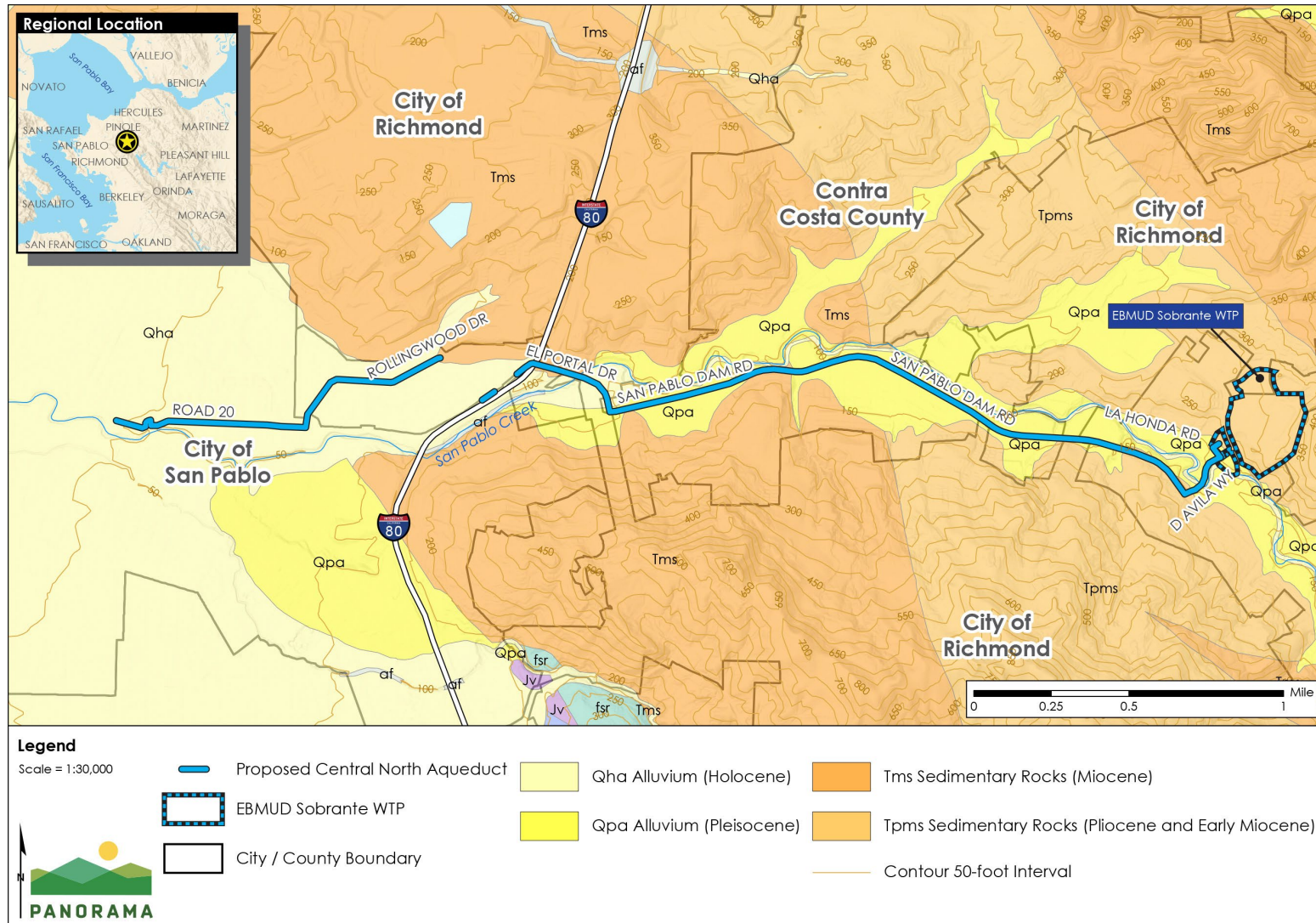
The SOWTP area is underlain by Tertiary-age (Miocene and Pliocene) bedrock, consisting of conglomerate, sandstone, and siltstone (Orinda Formation), and Holocene-age alluvium. Alluvium is a geologic deposit composed of unconsolidated sand, silt, clay, and gravel left by a historical stream in a river valley or delta. The Holocene-age alluvium was deposited by the San Pablo Creek over thousands of years, which is considered relatively recent in geologic time (Figure 3.6-1).

The Orinda Formation (Tms as shown on Figure 3.6-1) is a non-marine sequence of poorly indurated Tertiary-age sedimentary rock that occurs in the East Bay Hills and is considered “suitable foundation material.” The Orinda Formation consists of greenish-gray lithic sandstone, conglomeratic sandstone, conglomerate, and green and maroon siltstone and claystone. The Orinda Formation contains angular to well-rounded clasts, including varicolored chert, graywacke, metagraywacke, greenstone, and glaucophane schist predominantly derived from rocks of the Franciscan Complex (PaleoWest, LLC, 2022) (Figure 3.6-1).

The Central North Aqueduct pipeline is mostly underlain by Pleistocene-age and Holocene-age alluvium deposits. The Holocene-age alluvium deposits consist of sand, silt, and gravel, deposited in fan, valley fill, terrace, or basin environments. The Pleistocene-age alluvium consists of poorly to moderately sorted sand, silt, and gravel (Figure 3.6-1).

3.6 GEOLOGY, SOILS AND SEISMICITY

Figure 3.6-1 Geologic Map



Sources: (U.S. Geological Survey, 2020; ESRI, 2011; Bay Area Open Space Council, 2011; Bay Area Open Space Council, 2011; Bay Area Open Space Council, 2017; Contra Costa County Department of Information Technology, 2017; WTP Improvements Group Design Division, 2021; Contra Costa County, 2020; U. S. Geological Survey, 2015)

3.6 GEOLOGY, SOILS AND SEISMICITY

Faults, Seismicity, and Ground Shaking

The Project is in a seismically active region of California near multiple known faults (Table 3.6-1). Throughout the San Francisco Bay Area, the potential exists for damage resulting from movement, ground-shaking, and seismically induced ground failures along any one of the several active faults. The SOWTP is not within an Alquist Priolo Fault zone; however, the Central North Aqueduct pipeline would cross the Alquist Priolo Fault zone at the Hayward Fault (Figure 3.6 2).

The Hayward fault, approximately 2.2 miles west of the SOWTP and within the alignment of the proposed Central North Aqueduct pipeline, is the closest mapped active fault to the SOWTP. The northeast margin of the East Bay Hills, southeast of the SOWTP, is controlled by the northern section of the Calaveras Fault. Active faulting along the northern Calaveras Fault appears to step eastward to the Concord Fault in the Walnut Creek area (Table 3.6-1).

Table 3.6-1 Major Regional Active Faults

Fault Name	Approximate Distance to SOWTP ^a (miles)	Direction from Site	Estimated Maximum Moment Magnitude ^b
Hayward-Rodgers Creek	2.2	West	7.3
Franklin	6.0	Northeast	7.2
Green Valley/Concord	11.7	East	6.9
Mount Diablo Thrust	14.3	Southwest	6.7
Greenville	17.3	East	6.9
North San Andreas	20.3	West	8.1
San Gregorio	22.6	West	7.5
Point Reyes	22.6	West	6.8
Calaveras	27.2	Southwest	7.0
Monte Vista-Shannon	40.2	Southwest	6.5

Notes:

^a Measured as the distance from the SOWTP. The Central North Aqueduct pipeline crosses the Hayward Fault.

^b Moment magnitude (Mw) is the magnitude scale for ranking earthquakes by size.

Source: (Terra Engineers, Inc, 2023)

The Pinole and Moraga faults are the closest mapped inactive faults to the SOWTP, and the Central North Aqueduct pipeline crosses the Moraga fault (Figure 3.6-2). The Pinole and Moraga faults roughly parallel the Hayward fault and are part of a system of Quaternary-age faulting that previously was more active than the Hayward Fault in this region of the East Bay. The Pinole and Moraga faults are not considered to be a part of the presently active fault systems in the San Francisco Bay Area.

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Figure 3.6-2 Alquist-Priolo Zone and Faults



Sources: (U.S. Geological Survey, 2020; ESRI, 2011; Bay Area Open Space Council, 2011; Bay Area Open Space Council, 2011; Bay Area Open Space Council, 2017; Contra Costa County Department of Information Technology, 2017; WTP Improvements Group Design Division, 2021; EBMUD, 2021; U.S. Geological Survey and California Geological Survey, 2010; California Department of Conservation: California Geological Survey, 2005)

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The entire San Francisco Bay Area, including the Project area, could be subject to strong ground shaking during earthquakes. A moment magnitude (M_w)¹ 6.7 or greater earthquake is likely to occur in the Project region over the Project lifetime (Terra Engineers, Inc., 2021). Ground-shaking can be described in terms of acceleration, velocity, and displacement of the ground. As a rule, the greater the earthquake magnitude and the closer the fault rupture to a site, the greater the intensity of ground-shaking.

Major earthquakes in the San Francisco Bay Area have been recorded since the early 1800s along various faults of the San Andreas Fault system. The 1868 earthquake on the Hayward Fault, which occurred with an estimated M_w of up to 6.7, ruptured the south Hayward segment with an intensity-estimated epicenter near San Leandro (S. Hough, 2015). The Hayward Fault dominates the earthquake hazard in the SOWTP area because of its proximity to the SOWTP at a distance of approximately 2.2 miles.

Current earthquakes forecasts for the Hayward Fault consider combined rupture of the northern and southern Hayward Fault up to M_w 7.0, a combined Hayward–Rodgers Creek fault zone rupture producing a M_w 7.3 earthquake, and a floating rupture of M_w 6.9 that could occur anywhere along the fault zone without regard to defined segmentation boundaries (InfraTerra, 2018). The nearby active faults and their estimated ground-shaking capabilities (maximum earthquake magnitudes) are shown in Table 3.6-1.

Liquefaction and Lateral Spreading

Liquefaction can occur where granular and low plasticity² soil is saturated (below the water table) and is accompanied by a temporary significant loss of strength because of seismic ground-shaking. Lateral spreading is a type of landslide that commonly occurs on gentle slopes with a rapid, fluid-like flow movement resulting from liquefaction that spreads downslope toward an open channel or other excavation boundary (USGS, 2021). The soil at SOWTP consists of very stiff sandy clays to fat clays³, with moderate to high plasticity and fines contents ranging from 50 to 90 percent (Terra Engineers, Inc., 2021). The soil at SOWTP is residual soil, derived from weathered Orinda Formation claystones, siltstones, and sandstones. The groundwater table generally is 10 to 20 feet below ground surface (bgs) around the Phase 1 Project area and shallower around the Phase 2 Project area. Granular soil that is found toward the surface at SOWTP is not fully saturated and generally is well-compacted. The soil at SOWTP is not susceptible to liquefaction, and the SOWTP is in an area of very low risk of liquefaction

¹ M_w refers to moment magnitude that is a total energy measurement of an earthquake based on its seismic moment. The seismic moment is a measure of the size of an earthquake based on the area of fault rupture, average amount of slip, and force that was required to overcome the friction sticking the rocks together and offset by faulting (USGS, 2021).

² Plasticity of soil refers to the ability to undergo deformation without cracking or fracturing.

³ Fat clays are cohesive and compressible clays of high plasticity, containing a high proportion of minerals that make these clays greasy to the touch (American Geoservices, 2016).

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and associated lateral spreading (United States Geological Survey, 2006; Terra Engineers, Inc., 2021) (Figure 3.6-3).

The Central North Aqueduct pipeline is in an area of medium risk for liquefaction, except for the location west of Highway 80 on Road 20, where the risk of liquefaction is considered to be very high (USGS, 2006) (Figure 3.6-2 and Figure 3.6-3). Lateral spreading along the Central North Aqueduct pipeline risk is low as the area is a flat, developed area.

Landslides

Slope stability depends on several complex variables, including the geology, structure, and the amount of groundwater present, as well as external processes such as climate, topography, slope geometry, and human activity. A landslide is a movement of surface material down a slope (USGS, 2021). Slope failures, commonly referred to as landslides, include many phenomena that involve the downslope displacement and movement of material, either triggered by static or dynamic forces. Landslides can occur on slopes of 15 percent or less, but the probability is greater on steeper slopes that exhibit old landslide features, such as scarps⁴, slanted vegetation, or transverse ridges. Landslides typically occur within slide-prone geologic units that contain excessive amounts of water, on steep slopes, and/or where planes of weakness are parallel to the slope angle.

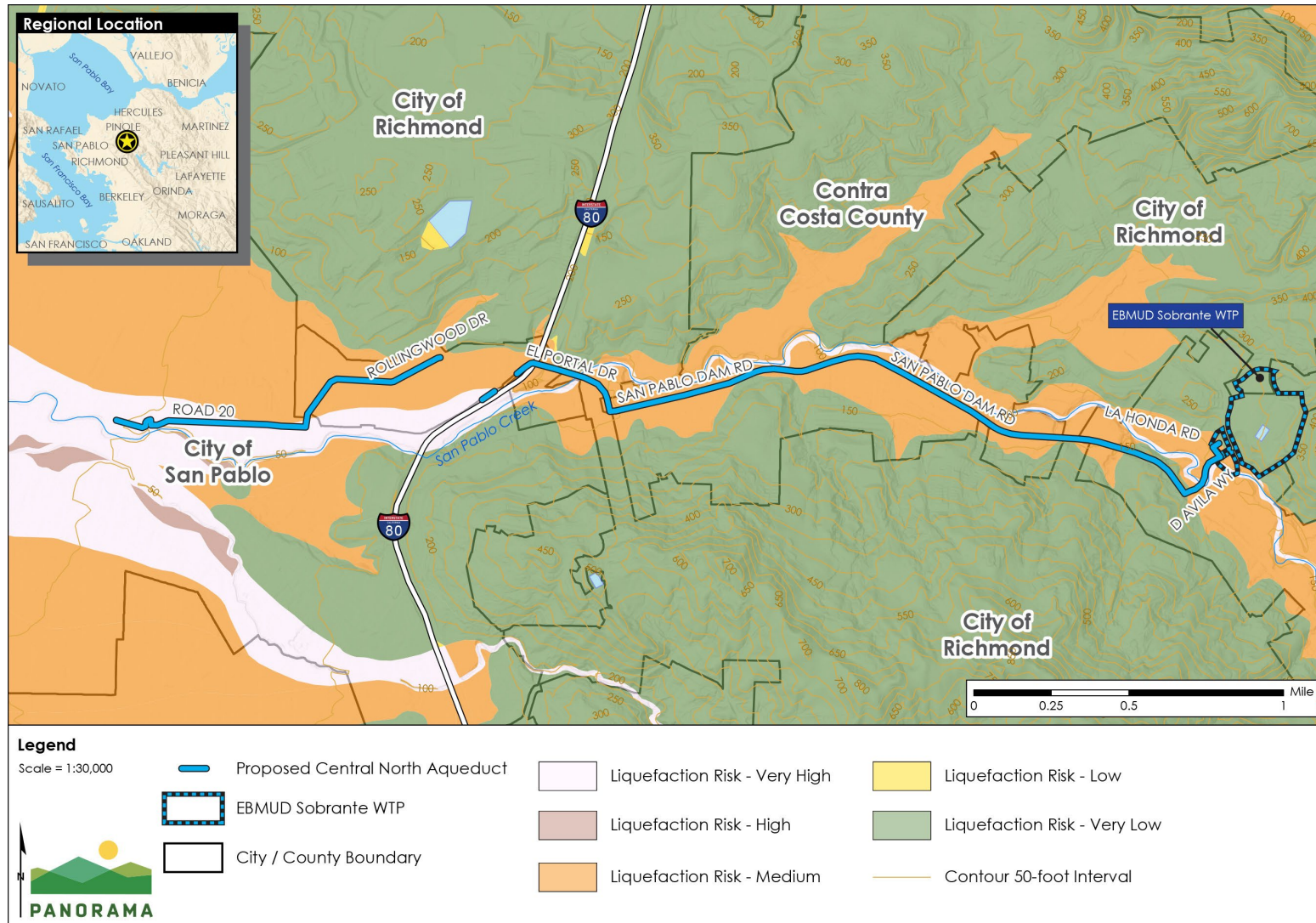
The SOWTP is located on a relatively flat topographic terrace, with relatively steep slopes on the southeast and southwest sides of the SOWTP site. Detailed investigations of slope movements have been conducted and mapped within the limits of the SOWTP and are shown in Figure 3.6-4. Historical landslides have occurred on the southwest-facing slopes of the SOWTP, below the facility and above Valley View Road, on the cut slope above the southeast margin of the SOWTP, and along and below Valley View Road. The landslide on the cut slope on the east margin of the SOWTP is dormant, if not generally inactive. However, two very small, eroded scarps, each approximately 1 foot in height and about 15 feet in length, are within the body of the accumulated slide mass east of the SOWTP, indicating that slight movements within the historical landslide may continue during periods of heavy precipitation (Terra Engineers, Inc., 2021).

The Central North Aqueduct pipeline alignment also would be in the valley bottom on a relatively flat topographic surface, categorized as flat land by the U.S. Geological Survey (USGS) (Figure 3.6-5). Flat lands are areas with gentle slopes at low elevation that have little or no potential for the formation of slumps, landslides, or earth flows (Wentworth, et al., 1997).

⁴ A scarp refers to a very steep bank or slope.

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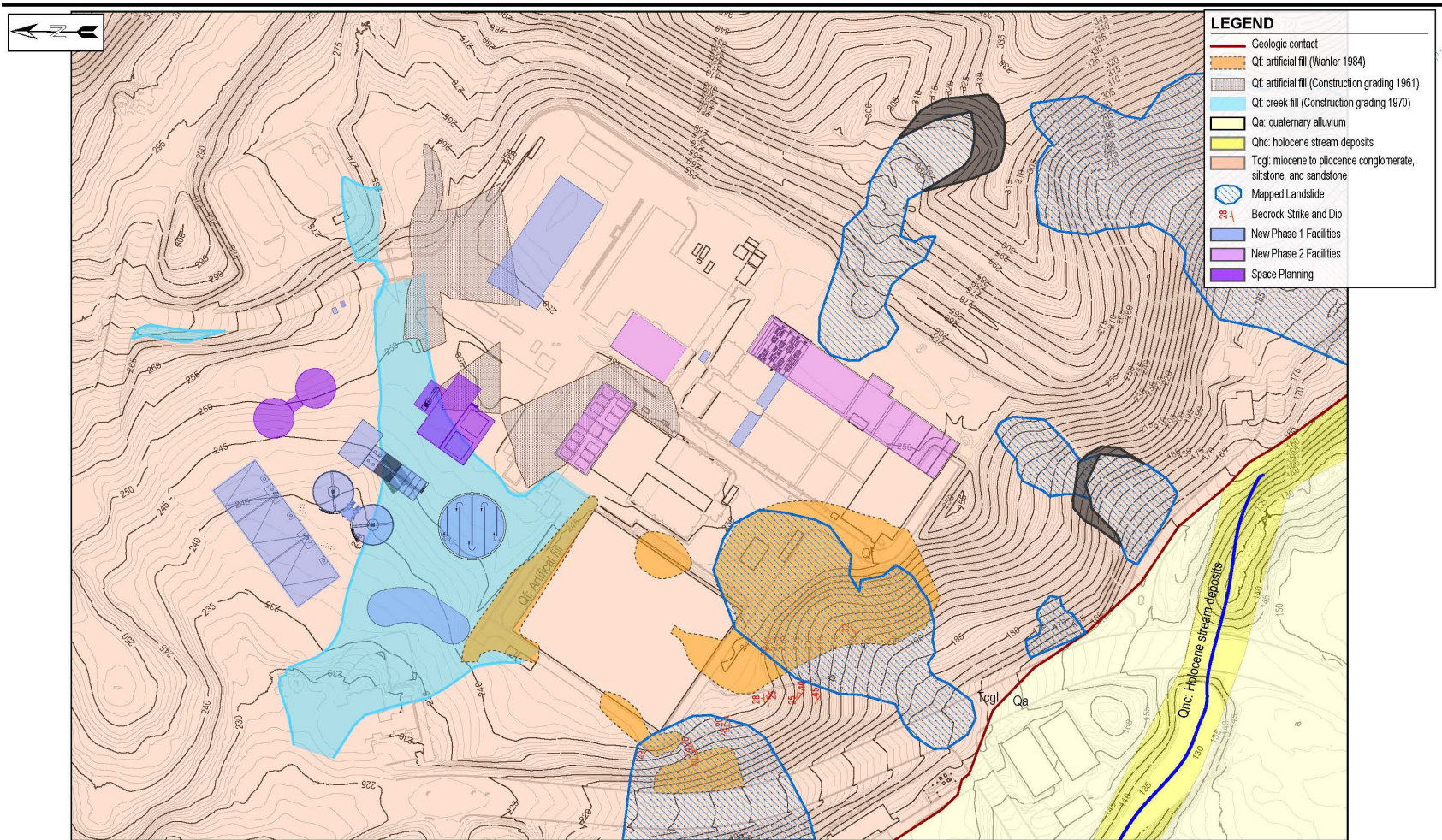
Figure 3.6-3 Liquefaction Risk



Sources: (U.S. Geological Survey, 2020; ESRI, 2011; Bay Area Open Space Council, 2011; Bay Area Open Space Council, 2011; Bay Area Open Space Council, 2017; Contra Costa County Department of Information Texhnology, 2017; WTP Improvements Group Design Division, 2021; EBMUD, 2021; United States Geological Survey, 2006)

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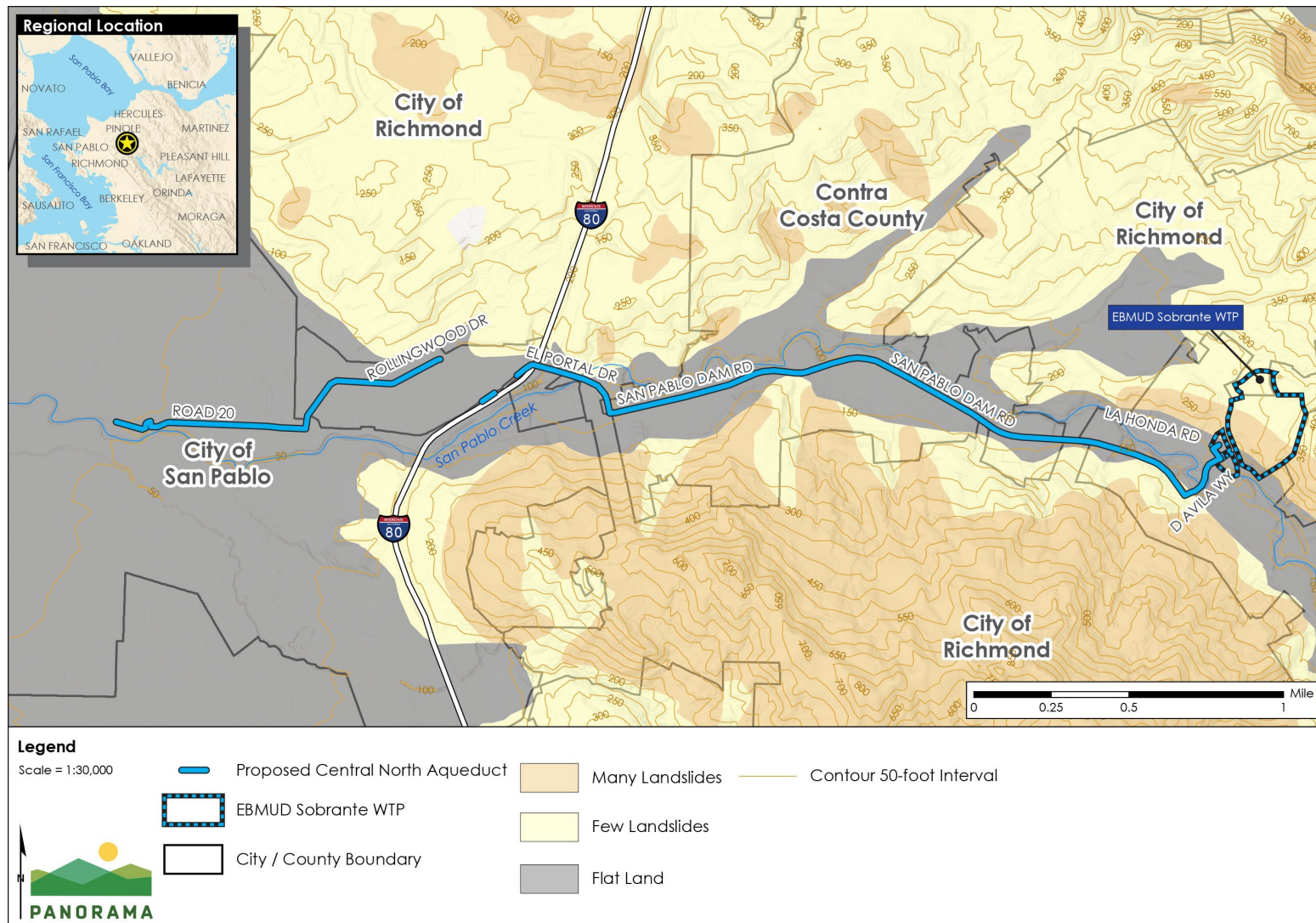
Figure 3.6-4 SOWTP Geology, Soil, and Historical Landslide Deposits



Source: (Terra Engineers, Inc, 2023)

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Figure 3.6-5 Landslide Potential



Sources: (U.S. Geological Survey, 2020; ESRI, 2011; Bay Area Open Space Council, 2011; Bay Area Open Space Council, 2011; Bay Area Open Space Council, 2017; Contra Costa County Department of Information Technology, 2017; WTP Improvements Group Design Division, 2021; Contra Costa County, 2020; United States Geological Survey, 1997)

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Expansive Soil

Expansive soil exhibits swelling and shrinking behavior due to cyclic wetting and drying of the soil. The expansive nature is driven by the fraction of clay content and mineralogy of the clay. Soils with higher plasticity are generally correlated with a greater swell potential. Structures founded directly on expansive soils at relatively shallow depths may be damaged incrementally over a long period, usually because of inadequate drainage or foundation engineering allowing the soil to experience wetting and drying cycles from infiltration and evapotranspiration, measured by linear extensibility. Linear extensibility is used to determine whether soils are expansive and refers to the change in length of an unconfined clod as moisture content is decreased from a moist to a dry state (USDA, 2022). The shrink-swell potential is low if the soil has a linear extensibility of less than 3 percent, moderate if 3 to 6 percent, high if 6 to 9 percent, and very high if more than 9 percent. If the linear extensibility is more than 3 percent, shrinking and swelling can cause damage to buildings, roads, and other structures as well as to plant roots. Engineered solutions may include designing void spaces to allow soil swelling (e.g., waffle slabs), positive drainage and impervious barriers, replacement of the expansive soil, and chemical stabilization of the expansive soil (e.g., lime or fly ash).

The SOWTP site and the Central North Aqueduct pipeline locations contain soil with linear extensibility ranging from 4.7 to 10.7 percent, as shown in Table 3.6-2 (U.S. Department of Agriculture, Natural Resources Conservation Service, 2022). The soil within the SOWTP includes Diablo clay (DbE), Conejo clay loam (CeA), and Cropley clay (CkB), which range from poorly drained to well drained (USDA , 2022). The soil within the Central North Aqueduct pipeline alignment includes Clear Lake clay (Cc), Conejo clay loam (CeA), and Cropley clay (CkB), which range from poorly drained to well drained (USDA , 2022). Such soil has high shrink-swell potential and is considered to be expansive soil (4.7 to 8.3 percent) (Figure 3.6-6).

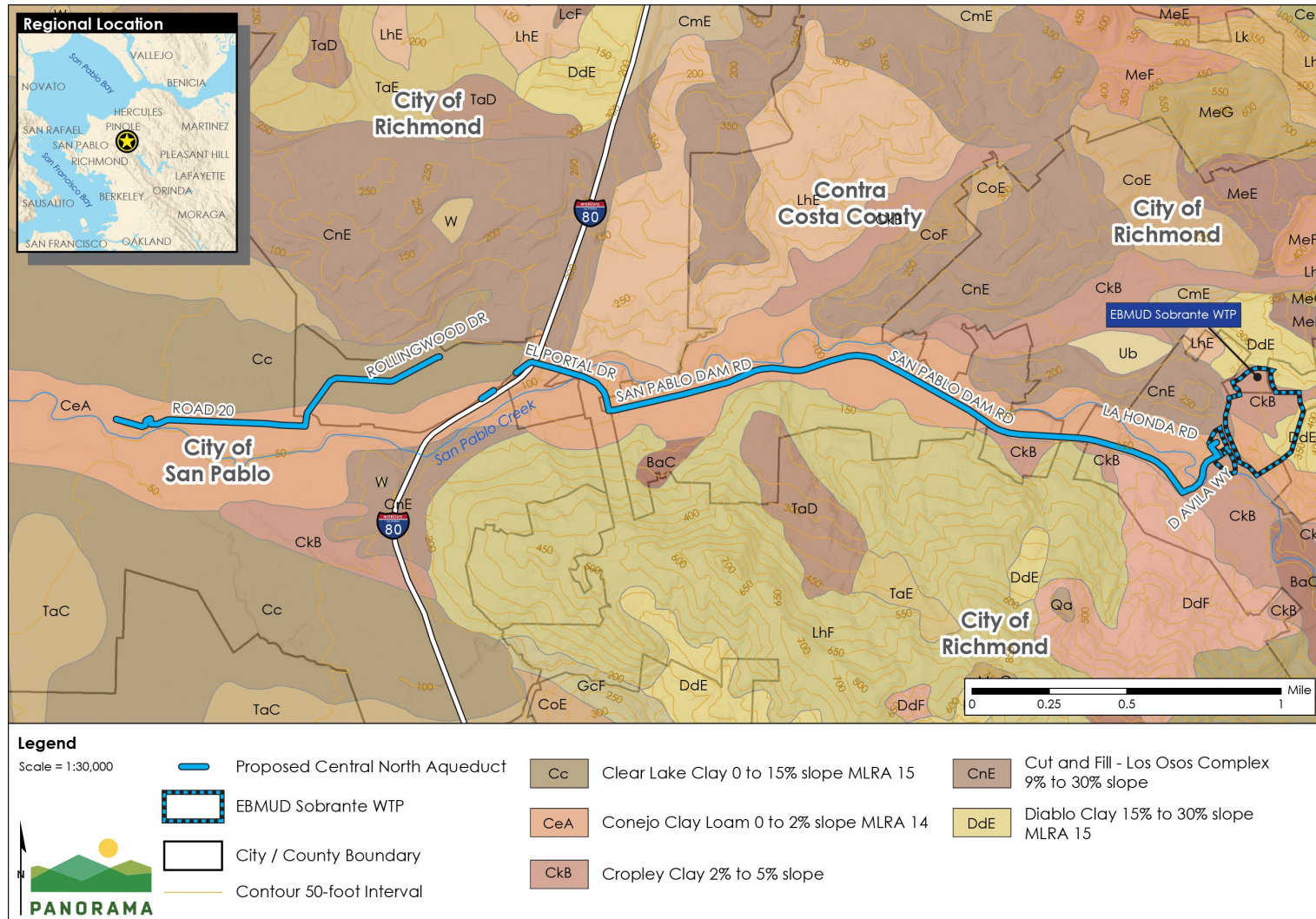
Table 3.6-2: Linear Extensibility of Soil in the Project Area

Soil Name	Soil Symbol	Linear Extensibility Rating (percent)
Clear Lake clay	Cc	8.3
Conejo clay loam	CeA	4.7
Cropley clay	CkB	7.5
Cut and fill land	CnE	7.5
Diablo clay	DdE	10.7

Source: (USDA, 2022)

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Figure 3.6-6 Soil Map



Sources: (U.S. Geological Survey, 2020; ESRI, 2011; Bay Area Open Space Council, 2011; Bay Area Open Space Council, 2011; Bay Area Open Space Council, 2017; Contra Costa County Department of Information Technology, 2017; WTP Improvements Group Design Division, 2021; Contra Costa County, 2020; USDA Natural Resources Conservation Service, 2021)

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Two drainages at the SOWTP site that previously drained westward and northwestward across the SOWTP site were filled during original SOWTP construction. Based on subsurface geotechnical explorations and laboratory testing, the fills around the Phase 1 and Phase 2 Project elements consist mainly of sandy lean clays of low to moderate plasticity, with deeper fills within the channel consisting of fat clay of moderate to high plasticity (Terra Engineers, Inc., 2021). Localized fills with similar material properties occur across the SOWTP site and around existing utilities. The fills at the SOWTP site appear to have been engineered and well-compacted, based on geotechnical analysis. The shrink/swell potential of the fill near the ground surface at the SOWTP site is low (Terra Engineers, Inc., 2021).

Corrosive Soil

The corrosivity of soil pertains to the potential for certain soil to cause an electrochemical or chemical reaction that can corrode or weaken uncoated steel or concrete. The rate of corrosion of steel is based on soil moisture, particle-size distribution, acidity, and electrical conductivity. Corrosion of concrete is based on the sulfate and sodium content, texture, moisture, and acidity of the soil. The risk of corrosion is expressed as low, moderate, or high. The soil at the SOWTP site is considered to be corrosive for buried metallic piping and slightly corrosive for buried reinforced concrete or mortar-coated steel piping (Terra Engineers, Inc., 2021). The Central North Aqueduct pipeline alignment has soil that is at low to moderate risk of corrosion for concrete and moderate to high risk of corrosion for uncoated steel (USDA, 2022).

Subsidence

Subsidence is the gradual lowering of the land surface caused by compaction of underlying materials. Subsidence can occur because of the extraction of groundwater and oil, which can cause subsurface clay layers to compress and lower the overlying land surface. Subsidence can also occur because the presence of water in the pore spaces between grains helps to support the skeletal structure of the geologic unit.

The groundwater elevation at SOWTP is perched atop or near the top of Orinda Formation bedrock, and/or is isolated along fractures or lithologically distinct layers within the rock. SOWTP site is susceptible to subsidence due to the clay soils as well as the shallow and seasonally fluctuating groundwater.

The Central North Aqueduct pipeline is not located in an area susceptible to subsidence; the pipeline will not be located in an area with clay soils with shallow groundwater and no subsidence is known to occur in the area. The Central North Aqueduct would also be located within roadways containing engineered fill materials, which are at low risk of subsidence.

Paleontological Setting

Paleontological resources are the fossilized remains of plants and animals, including vertebrates (animals with backbones), invertebrates (e.g., starfish, clams, ammonites, and marine coral), microscopic plants and animals (i.e., microfossils), and trace fossils (e.g., footprints, burrows). The age and abundance of fossils depend on the location, topographic setting, and particular geologic formation in which they are found. The Society of Vertebrate Paleontology (SVP)

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defines a significant fossil resource as “fossils and fossiliferous deposits, here defined as consisting of identifiable vertebrate fossils, large or small, uncommon invertebrate, plant, and trace fossils, and other data that provide taphonomic, taxonomic, phylogenetic, paleoecologic, stratigraphic, and/or biochronologic information. Paleontological resources are considered to be older than recorded human history and/or older than middle Holocene (i.e., older than about 5,000 radiocarbon years).” All identifiable vertebrate fossils are considered to have significant scientific value.

Paleontological sensitivity is defined as the potential for a geologic formation to produce scientifically significant fossils. Paleontological sensitivity is determined by rock type, history of the geologic unit in producing significant fossils, and fossil localities recorded from that unit. Paleontological sensitivity is derived from the known fossil data collected from the entire geologic unit, not just from a specific survey. In its *Standard Procedures for the Assessment and Mitigation of Adverse Impacts to Non-renewable Paleontologic Resources*, the SVP defines four categories of paleontological sensitivity (potential) for rock units: high, low, undetermined and no potential.

Paleontological resources are contained within the geologic deposits or bedrock that underlies the soil layer. Scientific literature and geologic mapping were reviewed to determine the geology and stratigraphy of the Project area. Paleontological records within the entire extent of the geologic units underlying the Project were reviewed to evaluate their paleontological sensitivity, because paleontological sensitivity is not limited to surface exposures of fossil material.

Paleontological Resource Assessment Methods

The SVP has established standard guidelines that outline professional protocols and practices for conducting paleontological resource assessments and surveys; monitoring and mitigation; data and fossil recovery; sampling procedures; and specimen preparation, identification, analysis, and curation (SVP, 2010). Most practicing professional vertebrate paleontologist adhere closely to the SVP’s assessment, mitigation, and monitoring requirements, as provided in its standard guidelines. The SVP guidelines were applied to evaluate the paleontological sensitivity of the Project area.

Paleontological Records Search

The paleontological record search included a review of a geologic map to determine the mapped geologic units in the Project area, a museum and agency record search to locate any previously documented fossil locations and geologic units contained in the Project area, and a literature search. The record search was performed at the University of California Museum of Paleontology (UCMP) online database and an online paleobiology database. The literature review included peer-reviewed scientific literature of the same geologic units that underly the Project area.

Three geologic units underly the Project area, including Holocene-age alluvium (Qa), Holocene and Pleistocene-age landslide rubble (Qls), and the Miocene and Pliocene-age Orinda Formation

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(Tor) (Figure 3.6-7, Figure 3.6-8, and Figure 3.6-9). Holocene-age alluvium and Holocene and Pleistocene-age landslide rubble are mapped in the Project area at the surface. Holocene-age (11,700 years ago to present) deposits typically do not contain significant fossils because they are too young to preserve in-situ fossils. Landslide rubble is much less likely to contain well-preserved fossils than intact native sediments. Landslide materials often are subjected to increased groundwater percolation, which tends to have a negative effect on fossil preservation, and gravitationally induced sediment movements also can destroy fossil remains through abrasion and breakage. Alluvium and landslide rubble are considered to have low paleontological sensitivity. The Orinda Formation is the only geologic unit in the Project area that is sensitive for paleontological resources (Table 3.6-3). While the Orinda formation is mapped as underlying the Project area, recent geotechnical investigations identified areas of fill north of the existing SOWTP infrastructure where site leveling, grading, and fill likely occurred during construction of the SOWTP. Areas of imported fill would have low paleontological sensitivity.

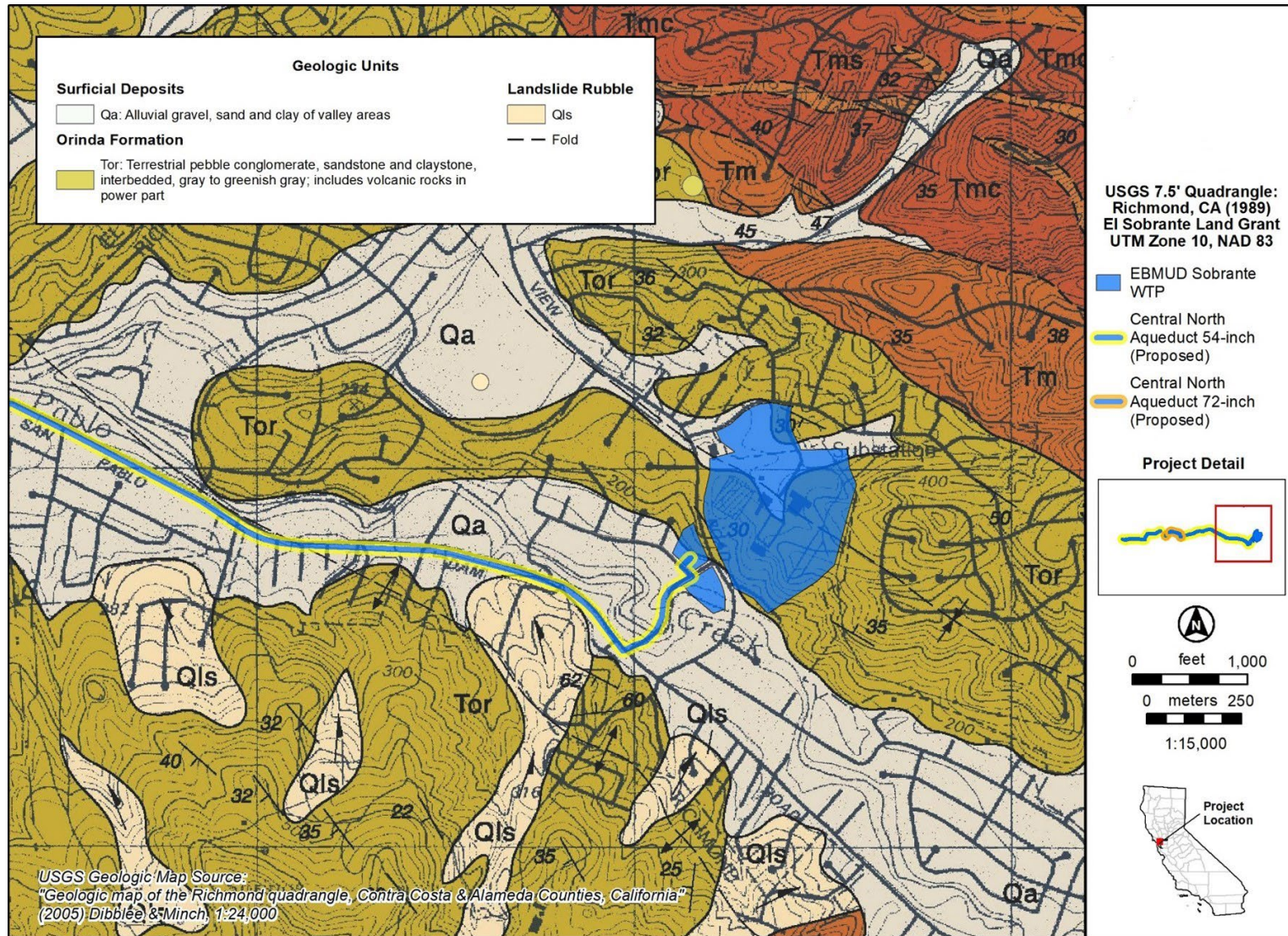
Table 3.6-3 Geologic Units in the Project Area and their Paleontological Sensitivity

Geologic Unit	Age	Geologic Symbol	Typical Fossils	Paleontological Sensitivity
Alluvium	Holocene	Qa	Too young to contain in-situ fossils	Low
Landslide Rubble	Holocene and Pleistocene	Qls	Rock type not conducive to fossil preservation	Low
Orinda Formation	Miocene and Pliocene	Tor	Mammals, turtles, fish, and birds	High

Source: (Dibblee & Minch, 2005)

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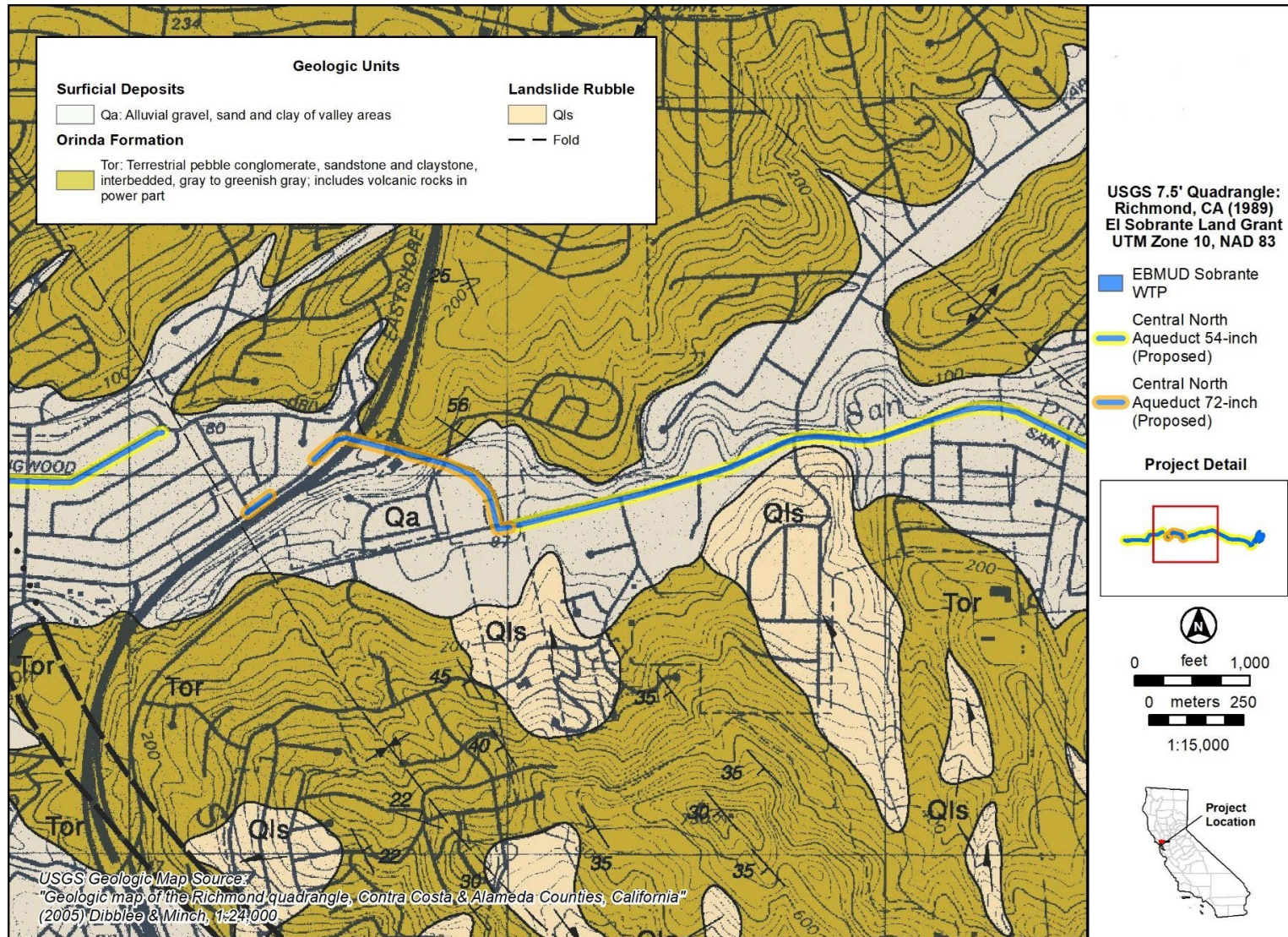
Figure 3.6-7: Geologic Units with Paleontological Resource Sensitivity (Map 1 of 3)



Source: (PaleoWest, LLC, 2022)

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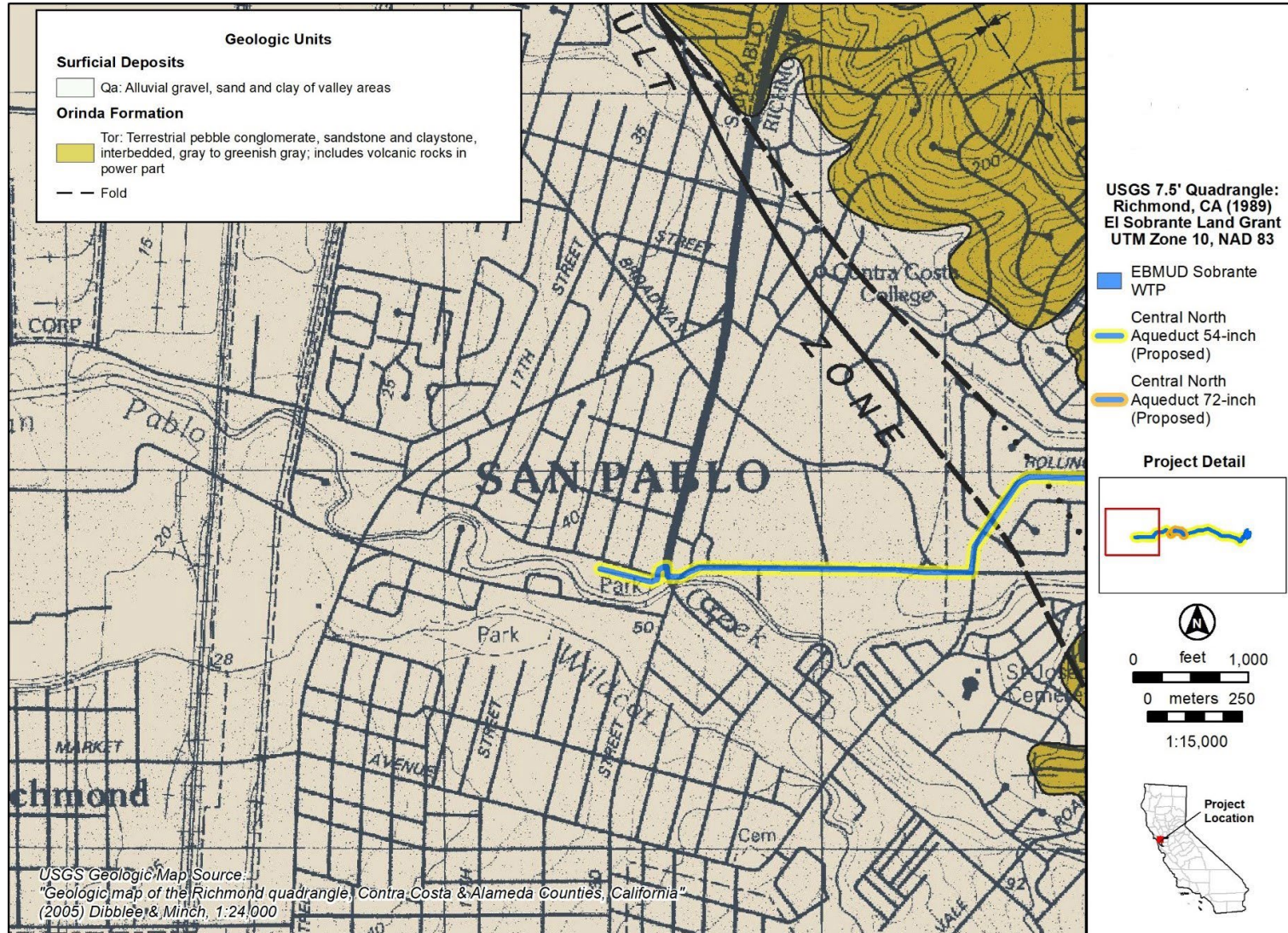
Figure 3.6-8 Geologic Units with Paleontological Resource Sensitivity (Map 2 of 3)



Source: (PaleoWest, LLC, 2022)

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Figure 3.6-9 Geologic Units with Paleontological Resource Sensitivity (Map 3 of 3)



Source: (PaleoWest, LLC, 2022)

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Record Search

The paleontological records at the UCMP include 37 locations of fossils within the Orinda Formation in Contra Costa County, including specimens of mammals, fish, birds, reptiles, ostracods, gastropods, and other invertebrates that have been documented and collected since the 1930s (UCMP, 2022). The fossil localities are dispersed throughout Contra Costa County and range from 1 to 10 miles from the Project area. The Caldecott Tunnel Fourth Bore construction project, 8 miles south of the Project area and within the Orinda Formation, resulted in recovery of thousands of fossil specimens, including well-preserved mammals (e.g., oreodonts, horse, camel, rhinoceros, and rodents).

Literature Review

Little published literature is found in scientific journals on the paleontology of the Orinda Formation (PaleoWest, LLC, 2022). However, the aforementioned Caldecott Tunnel Fourth Bore construction project yielded numerous well-preserved vertebrates that were the subject of many news articles (PaleoWest, LLC, 2022). The Orinda Formation has high paleontological sensitivity because of the history of fossils produced within the geologic unit.

Paleontological Field Survey

A pedestrian paleontological survey was conducted at the SOWTP site on January 14, 2022. The Central North Aqueduct pipeline alignment was not subject to a pedestrian survey because the pipeline would be buried beneath existing roads. The field surveyors inspected all exposed paleontologically sensitive deposits at the SOWTP.

During the pedestrian survey, alluvium was found exposed on the surface across approximately 10 percent of the SOWTP site. Orinda Formation bedrock also was observed, but only as fragmented pieces that had been displaced by grading or animal burrows. The remainder of the SOWTP site either was covered by dense foliage, buildings, or pavement, or by other constructed features, such as the water pumping facilities and the manicured green spaces lining the fence.

A nodule of Orinda Formation sandstone approximately 20 inches in diameter was found in the southeast corner of the SOWTP site, in a spoils pile that had been placed during previous excavation activities, indicating that the Orinda Formation lies at a shallow depth below the topsoil. Rodent activity (burrows) also contained evidence of Orinda Formation bedrock, observed as broken chunks (approximately one inch long) in the northern section of the SOWTP site. The presence of Orinda Formation fragments inside rodent burrows suggests that bedrock is near the surface and will be disturbed if excavation activities affect depths greater than 1 foot. No new fossil locations were discovered during the pedestrian survey.

Paleontological Resource Potential

Any sediments below the surface (upper 12 inches) at the SOWTP site have high paleontological sensitivity based on the presence of the Orinda Formation, which has yielded significant fossils. The Central North Aqueduct pipeline alignment is mapped as underlain by only Holocene-age

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alluvium, which has low sensitivity. However, the Orinda Formation underlies the alluvium within the Central North Aqueduct pipeline alignment, at variable and unknown depths.

3.6.2 Regulatory Framework

This section describes federal, state, and local policies and regulations related to geology and soil that may apply to the Project.

Federal Policies and Regulations

Federal policies and regulations that apply directly to addressing the seismic and geotechnical aspects of the Project have been delegated to the state level.

State Policies and Regulations

The Alquist-Priolo Earthquake Fault Zoning Act

The Alquist-Priolo Earthquake Fault Zoning Act (Alquist-Priolo Act) was enacted in 1972, to mitigate the hazard of surface faulting to structures for human occupancy. In accordance with the Alquist-Priolo Act, the State Geologist established regulatory zones, called “Earthquake Fault Zones,” around the surface traces of active faults and published maps showing the earthquake fault zones. Within the fault zones, buildings for human occupancy cannot be constructed across the surface trace of active faults. Each earthquake fault zone extends approximately 200 to 500 feet on either side of the mapped fault trace because many active faults are complex and consist of more than one branch that may experience ground surface rupture. Title 14, Section 3601 of the California Code of Regulations (CCR) defines buildings intended for human occupancy as those that are inhabited for more than 2,000 hours per year.

Seismic Hazard Mapping Act

The Seismic Hazards Mapping Act (SHMA) was enacted in 1990, following the Loma Prieta earthquake, to reduce threats to public health and safety, and to minimize property damage caused by earthquakes. The SHMA requires the State Geologist to delineate various seismic hazard zones, and for cities, counties, and other local permitting agencies to regulate certain development projects within these hazard zones, called Zones of Required Investigation. For projects that would locate structures for human occupancy within designated Zones of Required Investigation, the act requires project applicants to perform a site-specific geotechnical investigation to identify the potential site-specific seismic hazards and corrective measures before receiving building permits. The California Geological Survey (CGS) Guidelines for Evaluating and Mitigating Seismic Hazards (Special Publication 117A) provides guidance for evaluating and mitigating seismic hazards (Department of Conservation, 2008). The CGS currently is producing official maps based on USGS topographic quadrangles, as required by the SHMA. The Project is within the Richmond Quadrangle, which the CGS has not evaluated for liquefaction or landslides (Department of Conservation, 2021) (Department of Conservation, 2003).

California Building Code

The California Building Code (CBC) was adopted by the California Building Standards Commission on January 1, 2017, and it is based on the 2015 International Building Code with

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the addition of more extensive structural seismic provisions. The CBC is included in Title 24 of the CCR, California Building Standards Code, and is a compilation of three types of building standards from three different origins:

- Building standards that have been adopted by state agencies without change from building standards contained in national model codes.
- Building standards that have been adopted and adapted from the national model code standards to meet California conditions.
- Building standards authorized by the California legislature constituting extensive additions not covered by the model codes that have been adopted to address particular California concerns.

Seismic sources and the procedures used to calculate seismic forces on structures are defined in Section 1613 of the CBC. The CBC requires that all structures and permanently attached nonstructural components be designed and built to resist the effects of earthquakes. The CBC also addresses grading and other geotechnical issues, building specifications, and non-building structures.

California Excavation Notification Requirements

CCR Section 4216 requires that construction contractors report a project that involves excavation 48 hours before breaking ground. CCR Section 4216 allows owners of buried installations to identify and mark the location of their facilities before any nearby excavation projects begin. Adherence to CCR Section 4216 by contractors reduces the potential of inadvertent pipeline and utility damage and leaks. All contractors are required to comply with California excavation notification requirements.

California Occupational Safety and Health Administration Regulations

Occupational safety standards are included in federal and state laws to minimize worker safety risks from both physical and chemical hazards in the workplace. In California, the California Division of Occupational Safety and Health (Cal/OSHA) and the federal Occupational Safety and Health Administration (OSHA) are the agencies responsible for ensuring worker safety in the workplace.

The OSHA excavation and trenching standard (29 Code of Federal Regulations [CFR] 1926.650) covers requirements for excavation and trenching operations, which are among the most hazardous construction activities. OSHA requires that all excavations in which employees potentially may be exposed to cave-ins be protected by sloping or benching the sides of the excavation, supporting the sides of the excavation, or placing a shield between the side of the excavation and the work area. Cal/OSHA is the implementing agency for both state and federal OSHA standards. All contractors are required to comply with OSHA regulations.

NPDES Construction General Permit

Project construction would disturb more than 1 acre of land surface, potentially affecting the quality of stormwater discharges into waters of the United States. Therefore, the Project would be subject to the National Pollutant Discharge Elimination System (NPDES) General Permit for

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Stormwater Discharges Associated with Construction and Land Disturbance Activities (Order 2009-0009-DWQ, NPDES No. CAS000002, Construction General Permit as amended by Orders 2010-0014-DWQ and 2012-006-DWQ). The Construction General Permit regulates discharges of pollutants in stormwater associated with construction activity to waters of the United States from construction sites that disturb 1 or more acres of land surface, or that are part of a common plan of development or sale that disturbs more than one acre of land surface. The permit regulates stormwater discharges associated with construction or demolition, such as clearing and excavation; construction of buildings; and construction of linear underground projects, including installation of water pipelines and other utility lines.

The Construction General Permit requires that construction sites be assigned a Risk Level of 1 (low), 2 (medium), or 3 (high), based both on the sediment transport risk at the site and the receiving waters risk during periods of soil exposure (e.g., grading and site stabilization). The sediment risk level reflects the relative amount of sediment that potentially may be discharged to receiving water bodies and is based on the nature of the construction activities and the location of the site relative to receiving water bodies. The receiving waters risk level reflects the risk to the receiving waters from the sediment discharge. Depending on the risk level, construction projects may be subject to the following requirements:

- Effluent standards
- Good site management “housekeeping”
- Non-stormwater management
- Erosion and sediment controls
- Run-on and run-off controls
- Inspection, maintenance, and repair
- Monitoring and reporting requirements

The Construction General Permit requires development and implementation of a Stormwater Pollution Prevention Plan (SWPPP) that includes specific best management practices (BMPs) to prevent sediment and pollutants from contacting stormwater and from moving off-site into receiving waters. The BMPs fall into several categories, including erosion control, sediment control, waste management, and good housekeeping, and are intended to protect surface water quality by preventing the off-site migration of eroded soil and construction-related pollutants from the construction area. Routine inspection of all BMPs is required under the provisions of the Construction General Permit. In addition, the SWPPP is required to contain a visual monitoring program, a chemical monitoring program for non-visible pollutants, and a sediment monitoring plan if the site discharges directly to a water body listed on the 303(d) list for sediment.

The SWPPP must be prepared before construction begins. The SWPPP must contain a site map(s) that delineates the construction work area, existing and proposed buildings, parcel boundaries, roadways, stormwater collection and discharge points, general topography both before and after construction, and drainage patterns across the Project area. The SWPPP must list BMPs and the placement of those BMPs that a project applicant would use to provide

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protection from stormwater run-off. Examples of typical construction BMPs include scheduling or limiting certain activities to dry periods, installing sediment barriers (e.g., silt fences, fiber rolls), and maintaining equipment and vehicles used for construction. Examples of non-stormwater management measures include installing specific discharge controls during certain activities (e.g., paving operations, vehicle and equipment washing, fueling). The Construction General Permit also sets post-construction standards (i.e., implementation of BMPs to reduce pollutants in stormwater discharges from the site, following construction).

The Construction General Permit would be implemented and enforced by the San Francisco Bay Regional Water Quality Control Board (RWQCB), which administers the stormwater permitting program. Dischargers are required to submit a notice of intent and permit registration documents electronically to the State Water Resources Control Board (SWRCB), to obtain coverage under this Construction General Permit. Dischargers are responsible for notifying the RWQCB of violations or incidents of non-compliance, as well as for submitting annual reports identifying deficiencies of the BMPs and how the deficiencies were corrected. The risk assessment and SWPPP must be prepared by a State-Qualified SWPPP Developer, and implementation of the SWPPP must be overseen by a State-Qualified SWPPP Practitioner. A Legally Responsible Person, who is legally authorized to sign and certify permit registration documents, is responsible for obtaining coverage under the permit.

California Public Resources Code

Section 5097.5 of the Public Resources Code (PRC) states:

No person shall knowingly and willfully excavate upon, or remove, destroy, injure, or deface any historic or prehistoric ruins, burial grounds, archaeological or vertebrate paleontological site, including fossilized footprints, inscriptions made by human agency, or any other archaeological, paleontological or historical feature, situated on public lands, except with the express permission of the public agency having jurisdiction over such lands. Violation of this section is a misdemeanor.

As used in the PRC section, “public lands” means lands owned by, or under the jurisdiction of, the state or any city, county, district, authority, or public corporation, or any agency thereof. Consequently, public agencies are required to comply with PRC 5097.5 for the agency’s activities, including construction and maintenance, as well as for permit actions (e.g., encroachment permits) undertaken by others.

Paleontological resources also are afforded protection by environmental legislation set forth under CEQA. *Appendix G* (part V) of the *CEQA Guidelines* provides guidance relative to significant impacts on paleontological resources, stating that a project normally will result in a significant impact on the environment if it will directly or indirectly destroy a unique paleontological resource or site or unique geologic feature. The *CEQA Guidelines* do not define “directly or indirectly destroy,” but a reasonable interpretation is the physical damage, alteration, disturbance, or destruction of a paleontological resource. The *CEQA Guidelines* also

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do not define the criteria or process to determine whether a paleontological resource is significant or “unique.” The SVP has set significance criteria for paleontological resources (1995, 2010). Most practicing professional vertebrate paleontologists adhere closely to the SVP’s assessment, mitigation, and monitoring requirements as specifically provided in its standard guidelines. Most state regulatory agencies responsible for oversight of paleontological laws, ordinances, regulations, and standards accept and use the professional standards set forth by the SVP.

Local Policies and Regulations

Under Section 53091 of the California Government Code, local agency building and zoning ordinances do not apply to projects involving the location or construction of facilities for the production, generation, storage, treatment, or transmission of water. However, EBMUD’s practice is to work with local jurisdictions and neighboring communities during project planning, and to consider local environmental protection policies for guidance.

Contra Costa County General Plan

The *Contra Costa County General Plan* outlines the County’s goals for physical growth, conservation, and community life in the unincorporated area, and contains the policies and actions necessary to achieve those goals. The following goals, policies, and measures related to geology and soils are included as a part of the *Contra Costa County General Plan*, Safety Element:

Seismic Hazard Policy 10-1. Contra Costa County, as part of an area with high seismicity, shall recognize that a severe earthquake hazard exists and shall reflect this recognition in its development review and other programs.

Faults and Fault Displacement Policy 10-13. In areas where active or inactive earthquake faults have been identified, the location and/or design of any proposed buildings, facilities, or other development shall be modified to mitigate possible danger from fault rupture or creep.

Faults and Fault Displacement Policy 10-14. Preparation of a geologic report shall be required as a prerequisite before authorization of public capital expenditures or private development projects in areas of known or suspected faulting.

Faults and Fault Displacement Policy 10-16. When such a critical structure must be in a fault zone, the structure shall be carefully sited, designed and constructed to withstand the anticipated earthquake stresses.

Liquefaction Policy 10-21. Approvals to allow the construction of public and private development projects in areas of high liquefaction potential shall be contingent on geologic and engineering studies which define and delineate potentially hazardous geologic and/or soils conditions, recommend means of mitigating these adverse conditions; and on proper implementation of the mitigation measures.

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Seismic Hazard Implementation Measure 10-c. Require comprehensive geologic and engineering studies for any critical structure, whether or not it is located within a Special Studies Zone.

Seismic Hazard Implementation Measure 10-d. Through the environmental review process, require geologic, seismic, and/or soils studies as necessary to evaluate proposed development in areas subject to ground shaking, fault displacement, or liquefaction.

Seismic Hazard Implementation Measure 10-e. Evaluate and, where necessary, upgrade water distribution, sewage disposal, gas and electricity, communications, and other service facilities in areas subject to seismic hazards.

Ground Failure and Landslide Hazard Implementation Measure 10-q. Through the environmental review process, require geologic and engineering studies as necessary to evaluate proposed development in areas subject to potential landslide hazards.

City of Richmond General Plan

The *City of Richmond General Plan 2030* contains 15 elements addressing land use, economic development, housing, transportation, climate change, public safety, arts and culture, and open space conservation strategies. The *City of Richmond General Plan 2030* provides a comprehensive framework for developing a healthy city and healthy neighborhoods (City of Richmond, 2012). The following goals, policies, and measures related to geology and soils are included as a part of the *City of Richmond General Plan 2030*, Public Safety and Noise Element:

Action SN1.A: Earthquake Fault Zone. Utilize the existing Alquist-Priolo Earthquake Zone Maps to guide the location of development and utilities to safe areas and enforce use restrictions where necessary. Where development is proposed within the zone, require study of potential impacts related to fault movement in the design of all structures, roadways, utility lines and other facilities.

Action SN1.C Geotechnical Review Guidelines. Regularly review and update geotechnical review guidelines for major redevelopments or new developments to determine the degree of seismic and geologic hazards that might be expected for a particular structure or location. Guidelines should require site-specific geotechnical studies on a case-by-case basis for projects proposed to be built on, or adjacent to, inactive bedrock faults or other potential geologic hazards including geologic anomalies, slope instability or other potentially hazardous conditions. Ensure that the investigation is performed by technically qualified staff.

City of San Pablo General Plan

The *San Pablo General Plan 2030* provides a vision of how San Pablo should be in the future by establishing guidelines that reflect City of San Pablo policies, goals, and efforts while enhancing quality of life. The *San Pablo General Plan 2030* serves as a ‘blueprint’ for the future, outlines policies that guide development and conservation, and provides the basis for establishing detailed plans and implementing programs, such as development standards and specific plans

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(City of San Pablo, 2011). The following goals, policies, and measures related to air quality are included as a part of the *City of San Pablo General Plan*, Safety and Noise Element:

Implementing Policy SN-I-2. Regularly review and update geotechnical review guidelines for major redevelopments or new developments to determine the degree of seismic and geologic hazards that might be expected for a particular structure or location. Guidelines should require site-specific geotechnical studies on a case-by-case basis for projects proposed to be built on, or adjacent to, inactive bedrock faults or other potential geologic hazards including geologic anomalies, slope instability or other potentially hazardous conditions. Ensure that the investigation is performed by technically qualified staff.

Implementing Policy SN-I-6. Require erosion prevention of hillside areas by revegetation or other acceptable methods.

EBMUD Standard Construction Specifications

EBMUD's Standard Construction Specifications and Procedures apply to all contractors completing work for EBMUD, and to work completed by EBMUD staff. The following EBMUD practices and procedures are applicable to geology and soil.

- **EBMUD Standard Construction Specification 01 35 24, Project Safety Requirements, Sections 1.1(F) and 1.3(M)**

EBMUD Standard Construction Specification 01 35 24, Project Safety Requirements and Site Activities, includes safety practices and procedures to minimize harmful construction related activities, described as follows (EBMUD, 2023a):

- Section 1.1(F), Site Activities
 - Complete a Safe Work Permit prior to starting work at a Water Treatment Plant.
- Section 1.3(M), Excavation Safety Plan
 - Submit an Excavation Safety Plan in accordance with Title 8 CCR §1541.
 - Contractor shall obtain an excavation permit per Title 8, CCR §341(a)(1) when required.
 - California Government Code §4216 describes the requirements and procedures for excavation notifications and utility excavation.

- **EBMUD Standard Construction Specification 01 35 44, Environmental Requirements, Sections 1.1(B) and 1.4(A)**

EBMUD Standard Construction Specification 01 35 44, Environmental Requirements, includes practices and procedures for preventing soil erosion, described as follows (EBMUD, 2023b):

- Section 1.1(B), Site Activities
 - Divert or otherwise control surface water and waters flowing from existing projects, structures, or surrounding areas from coming onto the work and staging areas. The method of diversions or control shall be adequate to ensure the safety of stored materials and of personnel using these areas.

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- Following completion of Work, ditches, dikes, or other ground alterations made by the Contractor shall be removed and the ground surfaces shall be returned to their former condition, or as near as practicable, in EBMUD's opinion.
- Section 1.4(A), Storm Water Management
 - Construction General Permit
 - Submit the Notice of Intent, Storm Water Pollution Prevention Plan (SWPPP), and all other documents prepared for compliance with the General Construction Storm Water Permit (NPDES No. CAS000002) to EBMUD and upload them in the SWRCB's Storm Water Multi-Application & Report Tracking System (SMARTS).
 - EBMUD will electronically acknowledge appropriate submittals in SMARTS after review.
 - Contractor shall pay for all registration and annual fees under this permit/program.
 - Storm Water Management Plan
 - Submit a Storm Water Management Plan that describes measures that shall be implemented to prevent the discharge of contaminated storm water runoff from the jobsite. Contaminants to be addressed include, but are not limited to soil, sediment, concrete residue, pH less than 6.5 or greater than 8.5, and any other contaminants known to exist at the jobsite location as described in Document 00 31 24 – Materials Assessment Information.
 - Local Storm Water Permits
 - Obtain any local storm water permits (e.g., city, county, etc.), submit copies, and comply with their requirements.
 - For jobs in unincorporated Alameda County that are greater than one acre, Contractor shall obtain and comply with Alameda County Public Works Agency's Stormwater Permit to enable the inspection of C.6 construction stormwater BMPs.
- **EBMUD Standard Construction Specification 01 35 45, Biological, Cultural, and Paleontological Requirements, Sections 3.1 and 3.3**

EBMUD Standard Construction Specification 01 35 45, Biological, Cultural, and Paleontological Requirements, includes practices and procedures for preventing impacts to paleontological resources, described as follows (EBMUD, 2023c):

 - Section 3.1, Training and Certification
 - Before beginning construction, all Contractor personnel involved in ground-disturbing activities are required to attend an environmental training program provided by EBMUD, of up to one day for site supervisors, foremen and project managers and up to 30 minutes for non-supervisory Contractor personnel. Contractor general personnel will receive a worker environmental awareness training.

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- The Contractor is responsible for ensuring that all workers requiring environmental training are identified to EBMUD.
- Prior to accessing or performing construction work, the identified Contractor personnel shall:
 - Sign a wallet card provided by EBMUD verifying that the Contractor personnel has attended the appropriate level of training relative to their position; have understood the contents of the environmental training, and shall comply with all project environmental requirements.
 - Display an environmental training hard hat decal (provided by EBMUD after completion of the training) at all times.
- Section 3.3, Protection of Cultural and Paleontological Resources
 - In addition to the training identified in Article 3.1.A above, identified Contractor personnel shall attend a cultural and paleontological resources training course provided by the EBMUD of up to two hours. The training program will be completed in person or by watching a video, at a District designated location, conducted or prepared by a Qualified Archaeologist and/or Paleontologist. The program will discuss cultural and paleontological resources awareness within the project work limits, including the responsibilities of Contractor personnel, applicable mitigation measures, confidentiality, and notification requirements. Prior to accessing the construction site, or performing site work, identified Contractor personnel shall:
 - Sign an attendance sheet provided by the EBMUD verifying that all Contractor construction personnel involved in ground disturbing activities have attended the appropriate level of training; have read and understood the contents of the training; have read and understood the contents of the “Confidentiality of Information on Cultural and Paleontological Resources” document, and shall comply with all project environmental requirements.
 - In the event that potential cultural or paleontological resources are discovered at the site of construction, the following procedures shall be instituted:
 - Discovery of paleontological resources requires that all construction activities immediately cease at, and within 100 feet of the location of discovery.
 - The Contractor shall immediately notify EBMUD who will engage a qualified paleontologist provided by EBMUD to evaluate the find. The Contractor is responsible for stopping work and notifying EBMUD and shall not recommence work until authorized to do so by the EBMUD.
 - EBMUD will retain a Qualified Paleontologist to inspect the findings within 24 hours of discovery. The Qualified Paleontologist, in accordance with Society of Vertebrate Paleontology guidelines (Society of Vertebrate Paleontology 2010), will assess the nature and importance of the find and recommend appropriate salvage, treatment, and future monitoring and management. If it is determined that construction activities could damage

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a paleontological resource as defined by the Society of Vertebrate Paleontology guidelines (Society of Vertebrate Paleontology 2010), construction shall cease in an area determined by the paleontologist until a salvage, treatment, and future monitoring and management plan has been prepared, approved by EBMUD, and implemented to the satisfaction of the paleontologist. EBMUD, in consultation with the Qualified Paleontologist, will determine when construction can resume.

- If EBMUD determines that the cultural and paleontological resource discovery requires further evaluation, at the direction of Engineer, the Contractor shall suspend all construction activities at the location of the find and within a larger radius, as required.

EBMUD Engineering Standard Practices

To address geologic hazards, EBMUD uses two primary engineering standard practices for design of new and existing facilities. Engineering Standard Practice 512.1, Water Main Design Criteria, establishes criteria for design of water pipelines and establishes minimum requirements for pipeline construction materials (EBMUD, 2006). Engineering Standard Practice 550.1, Seismic Design Requirements, established minimum criteria for seismic design of all EBMUD facilities, including offices, operating centers, water and wastewater treatment plants, water and other liquids storage structures, pumping plants, retaining walls, underground vaults, pipelines, and other structures (EBMUD, 2018).

Practices and procedures to avoid seismic hazards include selecting appropriate routing to avoid seismic hazards, using appropriate materials to withstand seismic hazards, and providing flexibility at locations where the pipeline crosses from one soil condition to another. Engineering Standard Practice 550.1 also requires use of steel pipe with restrained joints or the equivalent to address seismic hazards.

Engineering Standard Practice 550.1 is based on Guidelines for the Seismic Design of Oil and Gas Pipeline Systems, prepared by the American Society of Civil Engineers Committee on Gas and Liquid Fuel Lifelines in 1984. In addition to the practices and procedures listed above, EBMUD follows the recommendations of the American Water Works Association (AWWA) for design and installation of steel pipeline, including design for the appropriate wall thickness, external loadings, pipeline supports, pipe joints, fittings and appurtenances, corrosion control, and protective coatings and linings.

3.6.3 Impact Analysis

Methodology for Analysis

Geology and Soil

Information for the assessment of impacts on geology, soil, and seismicity is based on a review of literature research (i.e., geologic, seismic, and soil reports and maps) and information from the geotechnical investigation (Terra Engineers, Inc., 2021) to identify potential impacts on workers, the public, or the environment. Because the geologic and soil units underlying the

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SOWTP site for Phase 1 and Phase 2 are similar, the analysis is differentiated into SOWTP site (Phase 1 and Phase 2) and Central North Aqueduct pipeline where appropriate.

The Project would be regulated by the various laws, regulations, and policies summarized in Section 3.5.2, Regulatory Framework. Project compliance with applicable federal, state, and local laws and regulations is assumed in this analysis, and local and state agencies would be expected to continue to enforce applicable requirements to the same extent as currently done. The analysis of geologic, soil, and seismic impacts in this section assumes that EBMUD would incorporate the engineering recommendations provided by the geotechnical investigation into its facility designs.

Paleontological Resources

The paleontological impact analysis identified the potential to encounter paleontological resources (i.e., plant, animal, or invertebrate fossils or microfossils) during excavations associated with the Project. A potentially significant impact on paleontological resources would occur if fossil resources were damaged or destroyed during construction activities. The SVP paleontological potential assessment can be used to identify where mitigation measures are needed to avoid a significant impact, primarily when construction would move or excavate previously undisturbed geologic bedrock or sediments with a high potential to produce paleontological resources.

Significance Criteria

Consistent with *Appendix G* of the *CEQA Guidelines*, an impact would be considered significant if the Project would:

1. Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:
 - a. 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
 - b. Strong seismic ground shaking
 - c. Seismic-related ground failure, including liquefaction
 - d. Landslides
2. Result in substantial soil erosion or the loss of topsoil.
3. Be located on a geologic unit or soil that is unstable, or that would become unstable because of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse.
4. 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.
5. Have soil incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater.
6. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.

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Criteria Requiring No Further Evaluation

The criteria listed above that are not applicable to actions associated with the Project are identified as follows, along with a supporting rationale as to why further consideration is unnecessary and a no-impact determination is appropriate.

Criterion 5: 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.

Any wastewater generated by the Project would be directed to the existing sewer system for disposal; therefore, land would not be used for treatment or disposal of wastewater. The use of a septic tank is not proposed as part of the Project. During construction, temporary self-containing toilets as well as handwashing facilities would be available on site. Any wastewater generated by these facilities would be hauled off-site for treatment and disposal. Therefore, no impact associated with the capability of soils to dispose of wastewater would occur.

Impacts and Mitigation Measures

Impact GEO-1: Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving: rupture of a known earthquake fault; strong seismic ground-shaking; seismic-related ground failure (liquefaction, lateral spreading); or landslides. (Criterion 1)

Overview

Seismic-related ground shaking and associated geologic hazards (e.g., liquefaction, lateral spreading, and landslides) present a serious risk to people and structures. As described in Section 3.6.1, the Project is in a region of seismic activity that could cause it to be subject to geologic hazards associated with strong ground-shaking during earthquakes. Strong ground-shaking could cause other hazardous conditions, such as rupture of a known earthquake fault or seismic-related ground failure, such as liquefaction, lateral spreading, or landslides in areas prone to rupture or ground failure.

Construction

The Project is in a seismically active area where moderate probability would exist of an Mw 6.7 earthquake occurring during construction. The SOWTP site is not in the immediate vicinity of a fault trace or within an Alquist-Priolo Earthquake Fault Zone, while the Central North Aqueduct pipeline crosses the Hayward fault. Although the construction of the Central North Aqueduct pipeline would cross a fault zone, a low probability of a fault rupture occurring during construction over the fault zone would exist because of the short amount of time the construction would occur within the fault zone. In the event of an earthquake occurring during Project construction and inducing a geologic hazard, construction workers could be exposed to hazards from strong seismic ground-shaking or seismic-related ground failure, which potentially could cause substantial adverse effects, including the risk of loss, injury, or death.

As detailed in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, would be incorporated into the Project, including EBMUD

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Standard Construction Specification 01 35 24, Project Safety Requirements, which would be implemented during construction. Section 1.3(M), Excavation Safety Plan, requires the contractor to prepare an Excavation Safety Plan and obtain an excavation permit when required, and Section 1.1(F), Site Activities, requires obtaining a Safe Work Permit before the start of construction.

Because EBMUD's Standard Construction Specification 01 35 24, Project Safety Requirements Section 1.3(M), Excavation Safety Plan, and Section 1.1(F), Site Activities, has been incorporated into the Project and requires preparation of a detailed plan for worker safety and obtaining a Safe Work Permit, a safe work environment addressing the risk of an earthquake during construction will be provided, and the potential adverse effect from strong seismic ground shaking or seismic ground failure during construction would be less than significant. The EBMUD Practices and Procedures Monitoring and Reporting Plan (Appendix C) lists the applicable standard specifications language.

Operation and Maintenance

Fault Rupture

The potential for fault rupture to occur would be greatest in the immediate vicinity of a fault trace or within an Alquist-Priolo Earthquake Fault Zone.

The SOWTP site is not in the immediate vicinity of a fault trace or within an Alquist-Priolo Earthquake Fault Zone. Because the SOWTP site does not cross any known faults, Project operation and maintenance would not create a substantial adverse effect from the rupture of a known earthquake fault. The impact at SOWTP would be less than significant.

A 2,400-foot-long segment of the Central North Aqueduct's 72-inch-diameter pipeline in San Pablo Dam Road and El Portal Drive would be within an Alquist-Priolo Earthquake Fault Zone and would cross the Hayward Fault, as shown in Figure 3.6-2. As detailed in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, would be incorporated into the Project, including Engineering Standard Practice 550.1, which would require the Central North Aqueduct pipeline crossing of the fault be designed to current seismic standards. As described in the Project Description, where the Central North Aqueduct pipeline would cross the Hayward Fault, the Project would use earthquake resistant ductile iron pipelines or a flex-joint pipeline, pumping tee, and two isolation valves to minimize the risk of substantial adverse effects from fault rupture.

Because the Central North Aqueduct pipeline would be designed to withstand rupture at the Hayward fault crossing through use of earthquake resistant ductile iron pipelines or flex-joint pipeline, pumping tee, and isolation valves and because Engineering Standard Practice 550.1, Seismic Design Requirements have been incorporated into the Project, the substantial adverse effects from a fault rupture on the Central North Aqueduct pipeline would be less than significant. The EBMUD Practices and Procedures Monitoring and Reporting Plan (Appendix C) lists the applicable engineering standard practice.

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Seismic Ground-Shaking

The Project would occur in a seismically active area with a high probability of an Mw 6.7 earthquake occurring during the Project's operational life. In the event of an earthquake occurring during Project operation and maintenance, workers at the SOWTP could be exposed to hazards within the facilities from strong seismic ground-shaking, causing potential substantial adverse effects, including the risk of loss, injury, or death. The Central North Aqueduct pipeline would be placed under the roadway, and therefore would not pose a threat to anyone from seismic ground-shaking; however, the pipeline would be at risk of damage or loss.

As detailed in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, would be incorporated into the Project, including Engineering Standard Practice 550.1, Seismic Design Requirements and Engineering Standard Practice 512.1, Water Main Design Criteria. Engineering Standard Practice 550.1 requires a design-level geotechnical investigation be conducted prior to Project construction to identify the potential for seismic hazards. EBMUD would incorporate into the Project design the recommendations outlined in the geotechnical investigation. Engineering Standard Practice 550.1, Seismic Design Requirements, also defines requirements for design of structures and pipelines to address seismic ground shaking. Engineering Standard Practice 512.1 defines requirements for pipelines to reduce the risk of seismic damage.

Because Engineering Standard Practice 550.1, Seismic Design Requirement and Engineering Standard Practice 512.1, Water Main Design Criteria, would be incorporated into the Project design, the impact from strong ground-shaking would be less than significant. The EBMUD Practices and Procedures Monitoring and Reporting Plan (Appendix C) lists the applicable engineering standard practices.

Lateral Spreading and Liquefaction

The SOWTP site is not susceptible to liquefaction or lateral spreading. A seismic event would be unlikely to cause liquefaction or lateral spreading at the SOWTP site. Therefore, the impact at SOWTP for substantial adverse effects from liquefaction or lateral spreading would be less than significant.

The Central North Aqueduct pipeline alignment is within an area of medium risk of liquefaction, and the segment of the pipeline west of Highway 80 on Road 20 would be in an area with very high risk of liquefaction. Liquefaction could result in damage and loss if the pipeline is not properly designed to withstand the risk of liquefaction.

As detailed in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, would be incorporated into the Project, including Engineering Standard Practice 512.1, Water Main Design Criteria, and Engineering Standard Practice 550.1, Seismic Design Requirements, which require that the Project pipelines including the Central North Aqueduct pipeline be designed and constructed to meet standards that

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would address the risk of lateral spreading and liquefaction, including installation of isolation valves where pipelines enter liquefaction zones.

Because Engineering Standard Practice 512.1, Water Main Design Criteria and Engineering Standard Practice 550.1, Seismic Design Requirements, have been incorporated into the Project and provide design standards to protect the Central North Aqueduct pipeline from loss associated with liquefaction, the effect of liquefaction on the pipeline would be less than significant. The EBMUD Practices and Procedures Monitoring and Reporting Plan (Appendix C) lists the applicable engineering standard practices.

Landslides

The SOWTP site is on a relatively flat topographic terrace, except for a slope on the southside of the SOWTP site. The proposed SOWTP facilities would be on relatively mild slopes. The proposed Phase 1 and Phase 2 structures would not be subject to potential slope movement hazards, including sloping-ground creep, debris flows, and seismic-induced slope deformation (Terra Engineers, Inc., 2021).

New pipelines would traverse the hill above Valley View Road and be on a steep slope within an area containing mapped landslides. The pipelines within the steeply sloping areas and mapped landslide areas would be prone to future landslides, including seismically induced landslides. To avoid potential adverse effects on the pipelines associated with shallow debris flow/slope creep, the pipelines would be designed and constructed consistent with geotechnical recommendations, including embedding the pipeline inverts within the Orinda Formation bedrock.

As detailed in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, would be incorporated into the Project, including Engineering Standard Practice 512.1, Water Main Design Criteria, which establishes criteria for pipeline design and materials; and Engineering Standard Practice 550.1, Seismic Design Requirements, which specifies pipeline design requirements for landslide areas.

Because the Project design and construction incorporate geotechnical recommendations and the Project will implement Engineering Standard Practice 512.1, Water Main Design Criteria, and Engineering Standard Practice 550.1, Seismic Design Requirements, the effects from seismically induced landslide would be less than significant. The EBMUD Practices and Procedures Monitoring and Reporting Plan (Appendix C) lists the applicable engineering standard practices.

The Central North Aqueduct pipeline would be within the valley bottom in an area with low probability of landslides and not subject to seismic-induced landslides. The impact on the pipeline would be less than significant.

Significance Determination before Mitigation

Less than significant.

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Mitigation Measures

None required.

Impact GEO-2: Result in substantial soil erosion or the loss of topsoil. (*Criterion 2*)

Construction

Project construction activities would include excavation and grading, which would increase topsoil exposure. Soil erosion or loss of topsoil could occur, particularly during storm conditions (e.g., wind and rain).

As detailed in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, would be incorporated into the Project, including Standard Construction Specification 01 35 44, Environmental Requirements, Section 1.1(B), Site Activities. includes provisions for preventing soil erosion and loss of soil during construction . In addition, EBMUD's Standard Construction Specification Section 01 35 44, Environmental Requirements, Section 1.4(A), Storm Water Management, requires contractors to submit a SWPPP to EBMUD and the SWRCB, describing measures to be implemented to prevent run-off of polluted stormwater from the construction site for coverage under the State's Construction General Permit.

Because Section 1.1(B), Site Activities, of Standard Construction Specification 01 35 44 and Section 1.4(A), Storm Water Management, of Standard Construction Specification Section 01 35 44, have been incorporated into the Project and include measures to prevent soil erosion and run-off of polluted stormwater, the Project construction would not result in substantial soil erosion or loss of topsoil and the impact of soil erosion and topsoil loss during construction would be less than significant. The EBMUD Practices and Procedures Monitoring and Reporting Plan (Appendix C) lists the applicable standard specifications language.

Operation and Maintenance

After Project construction is completed, the areas of construction disturbance would be stabilized through hydroseeding or landscaping, therefore decreasing the potential for substantial soil erosion or loss of topsoil during Project operation and maintenance. In compliance with EBMUD's Standard Construction Specification 01 35 44, Section 1.1(B), Site Activities, 1.4(A) Storm Water Management, and the Construction General Permit, the Project would stabilize disturbed soil areas, preventing soil erosion from occurring during storm events. Maintenance activities could involve excavation to repair or replace buried pipelines, but they would be conducted on an as-needed basis and would not expose a large area of soil. Because areas of temporary disturbance would be stabilized during operation, the Project would not cause substantial soil erosion or topsoil loss, and the impacts of soil erosion and topsoil loss during the operation and maintenance of the Project would be less than significant.

Significance Determination Before Mitigation

Less than significant.

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Mitigation Measures

None required.

Impact GEO-3: Be located on a geologic unit or soil that is unstable, or that would become unstable because of the project, and potentially result in on or off-site landslide, lateral spreading, subsidence, liquefaction or collapse. (*Criterion 3*)

Construction, Operation, and Maintenance

Landslide

As discussed under Impact GEO-1, most of the Phase 1 and Phase 2 facilities at the SOWTP site, with the exception of two pipelines, would not be in areas that would be subject to potential slope movement hazards, including sloping-ground creep, debris flows, and seismic-induced slope deformation.

To avoid potential adverse effects associated with shallow debris flow/slope creep for the new pipelines located within the hillslope, the pipelines would be designed and constructed consistent with geotechnical recommendations, which would include embedding the pipeline inverts within the Orinda Formation bedrock. In addition, As detailed in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, would be incorporated into the Project, including Engineering Standard Practice 512.1, Water Main Design Criteria, and Engineering Standard Practice 550.1, Seismic Design Requirements, which establish criteria for pipeline design and materials that would address the risk of landslide hazards in the area. The application of the Engineering Standard Practice and geotechnical recommendations would reduce potential impacts associated with landslides to a less-than-significant level. The EBMUD Practices and Procedures Monitoring and Reporting Plan (Appendix C) lists the applicable engineering standard practices.

Liquefaction and Lateral Spreading

As discussed under Impact GEO-1, the segment of the Central North Aqueduct pipeline under El Portal Drive on the west side of Highway 80, and the segment of the pipeline under Road 20 would be in an area with a very high risk of liquefaction. As detailed in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, would be incorporated into the Project, including Engineering Standard Practice 512.1, Water Main Design Criteria, which would establish basic criteria for design of the water pipelines and would establish minimum requirements for pipeline construction materials. In addition, Engineering Standard Practice 550.1, Seismic Design Requirements, would address seismic design of the pipelines to withstand liquefaction, and EBMUD would construct the pipeline based on project-specific seismic design criteria.

Because Engineering Standard Practice 512.1, Water Main Design Criteria and Engineering Standard Practice 550.1, Seismic Design Requirements have been incorporated into the Project and provide design standards to protect the Central North Aqueduct pipeline from instability associated with liquefaction or lateral spreading, the impact would be less than significant. The EBMUD Practices and Procedures Monitoring and Reporting Plan (Appendix C) lists the applicable engineering standard practices.

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Subsidence and Soil Collapse

Soil that is susceptible to subsidence or collapse typically is associated with projects that include the injection or extraction (dewatering) of groundwater or are in Karst terrain (carbonate rock terrains where dissolution cavities occur). The groundwater elevation at the SOWTP site suggests that groundwater under the site is atop or near the top of Orinda Formation bedrock or could be isolated along fractures of distinct layers within the rock.

Project construction would require groundwater dewatering during excavation of basins and foundations for Phase 1 and Phase 2 facilities. The groundwater dewatering would cause temporary, localized drawdown of the groundwater table within the excavations and immediate vicinity. The groundwater dewatering would be limited to the period of relatively deep excavations for underground structures. Groundwater dewatering would have the potential to cause localized ground settlement in the immediate vicinity of the dewatering operation. The mass excavation and dewatering would be ordered strategically to avoid settlement of new facilities based on geotechnical recommendations. No groundwater dewatering would occur at the site during the Project operation and maintenance.

As detailed in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, would be incorporated into the Project, including Standard Construction Specification 01 35 24, Project Safety Requirements, Section 1.3(M), Excavation Safety Plan, which would include preventing subsidence and soil collapse.

Project structures would include large water-bearing tanks and basins that would exert considerable force on the underlying soil units. These structures could be subject to damaging ground settlement under the weight of the new structures if not properly engineered. Prior to construction, EBMUD would complete a detailed geotechnical investigation for the Project and would incorporate the geotechnical recommendations into the Project design in compliance with Engineering Standard Practice 550.1. Because the Project would incorporate geotechnical recommendations into the design and because EBMUD would implement Standard Specification 01 35 24, Section 1.3(M), Excavation Safety Plan, which includes preparation of an Excavation Safety Plan, no risk of soil collapse or damaging subsidence would occur during construction of Phase 1 and Phase 2 facilities and the impact would be less than significant. The EBMUD Practices and Procedures Monitoring and Reporting Plan (Appendix C) lists the applicable standard specifications language.

The Central North Aqueduct pipeline would be located within roadways. Localized dewatering of the pipeline trench could be required, and dewatering is anticipated at the jack and bore pits at the crossing of San Pablo Creek. Temporary dewatering would occur along the open trench as segments of the pipeline are constructed. Since the temporary dewatering along the pipeline is very short-term (a week or two) and localized, dewatering would not cause subsidence. Furthermore, as detailed in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, would be incorporated into the Project, including Engineering Standard Practice 512.1, Water Main Design Criteria, which requires EBMUD to comply with the basic criteria for water pipeline design and establish minimum requirements

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for pipeline construction materials. EBMUD also would obtain local jurisdiction approvals for construction within the roadway and would stabilize and repave the roadway to meet City or County requirements. Because EBMUD would implement Engineering Standard Practices for the Central North Aqueduct pipeline design, the impact from subsidence and collapse would be less than significant. The EBMUD Practices and Procedures Monitoring and Reporting Plan (Appendix C) lists the applicable engineering standard practice.

Significance Determination before Mitigation

Less than significant.

Mitigation Measures

None required.

Impact GEO-4: Be located on expansive soil creating substantial direct or indirect risks to life or property. (*Criterion 4*)

Construction, Operation, and Maintenance

As discussed in Section 3.6.1, expansive soil is soil that possess a “shrink-swell” characteristic, occurring with the change in volume (expansion and contraction) in the fine-grained clay sediments from the process of cyclic wetting and drying. Structural damage can occur incrementally over a long period, usually because of inadequate drainage in combination with support of the structures directly on expansive soil near the ground surface.

The SOWTP facilities include partially buried and above ground structures. Mostly buried structures would not be affected by moisture variations near the ground surface and therefore, any influence of potentially expansive soils. The above-ground basins founded on fill containing sandy lean clays with low shrink-swell potential could be affected by expansive soils. EBMUD would conduct a detailed geotechnical investigation of the Project facilities prior to construction and would incorporate the geotechnical recommendations (e.g., use of auger-cast piles or footings founded on bedrock) into the design. Implementing geotechnical recommendations in the Project design would minimize the impact of expansive soils on Phase 1 and Phase 2 structures.

Furthermore, as detailed in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, would be incorporated into the Project, including Engineering Standard Practice 512.1, Water Main Design Criteria, which establishes basic criteria for pipeline design and sets minimum requirements for pipeline construction materials that would apply to the pipelines at the SOWTP site. Because Engineering Standard Practice 512.1 has been incorporated into the Project and because EBMUD would implement geotechnical recommendations, the impact from expansive soils would be less than significant for construction, operation, and maintenance of SOWTP structures. The EBMUD Practices and Procedures Monitoring and Reporting Plan (Appendix C) lists the applicable engineering standard practice.

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Most of the soil units within the proposed Central North Aqueduct pipeline alignment are from alluvium geology, derived from sedimentary rock, and can be found in stream terraces landforms. The soil units within the Central North Aqueduct pipeline alignment are well drained, but the clay content in the soil could have shrink-swell characteristics, and therefore potentially could be expansive soil. However, the Central North Aqueduct pipeline would be constructed within existing roadways that already contain engineered soil, which likely would not have expansive soil or shrink-swell characteristics. As detailed in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, would be incorporated into the Project, including Engineering Standard Practice 512.1, which includes engineering practices for design of pipelines on expansive soil units. Because Engineering Standard Practice 512.1 has been incorporated into the Project the impact on the Central North Aqueduct pipeline would be less than significant. The EBMUD Practices and Procedures Monitoring and Reporting Plan (Appendix C) lists the applicable engineering standard practice.

Significance Determination Before Mitigation

Less than significant.

Mitigation Measures

None required.

Impact GEO-5: Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature. (*Criterion 6*)

Construction

Construction of new structures at the SOWTP site include grading and excavations, extending to 35 feet deep. Furthermore, the Project pipelines would require trenching and pits for jack-and-bore construction. The excavations and trenches for the SOWTP facilities would extend into the paleontologically sensitive Orinda Formation, which underlies the SOWTP. Because the Orinda Formation has produced significant paleontological resources within 10 miles of the Project area, excavation in the Orinda Formation could destroy a unique paleontological resource and have a potentially significant impact.

The Central North Aqueduct pipeline would be in an area that is underlain by alluvium, which is not sensitive for paleontological resources. However, the Orinda Formation exists at variable depths along the proposed pipeline alignment and while unlikely, there is the potential that the pipeline excavation could damage or destroy a unique paleontological resource.

As detailed in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, would be incorporated into the Project, including Standard Construction Specification 01 35 45, Biological, Cultural, and Paleontological Requirements, Section 3.1, Training and Certification, and Section 3.3, Protection of Cultural and Paleontological Resources, requiring cultural and paleontological resource training, and construction to be stopped if paleontological resources are encountered, so that paleontological resources could be evaluated and protected. Even with implementation of the EBMUD

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Standard Construction Specification, because of the high sensitivity of the Orinda formation, large extent of excavation within the Orinda formation, and difficulty of recognizing paleontological resources, construction activities at SOWTP could destroy a unique paleontological resource, and the impact would be potentially significant. Implementation of Mitigation Measure GEO-1 will require preparation of a Paleontological Resource Monitoring Program (PRMP) during detailed Project design and implementation of the PRMP during construction.

Because EBMUD would implement Standard Construction Specification 01 35 45 Biological, Cultural, and Paleontological, Section 3.1, Training and Certification, and Section 3.3, Protection of Cultural and Paleontological Resources and Mitigation Measure GEO-1, construction personnel will receive paleontological resources awareness training and a professional paleontologist will be retained to prepare and implement a PRMP to protect and preserve paleontological resources and, the resulting impact on paleontological resources from the Project would be less than significant with mitigation incorporated. The EBMUD Practices and Procedures Monitoring and Reporting Plan (Appendix C) lists the applicable engineering standard practice. The Mitigation Monitoring and Reporting Plan (Appendix C) includes the applicable mitigation measures to be implemented and the timing for implementation.

Operation and Maintenance

Project operation and maintenance would not require excavation or disturbance of geologic units that could contain paleontological resources. Operation and maintenance activities would have no potential to encounter paleontological resources and would have no impact on paleontological resources.

Significance Determination before Mitigation

Because the Project would include excavation into the Orinda Formation, which is highly sensitive for paleontological resources, construction of facilities could potentially damage or destroy a unique paleontological resource. The impact would be potentially significant.

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Mitigation Measures

Mitigation Measure GEO-1: Paleontological Resource Monitoring Plan

During detailed design of the facilities, a professional paleontologist will be retained to prepare and implement a paleontological resource monitoring plan (PRMP), which will define paleontological resource monitoring locations, timing, and methodology. The location and extent of paleontological resource monitoring will reflect the locations where Project excavations are anticipated to impact the Orinda Formation based on design drawings, depth to bedrock, and locations of historic fills, as interpreted from geotechnical data. The PRMP will include procedures to adjust paleontological monitoring frequency and locations based on field monitoring results. The PRMP will also define protocols for any discoveries of paleontological resources including:

1. Notification procedures.
2. Procedures for temporarily diverting or halting construction to salvage fossils.
3. Methods to salvage fossils.
4. Methods to prepare the fossils for curation.
5. Locations of approved repositories where fossil discoveries will be offered for curation.

Before the start of ground-disturbing activities, a professional paleontologist will be retained to implement the PRMP.

Significance Determination after Mitigation

Less than significant. The mitigation measure includes the preparation of a PRMP by a qualified paleontologist as well as paleontological resource monitoring by a qualified paleontologist, which would effectively avoid destruction of significant paleontological resources.

3.6.4 Cumulative Impact Analysis

This section presents an analysis of the cumulative effects of the Project in combination with other present and reasonably foreseeable future projects that could cause cumulatively considerable impacts.

The Project would have no impact with respect to having soils capable of supporting the use of septic tanks. Accordingly, the Project could not contribute to cumulative impacts on septic systems and the cumulative impact is not described further.

Impacts on geology and soils are generally localized and do not result in regionally cumulative impacts. The geographical extent for cumulative geologic impacts includes areas in and immediately adjacent to the Project because impacts relative to geologic hazards are generally site-specific. For example, the effect of erosion would tend to be limited to the localized area of a project and could only be cumulative if erosion occurred as the result of two or more adjacent projects that spatially overlapped.

The time frame during which the Project could contribute to cumulative geologic hazards includes the construction and operation and maintenance phases of the Project. The operation

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and maintenance phase of the Project is considered permanent. However, similar to the geographic limitations described above, impacts relative to geologic hazards are generally time specific. Geologic hazards could only be cumulative if two or more geologic hazards occurred at the same time, as well as overlapping at the same location.

One project listed in Table 3.0-1 (Chapter 3, Environmental Setting, Impacts, and Mitigation Measures) would be directly adjacent to the SOWTP site and three projects would be directly adjacent to the Central North Aqueduct pipeline. While the four cumulative projects are expected to complete construction prior to the nearby Project component, there is a possibility that the Project and adjacent cumulative projects could be constructed simultaneously and would result in a cumulative erosion impact.

The State Construction General Permit would require that the cumulative projects prepare and implement a SWPPP. The SWPPPs would describe BMPs to control run-off and prevent erosion for each project. Through compliance with the state requirement, the potential for erosion impacts would be controlled. The Construction General Permit has been developed to address cumulative conditions arising from construction throughout the state and is intended to maintain cumulative effects of projects subject to this requirement below levels that would be considered significant. For example, the four adjacent construction sites would be required to implement BMPs to reduce and control the release of sediment and/or other pollutants in any run-off leaving their respective sites. The run-off water from all sites would be required to achieve the same action levels, measured as the maximum amount of sediment or pollutant allowed per unit volume of run-off water. Thus, even if the run-off waters were to combine after leaving the sites, the sediments and/or pollutants in the combined run-off would still be at concentrations (the amount of sediment or pollutants per volume of run-off water) below action levels and would not be cumulatively considerable (less than significant).

Seismically induced fault rupture, ground shaking, liquefaction and lateral spreading, and expansive or corrosive soils could cause structural damage or ruptures during Project construction and operation and maintenance. However, state building regulations and standards address and reduce the potential for such impacts to occur. The Project and cumulative projects would be required to comply with the same applicable provisions of the CBC. The CBC regulates and controls the design, construction, quality of materials, use/occupancy, location, and maintenance of all buildings and structures within its jurisdiction; by design, it is intended to reduce the cumulative risks from buildings and structures. Based on compliance with these requirements, the incremental impacts of the Project, combined with impacts of other projects in the area, would not combine to cause a significant cumulative impact related to seismically induced ground shaking, liquefaction and lateral spreading, or expansive or corrosive soils. Therefore, the Project's contributions to a cumulative effect would be less than significant.

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3.6.5 References

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3.7 Greenhouse Gas Emissions

This section describes the environmental and regulatory setting for greenhouse gas (GHG) emissions, identifies the significance criteria used for determining environmental impacts, and evaluates the potential GHG impacts that could result from implementation of the Project. The discussion of GHG includes an overview of climate change and the various GHGs identified as drivers of climate change and provides the environmental and regulatory setting pertinent to GHG emissions, including those at the federal, state, and local levels. Appendix E provides supporting information, including air quality and GHG modeling outputs.

3.7.1 Environmental Setting

Greenhouse Gases and Climate Change

Gases that trap heat in the atmosphere are called GHGs. The process by which heat is held in the atmosphere is similar to the effect greenhouses have in raising internal temperature, and thus the name GHGs. Emissions of GHGs, if not sufficiently curtailed, are likely to contribute to increases in global temperatures. According to the United States (U.S.) Environmental Protection Agency (EPA), the term “climate change” refers to any significant change in measures of climate (e.g., temperature, precipitation, wind), lasting for an extended period (over several decades or longer). Scientific consensus is that climate change is occurring, and that human activity contributes in some measure (perhaps substantially) to that change. The potential effects of climate change in California include sea-level rise and reductions in snowpack, as well as an increased number of extreme-heat days per year, high ozone days, large forest fires, and drought years (CARB, 2014). Globally, climate change could affect numerous environmental resources through potential, although uncertain, changes in future air temperatures and precipitation patterns. According to the International Panel on Climate Change (IPCC), the projected effects of climate change are likely to vary regionally but are expected to include the following direct effects (IPCC, 2007):

- Higher maximum temperatures and more hot days over nearly all land areas.
- Higher minimum temperatures and fewer cold days and frost days over nearly all land areas.
- Reduced diurnal temperature range over most land areas.
- Increase in the heat index over most land areas.
- More intense precipitation events.

Many secondary effects also are projected to result from climate change, including global rise in sea level, ocean acidification, impacts on agriculture, changes in disease vectors, and changes in habitat and biodiversity. The possible outcomes and feedback mechanisms that are involved are not understood fully, and much research remains to be done. However, over the long term, the potential exists for substantial environmental, social, and economic consequences.

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GHG emissions are a global concern. GHG emissions cumulatively contribute to planet-wide atmospheric accumulations and consequently, no regional “hot spots” of elevated concentrations of carbon dioxide (CO₂) or any other GHGs exist. Therefore, GHG emissions, existing or future, are not a localized phenomenon, and no localized geographical constraints are in the Project area relative to GHG emissions.

Greenhouse Gas Emissions

GHG emissions from human activities primarily include CO₂, with much smaller amounts of nitrous oxide (N₂O), methane (CH₄, often from unburned natural gas), sulfur hexafluoride (SF₆) from high-voltage power equipment, and hydrofluorocarbons (HFCs) and perfluorocarbons (PFCs) from refrigeration/chiller equipment. Because GHGs emissions have different warming potentials (i.e., the amount of heat trapped in the atmosphere by a certain mass of the gas), and because CO₂ is the most common referenced gas for climate change, GHG emissions are often quantified and reported as CO₂-equivalent (CO₂e) emissions. For example, although SF₆ represents a small fraction of the total annual GHG emissions worldwide, SF₆ is very potent, with 22,800 times the global warming potential of CO₂. Therefore, an emission of 1 metric ton of SF₆ would be reported as 22,800 metric tons CO₂e (MT CO₂e). The global warming potential of CH₄ and N₂O are 25 times and 298 times that of CO₂, respectively (CARB, 2018). The principal GHG emissions from human activity that enter and accumulate in the atmosphere are described next.

Carbon Dioxide (CO₂). CO₂ is a naturally occurring gas that enters the atmosphere through natural as well as anthropogenic (human) sources. Key anthropogenic sources include the burning of fossil fuels (e.g., oil, natural gas, coal), solid waste, trees, wood products, and other biomass, as well as industrial chemical reactions, such as those associated with manufacturing cement. CO₂ is removed from the atmosphere when it is absorbed by plants as part of the biological carbon cycle.

Methane (CH₄). Like CO₂, CH₄ is emitted from both natural and anthropogenic sources. Key anthropogenic sources of CH₄ include gaseous emissions from landfills, releases associated with the mining and materials extraction industries (in particular coal mining), and fugitive releases from extraction and transport of natural gas and crude oil. Livestock and agricultural practices also emit CH₄. Small quantities of CH₄ are released during fossil fuel combustion.

Nitrous Oxide (N₂O). N₂O is emitted from both natural and anthropogenic sources. Important anthropogenic sources include industrial activities, agricultural activities (primarily the application of nitrogen fertilizer), the use of explosives, combustion of fossil fuels, and decay of solid waste.

Fluorinated Gases (HFCs, PFCs, and SF₆). HFCs, PFCs, and SF₆ are synthetic gases emitted from a variety of industrial processes and contribute substantially more to the greenhouse effect on a pound-for-pound basis than the previously described GHGs. Fluorinated gases often are used as substitutes for ozone-depleting substances (i.e., chlorofluorocarbons (CFCs), hydrochlorofluorocarbons (HCFCs), and halons). Fluorinated gases typically are emitted in

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small quantities, but because of their potency they sometimes are referred to as “high global warming potential gases.”

Greenhouse Gas Sources

Human-caused GHG emissions have increased substantially since the pre-industrial era (last 150 years) and now are higher than ever (IPCC, 2014). In 2019, the U.S. emitted about 6,558 million MT CO₂e. GHG emissions in 2018 (after accounting sequestration from the land sector) were 10.2 percent below 2005 levels. GHG emissions in 2019 (after accounting sequestration from the land sector) were 13 percent below 2005 levels.

The primary sources of GHG emissions in the U.S. are transportation (nearly 27 percent of 2016 GHG emissions), electricity production (25 percent), industry (24 percent), commercial and residential (13 percent), and agriculture (11 percent) emissions. Land use and forestry offset 13 percent of the total emissions by acting as a sink that absorbs CO₂ from the atmosphere. In the U.S. since 1990, managed forests and other lands have absorbed more CO₂ from the atmosphere than they emit (EPA, 2022).

In 2019, California produced approximately 418.2 million MT CO₂e emissions (CARB, 2021b). Transportation was the source of 41 percent of the state’s GHG emissions, followed by industrial at 21 percent, electricity generation at 14 percent, commercial and residential at 10 percent, and agriculture and forestry at 7 percent. California’s GHG emissions from 2013 to 2019 are shown in Table 3.7-1.

Table 3.7-1 California Greenhouse Gas Emissions, 2013 to 2019

Emission Inventory Category	2013	2014	2015	2016	2017	2018	2019	Percent Total GHG Emissions in 2019
Transportation	161	163	166	170	171	170	166	41%
Electric Power	91	89	85	69	62	63	59	14%
Commercial and Residential	44	38	39	41	41	41	44	10%
Industrial	92	93	90	89	89	89	88	21%
Recycling and Waste	8	8	9	9	9	9	9	2%
High Global Warming Potential Gases	17	18	19	19	20	20	21	5%
Agriculture	34	35	33	33	33	33	32	7%
Total Gross Emissions	448	443	441	429	425	425	418	100%

Note:

Percentage may not add to 100 percent due to independent rounding. All measurements are shown in million MT CO₂e.

Source: (CARB, 2021a)

3.7 GREENHOUSE GAS EMISSIONS

In the nine-county San Francisco Bay Area, GHG emissions from the transportation sector represented the largest source of the Bay Area's GHG emissions in 2015 at 41 percent, followed by stationary industrial sources at 26 percent, electricity generation and co-generation at 14 percent, and fuel use (primarily natural gas) by buildings at 11 percent. The remaining 8 percent of emissions were from fluorinated gas emissions and emissions from solid waste and agriculture. Of the total transportation emissions in 2015, on-road sources accounted approximately 87 percent, while off-road sources accounted the remainder (BAAQMD, 2017).

In 2013, activities in the unincorporated Contra Costa County and within Contra Costa County's jurisdictional land use control generated approximately 1,392,450 MT CO₂e. On-road transportation was the largest source of 2013 GHG emissions in Contra Costa County, contributing approximately 651,130 MT CO₂e or 47 percent of emissions. The next-largest source of emissions, residential energy use, contributed approximately 258,420 MT CO₂e or 19 percent of emissions. Landfills were the third-largest sector, contributing 196,500 MT CO₂e or 14 percent of emissions. The nonresidential energy use sector was the fourth-largest emissions source, contributing 125,350 MT CO₂e (9 percent); off-road emissions were the fifth-largest emissions source (66,230 MT CO₂e or 5 percent); agriculture was the sixth-largest emissions source (58,200 MT CO₂e or 4 percent). The solid waste, water and wastewater, and Bay Area Rapid Transit sectors represented 2 percent, 1 percent, and less than 1 percent of emissions, respectively (Contra Costa County, 2015).

EBMUD Emissions

EBMUD inventoried its GHG emissions from the production of electricity that is used by EBMUD. The inventory included direct emissions, sources within the organizational boundary that EBMUD owns or controls, and indirect emissions, sources occurring outside EBMUD's organizational boundary. Direct emissions are primarily from stationary combustion, mobile combustion, process related emissions, or fugitive emission. In 2013, EBMUD's direct and indirect GHG emissions totaled 31,244 MTCO₂e, which represented a 31 percent reduction from year 2000 levels, and nearly identical to the 2012 emissions inventory (31,106 MT CO₂e). When breaking down emissions into sectors associated with different EBMUD activities, water treatment and distribution accounted for 51 percent, EBMUD's fleet of vehicles and mobile equipment was responsible for 22 percent, operation of buildings accounted for 13 percent, wastewater collection and treatment 10 percent, and the remaining 4 percent was attributed to raw water intake and transport (EBMUD, 2014).

3.7.2 Regulatory Framework

This section describes federal, state, and local policies and regulations related to GHGs that may apply to the Project.

Federal Policies and Regulations

Clean Air Act

In response to a lawsuit filed by California, other states, cities, and environmental organizations on April 2, 2007, the U.S. Supreme Court found that GHGs are air pollutants covered by the

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Clean Air Act. The Court held that EPA must determine whether GHG emissions from new motor vehicles cause or contribute to air pollution that may reasonably be anticipated to endanger public health or welfare, or whether the science is too uncertain to make a reasoned decision. In making such decisions, EPA is required to follow the language of Section 202(a) of the Clean Air Act, which obligates it to prescribe (and from time-to-time revise) standards applicable to the emission of any air pollutant from any class or classes of new motor vehicles or new motor vehicle engines. The Supreme Court decision resulted from a petition for rulemaking under Section 202(a), filed by more than a dozen environmental, renewable energy, and other organizations.

On December 7, 2009, the EPA Administrator signed two findings regarding GHGs under Section 202(a) of the federal Clean Air Act:

- **Endangerment Finding:** The current and projected concentrations of six key GHGs—CO₂, CH₄, N₂O, HFCs, PFCs, and SF₆—in the atmosphere threaten the public health and welfare of current and future generations.
- **Cause or Contribute Finding:** The combined emissions of these GHGs from new motor vehicles and new motor vehicle engines contribute to GHG pollution that threatens public health and welfare.

On April 29, 2022, EPA denied four petitions received between 2017 and 2019 seeking reconsideration, rulemaking, or reopening of the Endangerment and Cause or Contribute Findings for Greenhouse Gases under Section 202(a).

40 Code of Federal Regulations (CFR) – Protection of the Environment

Pursuant to the Proposed Prevention of Significant Deterioration and Title V Greenhouse Gas Tailoring Rule (40 CFR Part 52), EPA mandated that Prevention of Significant Deterioration (PSD) and Title V requirements apply to facilities whose stationary source CO₂e emissions exceed 100,000 tons per year (EPA, 2010). The Project would not trigger PSD or Title V permitting under this regulation because it would generate less than 100,000 tons of CO₂e emissions per year.

State Policies and Regulations

The California Air Resources Board (CARB) is the agency responsible for coordination and oversight of state and local air pollution control programs in California. Currently, no state regulations establish ambient air quality standards for GHGs. However, California has passed laws directing CARB to develop actions to reduce GHG emissions, and several state legislative actions related to climate change and GHG emissions have been enacted.

Executive Order S-3-05

In 2005, in recognition of California's vulnerability to the effects of climate change, Executive Order (EO) S-3-05 established a series of target dates by which statewide emissions of GHGs would be progressively reduced, as follows:

- By 2010, reduce GHG emissions to 2000 levels
- By 2020, reduce GHG emissions to 1990 levels

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- By 2050, reduce GHG emissions to 80 percent below 1990 levels

The 2020 reduction target was codified in 2006 as Assembly Bill (AB) 32. However, the 2050 reduction target has not been codified, and the California Supreme Court has ruled that California Environmental Quality Act (CEQA) lead agencies are not required to use it as a significance threshold (*Cleveland National Forest Foundation v. San Diego Association of Governments* [2017] 3 Cal.5th 497).

Assembly Bill 32 and the California Climate Change Scoping Plan

In 2006, the California legislature passed AB 32 (Health and Safety Code Section 38500 et seq.), also known as the Global Warming Solutions Act. AB 32 required CARB to design and implement feasible and cost-effective emission limits, regulations, and other measures, so that statewide GHG emissions were reduced to 1990 levels by 2020 (representing a 25 percent reduction in emissions), anticipating that the GHG reduction goals would be met, in part, through local government actions. CARB identified a GHG emissions reduction target of 15 percent from existing levels for local governments and noted that successful implementation would rely on local government land use planning and urban growth decisions.

Pursuant to AB 32, CARB adopted a Scoping Plan in December 2008 (CARB, 2014), which was re-approved by CARB on August 24, 2011. The Scoping Plan outlined measures to meet the 2020 GHG emissions reduction goals by reducing the state's GHG emissions by 30 percent below projected 2020 business-as-usual emissions levels or about 15 percent from 2008 levels. The Scoping Plan recommended measures for further study and possible state implementation, such as new fuel regulations. The Scoping Plan estimated that a reduction of 174 million MT CO_{2e} (about 191 million U.S. tons) from the transportation, energy, agriculture, and forestry sectors and other sources could be achieved if the state implemented all the measures in the plan. The Scoping Plan relied on the requirements of Senate Bill (SB) 375 to implement the carbon emission reductions anticipated from land use decisions.

AB 32 requires the Scoping Plan to be updated at least every 5 years. CARB approved the first update to the plan on May 22, 2014 (CARB, 2014). The 2017 Scoping Plan Update was adopted on December 14, 2017. The 2017 Scoping Plan Update addressed the 2030 target established by SB 32 and established a proposed framework of action for California to meet a 40 percent reduction in GHG emissions by 2030 compared to 1990 levels. Continuing the efforts made since 2006 under AB 32, the 2017 Scoping Plan Update focused on programs including Cap-and-Trade Regulation; the Low Carbon Fuel Standard (LCFS); cleaner cars, trucks, and freight movement; renewable energy; and reducing methane emissions from agriculture and waste (CARB, 2017).

Executive Order S-1-07

EOS-1-07, signed in 2007, identified the transportation sector as the main source of GHG emissions in California, generating more than 40 percent of statewide emissions. EO S-1-07 established a goal to reduce the carbon intensity of transportation fuels sold in California by at least 10 percent by 2020 and also directed CARB to determine whether the LCFS could be

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adopted as a discrete early-action measure¹, as part of the effort to meet the mandates in AB 32. On April 23, 2009, CARB approved the proposed regulation to implement the LCFS. The LCFS was intended to reduce GHG emissions from the transportation sector in California by about 16 million metric tons in 2020. In 2017, more ambitious LCFS were established in CARB's 2017 Climate Change Scoping Plan in order to meet the emission reduction mandates set by SB 32.

Senate Bill 97

SB 97, enacted in August 2007, acknowledges that climate change is a prominent environmental issue requiring analysis under CEQA. SB 97 directed the Governor's Office of Planning and Research (OPR) to prepare, develop, and transmit guidelines to the California Natural Resources Agency for the feasible mitigation of GHG emissions or the effects of GHG emissions, as required by CEQA, no later than July 1, 2009. The California Natural Resources Agency was required to certify or adopt those guidelines by January 1, 2010. On December 30, 2009, the agency adopted the *CEQA Guidelines* amendments, as required by SB 97. These amendments provided guidance to public agencies regarding analysis and mitigation of the effects of GHG emissions in draft CEQA documents. The amendments became effective on March 18, 2010.

Senate Bill 605

SB 605 was enacted on September 21, 2014, requiring CARB to develop a comprehensive strategy to reduce emissions of short-lived climate pollutants in the state no later than January 1, 2016. As defined in SB 605, short-lived climate pollutant means "an agent that has a relatively short lifetime in the atmosphere, from a few days to a few decades, and a warming influence on the climate that is more potent than that of carbon dioxide." However, SB 605 does not prescribe specific compounds as short-lived climate pollutants or add to the list of GHGs regulated under AB 32. In developing the strategy, CARB completed an inventory of sources and emissions of short-lived climate pollutants in the state, based on available data, identified research needs to address data gaps, identified existing and potential new control measures to reduce emissions, and prioritized development of new measures for short-lived climate pollutants that offer co-benefits by improving water quality or reducing other air pollutants that impact community health and benefit disadvantaged communities.

Executive Order B-30-15 and Senate Bill 32

California EO B-30-15 (April 29, 2015) set an "interim" statewide emission target to reduce GHG emissions to 40 percent below 1990 levels by 2030 and directed state agencies with jurisdiction over GHG emissions to implement measures pursuant to statutory authority to achieve the 2030 target. Specifically, the EO directed CARB to update the Scoping Plan to express the 2030 target in metric tons. SB 32 was enacted on September 8, 2016, codifying the 2030 reduction target in EO B-30-15. CARB's 2017 Scoping Plan Update addressed the 2030 target (CARB, 2017).

¹ Measures that can be implemented prior to the measures and limits adopted (California Global Warming Solutions Act, 2006).

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Senate Bill 375

SB 375 builds on the existing framework of regional planning to tie together the regional allocation of housing needs and regional transportation planning to reduce GHG emissions from motor vehicle trips. SB 375 directs CARB to set regional targets for reducing GHG emissions, to establish a “bottom up” approach so that cities and counties participate in development of regional plans to achieve those targets. To increase public participation and local government input, the law strengthens several existing requirements for public involvement in regional planning. SB 375 establishes a collaborative process between regional and state agencies to set regional GHG reduction targets and provides CEQA incentives for development projects that are consistent with a regional plan meeting those targets. Cities and counties maintain their existing authority over local planning and land use decisions.

Executive Order B-55-18

EO B-55-18 was issued on September 10, 2018, establishing a new statewide goal of achieving carbon neutrality by 2045 and maintaining net negative emissions thereafter. The new statewide goal is in addition to the existing statewide GHG emissions reduction targets that were established by SB 375, SB 32, and SB 100.

Senate Bill 100

Adopted on September 10, 2018, SB 100 supports the reduction of GHG emissions from the electricity sector by accelerating the State’s Renewables Portfolio Standard Program, which was last updated by SB 2 of the First Extraordinary Session (SB X1-2) in 2011. SB 100 required electricity providers to increase procurement from eligible renewable energy resources to 33 percent of total retail sales by 2020, 60 percent by 2030, and 100 percent by 2045.

CEQA Guidelines

Section 15064.4 of the *CEQA Guidelines* addresses the significance of GHG emissions. Section 15064.4 calls for a lead agency to make a “good-faith effort” to “describe, calculate, or estimate” GHG emissions in CEQA environmental documents. Section 15064.4 further states that the analysis of GHG impacts should include consideration of: (1) the extent to which a project may increase or reduce GHG emissions, (2) whether project emissions would exceed a locally applicable threshold of significance, and (3) the extent to which a project would comply with “regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions.”

The *CEQA Guidelines* also state that a project’s incremental contribution to a cumulative effect is not cumulatively considerable if the project would comply with the requirements in a previously approved plan or mitigation program (including plans or regulations for the reduction of GHG emissions) that provides specific requirements to avoid or substantially lessen the cumulative problem within the geographic area in which the project is located (*CEQA Guidelines* Section 15064[h][3]). However, it does not set a numerical threshold of significance for GHG emissions. The following guidance on measures to mitigate GHG emissions are provided when GHG emissions are found to be significant:

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Consistent with Section 15126.4(a), lead agencies shall consider feasible means, supported by substantial evidence and subject to monitoring or reporting, of mitigating the significant effects of greenhouse gas emissions. Measures to mitigate the significant effects of greenhouse gas emissions may include, among others:

1. Measures in an existing plan or mitigation program for the reduction of emissions that are required as part of the lead agency's decision;
2. Reductions in emissions resulting from a project through implementation of project features, project design, or other measures;
3. Off-site measures, including offsets that are not otherwise required, to mitigate a project's emissions;
4. Measures that sequester greenhouse gases; and
5. In the case of the adoption of a plan, such as a general plan, long range development plan, or plans for the reduction of greenhouse gas emissions, mitigation may include the identification of specific measures that may be implemented on a project-by-project basis. Mitigation may also include the incorporation of specific measures or policies found in an adopted ordinance or regulation that reduces the cumulative effect of emissions.

California Green Building Standards Code

The energy consumption of new residential and nonresidential buildings in California is regulated by the California Code of Regulations under Title 24, Part 6, Building Energy Efficiency Standards (California Energy Code). The California Energy Code was established by the California Energy Commission (CEC) in 1978, in response to a legislative mandate to create uniform building codes to reduce California's energy consumption and provide energy efficiency standards for residential and nonresidential buildings. The CEC updates the California Energy Code every 3 years with more stringent design requirements for reduced energy consumption, resulting in generation of fewer GHG emissions.

The 2022 California Energy Code was adopted by the CEC on August 11, 2021 and will apply to projects constructed after January 1, 2023. The 2022 California Energy Code update revises energy efficiency standards for newly constructed buildings, as well as additions and alterations to existing buildings. The update builds on California's technology innovations and encourages inclusion of market-ready electric products in new construction. Over the next 30 years, the California Energy Code is estimated to provide the state with \$1.5 billion in environmental benefits; equivalent to taking nearly 2.2 million cars off the road for a year (California Energy Commission, 2022).. The building efficiency standards are enforced through the local plan check and building permit process. Local government agencies may adopt and enforce additional energy standards for new buildings as reasonably necessary in response to local climatologic, geologic, or topographic conditions, provided that these standards exceed those in the California Energy Code.

The California Green Building Standards Code (CALGreen Code) is part 11 under Title 24 of the California Code of Regulations. The CALGreen Code is the first-in-the-nation mandatory green

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building standards code, developed to meet the goals of California’s landmark initiative AB 32, which established a comprehensive program of cost-effective reductions of GHG emissions to 1990 levels by 2020. The CALGreen Code includes a waste diversion mandate, requiring that at least 65 percent of construction materials that are generated during new construction or demolition projects be diverted from landfills.

Local Policies and Regulations

Under Section 53091 of the California Government Code, local agency building and zoning ordinances do not apply to projects involving the location or construction of facilities for the production, generation, storage, treatment, or transmission of water. However, EBMUD’s practice is to work with local jurisdictions and neighboring communities during project planning, and to consider local environmental protection policies for guidance.

BAAQMD CEQA Guidelines

The Bay Area Air Quality Management District (BAAQMD) *CEQA Air Quality Guidelines* (BAAQMD Guidelines) advise lead agencies on how to evaluate potential air quality impacts during the environmental review process consistent with CEQA requirements, including establishing quantitative and qualitative thresholds of significance (BAAQMD, 2022).

BAAQMD’s approach to developing a threshold of significance for GHG emissions (i.e., climate impacts) is to use a “fair share” approach for determining whether an individual project’s GHG emissions would be cumulatively considerable. If a project would contribute its “fair share” of what is needed to achieve the state’s GHG reduction goals, then the lead agency can find that the project is adequately contributing to solving the problem of global climate change and that project’s impact is not significant. BAAQMD identified the necessary design elements of new land use projects and plans in order to achieve California’s climate goal of carbon neutrality by 2045 (BAAQMD, 2022). Alternatively, a project could demonstrate consistency with a local GHG reduction strategy consistent with state guidance (CEQA Guidelines Section 15183.5[b]) in order to determine GHG impacts are less than significant. The BAAQMD Guidelines do not include significance thresholds for construction-related GHG emissions but recommend that construction-related GHG emissions be quantified and disclosed. The BAAQMD Guidelines also include best management practices for reducing construction related GHG emissions.

2017 Clean Air Plan

The 2017 Clean Air Plan, *Spare the Air, Cool the Climate* (2017 Plan) was adopted by the BAAQMD on April 19, 2017. The 2017 Plan focused on two closely related goals: protecting public health and protecting the climate. Consistent with the GHG emissions reduction targets adopted by the state, the 2017 Plan laid the groundwork for a long-term effort to reduce Bay Area GHG emissions by 40 percent below 1990 levels by 2030 and 80 percent below 1990 levels by 2050 (BAAQMD, 2017). The 2017 Plan included a range of proposed control measures, consisting of actions to reduce combustion-related activities, decrease fossil fuel combustion, improve energy efficiency, and decrease emissions of potent GHGs. The 2017 Plan updated the Bay Area 2010 Clean Air Plan and complied with state air quality planning requirements, as

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codified in the California Health and Safety Code. It included 85 measures to address the reduction of several pollutants, including GHGs.

Contra Costa County Climate Action Plan

Contra Costa County is updating its Climate Action Plan that was adopted in 2015. The Climate Action Plan identifies how Contra Costa County will achieve the AB 32 GHG emissions reduction target of 15 percent below baseline levels by the year 2020, in addition to supporting other public health, energy efficiency, water conservation, and air quality goals identified in the County's General Plan and other policy documents (Contra Costa County, 2015). The updated Climate Action Plan is expected to be published in late 2022. Contra Costa County has provisionally published a Climate Action Plan Interim Work Plan, which include the following goals relevant to the reduction of GHG emissions (Contra Costa County, 2021):

Goal: Clean and Efficient Built Environment

- Increase the number of carbon neutral buildings in Contra Costa County
- Replace fossil fuel electricity with renewable electricity

Goal: Reduce Water Use and Increase Drought Resilience

- Reduce water use in unincorporated County and in County facilities
- Manage groundwater resources sustainably

City of Richmond General Plan

The *City of Richmond General Plan* Energy and Climate Change Element (City of Richmond, 2013) includes the following policies relevant to the reduction in energy use, which also would reduce GHG emissions:

Policy EC3.4 Water Conservation and Reuse. Promote water conservation and recycled water use. Reduce energy consumed for treatment and transportation of water and discharge of wastewater by: encouraging installation of low-flow fixtures; using native planting for landscaping in all City-owned and operated facilities; promoting best practices and technologies for water conservation; considering water use in evaluating and approving development projects; supporting the use of graywater and water catchment systems in residential, commercial and industrial uses; and encouraging new development and redevelopment projects to meet a portion of their water needs through the use of recycled water.

Policy EC3.5 City Government Operation. Promote climate-friendly standards, practices, technologies and products in all City facilities and operations. Lead by example and set a precedent in the community to reduce greenhouse gas emissions by incorporating best practices and available technologies. Create favorable conditions for community-wide implementation of climate-friendly practices by supporting innovations and creative solutions.

Action EC4.H Green Building Ordinances. Require that newly constructed or renovated City-owned and private buildings and structures comply with the City's adopted Green Building Ordinances. Periodically upgrade requirements as mainline construction

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practices develop and new materials and building products become available with the intent of meeting or exceeding the state's zero net energy goals by the year 2020.

City of San Pablo General Plan

The *City of San Pablo General Plan* (City of San Pablo, 2011) includes the following guiding and implementing policies relevant to the reduction in energy use and GHG emissions:

Guiding Policy OSC-G-8: Reduce emissions of greenhouse gases that contribute to global climate change.

Implementing Policy OSC-I-17: Prepare a Greenhouse Gas Emissions Reduction Plan that focuses on feasible actions the City can take to minimize the adverse impacts of growth and development on climate change and air quality. The plan would include, but not be limited to:

- A baseline inventory of all known or reasonably discoverable sources of greenhouse gases (GHGs) that currently exist in the city and sources that existed in 1990.
- A projected inventory of the GHGs that can reasonably be expected to be emitted in the city in the year 2030 in accordance with discretionary land use decisions pursuant to this General Plan update and foreseeable communitywide and municipal operations.
- A target for the reduction of emissions from those identified sources reasonably attributable to the City's discretionary land use decisions and municipal operations, in line with state goals and targets established by the Air Resources Board.
- A list of feasible GHG reduction measures whose purpose shall be to meet the established local reduction target, including energy conservation and "green building" requirements in municipal buildings and private development.

EBMUD Climate Action Plan

In 2021, EBMUD prepared a Climate Action Plan (EBMUD, 2021), which draws on EBMUD's Climate Change Monitoring & Response Plan (EBMUD, 2014), the Wastewater Climate Change Plan (EBMUD, 2020b), the Urban Water Management Plan (EBMUD, 2020a), and EBMUD's Climate Action, Energy, and Sustainability and Resilience policies. EBMUD plans to reduce its GHG emissions from electricity use to zero by 2040, and from fuel combustion by 50 percent by 2040 compared to 2000 levels.

In 2021, EBMUD established a GHG emission reductions goal for its water systems, to eliminate direct and indirect GHG emissions by 2030 through renewable energy generation, water and energy conservation, partnerships, and use of clean and renewable fuels. For its medium and heavy-duty fleet, EBMUD transitioned to nearly 100 percent renewable diesel, which is manufactured using organic materials such as waste animal fat or used cooking oil. Renewable diesel reduces GHG emissions by up to 80 percent when compared to petroleum-based diesel.

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EBMUD Sustainability and Resiliency Policy

EBMUD's Sustainability and Resilience Policy (Policy 7.05) is to provide reliable, high quality drinking water and wastewater services through sustainable and resilient operations, maintenance, planning, design, and construction activities that manage long-term economic, environmental, and human resource benefits. The objective of Policy 7.05 is to consider environmental, social, and economic impacts in EBMUD's decision-making, policies, programs, and work practices. In doing so, EBMUD will:

- Promote an environmental stewardship ethic in its staff and among other drinking water and wastewater treatment agencies;
- Adhere to principles and practices of sustainability and environmental justice;
- Comply with environmental laws and regulations;
- Look for opportunities for and implement practices to support continuous improvement of environmental performance including pollution prevention and resource conservation;
- Promote and implement purchasing and using recycled and recyclable products;
- Move towards zero waste and seek ways to recycle materials that cannot be used in its operations and activities;
- Identify and implement projects and plans that mitigate climate change impacts and reduce greenhouse gas emissions;
- Evaluate economic, environmental, and social factors when making key business decisions; and
- Foster communication with employees, contractors, other water and wastewater agencies, regulators, cities and counties, and the public about the District's sustainability efforts.

EBMUD Energy Policy

EBMUD's Energy (Policy 7.07) is to:

- Encourage and promote energy management and energy efficient practices within EBMUD's water and wastewater system operations, service area, and watersheds;
- Reduce GHG emissions;
- Minimize reliance on fossil fuels;
- Provide reliable energy sources;
- Reduce energy costs;
- Support EBMUD's goal for wastewater systems to eliminate GHG emissions for indirect emissions and reduce direct GHG emissions by 50 percent compared to 2000 levels by 2040;
- Support EBMUD's goal for water systems to eliminate GHG emissions for indirect and direct emissions by 2030.

To support the Energy Policy, EBMUD will:

- Efficiently use energy including electricity, petroleum-based fuels, and natural gas to reduce costs and energy consumption, conserve natural resources, and minimize impacts on the environment.

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- Increase its use and generation of renewable energy to preserve natural resources, reduce environmental pollution, and support the EBMUD's mission to protect and preserve the environment for future generations.
- Secure reliable energy supplies at the most advantageous rates and implement economical projects to protect operations from interruptions and minimize future costs.
- Support the state of California's renewable energy goals.
- Promote its energy policy by informing staff and the public of its efforts to use energy efficiently, raising awareness of the nexus between water and energy, and increasing generation of renewable energy.

EBMUD Standard Construction Specifications

EBMUD's Standard Construction Specifications and Procedures apply to all contractors who are completing work for EBMUD, and to work completed by EBMUD staff. The following EBMUD practices and procedures are applicable to GHGs.

- **EBMUD Standard Construction Specification 01 35 44, Environmental Requirements, Section 3.5**

EBMUD's Standard Construction Specification 01 35 44, Environmental Requirements, includes practices and procedures for minimizing GHG emissions from fuel combustion, as follows (EBMUD, 2023):

- Section 3.5, Air Quality Control
 - Implement all necessary air pollutant construction measures per the Bay Area Air Quality Management District "Basic Construction Mitigation Measures" (BAAQMD CEQA Guidelines May 2017), including, but not limited to the following:
 - Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations [CCR]). Clear signage shall be provided for construction workers at all access points.
 - All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation.
 - Implement all necessary air pollutant construction measures per the Bay Area Air Quality Management District "Additional Construction Mitigation Measures" (BAAQMD CEQA Guidelines May 2017) including but not limited to the following:
 - Minimizing the idling time of diesel-powered construction equipment to two minutes.

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- The project shall develop a plan demonstrating that the off-road equipment (more than 50 horsepower) to be used in the construction project (i.e., owned, leased, and subcontractor vehicles) would achieve a project wide fleet-average 20 percent NO_x reduction and 45 percent PM reduction compared to the most recent ARB fleet average. Acceptable options for reducing emissions include the use of late model engines, low-emission diesel products, alternative fuels, engine retrofit technology, after-treatment products, add-on devices such as particulate filters, and/or other options as such become available.
- Requiring that all construction equipment, diesel trucks, and generators be equipped with Best Available Control Technology for emission reductions of NO_x and PM.
- Requiring all contractors use equipment that meets CARB's most recent certification standard for off-road heavy duty diesel engines.
- Implement all necessary EBMUD air pollutant construction measures, including but not limited to the following:
 - Use line power instead of diesel generators at all construction sites where line power is available.
 - All portable engines and equipment units used as part of construction shall be properly registered with the California Air Resources Board or otherwise permitted by the appropriate local air district, as required.
 - Minimize the use of diesel generators where possible.
 - Perform regular low-emission tune-ups on all construction equipment, particularly haul trucks and earthwork equipment.
 - On road and off-road vehicle tire pressures shall be maintained to manufacturer specifications. Tires shall be checked and re-inflated at regular intervals.
 - Demolition debris shall be recycled for reuse to the extent feasible. See the Construction and Demolition Waste Disposal Plan paragraphs above for requirements for wood treated with preservatives (TWW).

3.7.3 Impact Analysis

Methodology for Analysis

For quantifying a project's GHG emissions, the BAAQMD recommends that all project-specific GHG emissions be estimated, including a project's direct and indirect GHG emissions from operations. Direct emissions refer to emissions produced from the on-site combustion of energy, such as natural gas used in furnaces and boilers, emissions from industrial processes, and fuel combustion from mobile sources. Indirect emissions are emissions produced off-site from energy production and water conveyance related to a project's energy use and water consumption. The BAAQMD has provided guidance on detailed methods for modeling GHG emissions from proposed projects (BAAQMD, 2022).

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For the Project, construction activities would be the primary source of GHG emissions. After becoming operational, the Project would not include any direct stationary sources on site. GHG emissions from worker trips for maintenance activities as well as indirect emissions from electricity use for operation and maintenance would increase.

Section 15064.4 of the *CEQA Guidelines* provides guidance to lead agencies for determining the significance of environmental impacts pertaining to GHG emissions. Section 15064.4(a) states that a lead agency should make a good-faith effort that is based, to the extent possible, on scientific and factual data to describe, calculate, or estimate the amount of GHG emissions that would result from implementation of a project. Section 15064.4(b) also states that, when assessing the significance of impacts from GHG emissions, a lead agency should consider (1) the extent to which the project may increase or reduce GHG emissions compared with existing conditions, (2) whether the project's GHG emissions would exceed a threshold of significance that the lead agency has determined to be applicable to the project, and (3) the extent to which the project would comply with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions.

The California Emissions Estimator Model (CalEEMod, version 2020.4.0) was used to estimate GHG emissions from Project construction activities. CalEEMod incorporates GHG emission factors for Pacific Gas and Electric Company (PG&E) as well as the California Air Pollution Control Officer's Association (CAPCOA) Quantifying Greenhouse Gas Mitigation Measures and the California Climate Action Registry General Reporting Protocol. The CalEEMod model quantifies direct emissions from heavy-duty equipment and vehicle trips associated with worker commute and material hauling. Where Project-specific information was unavailable (e.g., vehicle emission factors, equipment load factor and horsepower), CalEEMod model default values were used to estimate Project emissions (Appendix E contains the CalEEMod inputs and outputs).

Project GHG emissions are analyzed in context of the goals of AB 32, the 2017 Scoping Plan Update, and SB 32 to determine whether the Project would conflict with an applicable plan, policy, or regulation adopted for reducing GHG emissions.

Both the BAAQMD and CAPCOA consider GHG emissions impacts to be exclusively cumulative impacts, in that no single project by itself could result in a substantial change in climate (BAAQMD, 2022; CAPCOA, 2008). Therefore, the evaluation of GHG emissions impacts evaluates whether the Project's incremental contribution to climate change would be cumulatively considerable.

Significance Criteria

Consistent with *Appendix G* of the *CEQA Guidelines*, an impact would be considered significant if the Project would:

1. Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment.

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2. Conflict with an applicable plan, policy, or regulation adopted for reducing GHG emissions.

Impacts and Mitigation Measures

Impact GHG-1: Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment. (*Criterion 1*)

Construction

Project construction would generate GHG emissions, such as CO₂, CH₄, and NO₂, primarily through the use of fossil fuels in construction equipment.

The Project would involve demolition of some existing buildings and construction of new structures and facilities (e.g., chlorine contact basin, equalization basins, gravity thickeners, consolidated maintenance building, power and polymer building) in Phase 1, as well as construction of the Central North Aqueduct pipeline and additional facilities for increased treatment capacity in Phase 2. Phase 1 construction would occur over approximately 5 years, and Phase 2 would occur over approximately 3 years. Construction would require use of on-road and off-road construction equipment and trucks for material deliveries and hauling, all of which would emit GHGs.

Table 3.7-2 shows the estimated Project construction GHG emissions in each construction year from on-site and off-site emissions sources. The model outputs for the GHG emissions are provided in Appendix E.

As noted in Section 3.6.2, neither the State nor the BAAQMD has adopted a quantitative GHG emissions threshold to evaluate the significance of an individual project's construction-related contribution to GHG emissions. The estimated total construction GHG emissions are 8,630 (or 8,551 with controls) MT CO₂e. The total GHG emissions, amortized over the 30-year life of the Project, would result in annual construction-related GHG emissions of approximately 288 MT CO₂e (Table 3.7-2).

Table 3.7-2 Estimated Annual Greenhouse Gas Emissions from Construction

Construction Year	Uncontrolled CO ₂ e	Controlled CO ₂ e ^a
Phase 1		
Year 1 ^b	217	217
Year 2	697	691
Year 3	746	728
Year 4	1,421	1,407
Year 5	282	279
Phase 2		
Year 1	2,699	2,691

3.7 GREENHOUSE GAS EMISSIONS

Construction Year	Uncontrolled CO ₂ e	Controlled CO ₂ e ^a
Year 2	1,586	1,576
Year 3	492	475
Year 4	489	488
Total	8,630	8,551

Notes:

- ^a Controlled emissions would include use of renewable energy and electrical vehicles where feasible, per EBMUD's Standard Construction Specification 01 35 44, Environmental Requirements, Section 3.5.
- ^b Construction emissions calculated were estimated with construction of Phase 1 starting in 2030 and construction of Phase 2 starting in 2035. The current project schedule estimates Phase 1 construction would start in 2030 and Phase 2 construction would start in 2045 at the soonest. Because equipment and vehicle operational efficiencies increase overtime, the earlier start date for construction conservatively presents a worst-case estimate of construction GHG emissions and actual GHG emissions would be less due to availability of higher efficiency vehicles and equipment in the future.

Source: (RCH Group, 2022)

Although the BAAQMD CEQA Guidelines do not specify thresholds of significance for construction-related GHG emissions, they do encourage incorporation of best management practices (BMPs) to reduce GHG emissions during construction, where feasible and applicable. The GHG emissions during construction would be minimized through implementation of BAAQMD's BMPs. The BMPs may include using alternative fueled (e.g., biodiesel, electric) construction vehicles/equipment for at least 15 percent of the fleet; using local building materials for at least 10 percent of the Project's buildings; and recycling or re-using at least 50 percent of construction waste or demolition materials. As detailed in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, have been incorporated into the Project, including Standard Construction Specification 01 35 44, Environmental Requirements. Section 3.5, Air Quality and Emissions Control, of the Environmental Requirements specification. Section 3.5 requires minimizing idling time to no more than 2 minutes, proper tuning and maintenance of construction equipment, use of grid power where available, for equipment to meet CARB's most recent certification standards, and for construction crews to use alternative-fueled construction equipment and to recycle or re-use construction waste or demolition materials to the extent feasible.

Because EBMUD Standard Specification 01 35 44, Section 3.5 Air Quality and Emissions Control, would be incorporated into the Project and includes GHG emission controls to reduce GHG emissions from fuel combustion and the proposed emissions controls would implement a number of BAAQMD BMPs for construction-related GHG emissions, the Project would contribute its "fair share" to reducing GHG emissions and the construction impact from GHG emissions would be less than significant. The EBMUD Practices and Procedures Monitoring and Reporting Plan (Appendix C) lists the applicable standard specifications language.

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Operation and Maintenance

Operational GHG emissions sources from the Project would include on-road vehicles, landscaping equipment, landfill waste (e.g., trash from buildings), electricity for building energy, and water. In Phase 1, the operational GHG emissions would be approximately 123 MT CO_{2e} per year, of which 50 MT CO_{2e} per year would be related to electrical usage (Table 3.7-3) and would be below the 2030 bright-line GHG significance threshold of 660 MT CO_{2e} per year. In Phase 2, the operational GHG emissions would be approximately 136 MT CO_{2e} per year, of which 63 MT CO_{2e} per year would be related to electrical usage, which also would be below the 2040 bright-line GHG significance threshold of 440 MT CO_{2e} per year (Table 3.7-3). Because EBMUD purchases its electricity from PG&E, and because PG&E's electricity is required to come from carbon-free sources by 2045 per SB 100, operational electricity emissions from the Project beyond 2045 would be negligible.

Table 3.7-3 Estimated Annual Greenhouse Gas Emissions from Operation

Source	Project Annual MT CO _{2e} (Phase 1)	Project Annual MT CO _{2e} (Phase 2)	Project Total (MT CO _{2e}) (Phase 1 and Phase 2)
Employees Vehicles	27	27	54
Light Duty Trucks	6	6	12
Delivery Trucks	19	19	38
Area Sources	<1	<1	<1
Energy	50	63	113
Solid Waste	13	13	26
Water	9	9	18
Total Operations Emissions	123	136	259
Bright line Threshold	660	440	440
Potentially Significant?	No	No	No

Source: (RCH Group, 2022)

In addition, EBMUD has developed a Climate Action Plan, which includes a goal of eliminating direct and indirect GHG emissions for its water systems by 2030 through renewable energy generation, water and energy conservation, partnerships, and use of clean and renewable fuels. EBMUD produces renewable energy through hydropower, solar power, and biogas. EBMUD generates on average 150,000 megawatt-hours (MWh) of electricity annually at its two hydroelectric power plants. Currently, EBMUD has ten photovoltaic projects providing nearly 2 MW of photovoltaic capacity and producing up to 3,200 MWh of electricity annually (EBMUD, 2021). EBMUD is planning to construct the 5 MW Duffel Photovoltaic Renewable Energy Project in the city of Orinda, which will produce an estimated 10,000 MWh annually (EBMUD, 2021). After construction of the Duffel Photovoltaic Energy Project, EBMUD would produce 13,200

3.7 GREENHOUSE GAS EMISSIONS

MWh of renewable energy annually. EBMUD's wastewater treatment plant can generate more than 50,000 MWh of electricity annually (EBMUD, 2021). Because the Project was considered in EBMUD's Climate Action Plan and EBMUD would produce sufficient renewable energy to offset the direct and indirect energy use of the Project, the Project would be consistent with a local Climate Action Plan adopted for the purpose of reducing GHG emissions and the impact would be less than significant.

Significance Determination before Mitigation

Less than significant.

Mitigation Measure

None required.

Impact GHG-2: Conflict with an applicable plan, policy, or regulation adopted for reducing GHG emissions (*Criterion 2*)

Construction, Operation, and Maintenance

Project GHG emissions were analyzed within the context of the goals of AB 32, the 2017 Scoping Plan Update, SB 32, and EBMUD's Climate Action Plan to determine whether the Project would conflict with an applicable plan, policy, or regulation adopted for reducing GHG emissions.

AB 32 established regulatory, reporting, and market mechanisms to achieve quantifiable reductions in GHG emissions and also established a cap on statewide GHG emissions. AB 32 required that statewide GHG emissions be reduced to 1990 levels by 2020. The state achieved 1990 levels in 2016, and the levels remained below 1990 levels through 2020 (CARB, 2021c). In September 2016, SB 32 extended the goals of AB 32 and set a goal to achieve GHG emissions reductions of 40 percent below 1990 levels by 2030. In 2017, CARB adopted the 2017 Scoping Plan Update, which identified how the state could reach the 2030 climate target to reduce GHG emissions by 40 percent from 1990 levels and substantially advance toward the state's 2050 climate goal to reduce GHG emissions by 80 percent below 1990 levels.

Because the Project will be operational post-2020, the principal state plan and policy adopted for reducing GHG emissions is SB 32. The quantitative goal of SB 32 is to reduce GHG emissions to 40 percent below 1990 levels by 2030. Statewide programs (e.g., the LCFS and Renewables Portfolio Standard) are delivering cleaner fuels and energy, the Advanced Clean Cars Program has put more than a quarter-million clean vehicles on the road, and the Sustainable Freight Action Plan will result in efficient and cleaner systems to move goods throughout the state. The 2017 Scoping Plan Update enhances and implements these ongoing efforts to put the state on the path to achieving its 2030 target. These statewide programs are implemented at the state level, and compliance at a specific plan or project level is not addressed.

The EBMUD Climate Action Plan (EBMUD, 2021) establishes a goal of eliminating direct and indirect GHG emissions from the water system by 2030. The Project would be part of EBMUD's climate change adaptation strategy in the Climate Action Plan. As discussed previously, after implementation of the Duffel Photovoltaic Energy Project, EBMUD would be a net generator of renewable energy and would produce more energy than would be used system-wide, including

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by the Project. The Project would, therefore, not conflict with any actions or goals in the Climate Action Plan.

SB 32 and other regulations are likely to be successful in reducing GHG emissions and reducing the cumulative GHG emissions statewide. The state has taken these measures because no project individually could have a major impact (either positively or negatively) on the global concentration of GHG emissions. Therefore, the Project would result in a significant impact if it would conflict with state regulations such as SB 32. Because the Project would not conflict with the climate change policies and measures in the 2017 Scoping Plan Update or with EBMUD's Climate Action Plan and would be below the bright-line GHG emissions significance thresholds developed per the state's GHG emissions reduction goals, the Project would not conflict with state regulations for reducing GHG emissions and the resulting impact related to a conflict with an applicable plan, policy, or regulation adopted for reducing GHG emissions would be less than significant.

Significance Determination before Mitigation

Less than significant.

Mitigation Measure

None required.

3.7.4 Cumulative Impacts

Climate change is a global problem and GHG emissions are global pollutants. Whereas pollutants with localized air quality effects have relatively short atmospheric lifetimes (about one day), GHG emissions have long atmospheric lifetimes (one year to several thousand years). GHG emissions persist in the atmosphere for long enough periods to be dispersed around the globe. Therefore, the effects of GHG emissions also are experienced globally. The atmospheric concentration of GHG emissions determines the intensity of climate change, with current levels already leading to increases in global temperatures, sea-level rise, severe weather, and other environmental impacts. The continued increase in atmospheric GHG concentrations only will worsen the severity and intensity of climate change, leading to irrevocable environmental changes. Therefore, in the context of CEQA, project-related GHG emissions impacts on global climate change are inherently cumulative. No single project could generate enough GHG emissions to contribute noticeably to a change in the global average temperature. However, the combination of GHG emissions from present and future projects contributes substantially to the phenomenon of global climate change and its associated environmental impacts.

As discussed under Impacts GHG-1 and GHG-2, GHG emissions from Project construction, operation, and maintenance would be less than significant. The Project also would comply with the goals and actions of applicable GHG emissions reduction plans at the local and state levels that aim to achieve the 2030 target established by SB 32 to meet a 40 percent reduction in GHG emissions by 2030 compared to 1990 levels. Therefore, the Project's contribution to the global cumulative impact would be less than significant.

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3.7.5 References

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3.8 Hazards and Hazardous Materials

This section describes the physical, environmental, and regulatory setting for hazards and hazardous materials, identifies the significance criteria for determining environmental impacts, and evaluates the potential impacts associated with hazardous resources that could result from implementation of the Project. Potential hazards addressed in this section include releases of hazardous materials from equipment and materials during construction, demolition, and operation, exposure to hazardous materials from existing hazardous materials sites, wildfires, airport safety, and emergency access and response plans.

3.8.1 Environmental Setting

The following discussion defines the terms used in the hazards and hazardous materials evaluation and describes the hazardous conditions of the region and Project area.

Definitions of Hazardous Materials

Terms used in the characterization of baseline conditions, regulatory framework, and impact analysis for hazards and hazardous materials are defined below.

- **Hazardous Material:** Hazardous materials, hazardous substances, hazardous wastes, and any material that a handler or the administering agency has a reasonable basis for believing would be injurious to the health and safety of persons or harmful to the environment if released into the workplace or the environment. Section 25501(n) of the California Health and Safety Code defines hazardous material as any material that, because of its quantity, concentrations, or physical or chemical characteristics, poses a significant present or potential hazard to human health and safety or to the environment. Hazardous materials include, but are not limited to, hazardous substances, hazardous waste, and any material that a handler or the administering agency has a reasonable basis for believing would be injurious to the health and safety of persons or harmful to the environment if released into the workplace or the environment.
- **Hazardous Waste:** A waste that, because of its quantity, concentration, or physical, chemical, or infectious characteristic, causes or significantly contributes to an increase in mortality or illness or poses substantial or potential threats to public health or the environment (42 U.S. Code [USC] 6903[5]). Hazardous wastes are further defined under the Resource Conservation and Recovery Act (RCRA) as substances exhibiting the characteristics of ignitability, reactivity, corrosivity, or toxicity. Chemical-specific concentrations that are used to define whether a material is a hazardous, designated, or nonhazardous waste include Total Threshold Limit Concentrations (TTLCs), Soluble Threshold Limit Concentrations (STLCs), and Toxic Characteristic Leaching Procedures (TCLPs), listed in California Code of Regulations (CCR) Title 22, Chapter 11, Article 3, Section 66261, which are used as waste acceptance criteria for landfills. Waste materials with

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chemical concentrations above TTLCs, STLCs, and TCLPs must be sent to Class I disposal facilities, may be sent to Class II disposal facilities depending on the waste material, and may not be sent to Class III disposal facilities¹.

- **Screening Levels for Hazardous Materials in Soil, Soil Gas, or Groundwater:** The United States (U.S.) Environmental Protection Agency (EPA) Regional Screening Levels and San Francisco Bay Area Regional Water Quality Control Board (RWQCB) Environmental Screening Levels (ESLs) are guidelines used to evaluate the potential risk associated with chemicals in soil or groundwater where a release of hazardous materials has occurred. Although developed and maintained by the RWQCB, ESLs are used by regulatory agencies throughout the state. Screening levels have been established for both residential and commercial/industrial land uses, and for construction workers. Residential screening levels are the most restrictive. Soil with chemical concentrations below these ESLs generally do not require remediation and are suitable for unrestricted uses if disposed off-site. Commercial/industrial screening levels generally are less restrictive than residential screening levels because they are based on potential worker exposure to hazardous materials in the soil (and these generally are less than residential exposures). Screening levels for construction workers also are less restrictive than for commercial/industrial workers because construction workers are exposed to a chemical of concern only during the duration of construction, while industrial workers are assumed to be exposed over a working lifetime. Chemical concentrations below these screening levels generally do not require remediation and are suitable for unrestricted uses. In addition, other more specific but similar screening levels are used for more narrowly focused human health or ecological risk assessment considerations.

Regional Setting

The Project area is surrounded primarily by residential development and undeveloped areas in the city of Richmond and unincorporated Contra Costa County, specifically in the community of El Sobrante. The proposed route for the Central North Aqueduct pipeline follows roads in the city of Richmond, unincorporated Contra Costa County, and the city of San Pablo. The roadways are within urban residential and commercial areas.

Land in this region was rural land vegetated by grassland and woodland from as early as the 1890s through the 1940s. Some areas of this region were used for agriculture, grazing, and orchards. Development of the region began in the 1940s, when new housing was needed to meet the World War II housing demands of shipyard and other wartime workers, centered in

¹ Class I disposal facilities are specifically for hazardous waste, as defined under Title 22 of the CCR. Class II facilities are “designated” waste facilities, and special permitting must be acquired for them to accept designated types of hazardous materials. Class III disposal facilities are strictly for non-hazardous waste (CCR Title 23, Division 3, Chapter 15).

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the city of Richmond. Housing subdivisions were developed in the mid-1950s to mid-1970s along many of the nearby roadways, including Appian Way and San Pablo Dam Road.

Local Setting

The Sobrante Water Treatment Plant (SOWTP) operations require the use and storage of permitted hazardous materials. A Phase I Environmental Site Assessment (ESA) was completed for the SOWTP site in January 2022 (Northgate, 2022). The Phase I ESA was conducted in general accordance with the American Society for Testing and Materials (ASTM) International “Standard Practice for Environmental Site Assessments E-1527-13” and the United States Environmental Protection Agency’s (EPA) All Appropriate Inquiry (AAI) Final Rule (40 CFR Part 312).

The Phase I ESA included a field reconnaissance, historical research, and a review of applicable local, state, and federal environmental records. Specifically, Northgate evaluated the SOWTP site including areas with infrastructure proposed for demolition and construction for evidence of recognized environmental conditions which is the presence or likely presence of hazardous substances or petroleum products under conditions that indicate an existing release, a past release, or a material threat of releases into structures, ground, groundwater, or surface water (Northgate, 2022).

The Phase I ESA revealed no evidence of recognized environmental conditions in connection with the SOWTP site except for the following:

- Diesel fuel for a standby generator is stored in a 1,000-gallon double-walled fiberglass underground storage tank (UST) located in the north central area of the water treatment plant. The current UST was installed in 1988. The California Environmental Reporting System database listings indicate a number of UST-related violations from 2017 to 2020 pertaining to leak detection equipment testing, spill container requirements, deficiencies in overfill prevention equipment, secondary containment maintenance and testing, visual inspection, and maintenance of a current UST permit. The water treatment plant returned to UST compliance following each violation. Available records from the Contra Costa County Health Services Hazardous Materials Program (CCHSHMP) indicate that the current UST replaced a 750-gallon diesel UST that was installed in 1964 and removed in May 1988 following an inspection failure in 1987. No apparent holes were noted in the UST, and testing of the tank piping was reported to be satisfactory. Sampling associated with the UST removal was reportedly documented in a 1988 report submitted to the Contra Costa County Health Services Department Environmental Health Division, but the report was not available to Northgate for review. No releases from this UST are documented; however, because the regulatory reports and sampling results are not available for review, Northgate could not rule out the possibility that undocumented fuel release(s) from the former 750-gallon UST could potentially impact soil, soil vapor, and/or groundwater quality at the SOWTP site.

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- The SOWTP site was historically operated as part of an orchard from approximately 1950 to the early 1960s before the SOWTP was constructed, and the northern area of the site to the north of the existing water treatment plant continued as an orchard until at least the late 1960s. During the 1940s the site may have been used for other agricultural uses such as cattle grazing. Northgate could not rule out the possibility that residual agricultural chemicals (primarily DDT-related compounds and metals) could be present in shallow soil at the site related to orchard and possibly cattle grazing operations.

Existing contamination databases were reviewed for the Central North Aqueduct pipeline alignment. Several leaking USTs have been recorded previously along the Central North Aqueduct pipeline route, primarily associated with gasoline stations, but all have been closed (DTSC, 2022) (SWRCB, 2022). One site, the Auto Wrecking Yard (EnviroStor ID 07470006) is under evaluation for hazardous materials and is less than 0.5 mile from the proposed Central North Aqueduct pipeline alignment. The potential contamination of concern is an aqueous solution with metals, cyanide, halogenated organic compounds and an unspecified acid solution, but no other information is available since the site is still under evaluation (DTSC, 2022) (SWRCB, 2022).

Known Contamination Sites

The State Water Resources Control Board's (SWRCB) GeoTracker and Department of Toxic Substances Control's (DTSC) EnviroStor databases were reviewed for the Central North Aqueduct pipeline alignment to identify any open, cleanup, permitting, enforcement, and investigation efforts at hazardous waste facilities and sites with known contamination or sites where reasons may exist to investigate further. The DTSC is responsible for maintaining and updating the Hazardous Waste and Substances Site List (Cortese List). The Cortese List is a planning document used by several agencies and developers to comply with California Environmental Quality Act (CEQA) requirements. The Cortese List was consulted in February 2022, and the SOWTP site and Central North Aqueduct pipeline alignment are not included on the list (DTSC, 2022).

Schools within 0.25 Mile of the Project

No schools are within 0.25 mile of the SOWTP site. Schools within 0.25 mile of the proposed Central North Aqueduct pipeline alignment include the De Anza High School, La Cheim School (El Sobrante Campus), Sheldon Elementary School, Vista High School, Contra Costa College, Middle College High School, Helms Middle School, and Wildcat Canyon Community School.

Airports

No airports are within a 2-mile radius of the Project. The closest airport is the Buchanan Field Airport, 12 miles away.

Wildfire Hazards

California Department of Forestry and Fire Protection (CAL FIRE) has developed a Fire Hazard Severity Zone ranking system that predicts the likelihood of an area burning. The ranking

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system is based on vegetation, topography, weather, crown fire potential, and ember production and movement. The Project area is not located within an area designated as Very High Fire Hazard Severity Zone (VHFHSZ), however, the areas to the north and east of the SOWTP site and south of the Central North Aqueduct pipeline alignment are designated as VHFHSZ. VHFHSZ areas are located within 1,000 feet north of the SOWTP site on Heavenly Ridge Lane, approximately 1,600 feet east of the SOWTP, on Amend Road, and approximately 700 feet south of the Central North Aqueduct pipeline along San Pablo Dam Road at the nearest points. The Sobrante Ridge Regional Park to the east of the SOWTP is also a State Responsibility Area (SRA) with fire hazard severity ranging from moderate to very high (Cal Fire, 2023).

The cities of Richmond and San Pablo do not have any local regulations related to wildfire and have developed mutual aid agreements with Contra Costa County to provide assistance in the event of a wildfire. Wildfire hazards are addressed by Contra Costa County in the *Contra Costa County Hazard Mitigation Plan* (Contra Costa County, 2018). Refer to Section 3.14, Wildfire, for more information on wildland fires.

3.8.2 Regulatory Framework

This section describes federal, state, and local policies and regulations related to hazards and hazardous materials that may apply to the Project. Policies and regulations related to wildfire hazards are provided in Section 3.14, Wildfire.

Federal Policies and Regulations

Community Right-to-Know Act of 1986 (also known as Title III of the Superfund Amendments and Reauthorization Act)

The Community Right-to-Know Act of 1986 imposes requirements to ensure that hazardous materials are properly handled, used, stored, and disposed, and to prevent or mitigate injury to human health or the environment in the event that such materials are released accidentally.

Resource Conservation and Recovery Act of 1976

Under RCRA, EPA regulates the generation, transportation, treatment, storage, and disposal of hazardous waste from “cradle to grave.” Cradle-to-grave is used by EPA in this context to mean that EPA regulates hazardous waste from the generation to the disposal.

Hazardous and Solid Waste Act

The Hazardous and Solid Waste Act amended RCRA in 1984, affirming and extending the “cradle to grave” system of regulating hazardous wastes. The amendments specifically prohibit the use of certain techniques for the disposal of some hazardous wastes.

49 Code of Federal Regulations

Under Title 49 of the Code of Federal Regulations (CFR), the U.S. Department of Transportation (USDOT) has the regulatory responsibility for the safe transportation of hazardous materials. The USDOT regulations govern all means of transportation, except packages shipped by mail.

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Occupational Safety and Health Act of 1970

The Occupational Safety and Health Administration (OSHA) sets standards for safe workplaces and work practices, including the reporting of accidents and occupational injuries (29 CFR 1910).

Toxic Substances Control Act

The Toxic Substances Control Act regulates the use and management of polychlorinated biphenyls (PCBs) in electrical equipment and sets forth detailed safeguards to be followed during the disposal of such items.

State Policies and Regulations

State and local agencies often have either parallel or more stringent rules than federal agencies. In most cases, state law mirrors or overlaps federal law, and enforcement of these laws is the responsibility of the state or of a local agency to which enforcement powers are delegated.

The primary California agencies with responsibility for management of hazardous materials include the California DTSC and the San Francisco Bay RWQCB within the California EPA (CalEPA), California Division of Occupational Safety and Health (Cal/OSHA), California Department of Health Services, California Highway Patrol, and California Department of Transportation.

Unified Hazardous Waste and Hazardous Materials Management Regulatory Program (Unified Program), Health and Safety Code Sections 25404 et seq.

In January 1996, CalEPA adopted regulations that implemented the Unified Program at the local level. The agency responsible for implementation of the Unified Program is called the Certified Unified Program Agency (CUPA), which for the Project is the Contra Costa Health Services. The following programs are consolidated under the Unified Program:

- Hazardous Materials Release Response Plans and Inventory (also referred to as Hazardous Materials Business Plans)
- California Accidental Release Program
- Underground Storage Tanks
- Above-ground Petroleum Storage Spill Prevention Control and Countermeasures
- Hazardous Waste Generation and On-site Treatment
- Uniform Fire Code Plan and Inventory Requirements

State Hazardous Waste and Substances List (Cortese List)

The oversight of hazardous materials sites often involves several different agencies that may have overlapping authority and jurisdiction. For the on-site hazardous materials cases and issues, the San Francisco Bay RWQCB is the lead agency. Other cases may be overseen by DTSC, Contra Costa Health Services, or other agencies.

California Hazardous Materials Release Response Plan and Inventory Law of 1985

The California Hazardous Materials Release Response Plan and Inventory Law of 1985 (Business Plan Act) requires that businesses that store hazardous materials on site prepare a

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Hazardous Materials Business Plan and submit it to the local CUPA, which in this case is the Contra Costa Health Services.

California Hazardous Waste Control Act

Under the California Hazardous Waste Control Act, California Health and Safety Code, Division 20, Chapter 6.5, Article 2, Section 25100, et seq., DTSC regulates the generation, transportation, treatment, storage, and disposal of hazardous waste in California. The hazardous waste regulations establish criteria for identifying, packaging, and labeling hazardous wastes; dictate the management of hazardous waste; establish permit requirements for hazardous waste treatment, storage, disposal, and transportation; and identify hazardous wastes that cannot be disposed in landfills. DTSC also is the administering agency for the California Hazardous Substance Account Act, California Health and Safety Code, Division 20, Chapter 6.8, Sections 25300 et seq., also known as the State Superfund law, providing for the investigation and remediation of hazardous substances pursuant to state law.

California Fire Code

The California Fire Code, Article 80, includes specific requirements for the safe storage and handling of hazardous materials. The requirements reduce the potential for a release of hazardous materials and for the mixing of incompatible chemicals and specify secondary containment, separation of incompatible materials and spill response procedures to reduce the potential for a release of hazardous materials that could affect public health or the environment.

Titles 13, 22, and 26 of the California Code of Regulations

Titles 13, 22, and 26 of the CCR govern the transportation of hazardous waste originating in and passing through the state, including requirements for shipping, containers, and labeling.

Cal/OSHA Regulations

Cal/OSHA regulations under Title 8 of the CCR concern the use of hazardous materials in the workplace and require employee safety training, safety equipment, accident and illness prevention programs, hazardous substance exposure warnings, and emergency action and fire prevention plan preparation.

Cal/OSHA has primary responsibility for developing and enforcing workplace safety regulations in California. Because California has a federally approved OSHA program, it is required to adopt regulations that are at least as stringent as those found under Title 29 of the CFR. Cal/OSHA standards generally are more stringent than federal regulations.

Construction Stormwater General Permit

Dischargers whose project disturbs 1 or more acres of soil, or where projects disturb less than 1 acre but are part of a larger common plan of development that in total disturbs 1 or more acres, are required to obtain coverage under the National Pollutant Discharge Elimination System (NPDES) General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities (Construction General Permit; Order 2009-0009-DWQ, NPDES No. CAS000002; as amended by Orders 2010-0014-DWQ and 2012-006-DWQ). Construction activity subject to this permit includes clearing, grading, grubbing, and other disturbances to the

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ground (e.g., excavation, stockpiling) but does not include regular maintenance activities performed to restore the original line, grade, or capacity of a facility. The Construction General Permit requires development and implementation of a Stormwater Pollution Prevention Plan that includes specific best management practices (BMPs) designed to prevent sediment and pollutants from contacting stormwater from moving off-site into receiving waters. The BMPs fall into several categories, including erosion control, sediment control, waste management, and good housekeeping, and are intended to protect surface water quality by preventing the off-site migration of eroded soil and construction-related pollutants from the construction area.

California Code of Regulations Section 4216-4216.9

Section 4216-4216.9 “Protection of Underground Infrastructure” requires an excavator to contact a regional notification center (e.g., Underground Services Alert [USA] or Dig Alert) at least 2 days before excavation of any subsurface installations. Any utility provider seeking to begin a project that could damage underground infrastructure can call USA North 811, the regional notification center for northern California. USA will notify the utilities that may have buried lines within 1,000 feet of a project. Representatives of the utilities then are notified and are required to mark the specific location of their facilities within the work area before the start of project activities in the area.

Hazardous Building Materials Regulations

Numerous regulations require for demolition and renovation activities that may disturb or require the removal of materials that consist of, contain, or are coated with asbestos-containing materials, lead-based paint, or other hazardous materials be inspected and/or tested for the presence of hazardous materials. If present, the hazardous materials must be managed and disposed of in accordance with applicable laws and regulations.

The identification, removal, and disposal of asbestos-containing materials are regulated under Title 8, Division 1, Chapter 4, Article 4, Sections 1529 and 5208 of the CCR. The identification, removal, and disposal of lead-based paint are regulated under Title 8, Division 1, Chapter 4, Article 4, Section 1532.1 of the CCR. All work must be conducted by a state-certified professional, to ensure compliance with applicable regulations. If asbestos-containing materials and/or lead-based paint are determined to exist on site, a site-specific Hazard Control Plan must be prepared, detailing removal methods and specific instructions for providing protective clothing and equipment for abatement personnel. A state-certified lead-based paint and/or an asbestos-containing materials removal contractor is retained to conduct the appropriate abatement measures, as required by the Hazard Control Plan. Wastes from abatement and demolition activities are to be transported and disposed of at a landfill permitted to accept such waste and in compliance with applicable local, state, and federal laws and regulations. After abatement measures have been implemented, the contractor is to conduct a clearance examination and provide written documentation to the local Bay Area Air Quality Management District that testing and abatement have been completed in accordance with federal, state, and local laws and regulations.

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In the case of PCBs, the identification, removal, and disposal are regulated under RCRA (4 CFR 7610), Toxic Substances Control Act (15 USC 2695), and California regulations (CCR Title 22, Division 4.5, Chapter 11, Article 3, Section 66261.24). Electrical transformers and older fluorescent light ballasts not tested previously and verified to not contain PCBs must be tested. If PCBs are detected above action levels, the materials must be transported to and disposed of at a licensed facility that is permitted to accept the materials, in compliance with applicable local, state, and federal laws and regulations.

Local Policies and Regulations

Under Section 53091 of the California Government Code, local agency building and zoning ordinances do not apply to projects involving the location or construction of facilities for the production, generation, storage, treatment, or transmission of water. However, EBMUD's practice is to work with local jurisdictions and neighboring communities during project planning, and to consider local environmental protection policies for guidance.

Contra Costa Health Services Hazardous Materials Programs

The State Secretary for Environmental Protection designated Contra Costa County as the local CUPA. The CUPA has responsibility for conducting compliance inspections of facilities that handle hazardous materials, generate or treat hazardous waste, and/or operate underground storage tanks in the county. The CUPA uses education and enforcement to minimize the risk of chemical exposure to human health and the environment. The CUPA forwards important facility information to local fire prevention agencies, to take appropriate protective action in the event of an emergency at a regulated facility. To legally store and use hazardous materials above the trigger quantities, users must apply for permits and demonstrate satisfactory compliance with regulations.

Contra Costa County General Plan

The *Contra Costa County General Plan* outlines the County's goals for physical growth, conservation, and community life in the unincorporated area, and contains the policies and actions necessary to achieve those goals. The *Contra Costa County General Plan* was adopted in 1991 and has been reconsolidated twice, once for 1990 to 2005 and again for 2005 to 2020 (Contra Costa County, 2020). The following goals, policies, and measures related to hazards and hazardous materials are included as a part of the *Contra Costa County General Plan*, Safety Element:

Hazardous Materials Policy 10-61. Hazardous waste releases from both private companies and from public agencies shall be identified and eliminated.

Hazardous Materials Policy 10-62. Storage of hazardous materials and wastes shall be strictly regulated.

Hazardous Materials Policy 10-63. Secondary containment and periodic examination shall be required for all storage of toxic materials.

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Hazardous Materials Policy 10-64. Industrial facilities shall be constructed and operated in accordance with up-to-date safety and environmental protection standards.

Public Protection Services and Disaster Planning Implementation Measure 10-at.

Require projects which encroach into areas which are determined to have a high or extreme fire hazard, or which incorporate wildfire hazard areas, to be reviewed by the appropriate Fire Bureau to determine if special fire prevention measures are advisable.

Contra Costa County Emergency Operations Plan

The *Contra Costa County Emergency Operations Plan* (Contra Costa County, 2015) applies to all emergencies in unincorporated areas of Contra Costa County and which generates situations requiring planned, coordinated responses. The *Contra Costa County Emergency Operations Plan* does not provide specific evacuation routes as they would be coordinated by local law enforcement and emergency services.

Contra Costa County Hazard Mitigation Plan

The *Contra Costa County Hazard Mitigation Plan* contains goals and objectives that are intended to reduce loss of life and property from natural disasters. The hazard mitigation plan includes strategies for wildfire hazards and other natural disaster risks. The hazard mitigation plan identifies mitigation action items that aim to meet objectives and reduce the impacts of these hazards. The Contra Costa County Office of Emergency Services and Contra Costa County Department of Conservation and Development share the lead responsibility for overseeing the hazard mitigation plan implementation and maintenance strategy. The hazard mitigation plan includes removal of fuel sources, maintenance of defensible space, use of fire retardant building materials, use of fire-resistant plantings, and establishing water supplies for firefighting as best practices for reducing fire hazards.

City of Richmond General Plan

The *City of Richmond General Plan 2030* contains 15 elements addressing land use, economic development, housing, transportation, climate change, public safety, arts and culture, and open space conservation strategies. The *City of Richmond General Plan 2030* provides a comprehensive framework for developing a healthy city and healthy neighborhoods (City of Richmond, 2012). The following goals, policies, and measures related to hazards and hazardous materials are included as a part of the General Plan, Public Safety and Noise Element:

Action SN1.H. Regularly review and update regulations for the production, use, storage, disposal, transport, and treatment of hazardous materials to reduce risk to human and environmental health.

Action SN1-I. Reduce or eliminate hazardous waste generation to the maximum extent feasible through the use of effective waste strategies, including reductions in the use of hazardous substances; the use of safe substitutes; recycling; resource recovery and reuse; and onsite treatment.

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City of Richmond Emergency Operations Plan

The *City of Richmond Emergency Operations Plan* (City of Richmond, 2017) describes the concepts and structures of response and recovery operation; identifies agencies with primary and support emergency management functions; and defines emergency prevention, preparedness, response and recovery duties and responsibilities. Evacuation routes fall under the Department of Public Works.

City of San Pablo General Plan

The *San Pablo General Plan 2030* provides a vision of how San Pablo should be in the future by establishing guidelines that reflect City policies, goals, and efforts while enhancing quality of life. The *San Pablo General Plan 2030* serves as a blueprint for the future, outlines policies that guide development and conservation, and provides the basis for establishing detailed plans and implementing programs, such as development standards and specific plans (City of San Pablo, 2011). The following goals, policies, and measures related to hazards and hazardous materials are included as a part of the *San Pablo General Plan 2030*, Safety and Noise Element:

Implementing Policy SN-I-20. Require applicants for development in a potentially contaminated location to perform inspection and cleanup if the site is found to be contaminated with hazardous substances.

Implementing Policy SN-I-22. Ensure that the production, use, storage, disposal, and transport of hazardous materials conform to standards specified in the County Hazardous Waste Material Plan.

Implementing Policy SN-I-23. Coordinate with Contra Costa County Health Services, the Contra Costa County Fire District, and other appropriate regulatory agencies in hazardous materials emergency response and the review of all proposals that use hazardous materials, or those properties that may have toxic contamination, such as petroleum hydrocarbons, CAM 17, metals, asbestos, and lead.

City of San Pablo Comprehensive Emergency Management Plan

The *City of San Pablo Comprehensive Emergency Management Plan* (City of San Pablo, 2012) provides guidance for the City of San Pablo's response to extraordinary emergency situations associated with natural, man-made and technological disasters. The *City of San Pablo Comprehensive Emergency Management Plan* notes that Evacuations are primarily coordinated by the police department.

EBMUD Standard Construction Specifications

EBMUD's Standard Construction Specifications and Procedures apply to all contractors completing work for EBMUD, and to work completed by EBMUD staff. The following EBMUD practices and procedures are applicable to hazards and hazardous materials.

- **EBMUD Standard Construction Specification 01 35 24, Project Safety Requirements and Site Activities, Sections 1.3(B, F, and N), 1.4, and 3.2(F).**

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EBMUD Standard Construction Specification 01 35 24, Project Safety Requirements and Site Activities, includes safety practices and procedures to minimize harmful construction related activities, described as follows (EBMUD, 2023):

- Section 1.3(B), Project Health and Safety Plan
 - Submit a Project Health and Safety Plan for the work to be performed prior to start of the Notice to Commence Field Work (NTCFW) and/or prior to any Limited Notice to Commence Field Work (LNTCFW).
 - The Project Health and Safety Plan shall implement applicable Title 8, California Code of Regulations for the work performed.
- Section 1.3(F), Submit an Emergency Action Plan that prepares responses to employee accident/injury events, or any serious unplanned event (e.g.: utility break, fire, structure collapse, etc.) that requires any first aid provider or response agencies (e.g.: fire departments, utility agencies, rescue teams, etc.)
- Section 1.3(N), Submit USA Marking Record
 - Submit utility locate and marking number and documents, and verification of markings.
 - Make available to EBMUD the record of all subsequent utility marking events and meetings on the project.
- Section 1.4, Training and Qualifications Requirements
 - Ensure that all personnel who, as the result of work on this contract, will likely be exposed to hazardous conditions or hazardous substances at the site have received the appropriate training for the hazards they may encounter. Establish minimum training requirements and do not allow untrained workers to enter or perform work at the site.
 - Submit certification of current training and qualification for each worker engaged in work with hazardous conditions or hazardous substances.
- Section 3.2(F), Fire Prevention and Protection
 - Perform all Work in a fire safe manner and supply and maintain on the site adequate fire fighting equipment capable of extinguishing incipient fires. Comply with applicable federal, local, and state fire prevention regulations. Where these regulations do not apply, applicable parts of the National Fire Prevention Standards for Safeguarding Building Construction Operations (NFPA No. 241) shall be followed.
 - A long-handled, round-point shovel, or a fire extinguisher shall be kept at an accessible (unlocked) location on the construction site at all times.
 - Earthmoving and portable equipment with internal combustion engines shall be equipped with a spark arrestor to reduce the potential for igniting a wildfire. Such equipment shall be maintained to ensure proper functioning of spark arrestor.
 - For all work occurring between April 1 and December 1, or any other periods during which a high fire danger has been identified:

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- Equipment that could produce a spark, fire, or flame shall not be used within 10 feet of any flammable materials.
 - Portable tools powered by gasoline-fueled internal combustion engines shall not be used within 25 feet of any flammable materials.
 - Vegetation management for fire prevention and protection
 - Prior to and during construction:
 - Create and maintain a defensible space (100 feet or to EBMUD property boundary, whichever is shorter) around construction site, construction ingress and egress sites through landscaping, mowing, disking, and/or spraying dry brush or native grasses to a height of 4-inches or less.
 - Remove dead trees within 100 feet of construction site.
 - Limb up trees within 100 feet of construction site so that no leafy foliage, twigs or branches are within 5-feet of the ground. To maintain tree health, tree limbing shall not remove more than 25 percent of a tree canopy within one growing season.
 - Ensure and maintain 5-feet of vertical clearance between roof surfaces and portions of trees overhanging all structures within construction site, and keep roofs free of leaves, needles, twigs, and other combustible matter. To maintain tree health, tree limbing shall not remove more than 25 percent of a tree canopy within one growing season.
 - Keep all overhanging trees, shrubs, and other vegetation, or portions thereof, free of dead limbs, branches, and other combustible matter.
 - Neatly stack all combustible materials away from structures within construction site and have all combustible growth cleared 15-feet around the stack.
 - During construction, maintain an unobstructed horizontal clearance at access drives of not less than the required width of the access drives, and an unobstructed vertical clearance of not less than 13 feet 6 inches above all roadways.
- **EBMUD Standard Construction Specification 01 35 44, Environmental Requirements, Sections 1.1(A and B), 1.4(A, B, C, E, I, and J), and 3.4**

EBMUD's Standard Construction Specification 01 35 44, Environmental Requirements, includes practices and procedures that apply to hazards and hazardous materials, as follows (EBMUD, 2023):

 - Section 1.1(A) Work includes:
 - Comply with applicable Federal, State and Local environmental regulations in the execution of the Work.

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- Section 1.1(B) Site activities:
 - Store materials and wastes such as demolition material, soil, sand, asphalt, rubbish, paint, cement, concrete or washings thereof, oil or petroleum products, or earthen materials in a manner to prevent it from being washed by rainfall or runoff outside the construction limits.
 - Reuse or dispose of excess material consistent with all applicable legal requirements and disposal facility permits.
 - Clean up all spills and immediately notify the Engineer in the event of a spill.
 - Equip stationary equipment such as motors, pumps, and generators with drip pans.
 - Divert or otherwise control surface water and waters flowing from existing projects, structures, or surrounding areas from coming onto the work and staging areas. The method of diversions or control shall be adequate to ensure the safety of stored materials and of personnel using these areas.
 - Handle, store, apply, and dispose of any chemical or hazardous material used in the performance of the Work in a manner consistent with all applicable federal, state, and local laws and regulations.
- Section 1.4(A), Stormwater Management
 - Construction General Permit
 - Submit the Notice of Intent, Storm Water Pollution Prevention Plan (SWPPP), and all other documents prepared for compliance with the General Construction Storm Water Permit (NPDES No. CAS000002) to EBMUD and upload them in the SWRCB's Storm Water Multi-Application & Report Tracking System (SMARTS).
 - EBMUD will electronically acknowledge appropriate submittals in SMARTS after review.
 - Contractor shall pay for all registration and annual fees under this permit/program.
 - Storm Water Management Plan
 - Submit a Storm Water Management Plan that describes measures that shall be implemented to prevent the discharge of contaminated storm water runoff from the jobsite. Contaminants to be addressed include, but are not limited to soil, sediment, concrete residue, pH less than 6.5 or greater than 8.5, and any other contaminants known to exist at the jobsite location as described in Document 00 31 24 – Materials Assessment Information.
 - Local Storm Water Permits
 - Obtain any local storm water permits (e.g., city, county, etc.), submit copies, and comply with their requirements.
 - For jobs in unincorporated Alameda County that are greater than one acre, Contractor shall obtain and comply with Alameda County Public Works

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Agency's Stormwater Permit to enable the inspection of C.6 construction stormwater BMPs.

- Section 1.4(B), Water Control and Disposal Plan
 - Submit a detailed Water Control and Disposal Plan that complies with all requirements of the Specification and includes provisions for the types of discharges and permits in a through c below, if applicable to the project.
 - Drinking Water System Discharge
 - Plan shall comply with Drinking Water Systems Discharges Statewide Permit, General Order CAG140001.
 - Submit all records of actual discharges, monitoring, water quality data, and beneficial reuse described above to EBMUD.
 - Non-Stormwater Discharges
 - Plan shall describe measures for containment, handling, treatment (as necessary), and disposal of discharges such as groundwater (if encountered), runoff of water used for dust control, stockpile leachate, tank heel water, wash water, sawcut slurry, test water and construction water.
- Section 1.4(C), Waste Management
 - Prepare a Waste Management Plan and submit a copy of the plan for EBMUD's acceptance prior to start of work (except for water wastes which shall be addressed in the Water Control and Disposal Plan). The Waste Management Plan shall address all Construction and Demolition Waste, universal wastes, Hazardous Wastes, Excavation Soils, and any other solid debris intended to be removed from the project site(s).
 - Identify how the Contractor will handle, transport, dispose of, or otherwise divert each type of material required to be removed under this contract in a safe, appropriate, and lawful manner in compliance with all applicable regulations of local, state, and federal agencies having jurisdiction over the removed materials.
 - Identify materials that are not recyclable or not recovered which will be disposed of in a landfill (or other means acceptable by the State of California and local ordinance and regulations). List the permitted landfill, or other permitted disposal facilities, which will be accepting the disposed waste materials. All landfills, hazardous waste, and universal waste disposal sites shall be approved for use by EBMUD.
 - Describe planned sampling and analysis for characterizing wastes or the Sampling and Analysis Plan below in Paragraph 1.4.J.
- Section 1.4(E), Spill Prevention and Response Plan
 - Submit a plan detailing the means and methods for preventing and controlling the spilling of known hazardous substances used on the jobsite or staging areas.

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- Include a list of the hazardous substances proposed for use or generated by the Contractor on site, including petroleum products.
- Define measures that will be taken to prevent spills, monitor hazardous substances, and provide immediate response to spills.
- Include provisions for notification of EBMUD or alternate contact and appropriate agencies including phone numbers; spill-related worker, public health, and safety issues; spill control, and spill cleanup.
- Map showing hazardous materials project-related storage locations, names of the hazardous materials, and volumes/quantities.
- Submit a Safety Data Sheet for each hazardous substance proposed to be used before delivery of the material to the worksite.
- Section 1.4(I), Waste Disposal Records
 - Copies of waste management and disposal records including bills of lading, manifests, weight tickets, and receipts from waste management facilities shall be submitted to EBMUD. This provision applies to Hazardous Wastes, universal wastes, treated wood wastes, solid wastes disposed at landfills, and radioactive wastes.
 - Hazardous Waste Manifests
 - Use the “Uniform Hazardous Waste Manifest”, EPA form 8700-22. Contractor shall prepare and Engineer will review all hazardous waste manifests for acceptability prior to use.
 - Submit the “Generator’s Initial Copy” and a legible photocopy of the first page of hazardous waste manifests, land disposal restriction forms, or other documentation required by applicable regulations governing transport and disposal of Hazardous Wastes for disposal of hazardous substances within 5 days of off haul.
- Section 1.4(J), Sampling and Analysis Plan
 - Submit a project-specific Sampling and Analysis Plan (SAP) for projects including but not limited to sanitary sewer discharge samples, waste characterization samples, air samples, and site characterization involving soil, groundwater, and soil gas samples requiring laboratory analysis.
- Section 3.4, Waste Management and Disposal
 - Segregate, stage, label/mark, and properly manage waste at the jobsite in a manner that complies with applicable regulations and to facilitate proper disposal.
 - Characterize all liquid wastes, solid wastes, and other wastes prior to removing from the project site. Sampling and analysis shall adhere to the Sampling and Analysis Plan.
 - Engineer will review laboratory analysis results for EBMUD acceptance of Contractor Characterization of waste classification.

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- EBMUD will obtain a Hazardous Waste Generator's EPA ID Number if required for disposal of Hazardous Wastes and treated wood waste.
 - EBMUD will give Contractor written notice to dispose of all or a portion of the waste material at a Class I disposal site if EBMUD determines that such disposal is required based on review of Contractor's waste characterization and the analytical results of samples collected.
 - Waste materials from different sites shall not be transported or mixed until the material is determined to be non-hazardous. Unless pre-approved by EBMUD for direct hauling, excavation materials shall be stored or stockpiled at each site until classified and accepted for movement by EBMUD.
 - Transport materials and/or wastes in accordance with all local, state, and federal laws, rules, and regulations.
 - Contractor shall not assume any soil is approved for offsite reuse. Offsite reuse is only permitted with explicit approval from EBMUD after a careful review of the Contractor's proposed reuse.
- **EBMUD Standard Construction Specification 01 55 26, Traffic Regulation, Sections 1.1, 1.2, and 3.1**

EBMUD's Standard Construction Specification 01 55 26, Traffic Regulation, includes practices and procedures that apply to traffic hazards, as follows (EBMUD, 2017).

- Section 1.1, Summary
 - All proposed street closures shall be clearly identified in the Traffic Control Plan (TCP) and shall conform to the section "Traffic Control Devices" below. Construction area signs for street closure and detours shall be posted a minimum of forty-eight (48) hours prior to the commencement of street closure. Contractor shall maintain safe access around the project limit at all times. Street closures shall be limited to those locations indicated on the construction documents.
- Section 1.2, Submittals
 - Submit at least 15 calendar days prior to work a detailed Traffic Control Plan, that is approved by all agencies having jurisdiction and that conforms to all requirements of these specifications and the most recently adopted edition of the MUTCD. Traffic Control Plan shall include:
 - A description of emergency response vehicle access. If the road or area is completely blocked, preventing access by an emergency responder, a contingency plan must be included.
- Section 3.1, General
 - For complete road closures, immediate emergency access to be provided if needed to emergency response vehicles

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- **EBMUD Standard Construction Specification 02 82 13, Asbestos Control Activities, Sections 1.1, 1.5, 1.6, 3.1, and 3.2**

EBMUD Standard Construction Specification 02 82 13, Asbestos Control Activities, includes practices and procedures for removing asbestos associated with construction-related activities, described as follows (EBMUD, 2014).

- Section 1.1, Compliance and Intent
 - Furnish all labor, materials, facilities, equipment, services, employee training and testing, permits, and agreements necessary to perform the asbestos removal in accordance with these specifications and with the latest regulations from the U.S. Environmental Protection Agency (EPA), the Occupational Safety and Health Administration (OSHA), the Bay Area Air Quality Management District (BAAQMD), the Cal/EPA Department of Toxic Substance Control, the California Department of Occupational Safety and Health (DOSH), and other federal, state, county, and local agencies. Whenever there is a conflict or overlap of the above references, the most stringent provision is applicable.
 - During demolition procedures, the Contractor shall protect against contamination of soils, water, adjacent residences and properties, and the airborne release of hazardous materials and dusts. The Contractor will incur the costs associated with the implementation of controls and, if necessary, remediation. The Contractor shall be responsible for all necessary cleanup of contaminated areas/properties to pre-work condition and for all associated costs. It is the Contractor's responsibility to confirm and document the quantities of asbestos material to be removed.
 - Asbestos materials uncovered during the demolition activities shall be disposed of in an approved manner complying with all applicable federal, state, and local regulations. Appropriate waste manifests shall be furnished to EBMUD as per Sections 01 35 24 – Project Safety Requirements, and 01 35 44 – Environmental Requirements. Materials are conveyed to the Contractor "as is," without any warranty, expressed or implied, including but not limited to, any warranty to marketability or fitness for a particular purpose, or any purpose.
- Section 1.5, Submittals
 - Project Safety and Health Plan: The Contractor shall provide a Project Safety and Health Plan prior to project initiation as specified in Section 01 35 24.
 - Submit a detailed plan of the procedures proposed for use in complying with the regulations included in this specification. The plan shall include the location and layout of decontamination areas, the sequencing of asbestos work, the interface of trades involved in the performance of work, disposal plan including location of approved disposal site, and a detailed description of the methods to be employed to control pollution. Expand upon the use of portable HEPA ventilation system, method of removal to prohibit visible emissions in work area, and packaging of removed asbestos debris. Include asbestos abatement in

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the Construction and Demolition Waste Disposal Plan, in accordance with Section 01 35 44.

- Certificates of Compliance: Submit certification that equipment required to contain airborne asbestos fibers conform to ANSI Z9.2.
- Section 1.6, Submittals (Job in Progress)
 - Provide to EBMUD, within 72 hours of sampling, test results of the personal air sampling described in Article 3.2.
 - Provide to EBMUD, results of required air sampling established at property and project boundaries within 72 hours of sampling, and measures the contractor has taken to improve non-conforming outcomes based on the results.
- Section 3.1, Initial Area Isolation
 - Demarcate the demolition area and specific hazard zones where asbestos removal occurs. Post warning signs and labels as required by Cal-EPA, BAAQMD, Cal OSHA Section 1529, and additional signs and warnings as directed by EBMUD.
 - Ensure asbestos hazards remain on site for proper abatement and disposal procedures. Ensure worker activity (access and egress) does not cause asbestos hazards to leave the project boundaries.
- Section 3.2, Work Activities
 - General Procedures: Perform all asbestos related work and comply with the general safety and health provisions in conformance with Cal/OSHA Title 8 CCR Section 1529. For asbestos abatement work, use general work practices, work practices for encapsulation as specified in 34 CFR Part 231 Appendix C, applicable CAL OSHA requirements, and other appropriate work procedures approved by the Environmental Protection Agency (EPA).
 - Suppress air-borne particulates using a minimum of two misting units operated simultaneously from the following product series given below:
 - Monsoon Atomizing Misting System, Buffalo Turbine, www.buffaloturbine.com
 - Or equal as approved by EBMUD
 - Ensure air borne asbestos limits are not exceeded and are compliance with U.S. Environmental Protection Agency (EPA), the Occupational Safety and Health Administration (OSHA), the Bay Area Air Quality Management District (BAAQMD), the Cal/EPA Department of Toxic Substance Control, the California Department of Occupational Safety and Health (DOSH), and other federal, state, county, and local agencies requirements for airborne emissions.
 - Monitoring: Monitoring of airborne concentrations of asbestos shall be in accordance with Title 8CCR section 1529, and BAAQMD requirements.
 - Baseline air monitoring shall be conducted prior to demolition work and prior to asbestos related work. Base air measurements shall be established at the property boundary in the east, west, north and south coordinates.

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- If monitoring shows airborne concentrations greater than regulatory asbestos control limits, stop all work, correct the conditions causing the excessive levels, and notify EBMUD immediately.
- Conduct at a minimum one set of post-asbestos removal/demolition air monitoring established at the property boundary and in the same location of baseline monitoring in the east, west, north and south coordinates.
- **EBMUD Standard Construction Specification 02 83 13, Lead Hazard Control Activities, Sections 1.4 and 3.2**

EBMUD Standard Construction Specification 02 82 13, Lead Hazard Control Activities, includes practices and procedures for lead hazard demolition as follows (EBMUD, 2016b):

 - Section 1.4, Submittals
 - Lead Demolition Plan: Lead-containing coating handling, engineering control, removal, and disposal procedures
 - Lead-Containing Coating Demolition Work: All Contractor's supervisors and workers performing lead-containing coating work shall meet the requirements of the California Department of Health Services (DHS) lead-related construction interim certification (17 CCR 350001).
 - Section 3.2, Air Monitoring
 - The purpose of any air monitoring conducted by EBMUD will be to detect possible release of dusts (lead) emanating from the work area. This testing will be conducted independently of the air monitoring described in Section 01 35 24

EBMUD Engineering Standard Practice 514 Identifying Buried Conflicts

EBMUD Engineering Standard Practice 514 provides guidelines and minimum steps required for the investigation needed to identify existing underground utilities, and to establish a uniform approach for site reconnaissance of existing buried conflicts, including active and abandoned utilities (EBMUD, 2008).

EBMUD Procedure 711, Hazardous Waste Removal

The procedure defines hazardous waste and establishes responsibilities for removal of hazardous wastes from EBMUD facilities. Procedure 711 outlines specific steps and responsibilities for: characterizing the waste and determining what analyses are needed to classify the waste; coordinating waste disposal, re-use or recycling issues; labeling, storing, inspecting, and maintaining inventory records for the waste; and reviewing, signing, and tracking any hazardous waste handling and disposal requirements and hazardous waste manifests. (EBMUD, 2020)

3.8.3 Impact Analysis

Methodology for Analysis

Potential impacts related to hazards and hazardous materials are assessed based on a review of information concerning hazardous risk factors, conditions at the SOWTP site and along the

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Central North Aqueduct pipeline alignment, Project activities, and applicable regulations, which were used to identify potential impacts on workers, the public, or the environment.

The Project would be regulated by the various laws, regulations, and policies summarized in Section 3.8.2, Regulatory Framework. Project compliance with applicable federal, state, and local laws and regulations is assumed in the analysis, and local and state agencies would be expected to continue to enforce applicable requirements to the extent currently done.

Significance Criteria

Consistent with *Appendix G* of the *CEQA Guidelines*, a hazards and hazardous materials impact would be considered significant if the Project would:

1. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.
2. Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the likely release of hazardous materials into the environment.
3. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school.
4. Be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would create a significant hazard to the public or the environment.
5. For a project within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, the project would result in a safety hazard or excessive noise for people residing or working in the project area.
6. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.
7. Expose people or structures, either directly or indirectly, to the risk of loss, injury, or death involving wildland fires.

Criteria Requiring No Further Evaluation

Criteria listed above that are not applicable to actions associated with the Project are identified below, along with a supporting rationale as to why further consideration is unnecessary and a no-impact determination is appropriate.

- *Criterion 4: Be located on a site that is included on a list of hazardous materials sites, compiled pursuant to Government Code Section 65962.5 and as a result, would create a significant hazard to the public or the environment.*

The Project is not included on a list of hazardous materials sites (Cortese List) pursuant to Government Code Section 65962.5 (CalEPA, 2022). Therefore, no impact would occur.

- *Criterion 5: For a project located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport,*

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would the Project result in a safety hazard or excessive noise for people residing or working in the Project area.

The closest airport to the project area is the Buchanan Field Airport, approximately 12 miles to the east. Project construction would not require using any aeronautical equipment, and therefore would not interfere with the airspace of any airport. None of the Project activities would create any significant hazards for people residing or working in or near an airport. Therefore, no impact would occur.

Impacts and Mitigation Measures

Impacts HAZ-1 and HAZ-2: Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials, or to create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the likely release of hazardous materials into the environment. (Criteria 1 and 2)

Construction

During Project construction, the following hazardous substances would be used: fuels, oils and lubricants, solvents and cleaners, cements and adhesives, paints and thinners, degreasers, cement and concrete, and asphalt mixtures. Relatively small amounts of the previously listed substances, which are not considered acutely hazardous, would be transported, used, and disposed during construction. The routine use or an accidental spill of hazardous materials could result in inadvertent releases, which could adversely affect construction workers, the public, and the environment.

Workers handling hazardous materials would be required to adhere to OSHA and Cal/OSHA health and safety requirements. Hazardous materials would be transported to and from the Project area in accordance with RCRA and USDOT regulations, be managed in accordance with the Contra Costa Health Services regulations, and be disposed in accordance with RCRA and the CCR at a facility that is permitted to accept the waste. Because compliance with existing regulations and programs for transport, use, and disposal would be mandatory in accordance with law, Project construction activities are not expected to create a potentially significant hazard to the public.

As detailed in the Project Description, a number of EBMUD standard practices and procedures applicable to all EBMUD projects have been incorporated into the Project, including Standard Construction Specification 01 35 24, Project Safety Requirements, Section 1.3(B), Project Health and Safety Plan, and Section 1.4, Training and Qualifications Requirements, and Standard Construction Specification 01 35 44, Environmental Requirements, Section 1.1(A), Summary, Section 1.1(B), Site Activities, Section 1.4(A), Storm Water Management, Section 1.4(B) Water Control and Disposal Plan, Section 1.4(C) Waste Management, Section 1.4(E), Spill Prevention and Response Plan, Section 1.4(I), Waste Disposal Records, 1.4(J), Sampling and Analysis Plan, and Section 3.4, Waste Management and Disposal.

3.8 HAZARDS AND HAZARDOUS MATERIALS

Standard Construction Specification 01 35 24, Section 1.3(B), requires the contractor to prepare a Project Health and Safety Plan that addresses hazardous substances and Section 1.4 requires proper training of personnel who may be exposed to hazardous substances during construction.

Standard Construction Specification 01 35 44, Section 1.1(A), requires the construction work be compliant with all federal, state, and local environmental regulations, and Section 1.1(B), Site Activities, and Section 1.4(A), Storm Water Management, require activities on the construction site be controlled to prevent the discharge of contaminants into stormwater.

Standard Construction Specification 01 35 44, Section 1.4(B), Water Control and Disposal Plan, requires that the contractor submit a detailed Water Control and Disposal Plan that addresses removal, handling, and transport of materials to prevent contamination into receiving waters. Section 1.4(C), Waste Management, requires the contractor to remove, handle, transport, and dispose of materials in compliance with state and federal law, including analysis of suspected hazardous substances. Section 1.4(E), Spill and Prevention Response Plan, requires prevention and control of hazardous substances, including a list of the hazardous substances proposed for use or anticipated to be generated on site. Section 1.4(I), Waste Disposal Records requires use of the “Uniform Hazardous Waste Manifest,” EPA form 8700-22 and Section 1.4(J) would require characterization of all waste. Section 3.4, Waste Management and Disposal requires transport of hazardous wastes to a facility approved to accept hazardous waste.

Because EBMUD would comply with state and federal regulations and would implement Standard Construction Specifications 01 35 24, Project Safety Requirements, Section 1.3(B), Project Health and Safety Plan, and Section 1.4, Training and Qualifications Requirements, and Standard Construction Specification 01 35 44, Environmental Requirements, Section 1.1(A), Summary, Section 1.1(B), Site Activities, Section 1.4(A), Storm Water Management, Section 1.4(B), Water Control and Disposal Plan, Section 1.4(C), Waste Management, Section 1.4(E), Spill Prevention and Response Plan, Section 1.4(I), Waste Disposal Records, Section 1.4(J), Sampling and Analysis Plan, and Section 3.4, Waste Management and Disposal, the impacts associated with the routine transport, use, or disposal of hazardous materials or through reasonably foreseeable upset, accident conditions involving the release of hazardous materials would be less than significant. The EBMUD Practices and Procedures Monitoring and Reporting Plan (Appendix C) lists the applicable standard specifications language.

Excavation Activities

Project construction would involve excavation in areas at the SOWTP site that could contain pesticides and potentially fuel from a prior UST as discussed in Section 3.8.1. Construction of the Central North Aqueduct pipeline would involve excavation in roads where unknown contaminants associated with other infrastructure within the roadways could be present. Subsurface high-priority utilities could be damaged inadvertently during excavation activities for the Central North Aqueduct pipeline, depending on the location of the other utilities. The rupture of a high-pressure gas pipeline could result in a release of flammable liquids or gases. Contact with buried electrical utilities could cause electrocution or shock. Such damage to utilities could fatally injure construction workers, damage equipment, and ignite fires.

3.8 HAZARDS AND HAZARDOUS MATERIALS

As detailed in the Project Description, a number of EBMUD standard practices and procedures applicable to all EBMUD projects have been incorporated into the Project, including Standard Construction Specification 01 35 24, Project Safety Requirements Section 1.3(F), Emergency Action Plan and Section 1.3(N), Submit USA Marking Record, which require emergency response to inadvertent rupture of a utility line, and marking of utilities prior to construction to avoid contact with buried utilities. Standard Construction Specification 01 35 44, Section 1.4(C), Waste Management and Section 1.4(J), Sampling and Analysis Plan, which requires characterization and proper disposal of all waste, including excavated materials. EBMUD Engineering Standard Practice 514 also requires investigation to identify existing underground utilities and to establish an approach for site reconnaissance of buried utility conflicts including marking of any gas pipelines.

Because EBMUD would implement Standard Construction Specification 01 35 24, Project Safety Requirements, Section 1.3(F), Emergency Action Plan, and Section 1.3(N), Submit USA Marking Record, Section 01 35 44, Environmental Requirements Section 1.4(C), Waste Management, and Section 1.4(J), Sampling and Analysis Plan, and Engineering Standard Practice 514, the Project would avoid rupture of a utility line and would provide proper characterization and disposal of excavated soils, including trench spoils. The resulting impact from disposal of hazardous materials and release of hazardous materials from reasonably foreseeable upset and accident conditions would be less than significant. The EBMUD Practices and Procedures Monitoring and Reporting Plan (Appendix C) lists the applicable standard specifications language and standard practices.

Asbestos Containing Materials and Lead-Based Paint

Implementation of the Project would include demolition of existing structures, as described in Section 2.6.1, Project Description, including the pumping plant facilities west of Valley View Road, which contains asbestos-containing materials on the pipeline gaskets and lead-based paint on the pump equipment.

As detailed in the Project Description, several EBMUD standard practices and procedures, applicable to all EBMUD projects, would be incorporated into the Project, including Standard Construction Specification 02 82 13, Section 1.1, Compliance and Intent, Section 1.5, Submittals, Section 1.6, Submittals (Job in Progress), Section 3.1, Initial Area Isolation, Section 3.2, Work Activities, and Standard Construction Specification 02 83 13, Lead Hazard Control Activities, Section 1.4, Submittals, and Section 3.2, Air Monitoring. Standard Construction Specification 02 82 13, Asbestos Control Activities, requires that the contractor submit a detailed plan of procedures to address asbestos-containing materials. The plan would include the location and layout of decontamination areas, the sequencing of asbestos work, the interface of trades involved in the performance of work, a disposal plan including the location of the approved disposal site, a detailed description of the methods to be employed to control pollution, a description of the use of a portable high efficiency particulate air filter (HEPA) ventilation system, a method of removal to prohibit visible emissions in the work area (including suppressing air-borne particulates using a minimum of two misting units operated simultaneously), packaging of removed asbestos debris, as well as complying with Cal/OSHA

3.8 HAZARDS AND HAZARDOUS MATERIALS

Title 8 CCR Section 1529. Standard Construction Specification 02 83 13, Lead Hazard Control Activities, requires the contractor to prepare a Lead Demolition Plan, detailing handling, engineering control, removal, and disposal procedures for lead-containing materials and requires air quality monitoring during demolition activities.

Because Standard Construction Specification 02 82 13, Asbestos Control Activities, and 02 82 13, Lead Hazard Control Activities, have been incorporated into the Project, and include specific procedures be implemented before demolition of any infrastructure containing asbestos or lead, and because the demolition contract would need to comply with state and federal regulations, the impact from release of asbestos-containing materials or lead-based paint would be less than significant. The EBMUD Practices and Procedures Monitoring and Reporting Plan (Appendix C) lists the applicable standard specifications language.

Operations

Solvents, cleaners, or other chemicals may be used during Project maintenance for cleaning equipment or to prevent corrosion but would be used in very small quantities. Project operations would require use of the same chemicals currently used at the SOWTP for operations, although in revised quantities because of the increased amount of water treated. Because the Project would construct a consolidated maintenance building, the solvents, cleaners, or other chemicals used at the site would be stored in the consolidated maintenance building instead of the current disperse storage throughout the SOWTP site. Potentially hazardous materials would be used, stored, and transported to the SOWTP site during Project operation in compliance with federal, state, and local regulations for transport, storage, use, and disposal of hazardous materials.

As detailed in the Project Description, a number of EBMUD standard practices and procedures applicable to all EBMUD projects have been incorporated into the Project, including Procedure 711, Hazardous Waste Removal, which would require classification of waste and proper disposal of any hazardous waste generated at the site. Because Project operation would include implementation of Procedure 711, the potential to 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 would be less than significant.

Significance Determination before Mitigation

Less than significant.

Mitigation Measures

None required.

3.8 HAZARDS AND HAZARDOUS MATERIALS

Impact HAZ-3: The project has the potential to emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school. (*Criterion 3*)

Construction

No schools are within 0.25 mile of the SOWTP site. Seven schools are within 0.25 mile of the Central North Aqueduct pipeline. Additional schools are located along the construction transportation routes. As described under Impact HAZ-1 and HAZ-2, Project construction activities would involve handling and transport of hazardous materials, substances, and waste and excavation in roadways where there is a risk of rupture of a gas pipeline.

As detailed in the Project Description, a number of EBMUD standard practices and procedures applicable to all EBMUD projects have been incorporated into the Project, including Standard Construction Specification 01 35 44, Environmental Requirements, Section 1.4(C), Waste Management; and Section 1.4(E), Spill Prevention and Response Plan; and Standard Construction Specification 01 35 24, Project Safety Requirements, Section 1.3(B), Project Health and Safety Plan, Section 1.3(F), Submit an Emergency Action Plan, and Section 1.3(N), Submit USA Marking Record. Standard construction specifications 01 35 44, Environmental Requirements, and 01 35 24, Project Safety Requirements, stipulate that the construction contractor prepare and adhere to waste disposal, spill prevention, health and safety, and emergency action plans that outline procedures to ensure the safe and lawful handling of hazardous materials and well as emergency response to inadvertent rupture of a utility line and marking of utilities prior to construction to avoid contact with buried utilities.

Because construction would be in accordance with Standard Construction Specification 01 35 44, Environmental Requirements, Section 1.4(C) and Section 1.4(E), and Standard Construction Specification 01 35 24, Project Safety Requirements, Section 1.3(B), Section 1.3(F), and Section 1.3(N), which define procedures for proper handling, containment, and disposal of hazardous materials, the impact associated from handling hazardous materials or emissions of hazardous materials within 0.25 mile of a school would be less than significant. The EBMUD Practices and Procedures Monitoring and Reporting Plan (Appendix C) lists the applicable standard specifications language.

Operations

No schools are within 0.25 mile of the SOWTP, and thus the Project would not emit hazardous emissions within 0.25 mile of an existing or proposed school during project operations. Project operation would involve transport of hazardous materials along roads adjacent to schools. Project operation would require small volumes of hazardous materials similar to the existing SOWTP operations, and hazardous material transport would be conducted in compliance with state and federal law. Because transport of hazardous materials would comply with state and federal law, the impact from hazardous material transport within 0.25 mile of a school would be less than significant.

Significance Determination before Mitigation

Less than significant.

3.8 HAZARDS AND HAZARDOUS MATERIALS

Mitigation Measures

None required.

Impact HAZ-4: The project has the potential to impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan. (Criterion 6)

Construction

Project construction at the SOWTP site would not require any full roadway closures. Project construction would increase the amount of traffic using local roadways throughout the duration of construction. There would be direct access to the SOWTP site from Amend Road during Phase 1 and 2 construction and along D Avila Way during demolition. Worker vehicles and haul trucks required for Project construction would not affect emergency evacuation because the vehicles would not block vehicle travel.

The Central North Aqueduct pipeline would be located within roads in Contra Costa County, the city of Richmond, and the city of San Pablo which have developed emergency operations and response plans (Contra Costa County, 2015; City of Richmond, 2017; City of San Pablo, 2012). However, none of the emergency operations and response plans define evacuation routes. Evacuation routes in the Project area are anticipated to be coordinated by local law enforcement and emergency services. Construction of the Central North Aqueduct pipeline in public roadways would require the closure of at least one travel lane, depending on roadway width and the size of the pipeline and trench. Complete roadway closures to through traffic may be required on La Honda Road, D Avila Way, Glenlock Street, Rollingwood Drive, El Portal Drive from I-80 to Glenlock Street, and Road 20 from San Pablo Avenue to 21st Street, where the entire roadway width may be required for pipeline construction. Roadway closure could impact emergency evacuation if an emergency occurred in the Project area at the time of the roadway closure.

As described in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, would be incorporated into the Project, including Standard Construction Specification 01 55 26, Traffic Regulation, Section 1.1, Summary, and Section 1.2, Submittals, which require a Traffic Control Plan, including marked detour routes where detours are needed, and Section 3.1, General, requires immediate emergency access for emergency response vehicles.

Because EBMUD would implement Standard Construction Specification 01 55 26, Traffic Regulation, which requires a Traffic Control Plan, detailing procedures for maintaining access during an emergency and providing immediate emergency access for emergency response vehicles, the impact on emergency response and evacuation would be less than significant. The EBMUD Practices and Procedures Monitoring and Reporting Plan (Appendix C) lists the applicable standard specifications language.

3.8 HAZARDS AND HAZARDOUS MATERIALS

Operations

The Project would not include any permanent physical changes in the roadways surrounding the SOWTP site and would not impede emergency evacuation. During Project operation, emergency response and evacuation would be able to occur along the roadways surrounding the SOWTP site in the same way as under existing conditions. Maintenance along the Central North Aqueduct pipeline could require temporary closure of a road or lane depending on the work required but would be limited to the location of maintenance work and would be for a short duration during maintenance activities. As described in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, would be incorporated into the Project, including Standard Construction Specification 01 55 26, Traffic Regulation, Sections 1.1, Summary, and 1.2, Submittals, which would require a Traffic Control Plan, including marked detour routes where detours are needed, and Section 3.1, General, requires emergency access be provided for complete road closures. Because EBMUD Standard Construction Specification 01 55 26, Traffic Regulation, specifies procedures for emergency response and emergency access, the impact on emergency response and evacuation would be less than significant. The EBMUD Practices and Procedures Monitoring and Reporting Plan (Appendix C) lists the applicable standard specifications language.

Significance Determination before Mitigation

Less than significant.

Mitigation Measures

None required.

Impact HAZ-5: Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires. (*Criterion 7*)

Construction

The Project is not within a VHFHSZ, however, a VHFHSZ is located approximately 1,000 feet north of the SOWTP site (Cal Fire, 2023).

Generally, land uses surrounding the SOWTP include suburban development in the cities of Richmond, Kensington, and El Cerrito to the north and west. The SOWTP is within a mile of large open space that could be susceptible to wildfires including Sobrante Ridge Regional Park to the northeast, Kennedy Grove Regional Recreation Area to the east, and Wildcat Canyon Regional Park to the south. The proposed Central North Aqueduct pipeline is located within existing paved roadways surrounded by urban and suburban development.

Due to the proximity of open space adjacent to urban development, the Project is located in an area known as a Wildland Urban Interface (WUI), a region where fires, once started, have the potential to rapidly expand to the point where they are difficult to control and threaten adjacent human lives and structures. There are numerous structures located within 1,000 feet of the SOWTP and the Central North Aqueduct pipeline. Structures located in proximity to the SOWTP include De Anza High School (1,200 feet west) and numerous suburban properties abutting the SOWTP facility on Amend Road, Valley View Road, Fascination Circle, and

3.8 HAZARDS AND HAZARDOUS MATERIALS

Spanish Trails Road. Structures in proximity to the Central North Aqueduct pipeline include numerous residential and commercial buildings and Helms Middle School located along the roads abutting the Central North Aqueduct pipeline.

On-site fire risk would temporarily increase during construction due to the presence of construction workers and equipment working in proximity to dry vegetation. Overland vehicle and equipment access, parking on dry vegetation, or sparks created by construction equipment could ignite a wildfire that, if uncontrolled, could threaten people and structures.

Construction contractors are required to comply with fire prevention measures identified in California Public Resource Code Sections 4428-4442 and California Fire Code, Article 80. Compliance with the existing fire prevention regulations would reduce the risk of ignition of wildland fires. In addition, as detailed in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, have been incorporated into the Project, including EBMUD Standard Construction Specification 01 35 24, Project Safety Requirements and Site Activities, Section 1.3(F), which requires the contractor to submit an Emergency Action Plan, and Section 3.2(F), which outlines fire prevention measures including maintenance of a 100 feet of defensible space around work sites, restrictions around use of equipment that produce spark or flame, and requirements for fire extinguishers in the construction area.

Because the Project would comply with applicable state fire prevention measures and would implement EBMUD Standard Construction Specification 01 35 24, Project Safety Requirements and Site Activities, Sections 1.3(F), and 3.2(F), which dictates project safety requirements, outlines fire prevention measures and requires an Emergency Action Plan, the Project would not expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires during construction and the impact would be less than significant. The EBMUD Practices and Procedures Monitoring and Reporting Plan (Appendix C) lists the applicable standard specifications language.

Operation and Maintenance

Existing operations and maintenance activities at the SOWTP must adhere to the existing Emergency Action Plan and Fire Prevention Plan, as required by Cal/OSHA. These plans require specific maintenance and inspection activities for fire prevention. The site-specific Emergency Action Plan and Fire Prevention Plan would be updated after the completion of the Project to address potential conflicts or data gaps based on the new site conditions. Long-term site maintenance would continue to be conducted by staff already on-site, such as vegetation management to reduce fuel load around the buildings. The trees and landscaping that would be installed at the site would be native and adapted to fire. In addition, trees that are in poor health and a fire risk would no longer be on the site. Fire risk at the SOWTP site would be comparable to the existing operations. The Central North Aqueduct pipeline would be buried beneath paved roadways and would not create or increase any fire risk.

3.8 HAZARDS AND HAZARDOUS MATERIALS

Furthermore, it should be noted that the Richmond Fire Station #63 is located immediately adjacent to SOWTP so response times to wildfire(s) on or near the SOWTP site are assumed to be quick and efficient, which further reduces the potential spread of wildfire.

With adherence to the site-specific Emergency Action Plan and Fire Prevention Plan, the Project would not expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires during operations and maintenance and impacts would be less than significant.

Significance Determination before Mitigation

Less than significant.

Mitigation Measures

None required.

3.8.4 Cumulative Impact Analysis

The geographic scope of the analysis for cumulative hazards and hazardous materials impacts is limited to the Project area and the immediately adjacent area that would experience construction activity by cumulative projects at the same time as the Project. Impacts related to hazards and hazardous materials generally would be site-specific and depend on the nature and extent of the hazard or hazardous materials released, and existing and future soil and groundwater conditions. For example, hazardous materials incidents would tend to be limited to small, localized areas surrounding the immediate spill location and extent of the release and would be cumulative only if two or more hazardous materials releases spatially and temporally overlapped or if adjacent or nearby roadway closures overlapped temporally and affected emergency response or evacuation.

A significant cumulative impact related to hazards and hazardous material would occur if the incremental impacts of the Project combined with that of a cumulative project to substantially increase risk that people or the environment would be exposed to hazards and hazardous materials. A significant cumulative impact could also occur if the Project exasperated risks of wildland fires in a manner that exposes people or structures, either directly or indirectly, to a significant risk of loss, injury or death.

As described above, the Project would have no impact with respect to being located on a site that is included on a list of hazardous materials sites or within 2 miles of a public or private airstrip. Accordingly, the Project would not contribute to cumulative impacts related to these topics.

Cumulative Impacts during Project Construction

Three cumulative projects are proposed near or adjacent to the Project, Central Pressure Zone Pipeline, Wildcat Pumping Plant, and the San Pablo Dam Road upgrades. Two cumulative projects, Central Pressure Zone Pipeline and Wildcat Pumping Plant, are EBMUD projects that would be subject to EBMUD standard practices and procedures. Because of the regulatory

3.8 HAZARDS AND HAZARDOUS MATERIALS

requirements, cumulative projects involving releases of or encountering hazardous materials would all be required to remediate any releases of hazardous materials. The release of hazardous materials would need to be remediated by each project regardless of the number, frequency, or size of the release(s), or the residual amount of chemicals present in the soil from previous spills. Although the Project and cumulative projects possibly could release hazardous materials in the same area, the responsible party associated with each spill would be required to remediate site conditions to the same established regulatory standards. The potential residual effects of the Project that would remain after compliance with regulatory requirements would not combine with the potential residual effects of cumulative projects to cause a significant cumulative impact, because the releases would be cleaned up to the same regulatory standard. Therefore, no substantial cumulative impact with respect to the use or release of hazardous materials resulting in a less-than-significant contribution to a cumulative impact with respect to hazards and hazardous materials during construction would occur.

As with the Project, cumulative projects, including Central Pressure Zone Pipeline, Wildcat Pumping Plant, I-80 San Pablo Dam Road Interchange Improvements, and San Pablo Dam Road and Bailey Road Signal Improvements could require temporary lane closures that could interfere with emergency evacuation. However, none of the reasonably foreseeable probably future projects would result in temporary lane or road closures at the same time as the Project because the Central North Aqueduct pipeline construction would occur after the probably future project construction has been completed. Therefore, not cumulative impact on emergency access would occur.

The Project is not located in an area designated as VHFHSZ and none of the cumulative projects that would be built at the same time as the Project are located within VHFHSZ or within the WUI. On-site fire risk would temporarily increase during construction due to the presence of construction workers and equipment working in proximity to dry vegetation. Construction contractors for any future cumulative projects proposed in the VHFHSZ or WUI would similarly be required to comply with fire prevention measures identified in California Public Resource Code Sections 4428-4442 and California Fire Code, Article 80. Compliance with the existing fire prevention regulations would reduce the risk of ignition of wildland fires. Therefore, the Project would have a less-than-significant contribution to a cumulative impact with respect to wildland fires.

Cumulative Impacts during Project Operations

Project operations would require use and transport of a small volume of hazardous materials. Hazardous materials would be used in the same capacity as they are used during current operations and all hazardous materials would be properly stored at the site in compliance with state and federal regulations. No cumulative projects would introduce a permanent source of hazardous materials in vicinity to the Project where it could be released into the environment. Therefore, Project operations would not contribute to cumulative impacts related to hazardous materials.

3.8 HAZARDS AND HAZARDOUS MATERIALS

Project maintenance of the Central North Aqueduct pipeline has the potential to cause temporary road or lane closures. The operational road or lane closures would be isolated to the location of the maintenance work and would be of short duration. The maintenance activities would not interfere cumulatively with an adopted emergency response plan or emergency evacuation plan.

Operations and maintenance activities at the SOWTP would adhere to the Emergency Action Plan and Fire Prevention Plan, as required by Cal/OSHA. These plans require specific maintenance and inspection activities for fire prevention. Fire risk at the SOWTP site would be comparable to the existing operations. The Central North Aqueduct pipeline would not create a fire risk. The operations and maintenance activities would not cumulatively increase the risk of wildland fires.

3.8.5 References

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3.8 HAZARDS AND HAZARDOUS MATERIALS

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3.8 HAZARDS AND HAZARDOUS MATERIALS

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3.9 Hydrology and Water Quality

This section describes the physical, environmental, and regulatory setting for hydrology and water quality resources in the Project area and vicinity, identifies the significance criteria used for determining environmental impacts, and evaluates potential impacts on hydrology and water quality resources that could result from implementation of the Project.

3.9.1 Environmental Setting

Regional Hydrology

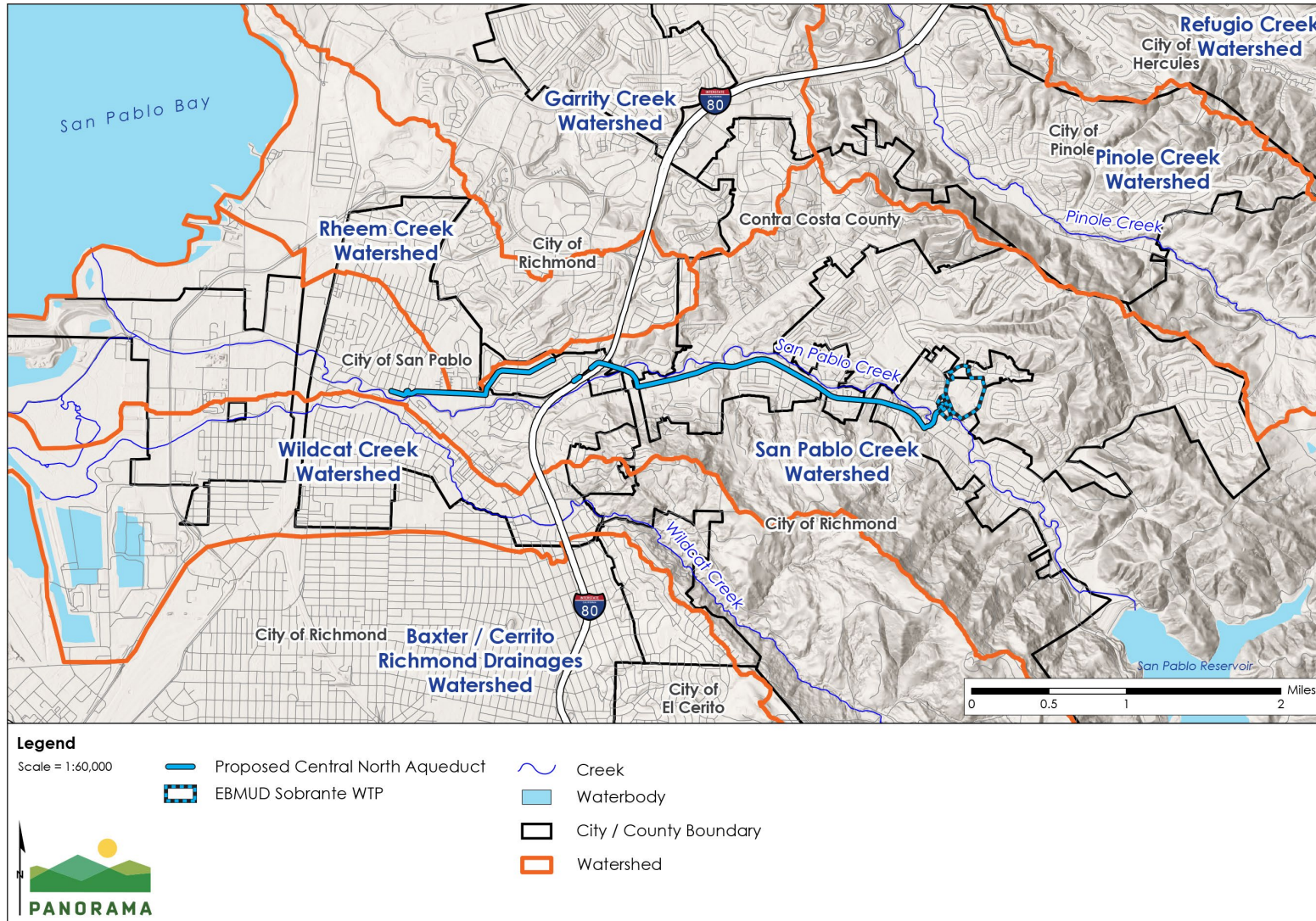
The Project is located within the San Pablo Creek watershed (Figure 3.9-1). The San Pablo Creek watershed encompasses approximately 42.28 square miles (CDFW 2013). Elevations in the San Pablo Creek watershed range from sea level at San Pablo Bay to 1,900 feet in the headwater areas (CDFW 2013). Major water bodies in the San Pablo Creek watershed include San Pablo Creek, Cascade Creek, Lauterwasser Creek, Bear Creek, Castro Creek, Siesta Valley Creek, Wilkie Creek, Lake Cascade, San Pablo Reservoir, and Briones Reservoir. EBMUD owns approximately 7,900 acres of protected watershed land within the San Pablo Reservoir and watershed, including areas in Siesta Valley and Gateway (EBMUD 2018a).

Local Drainage

The Project area drains toward San Pablo Creek. San Pablo Creek originates at Moraga Creek, flows northwest along the eastern edge of the Oakland Hills to San Pablo Reservoir, and ultimately discharges to San Pablo Bay west of the Project area. The majority of the SOWTP site is on a terrace that slopes moderately to steeply to the southwest. The southwest portion of the SOWTP site, at the existing reclaim pumping plant west of Valley View Road, is adjacent to San Pablo Creek. Stormwater and urban runoff from areas north of the SOWTP discharge to the SOWTP site via a culvert under Amend Road. The stormwater runoff then drains west and parallel to Amend Road and south overland along the western perimeter of the site toward San Pablo Creek. The Central North Aqueduct pipeline alignment crosses San Pablo Creek at D Avila Way and El Portal Drive, and the pipeline alignment is parallel to San Pablo Creek from the intersection of D Avila Way and San Pablo Dam Road to the western terminus of the Central North Aqueduct pipeline on Road 20 (Figure 3.9-2).

3.9 HYDROLOGY AND WATER QUALITY

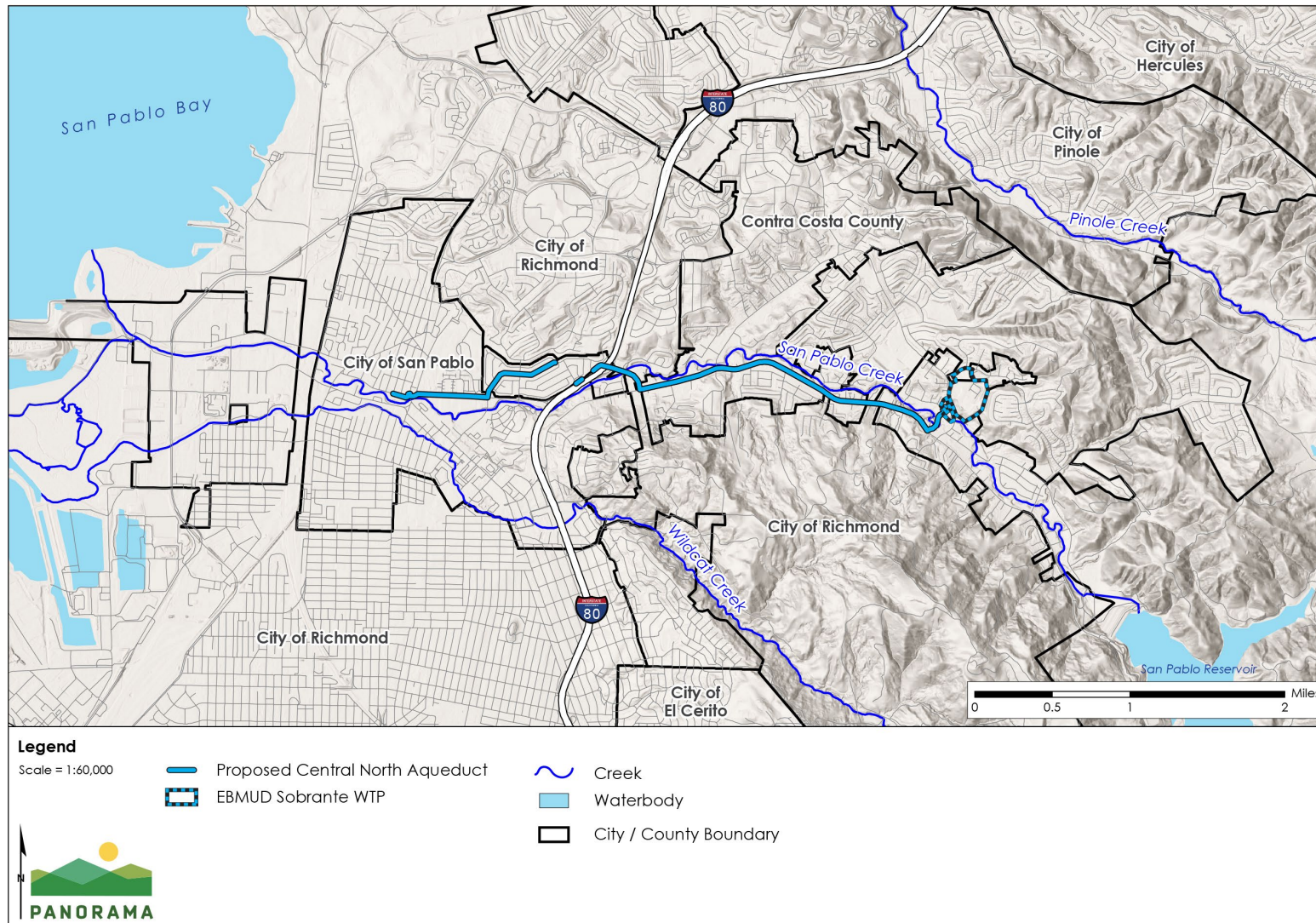
Figure 3.9-1 Regional Watersheds



Source: (USGS, 2012; ESRI, 2011; Contra Costa County Department of Information Technology, 2017; Contra Costa County Community Development Department and Contra Costa County Public Works Department, 2003)

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Figure 3.9-2 Regional Creeks and Water Bodies



Source: (USGS, 2012; ESRI, 2011; Contra Costa County Department of Information Technology, 2017; Bay Area Open Space Council, 2011; U.S. Geological Survey, 2020; Bay Area Aquatic Resources Inventory (BAARI), 2017; WTP Improvements Group Design Division, 2021)

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Groundwater

The SOWTP site does not overlie a groundwater basin. The Santa Clara Valley–East Bay Plain Groundwater Basin (California Department of Water Resources [DWR] Basin Number 2-009.04) is 0.25 mile south of the SOWTP site and underlies the Central North Aqueduct pipeline alignment from the intersection of D Avila Way and San Pablo Dam Road to the western terminus of the alignment on Road 20 (Figure 3.9-3). The Santa Clara Valley–East Bay Plain Groundwater Basin is identified as a medium-priority basin (DWR 2020). EBMUD is the groundwater sustainability agency with regulatory and management responsibilities for the Santa Clara Valley–East Bay Plain Groundwater Basin. EBMUD prepared the Groundwater Sustainability Plan for the Santa Clara Valley–East Bay Plain Groundwater Basin in 2022 (EBMUD 2022), and DWR approved the Groundwater Sustainability Plan on July 27, 2023 (DWR 2023b). The sustainable yield of the East Bay Plain subbasin is 12,500 acre-feet per year (EBMUD 2022).

Flood Hazards

The Federal Emergency Management Agency (FEMA) has developed the Risk Mapping, Assessment, and Planning (Risk MAP) program to identify flood hazard areas, assess flood risks, provide accurate data to support the National Flood Insurance Program, guide floodplain management, and inform planning decisions (FEMA 2023). The SOWTP site and the surrounding community are not in a flood-prone area, as identified by FEMA's Risk MAP program. San Pablo Creek has been designated as a 100-year flood zone by FEMA (Figure 3.9-4), which means that the area has a 1 percent annual chance of flooding/inundation (FEMA 2023). Portions of the Central North Aqueduct pipeline alignment are within the San Pablo Creek 100-year flood zone.

Dam Failure

A dam failure is an uncontrolled release of water from a reservoir through a dam or outlet works because of structural failures or deficiencies in the dam. The closest large dam and reservoir under the jurisdiction of the California Division of Safety of Dams (DSOD) with a defined dam failure inundation zone is the San Pablo Reservoir, which is 2 miles east of the SOWTP site and Central North Aqueduct pipeline at the closest point. Based on the hypothetical dam breach modeling and flood map that were developed by EBMUD for submittal to DSOD (EBMUD 2020), the SOWTP site east of Valley View Road would not be inundated by a failure of San Pablo Dam. The portion of the SOWTP site west of Valley View Road and adjacent to D Avila Way as well as the entirety of the Central North Aqueduct pipeline alignment would be inundated by failure of San Pablo Dam (Figure 3.9-5 and Figure 3.9-6). All dams and reservoirs under DSOD's jurisdiction are required to have dam breach and flooding maps on file, for planning purposes only. The maps do not indicate that the dam is at risk of failure.

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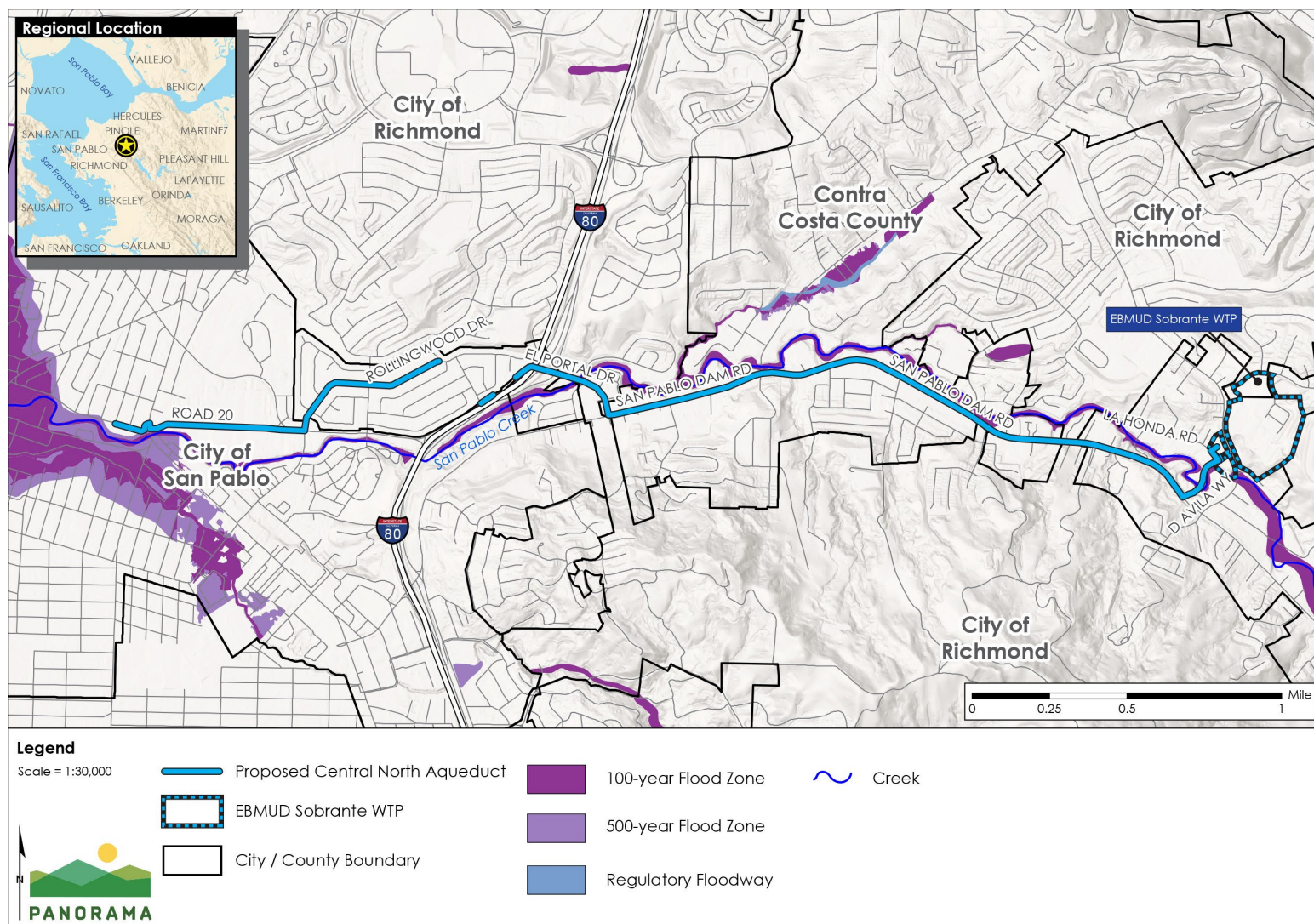
Figure 3.9-3 Groundwater Basin



Source: (USGS, 2012; ESRI, 2011; Contra Costa County Department of Information Texhnology, 2017; California Department of Water Resources, 2021)

3.9 HYDROLOGY AND WATER QUALITY

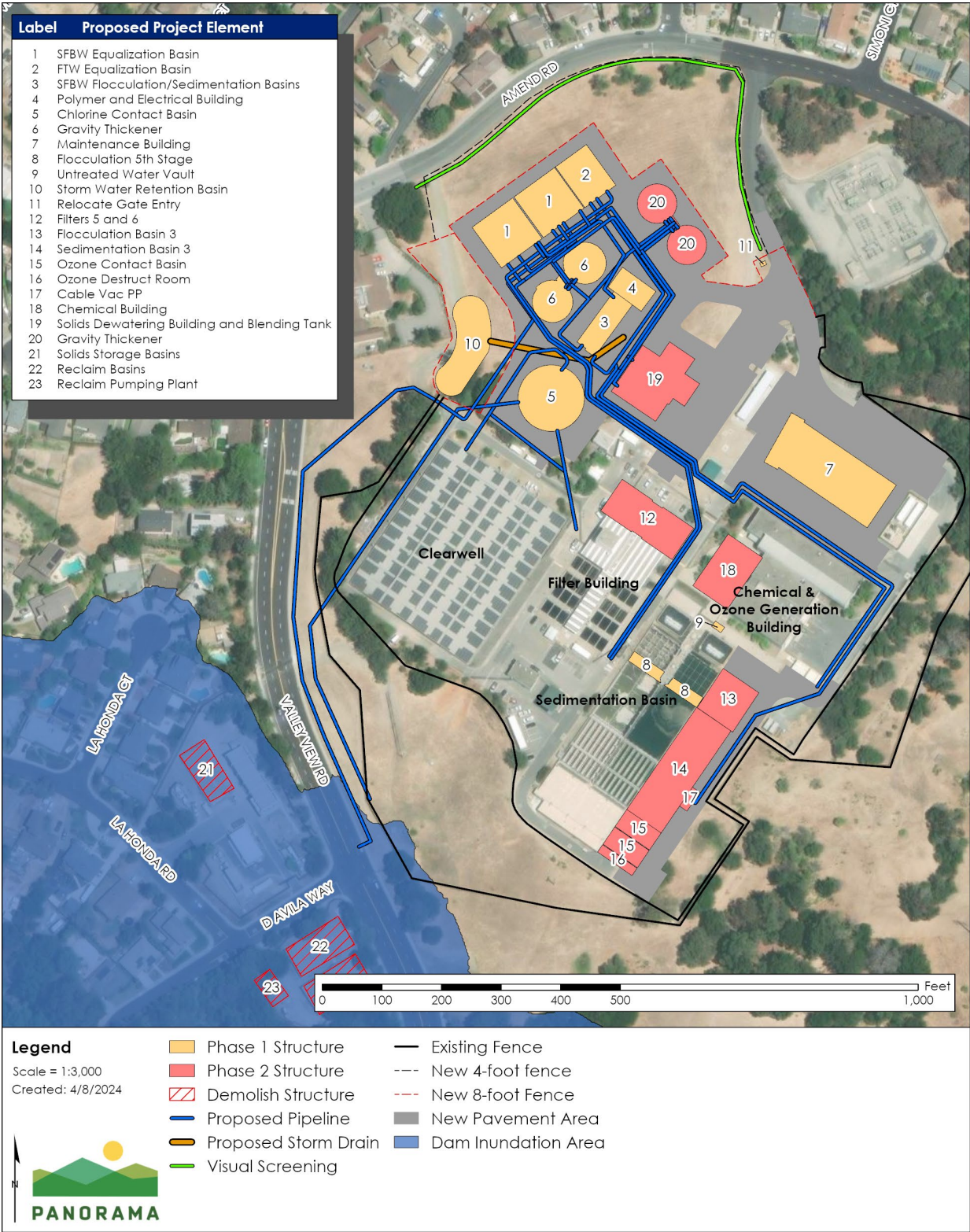
Figure 3.9-4 FEMA Floodplains



Source: (Maxar, 2021; Federal Emergency Management Agency, 2021; WTP Improvements Group Design Division, 2021; San Francisco Estuary Institute and Science Center, 2017; Contra Costa County Department of Information Technology, 2017)

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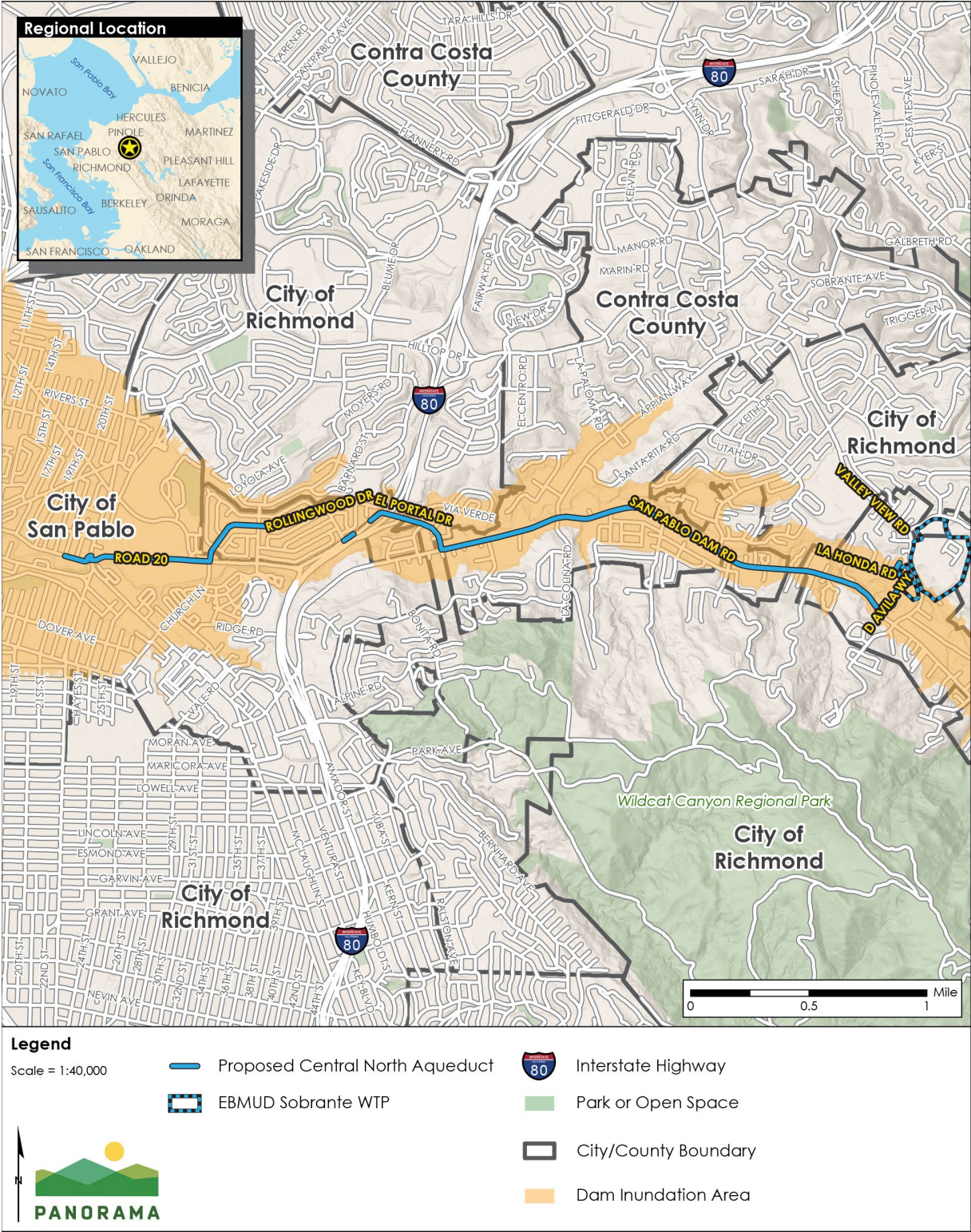
Figure 3.9-5 San Pablo Dam Inundation Area at the SOWTP



Source: (Maxar, 2021; WTP Improvements Group Design Division, 2021; Contra Costa County Department of Information Technology, 2017; Department of Water Resources (DWR), Division of Safety of Dams (DSOD), 2023)

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Figure 3.9-6 San Pablo Dam Inundation Area at the Central North Aqueduct Pipeline



Source: (U.S. Geological Survey, 2020; ESRI, 2011; Bay Area Open Space Council, 2011; Bay Area Open Space Council, 2011; Bay Area Open Space Council, 2017; Contra Costa County Department of Information Technology, 2017; Department of Water Resources (DWR), Division of Safety of Dams (DSOD), 2023)

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Tsunami and Seiche

A tsunami is a series of large ocean waves that are generated either by large submarine earthquakes generating significant upward movement of the sea floor, or by landslides within or falling into the ocean. Tsunamis affecting the San Francisco Bay Area would originate west of the San Francisco Bay in the Pacific Ocean. The SOWTP site is approximately 4 miles from the San Francisco Bay and the Central North Aqueduct pipeline is 1 to 4 miles from the San Francisco Bay. Neither the SOWTP site nor the Central North Aqueduct pipeline are within a tsunami inundation area, as mapped by the California Department of Conservation (CalOES, CalGEM, AECOM, University of Southern California 2021).

Seiches are waves developed in fully enclosed water bodies, resulting from either wind or seismic activity, causing a standing wave to bounce back and forth across the water. The Project area is not immediately adjacent to a water body, and thus is not susceptible to danger from seiches.

3.9.2 Regulatory Framework

Federal Regulations

Clean Water Act

Under the Clean Water Act (CWA) of 1977, the U.S. Environmental Protection Agency (EPA) seeks to restore and maintain the chemical, physical, and biological integrity of the nation's waters by implementing water quality regulations. Multiple sections of the CWA apply to activities near or within surface or groundwater.

Section 402(p) of the CWA regulates discharges to surface waters through the National Pollutant Discharge Elimination System (NPDES) program, a nationwide surface water discharge permit program for municipal and industrial point sources. In California, NPDES permitting authority is delegated to and administered by the nine Regional Water Quality Control Boards (RWQCBs). Under Section 402, the San Francisco Bay RWQCB has set standard conditions for each permittee in the San Francisco Bay Area, including effluent limitation and monitoring programs. In addition to their responsibility to issue and enforce compliance with NPDES permits, the RWQCBs are responsible for preparation and revision of the relevant regional Water Quality Control Plan (described further under State Regulations).

Section 303(d) of the CWA requires that each state identify water bodies or segments of water bodies that are "impaired" (i.e., do not meet one or more of the water quality standards established by the state, even after point sources of pollution have been equipped with the minimum required levels of pollution control technology). EPA must approve the Section 303(d) List of Impaired Water Bodies before it is considered final. Inclusion of a water body on the Section 303(d) List of Impaired Water Bodies triggers development of a Total Maximum Daily Load (TMDL) for that water body and a plan to control the associated pollutant/stressor on the list. The TMDL is the maximum amount of a pollutant/stressor that a water body can assimilate and still meet the water quality standards. Typically, a TMDL is the sum of the allowable loads of a single pollutant from all contributing point and nonpoint sources. The

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Basin Plan is amended to legally establish the TMDL, and to specify regulatory compliance, including specification of waste load allocations for entities that have permitted discharges.

The San Francisco Bay Basin Water Quality Control Plan (Basin Plan) identifies beneficial use categories of local water bodies within the San Francisco Bay Basin (San Francisco Bay RWQCB 2023). The Basin Plan lists beneficial uses of San Pablo Creek and its tributaries that include cold freshwater habitat, fish migration, fish spawning, freshwater replenishment, preservation of rare and endangered species, warm freshwater habitat, wildlife habitat, water contact recreation, and non-contact water recreation.

The State Water Resources Control Board (SWRCB) lists San Pablo Creek as a Category 4a impaired water body for diazinon (an insecticide) from urban run-off/storm drains and trash (SWRCB 2022). After a water body is placed on the Section 303(d) List of Impaired Water Bodies, it remains on the list until a TMDL is adopted and the water quality standards are attained, or until sufficient data demonstrate that the water quality standards have been met and delisting should take place.

National Pollutant Discharge and Elimination System Program

The NPDES permit program is administered in California by the SWRCB and RWQCBs under the authority of EPA, to control water pollution by regulating point sources that discharge pollutants into waters of the U.S. If discharges from industrial, municipal, and other facilities go directly to surface waters, those project applicants must obtain permits. An individual NPDES permit is tailored to a specific discharge to waters of the U.S. A general NPDES permit covers multiple facilities within a specific activity category, such as construction activities, and applies with the same or similar conditions to all dischargers covered under the general NPDES permit. The Project would be covered under the general permits implemented by the State, as described later in this section.

Federal Antidegradation Policy

The federal Antidegradation Policy, established in 1968 under Section 303 of the CWA, is designed to protect existing uses, water quality, and national water resources. Implementation of antidegradation by the states is based on a set of procedures to be followed when evaluating activities that may impact the quality of the waters of the U.S. Antidegradation implementation is an integral component of a comprehensive approach to protecting and enhancing water quality of both surface water and groundwater.

National Flood Insurance Program

FEMA determines flood elevations and floodplain boundaries based on U.S. Army Corps of Engineers studies. FEMA also distributes the Flood Insurance Rate Maps (FIRMs) used in the National Flood Insurance Program. FIRMs identify the locations of special flood hazard areas, including 100-year floodplains. Portions of the Central North Aqueduct pipeline are located in a FIRM flood hazard area (FEMA 2009).

Federal regulations governing development in a floodplain are set forth in Title 44, Part 60 of the CFR which enable FEMA to require municipalities participating in the National Flood

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Insurance Program to adopt certain flood hazard reduction standards for construction and development in 100-year floodplains. These standards are described below under Local Regulations.

State Regulations

Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act (Porter-Cologne Act) provides the basis for water quality regulation in California and assigns primary responsibility for protection and enhancement of water quality to the SWRCB and the nine RWQCBs. Under the Porter-Cologne Act, the SWRCB and RWQCBs also have the responsibilities of granting CWA NPDES permits and Waste Discharge Requirements (WDRs) for certain point-source and nonpoint discharges to waters. The Porter-Cologne Act allows the SWRCB to adopt statewide Water Quality Control Plans and Basin Plans, which serve as the legal, technical, and programmatic basis of water quality regulation statewide or for a particular region. The Water Quality Control Plans limit impacts on water quality from various sources.

San Francisco Bay Water Quality Control Plan (Basin Plan)

The San Francisco Bay waters are under the jurisdiction of the San Francisco Bay RWQCB, which has established regulatory standards and objectives for water quality in the San Francisco Bay in the Basin Plan (San Francisco Bay RWQCB 2023). The Basin Plan identifies existing and potential beneficial uses for surface water and groundwater and provides numerical and narrative water quality objectives that have been designed to protect those uses. Preparation and adoption of water quality control plans are required by the California Water Code (Section 13240) and are supported by the federal CWA. Because beneficial uses, together with their corresponding water quality objectives, can be defined pursuant to federal regulations as water quality standards, the Basin Plan is a regulatory reference for meeting the State and federal requirements for water quality control. Adoption or revision of surface water standards is subject to the approval of EPA. Existing beneficial uses for water bodies in the Project area are listed above. After a water body is placed on the Section 303(d) List of Impaired Water Bodies, it remains on the list until a TMDL is adopted and the water quality standards are attained, or until sufficient data demonstrate that water quality standards have been met and delisting should take place.

Dewatering General Permit

The SWRCB has issued General WDRs under Order No. R8-2003-0061, NPDES No. CAG 998001 (Dewatering General Permit) governing non-stormwater construction-related discharges from activities such as dewatering, water line testing, and sprinkler system testing. The discharge requirements include provisions mandating notification, testing, and reporting of dewatering and testing-related discharges. The General WDRs authorize such construction-related discharges, as long as all conditions of the permit are fulfilled. The Dewatering General Permit would apply to the Project if groundwater is encountered during construction that requires dewatering.

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Construction General Permit

The NPDES General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities (Order 2022-0057-DWQ, NPDES No. CAS000002, Construction General Permit) regulates discharges of pollutants in stormwater associated with construction activity to waters of the U.S. from construction sites that disturb 1 or more acres of land surface, or that are part of a common plan of development or sale that disturbs more than 1 acre of land surface. The Construction General Permit regulates stormwater discharges associated with construction or demolition activities, such as clearing and excavation; construction of buildings; and linear underground projects, including installation of water pipelines and other utility lines.

The Construction General Permit requires development and implementation of a Stormwater Pollution Prevention Plan (SWPPP) that includes specific best management practices (BMPs), designed to prevent pollutants from contacting stormwater and keep all products of erosion from moving off-site into receiving waters. The BMPs are intended to protect surface water quality by preventing off-site migration of eroded soil and construction-related pollutants from the construction area. Routine inspection of all BMPs is required under the provisions of the Construction General Permit. In addition, the SWPPP is required to contain a visual monitoring program, a chemical monitoring program for non-visible pollutants, and a sediment monitoring plan if the site discharges directly to a water body listed on the Section 303(d) list for sediment. EBMUD's General Construction Specifications include specific provisions for development of an SWPPP, as described further below under Local Regulations.

Water Conservation Act/Senate Bill X7-7

The Water Conservation Act of 2009, also referred to as Senate Bill X7-7, requires water suppliers to increase their water use efficiency (DWR 2023a). Consistent with the Water Conservation Act, EBMUD has developed a comprehensive approach to water conservation through its Water Conservation Strategic Plan (2021), which identifies a range of strategies to address water demand reduction targets, implement water savings measures, including distribution loss accounting, and plan for future conservation and drought response in an urban environment.

Local Regulations

Under Section 53091 of the California Government Code, EBMUD, as a local agency and utility district, is not subject to building and land use zoning ordinances for projects involving facilities for the production, generation, storage, treatment, or transmission of water. However, EBMUD's practice is to work with local jurisdictions and neighboring communities during project planning and consider local environmental protection policies for guidance.

Contra Costa County General Plan

The *Contra Costa County General Plan* outlines the County's goals for physical growth, conservation, and community life in unincorporated Contra Costa County and contains the policies and actions necessary to achieve those goals (Contra Costa County 2020). The following goals, policies, and measures related to hydrology and water quality are included as a part of the *Contra Costa County General Plan* Public Facilities/Services and Conservation elements:

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Water Service Policy 7-16. Water service systems shall be required to meet regulatory standards for water delivery, water storage and emergency water supplies.

Water Service Policy 7-22. Water service agencies shall be encouraged to meet all regulatory standards for water quality prior to approval of any new connections to that agency.

Drainage and Flood Control Policy 7-44. New development should be required to finance its legal share of the full costs of drainage improvements necessary to accommodate projected peak flows due to the project. Reimbursement from subsequent developments which benefit from the added capacity may be provided.

Drainage and Flood Control Policy 7-45. On-site water control shall be required of major new developments so that no significant increase in peak flows occurs compared to the site's pre-development condition, unless the Planning Agency determines that off-site measures can be employed which are equally effective in preventing adverse downstream impacts expected from the development or the project is implementing an adopted drainage plan.

Drainage and Flood Control Policy 7-56. All residential and non-residential uses proposed in areas of special flood hazards, as shown on FEMA maps, shall conform to the requirements of County Floodplain management applied to all ordinances, approved entitlements (land use permits, tentative, final, and parcel maps, development plan permits, and variances) and ministerial permits (buildings and grading permits).

General Water Resources Policy 8-75. Preserve and enhance the quality of surface and groundwater resources.

Policy for New Development Along Natural Watercourses 8-91. Grading, filling, and construction activity near watercourses shall be conducted in such a manner as to minimize impacts from increased runoff, erosion, sedimentation, biochemical degradation, or thermal pollution.

City of Richmond General Plan

The *City of Richmond General Plan 2030* contains 15 elements addressing land use, economic development, housing, transportation, climate change, public safety, arts and culture, and open space conservation strategies. The *City of Richmond General Plan 2030* provides a comprehensive framework for developing a healthy city and healthy neighborhoods (City of Richmond 2012). The following goals, policies, and measures related to hydrology and water quality are included as a part of the *City of Richmond General Plan*, Conservation Natural Resources and Open Space element:

Goal CN3 Improved Water Quality – Policy CN3.1: Stormwater Management. Develop strategies to promote stormwater management techniques that minimize surface water

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runoff in public and private developments. Utilize low-impact techniques to best manage stormwater through conservation, on-site filtration and water recycling.

Goal CN3 Improved Water Quality – Policy CN3.2: Water Quality. Work with public and private property owners to reduce stormwater runoff in urban areas to protect water quality in creeks, marshlands and water bodies and the bays. Promote the use of sustainable and green infrastructure design, construction and maintenance techniques on public and private lands to protect natural resources. Incorporate integrated watershed management techniques to improve surface water and groundwater quality, protect habitat and improve public health by coordinating infrastructure and neighborhood planning and establishing best practices for reducing non-point runoff.

Goal CN3 Improved Water Quality – Policy CN3.4: Water Conservation. Promote water conservation. Encourage residents, public facilities, businesses, and industry to conserve water especially during drought years. Work with EBMUD to advance water recycling programs including using treated wastewater to irrigate parks, golf courses, and roadway landscaping and by encouraging rainwater catchment and graywater usage techniques in buildings.

City of San Pablo General Plan

The *San Pablo General Plan 2030* provides a vision of how San Pablo should be in the future by establishing guidelines that reflect City policies, goals, and efforts while enhancing quality of life. The *San Pablo General Plan 2030* serves as a blueprint for the future, outlines policies that guide development and conservation, and provides the basis for establishing detailed plans and implementing programs, such as development standards and specific plans (City of San Pablo 2011). The following goals, policies, and measures related to hydrology and water quality are included as a part of the *City of San Pablo General Plan*, Parks, Schools, Community Facilities and Utilities element:

Implementing Policy PSCU-I-23 Water Supply and Conservation. Coordinate with EBMUD to provide an adequate and clean water supply. The City will work with EBMUD to update and support compliance with the District's Water Supply Management Program.

Wastewater and Stormwater Policy PSCU-I-32. Maintain master storm drain system maps that identify locations where easements should be reserved for eventual installation of pipes and structures to ensure appropriate storm drainage management.

Municipal Regional Stormwater Permit C.3 Provisions for New Development and Redevelopment

The CWA regulates stormwater run-off pollution through the NPDES stormwater program. Under rules promulgated by EPA, Municipal Separate Storm Sewer Systems (MS4) operators permitted under NPDES are required to have stormwater management programs. In November 2015, the San Francisco Bay and Central Valley RWQCBs included the C.3 provision in their MS4 NPDES permits. In 2023, the Contra Costa County Clean Water Program adopted the third

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re-issuance of the Municipal Regional Stormwater Permit (MRP) (San Francisco Bay RWQCB 2023). The requirements of the amended MRP are contained in the Stormwater C.3 Guidebook, eighth edition (Contra Costa Clean Water Program 2022).

EBMUD Hazardous Materials Business Plan

In accordance with community right-to-know laws, because EBMUD is a business that handles specified quantities of chemicals at its water treatment facilities, EBMUD has prepared and submitted the Hazardous Materials Business Plan (HMBP) for the SOWTP. An HMBP allows local agencies to plan appropriately for chemical release, fire, or another incident. The HMBP includes the following:

- An inventory of hazardous materials with specific quantity data, storage or containment descriptions, ingredients of mixtures, and physical and health hazard information
- Site and facility layouts that must be coded for chemical storage areas and others facility safety information
- Emergency response procedures for a release or threatened release of hazardous materials
- Procedures for immediate notification of releases to the administering agency
- Evacuation plans and procedures for the facility
- Descriptions of employee training in evacuation and safety procedures in the event of a release or threatened release of hazardous materials, consistent with employee responsibilities, and proof of implementing, such training on an annual basis
- Identification of local emergency medical assistance, appropriate for potential hazardous materials incidents

Under the Certified Unified Program Agencies regulations, the Contra Costa County Health Services Department is responsible for implementing the HMBP requirements at the SOWTP.

EBMUD Standard Construction Specifications

EBMUD's Standard Construction Specifications and Procedures apply to all contractors who are completing work for EBMUD, and to work completed by EBMUD staff. The following EBMUD practices and procedures are applicable to hydrology and water quality.

- **EBMUD Standard Construction Specification 01 35 44, Environmental Requirements, Sections 1.1(B), 1.4(A, B, and E), and 3.2.**

EBMUD' Standard Construction Specification 01 35 44, Environmental Requirements, sets forth the contract requirements for environmental compliance to which construction crews must adhere, including provisions for protection water quality during construction, as follows (EBMUD 2023a):

- Section 1.1(B), Site Activities
 - Protect storm drains and surface waters from impacts of project activity.
 - Store materials and wastes such as demolition material, soil, sand, asphalt, rubbish, paint, cement, concrete or washings thereof, oil or petroleum products,

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- or earthen materials in a manner to prevent it from being washed by rainfall or runoff outside the construction limits.
- Reuse or dispose of excess material consistent with all applicable legal requirements and disposal facility permits.
 - Clean up all spills and immediately notify EBMUD in the event of a spill.
 - Equip stationary equipment such as motors, pumps, and generators with drip pans.
 - Divert or otherwise control surface water and waters flowing from existing projects, structures, or surrounding areas from coming onto the work and staging areas. The method of diversions or control shall be adequate to ensure the safety of stored materials and of personnel using these areas.
 - Following completion of Work, remove ditches, dikes, or other ground alterations made by the Contractor. The ground surfaces shall be returned to their former condition, or as near as practicable, in EBMUD's opinion.
 - Prevent visible dust emissions from leaving the work area.
 - Maintain construction equipment in good operating condition to reduce emissions.
 - Handle, store, apply, and dispose of any chemical or hazardous material used in the performance of the Work in a manner consistent with all applicable federal, state, and local laws and regulations.
- Section 1.4(A), Stormwater Management
 - Submit the Notice of Intent, Storm Water Pollution Prevention Plan (SWPPP), and all other documents prepared for compliance with the General Construction Storm Water Permit (NPDES No. CAS000002) to EBMUD and upload them in the SWRCB's Storm Water Multi-Application & Report Tracking System (SMARTS).
 - EBMUD will electronically acknowledge appropriate submittals in SMARTS after review.
 - Contractor shall pay for all registration and annual fees under this permit/program
 - Submit a Storm Water Management Plan that describes measures that shall be implemented to prevent the discharge of contaminated storm water runoff from the jobsite. Contaminants to be addressed include, but are not limited to soil, sediment, concrete residue, pH less than 6.5 or greater than 8.5, and any other contaminants known to exist at the jobsite location as described in Document 00 31 24 – Materials Assessment Information.
 - Section 1.4(B), Water Control and Disposal Plan
 - Submit a detailed Water Control and Disposal Plan that complies with all requirements of the Specification and includes provisions for the types of discharges and permits in a through c below, if applicable to the project.
 - Drinking Water System Discharges

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- Plan shall comply with Drinking Water Systems Discharges Statewide Permit, General Order CAG140001.
- Submit all records of actual discharges, monitoring, water quality data, and beneficial reuse described above to EBMUD.
- Non-Stormwater Discharges
 - Plan shall describe measures for containment, handling, treatment (as necessary), and disposal of discharges such as groundwater (if encountered), runoff of water used for dust control, stockpile leachate, tank heel water, wash water, sawcut slurry, test water and construction water.
- Section 1.4(E), Spill Prevention and Response Plan
 - Submit plan detailing the means and methods for preventing and controlling the spilling of known hazardous substances used on the jobsite or staging areas.
 - Include a list of the hazardous substances proposed for use or generated by the Contractor on site, including petroleum products.
 - Define measures that will be taken to prevent spills, monitor hazardous substances, and provide immediate response to spills.
 - Include provisions for notification of EBMUD or alternate contact and appropriate agencies including phone numbers; spill-related worker, public health, and safety issues; spill control, and spill cleanup.
 - Map showing hazardous materials project-related storage locations, names of the hazardous materials, and volumes/quantities.
 - Submit a Safety Data Sheet (SDS) for each hazardous substance proposed to be used prior to delivery of the material to the jobsite.
- Section 3.2, Stormwater
 - Conduct all inspections, sampling, reporting, and other required provisions in the SWPPP.
 - Upload all necessary documents to SMARTS to comply with the Construction General Permit.
 - Follow all provisions in local storm water permits and/or rules during construction.
 - Maintain sufficient best management practices or other controls as outlined in the storm water management plan to prevent impacts to storm water from pollution including soil, dust, stored hazardous materials, and construction activities.
- **EBMUD's Standard Construction Specification 01 74 05, Cleaning, Section 3.1(B)**
EBMUD Standard Construction Specification 01 74 05, Cleaning, sets forth the contract requirements for cleaning of job sites, including provisions for protection water quality during construction, as follows (EBMUD 2015):

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- Section 3.1(B), Cleaning
 - Conduct cleaning and disposal operations to comply with local ordinances and anti pollution laws. Do not burn or bury rubbish and waste materials on project site. Do not dispose of volatile wastes such as mineral spirits, oil, or paint thinner in storm or sanitary drains. Do not dispose of wastes into streams or waterways.
- **EBMUD's Standard Construction Specification 32 92 19.16, Hydraulic Seeding**

EBMUD' Standard Construction Specification 32 92 19.16, Hydraulic Seeding, sets forth the contract requirements for environmental compliance to which construction crews must adhere, including hydraulic seeding, as follows (EBMUD 2016):

 - Defines requirements for hydroseeding of areas disturbed during construction. The Standard Construction Specification includes a seed mix composition for pure live seed, requirements for inoculant sources, fertilizer, mulch, and application rates for hydroseeding.

3.9.3 Impact Analysis

Methodology for Analysis

Potential impacts to hydrology and water quality have been assessed based on the Project's level of physical impacts on hydrology and water quality resources in the Project vicinity. Information for the assessment of impacts on hydrology and water quality resources is based on available data from site-specific plans, water quality protection measures required by the SWRCB and the San Francisco Bay RWQCB, and additional guidance provided in local plans and regulations, related to hydrology and water quality resources.

Significance Criteria

Consistent with *Appendix G* of the State *CEQA Guidelines*, an impact on hydrology and water quality resources would be considered significant if the Project would:

1. Violate any water quality standards or waste discharge requirements, or otherwise substantially degrade surface or groundwater quality.
2. Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the Project may impede sustainable groundwater management of the basin.
3. 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;
 - b. Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site;

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- c. Create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or
 - d. Impede or redirect flood flows.
- 4. In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation.
- 5. Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.

Impacts and Mitigation Measures

Impact HYD-1: Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality. (*Criterion 1*)

Construction

Project construction would involve grading, excavation, stockpiling, and other soil-disturbing activities at the SOWTP site during both Phase 1 and Phase 2. Phase 1 construction would require excavating approximately 69,000 cubic yards (CY) of material and importing approximately 19,000 CY of fill material. Phase 2 would require excavating approximately 43,000 CY of material and importing approximately 11,000 CY of fill material. Excavated materials would be stored temporarily on site before being hauled off-site for disposal or reuse. Construction activities involving soil disturbance adjacent to or near creeks or storm drains could result in increased erosion and sedimentation, particularly for construction activities such as stockpiling during the rainy season. Groundwater dewatering during construction also could result in the release of sediment if the pumped groundwater is turbid. Project construction also would involve the use and transport of typical construction-related hazardous materials, such as fuels, lubricants, adhesives, and solvents, that could adversely affect water quality if spilled or stored improperly. These general construction activities could result in pollutants being mobilized and transported off-site by stormwater run-off (nonpoint-source pollution), potentially degrading the water quality of San Pablo Creek downgradient from the SOWTP site.

Central North Aqueduct pipeline construction during Phase 2 would require excavating approximately 60,000 CY of material from the pipeline trench. Trench soils would be removed daily throughout Central North Aqueduct pipeline construction, and the trench soils would not create a risk of increased erosion or sedimentation.

Because the Project construction would disturb more than 1 acre, coverage under the Construction General Permit and development of an SWPPP would be required. The SWPPP would describe BMPs to control or minimize pollutants from entering stormwater and address both grading/erosion control in compliance with the Construction General Permit.

As detailed in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, have been incorporated into the Project, including EBMUD's Standard Construction Specification 01 35 44, Environmental Requirements. EBMUD Standard Construction Specification 01 35 44, Section 1.1(B), Site Activities, requires that activities on

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construction sites be controlled to prevent discharge of contaminated stormwater. The contractor would be required to manage materials on site (including demolition material and stockpiles), so that it could not be washed off-site by stormwater. Construction areas would be required to be graded or have BMPs (e.g., erosion control, sediment control, waste management, and good housekeeping measures) implemented to contain surface runoff, to minimize the potential for contaminated stormwater to be transported off-site.

EBMUD Standard Construction Specification 01 35 44 Section 1.4(A), Storm Water Management, requires that a SWPPP be developed and BMPs implemented in accordance with the Construction General Permit, to control sediment and other potential contaminants in stormwater discharges from the Project area. The SWPPP would be reviewed and approved by EBMUD before the start of construction and requires the contractor to control discharge of soil, sediment, and concrete residue as well as control pH and chlorine residual of any discharges.

EBMUD Standard Construction Specification 01 35 44 Section 1.4(B), Water Control and Disposal Plan, requires that the contractor provide a detailed water control and disposal plan and maintain proper control of the discharge at the discharge point to prevent erosion, scouring of bank, nuisance, contamination, and excess sedimentation into receiving waters.

EBMUD Standard Construction Specification 01 35 44, Section 1.4(E), Spill Prevention and Response Plan, requires the contractor to submit a plan for preventing and controlling the spilling of known hazardous substances used on the worksite or in the staging area, to protect downstream environmental resources from any accidental spills of diesel fuel during mobile fueling of on-site equipment as well as any leaks or spills from construction equipment.

EBMUD Standard Construction Specification 01 35 44, Section 3.2, Stormwater, requires the contractor to conduct inspections in compliance with the SWPPP and maintain water quality control BMPs consistent with the stormwater management plan and SWPPP requirements to prevent water quality impacts from sediment and hazardous materials.

EBMUD Standard Construction Specification 01 74 05, Cleaning, Section 3.1(B) requires that the contractor properly dispose wastes in accordance with local ordinances and anti-pollution laws that prohibit wastes from being disposed into streams or waterways. Compliance with this specification would minimize the potential for improper and illegal disposal practices during any project stage, for protection of downstream environmental resources.

Because the Project would comply with the requirements of the Construction General Permit, and EBMUD would implement Standard Construction Specification 01 35 44, Environmental Requirements, Section 1.1(B), Section 1.4(A), Section 1.4(B), Section 1.4(E), and Section 3.2, and EBMUD Standard Construction Specification 01 74 05, Cleaning, Section 3.1(B) which requires stormwater controls and ensures that contaminants would not drain toward receiving waters, Project construction activities would not violate water quality standards or waste discharge requirements, or otherwise substantially degrade water quality resulting in a less than significant impact. The EBMUD Practices and Procedures Monitoring and Reporting Plan (Appendix C) lists the applicable standard specifications language.

3.9 HYDROLOGY AND WATER QUALITY

Operation

The new facilities at the SOWTP would increase the impervious surface area by approximately 5 acres, which could result in additional stormwater runoff to San Pablo Creek or the on-site stormwater systems. Stormwater runoff would be a potentially significant impact if polluted water enters San Pablo Creek or another water body. New Project components would include construction of a stormwater retention basin to capture and treat the increased stormwater runoff. The stormwater retention basin would be approximately 9,000 square feet and would include a soil layer to support vegetation and infiltration, a gravel layer to dissipate and drain excess water, and polyvinyl chloride (PVC) piping to convey water to an existing storm drainage pipeline, as described in the Project Description. The stormwater facilities would be designed to meet the requirements of the Contra Costa County MRP. Stormwater generated from the new impervious areas would be directed to the stormwater retention basin. Treatment and flow controls would be put in place to ensure that runoff from the new facilities would not degrade or erode receiving waters after runoff leaves the site.

Following Project construction, the potential for substantial runoff or erosion at the SOWTP site would be minimized because erosion control/site stabilization measures would reduce the risk of flooding. As detailed in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, have been incorporated into the Project, including EBMUD's Standard Construction Specification 32 92 19.16, Hydraulic Seeding, which requires that exposed soils within temporary areas be hydroseeded on completion of construction, to prevent erosion of topsoil. In addition, because the Project would include construction of a stormwater retention basin, the impact on hydrology and water quality resources from runoff on new impervious surfaces would be less than significant. The Central North Aqueduct pipeline area would be repaved to match existing conditions, and the buried pipeline would not present an operational impact on water quality.

Ongoing operation and maintenance at the SOWTP require the use, transport, and storage of hazardous materials, which if improperly stored or handled, could result in contamination of runoff and impact downstream water quality. As required by law, EBMUD would continue to maintain an HMBP for the water treatment facilities, which would include a hazardous materials inventory listing chemicals stored and used at the site (EBMUD 2017). Project operation and maintenance activities would adhere to the required HMBP and comply with applicable State and federal requirements regulating the storage and routine handling and transport of hazardous materials. Therefore, the risk of operation and maintenance activities exposing the environment to hazardous materials would be low. The impact would be less than significant.

Because EBMUD would implement Standard Construction Specification 32 92 19.16, Hydraulic Seeding, and because erosion control/site stabilization measures and the new stormwater retention basin at the SOWTP would enhance drainage, sediment would be controlled during operation. Operation and maintenance activities also would adhere to the required HMBP and comply with applicable State and federal requirements regulating the storage and routine handling and transport of hazardous materials. Therefore, the risk of operation and

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maintenance activities triggering a violation of water quality standards or waste discharge requirements, or otherwise substantially degrading water quality, would be low resulting in a less than significant impact. The EBMUD Practices and Procedures Monitoring and Reporting Plan (Appendix C) lists the applicable standard specifications language.

Significance Determination before Mitigation

Less than significant.

Mitigation Measures

None required.

Impact HYD-2: Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin. (*Criterion 2*)

Construction

Construction dewatering would be required throughout the mass excavation stage at the SOWTP site to create a dry work area in any areas where groundwater is encountered. The results of the geotechnical investigation at the site indicate that groundwater is anticipated to be encountered in deep excavations during Phase 1 construction (Terra Engineers, Inc 2023). Construction dewatering also could be required during Central North Aqueduct construction, to maintain a dry work area along the open trench and at the jack and bore pits adjacent to San Pablo Creek. Dewatering of open excavations, when necessary, would involve pumping water from the excavated area and discharging it to a storm drain. Dewatered groundwater would be treated in accordance with State and federal regulations before discharge to the storm drain. Because the SOWTP site does not overlie any groundwater basin, the dewatering of shallow groundwater would not affect sustainable groundwater management because the shallow groundwater at the site would not be used as a source of municipal drinking water or other beneficial use. Dewatering activities, if needed along the Central North Aqueduct, would be limited to as-needed pumping, would be temporary, and would not substantially affect local groundwater levels so that a net deficit in volume or lowering of the local groundwater table would occur. Furthermore, any impact on groundwater during construction would be confined to the vicinity of the excavation. Groundwater levels would return to pre-Project conditions after construction is completed. The impact would be less than significant.

Operation

As noted above, the new facilities would increase the impervious surface area at the SOWTP site by approximately 5 acres. The addition of impervious surfaces could interfere with groundwater recharge by reducing the amount of runoff that could percolate to a groundwater aquifer. Improvements at the SOWTP site would include a stormwater retention basin. The stormwater outflow pipe within the retention basin is set at an elevation where stormwater would be retained initially during rain events, and the retention basin would treat and control stormwater runoff and encourage recharge of groundwater. The stormwater retention basin would also include vegetation with plantings that would allow infiltration of stormwater. In addition, the SOWTP site is not over any mapped groundwater basin (DWR 2019), and Project

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operation would not require the use of groundwater supplies. The Central North Aqueduct pipeline would be beneath existing paved roadways and would not affect groundwater recharge or groundwater supplies. EBMUD has developed a groundwater sustainability plan and is tasked with sustainable groundwater management for the basin underlying the Central North Aqueduct pipeline. The Project would not conflict with EBMUD's ongoing implementation of the Groundwater Sustainability Plan. Thus, Project operation would not substantially decrease groundwater supplies or interfere substantially with groundwater recharge so that the project could impede sustainable groundwater management of the basin.

Because the Project would not require groundwater supplies, and because new stormwater facilities would allow for infiltration, Project operation would not substantially decrease groundwater supplies or interfere with groundwater recharge so that the Project could impede sustainable groundwater management and the resulting impact would be less than significant.

Significance Determination before Mitigation

Less than significant.

Mitigation Measure

None Required.

Impact HYD-3: 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. (*Criterion 3a*)

Construction

Although the Project area drains toward San Pablo Creek, Project construction would not occur within San Pablo Creek and would not affect its flow. Grading the SOWTP site would result in minor alteration of the drainage patterns. As discussed under Impact HYD-1, Phase 1 and Phase 2 construction at the SOWTP site would involve ground disturbance and excavation that could cause erosion and sedimentation on and off-site. Construction of the Central North Aqueduct pipeline during Phase 2 would occur within roadways and would cross beneath San Pablo Creek, so it would not affect drainage patterns or affect erosion or siltation.

Because the Project construction would disturb more than 1 acre, coverage under the Construction General Permit and development of a SWPPP would be required. The SWPPP would describe BMPs to control or minimize pollutants from entering stormwater and would address both grading/erosion control in compliance with the Construction General Permit.

As detailed in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, have been incorporated into the Project, including EBMUD's Standard Construction Specification 01 35 44, Environmental Requirements. EBMUD Standard Construction Specification 01 35 44, Section 1.1(B), Site Activities, requires that activities on work sites be controlled to prevent discharge of contaminated stormwater. The contractor would be required to manage materials on site (including demolition material and stockpiles),

3.9 HYDROLOGY AND WATER QUALITY

so that they could not be washed off-site by stormwater. Construction areas would be required to be graded or have BMPs (e.g., erosion control, sediment control, waste management, and good housekeeping measures) implemented to contain surface runoff, which would minimize the potential for erosion or siltation on or off-site.

EBMUD Standard Construction Specification 01 35 44, Section 1.4(A), Stormwater Management requires that a SWPPP be developed and BMPs implemented in accordance with the Construction General Permit, to control sediment and other potential contaminants in stormwater discharges from the Project area. The SWPPP would be reviewed and approved by EBMUD before the start of construction and requires the contractor to control discharge of soil and sediment. EBMUD Standard Construction Specification 01 35 44, Section 3.2, Stormwater Management, requirements inspection and maintenance of BMPs in compliance with the SWPPP and stormwater management plan to prevent impacts on stormwater from soil and dust.

Because the Project would comply with the requirements of the Construction General Permit and EBMUD would implement Standard Construction Specifications 01 35 44, Environmental Requirements, Section 1.1(B), Section 1.4(A), and Section 3.2 which require implementation of BMPs to prevent erosion and siltation, Project construction activities would not result in substantial erosion or siltation on or off-site and the resulting impact would be less than significant. The EBMUD Practices and Procedures Monitoring and Reporting Plan (Appendix C) lists the applicable standard specifications language.

Operation

As described under Impact HYD-1, the Project would include approximately 5 acres of new impervious surfaces. The Project stormwater retention basin would capture runoff from the new impervious areas and would limit delivery of sediment to San Pablo Creek. The retention basin also would slow the rate of run-off, which would further reduce the potential for erosion on or off-site. Trees and shrubs would be planted on the perimeter of the SOWTP site, and the retention basin and unpaved areas would be hydroseeded to capture silt that otherwise could convey sediment. Project operation would include similar routine maintenance measures as those ongoing for the existing facilities, including site and facility inspection and vegetation management. Routine site maintenance and vegetation management would ensure the integrity of the structures and landscaping. Because site stabilization would be established, and because the stormwater retention basin would be in place, operation and maintenance activities would not result in substantial erosion or siltation on or off-site and the resulting impact would be less than significant.

Significance Determination before Mitigation

Less than significant.

Mitigation Measure

None Required.

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b) Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on or off-site. (*Criterion 3b*)

The SOWTP site is not within a floodplain. As discussed above, the Project would install approximately 5 acres of new impervious surface at the SOWTP site, which potentially could increase the rate and amount of runoff. Project improvements would include installation of a stormwater retention basin that would be designed in compliance with Contra Costa County MRP requirements, requiring stormwater controls to avoid increased surface runoff.

Construction of the Central North Aqueduct pipeline would proceed along the alignment and would occur within paved roadways. Although small portions of the Central North Aqueduct pipeline are within a FEMA floodplain, neither construction nor operations would increase the rate or amount of surface runoff or cause flooding on or off-site.

As detailed in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, have been incorporated into the Project, including EBMUD Standard Construction Specification 01 35 44 Section 1.1(B), Controls on Site Activities, which requires control of site activities to manage surface water flows, including containing surface run-off, preventing construction debris from entering storm drains or surface waters, and implementing spill prevention and response measures.

Because the Project would comply with Contra Costa County MRP requirements, and EBMUD would implement Standard Construction Specification 01 35 44 Section 1.1(B) which requires that activities on the construction site be controlled so that surface runoff would be contained to prevent discharge of contaminated stormwater, the Project would not result in alteration of local drainage patterns to substantially increase the rate or amount of surface run-off or result in flooding on or off-site and the resulting impact would be less than significant. The EBMUD Practices and Procedures Monitoring and Reporting Plan (Appendix C) lists the applicable standard specifications language.

Significance Determination before Mitigation

Less than significant.

Mitigation Measure

None 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. (*Criterion 3c*)

Construction

During construction, dewatering would be required throughout all excavating, to create a dry work area in any areas where groundwater is encountered during excavation. The dewatered groundwater would be treated as required and discharged to the storm drain. The dewatering would be limited to as-needed pumping and would be temporary.

As discussed under Impact HYD-1, Phase 1 and Phase 2 construction at the SOWTP site would involve ground disturbance and excavation and would require use of construction materials

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that could become a source of pollution in stormwater runoff. Runoff from Project construction areas potentially could transport sediment and other pollutants used in construction (e.g., building materials, concrete washout, paint, fuel, oil, and solvents) into the stormwater system or nearby creek. Fuels, lubricants, and hazardous materials associated with construction equipment could be transported in runoff water and create an additional source of polluted runoff if not properly contained.

Because Project construction would disturb more than 1 acre, coverage under the Construction General Permit and development of a SWPPP would be required. The SWPPP would describe implementation of BMPs to control or minimize pollutants from entering stormwater, in compliance with the Construction General Permit.

As detailed in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, have been incorporated into the Project, including EBMUD Standard Construction Specification 01 35 44, Environmental Requirements, Section 1.1(B) Site Activities, Section 1.4(A) Storm Water Management, and Section 1.4(B) Water Control and Disposal Plan.

EBMUD Standard Construction Specification 01 35 44, Environmental Requirements, Section 1.1(B) Site Activities requires that activities on construction sites be controlled to prevent discharge of contaminated stormwater. The contractor would be required to manage materials on site (including demolition material and stockpiles), so that they could not be washed off-site by stormwater. Construction areas would be required to be graded or have BMPs (e.g., erosion control, sediment control, waste management, and good housekeeping measures) implemented to contain surface runoff, to minimize the potential for contaminated stormwater to be transported off-site.

EBMUD Standard Construction Specification 01 35 44, Section 1.4(A), Storm Water Management requires that a SWPPP be developed and BMPs implemented, in accordance with the Construction General Permit, to control sediment and other potential contaminants in stormwater discharges from the Project area. The SWPPP would be reviewed and approved by EBMUD before the start of construction and requires the contractor to control discharge of soil, sediment, and concrete residue as well as control pH and chlorine residual of any discharges.

EBMUD Standard Construction Specification 01 35 44, Section 1.4(B), Water Control and Disposal Plan requires that the contractor provide a detailed water control and disposal plan and maintain proper control of the discharge at the discharge point to prevent erosion, scouring of bank, nuisance, contamination, and excess sedimentation into receiving waters. The Water Control and Disposal Plan also requires handling and disposal of discharges, such as groundwater.

Because EBMUD would implement Standard Construction Specification 01 35 44, Environmental Requirements, Section 1.1(B) Site Activities, Section 1.4(A) Storm Water Management, Section 1.4(B) Water Control and Disposal Plan, which require proper stormwater management by diverting or otherwise controlling surface water and waters flowing from

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existing projects, structures, or surrounding areas from coming onto the work and staging areas, and would prevent discharge of contaminated water from construction sites, the Project would not generate runoff that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff and the resulting impact would be less than significant. The EBMUD Practices and Procedures Monitoring and Reporting Plan (Appendix C) lists the applicable standard specifications language.

Operation

The Project would install approximately 5 acres of new impervious surface, which potentially could increase runoff. Runoff from the SOWTP site would be discharged to the stormwater drainage system and San Pablo Creek. The Project improvements would include installation of a stormwater retention basin that would be designed in compliance with Contra Costa County MRP requirements, requiring stormwater controls to avoid increased surface runoff, so that the project would not generate runoff water in excess of the capacity of the stormwater drainage system. In addition, following Project construction, the potential for polluted runoff from the site would be minimized because erosion control/site stabilization measures (e.g., hydroseeding and tree planting) would be in place, and any hazardous materials would be contained in the consolidated maintenance building to reduce the risk of sedimentation and other pollutants being transported to the stormwater system.

Because the stormwater retention basin would be designed to treat and infiltrate stormwater runoff generated by the additional impervious surfaces and would be properly maintained and inspected, and because erosion control/site stabilization measures at both sites would be in place to prevent soil erosion, the Project would not exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff. The impact would be less than significant.

Significance Determination before Mitigation

Less than significant.

Mitigation Measure

None Required.

d) Impede or redirect flood flows. (*Criterion 3d*)

The SOWTP site is not within a 100-year floodplain, as shown in Figure 3.9-4. Short sections of the Central North Aqueduct pipeline would be within a 100-year floodplain, where the pipeline crosses San Pablo Creek and the areas immediately adjacent to the creek. The Central North Aqueduct pipeline would be below ground surface and would not impede or redirect flood flows. Construction of the Central North Aqueduct pipeline within the San Pablo Creek floodplain would be avoided during periods of flooding, for worker safety. Therefore, no structures or equipment would be present within the 100-year floodplain during periods of flooding. The impact would be less than significant.

Significance Determination before Mitigation

Less than significant.

3.9 HYDROLOGY AND WATER QUALITY

Mitigation Measure

None required.

Impact HYD-4: In a flood hazard, tsunami, or seiche zone, risk release of pollutants due to project inundation. (*Criterion 4*)

Construction

The SOWTP site is not in a flood hazard, tsunami, or seiche zone. The water treatment facilities that are proposed for demolition and the Central North Aqueduct pipeline are in a dam inundation zone in the event of failure of the dam at San Pablo Reservoir. Demolition of the facilities at the reclaim pumping plant and construction of the Central North Aqueduct pipeline potentially could release pollutants from inundation in the event of dam failure. The likelihood of a dam failure and inundation of the construction area during the construction period would be exceptionally low given the short duration of construction and low likelihood of failure of San Pablo Dam, which received seismic upgrades in 2010, and is subject to routine inspections and maintenance to prevent dam failure (EBMUD 2023).

As detailed in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, have been incorporated into the Project, including EBMUD Standard Construction Specification 01 35 44, Environmental Requirements, Section 1.1(B), Site Activities, and Section 1.4(A), Storm Water Management.

EBMUD Standard Construction Specification 01 35 44, Environmental Requirements, Section 1.1(B), Site Activities requires that activities on work sites be controlled to prevent discharge of contaminants. Construction areas would be required to be graded or have BMPs (e.g., erosion control, sediment control, waste management, and good housekeeping measures) implemented to contain surface runoff, to minimize the potential for release of pollutants in the unlikely event of dam failure inundation during construction.

EBMUD Standard Construction Specification 01 35 44, Section 1.4(A), Storm Water Management requires that a SWPPP be developed and BMPs implemented, in accordance with the Construction General Permit, to control sediment and other potential contaminants. The SWPPP would be reviewed and approved by EBMUD before the start of construction and requires the contractor to control discharge of soil, sediment, and concrete residue as well as control pH and chlorine residual of any discharges.

Because EBMUD would implement Standard Construction Specification 01 35 44, Environmental Requirements, Section 1.1(B), Site Activities, and Section 1.4(A), Storm Water Management, which require proper containment and control of stormwater to reduce pollutants entering stormwater in the Project area, and because the likelihood of a dam failure and inundation of the construction area during construction would be exceptionally low, the impact would be less than significant. The EBMUD Practices and Procedures Monitoring and Reporting Plan (Appendix C) lists the applicable standard specifications language.

3.9 HYDROLOGY AND WATER QUALITY

Operation

During Project operation, the demolished reclaim pumping plant facilities no longer would be in the dam inundation area. The Central North Aqueduct pipeline would be buried beneath existing roadways and would not be a source of potential pollution in the event of flooding or inundation from dam failure. No impact would occur.

Significance Determination before Mitigation

Less than significant.

Mitigation Measure

None required.

Impact HYD-5: Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan. (*Criterion 5*)

Construction

San Pablo Creek is listed as impaired for diazinon and trash. Project construction would not contribute to the existing water quality impairment because no diazinon would be used on the SOWTP site and trash would be contained in proper storage receptacles.

Construction-related activities involving soil disturbance, such as grading, excavation, cut and fill, stockpiling of soils, and dewatering, potentially could result in erosion, siltation, delivery of sediments to surface waters, and/or removal of groundwater. If precautions are not taken to contain contaminants, construction potentially could contribute to water quality degradation, including stormwater run-off, a form of nonpoint-source pollution. In addition, construction equipment would require the use of fuels, lubricants, and other hazardous materials. If stored improperly during Project construction, these materials could generate pollution in excess of a water quality control standard contained in the Basin Plan.

The Project would obtain coverage under the General Construction Permit and develop a SWPPP because the Project would disturb more than 1 acre of land. In addition, as detailed in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, have been incorporated into the Project, including EBMUD Standard Construction Specification 01 35 44, Environmental Requirements, Section 1.1(B), Site Activities, Section 1.4(A), Stormwater Management, and Section 1.4(B), Water Control and Disposal Plan.

EBMUD Standard Construction Specification 01 35 44, Environmental Requirements, Section 1.1(B), Site Activities, and Section 1.4(A), Storm Water Management require that activities on construction sites be controlled to prevent discharge of contaminants, and that qualified professionals (as described in the terms of the Construction Stormwater General Permit) prepare and certify all permit-required document submittals, to implement effective stormwater and non-stormwater management practices, and conduct inspections and monitoring as required by the Construction Stormwater General Permit. The SWPPP would be reviewed and approved by EBMUD before the start of construction and requires the contractor to control

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discharge of soil, sediment, and concrete residue as well as control pH and chlorine residual of any discharges.

The SOWTP does not overlie any groundwater basin, but most of the Central North Aqueduct pipeline would be within the Santa Clara Valley-East Bay Plain Groundwater Basin, which is governed by an EBMUD-adopted Groundwater Sustainability Plan. Project construction would require groundwater dewatering in areas of deep excavations, to create a dry work area. In addition, construction of the Central North Aqueduct pipeline would require groundwater dewatering if groundwater is encountered within the pipeline trench or within the jack and bore sending and receiving pits. Temporary groundwater dewatering at the SOWTP site would not conflict with a sustainable groundwater management plan, because the SOWTP site is not within any mapped groundwater basin, and the construction dewatering would be temporary. Temporary groundwater dewatering at the Central North Aqueduct pipeline would not affect EBMUD implementation of the Groundwater Sustainability Plan because the temporary dewatering would be highly localized to the pipeline and jack and bore sending and receiving pits, and the volume of water would be limited to the amount required to create a dry work area during construction. After the structures are constructed within the excavations, the groundwater dewatering would cease, and the Project would not have a long-term impact on groundwater supply or groundwater sustainability.

Because the Project would comply with the Construction General Permit and EBMUD would implement Standard Construction Specification 01 35 44, Environmental Requirements, Section 1.1(B), Site Activities, and Section 1.4(A), Storm Water Management, which require proper containment and control of stormwater to reduce pollutants to San Pablo Creek, Project construction would not conflict with implementation of the Basin Plan. Construction dewatering also would not conflict with implementation of the Groundwater Sustainability Plan, because of the limited duration of groundwater dewatering and minimal volume of groundwater that would be removed temporarily during construction and the resulting impact would be less than significant.

Operation

Project operation and maintenance activities would be similar to existing activities. Routine maintenance would occur on the SOWTP site including maintaining landscaping and irrigation systems, to prevent erosion or standing water. Stormwater runoff from the new impervious surface areas would be captured and treated on site in a new stormwater retention system before being released. The stormwater retention system would be designed to comply with applicable federal, State, and local regulations regarding water quality. Following construction, the potential for substantial runoff or soil erosion at the SOWTP site would be minimized as revegetation for erosion control/site stabilization would be established. Exposed soils would be hydroseeded with EBMUD's standard hydroseed mix, to prevent erosion of topsoil in due to implementation of EBMUD Standard Construction Specification 32 92 19.16, Hydraulic Seeding. The Central North Aqueduct pipeline roadways would be resurfaced and paved and would not be a potential source of pollution during operation. Because the project areas would be

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stabilized through reseeding or repaving, operation of the Project would be consistent with the Basin Plan water quality objectives and the resulting impact would be less than significant.

Project operation would not require groundwater supplies or involve any new groundwater wells. Therefore, Project operation would not conflict with implementation of a sustainable groundwater management plan and the resulting impact would be less than significant.

Significance Determination before Mitigation

Less than significant.

Mitigation Measure

None required.

3.9.4 Cumulative Impact Analysis

The geographic area that would be affected by the Project and the Project's potential to contribute to cumulative impacts would vary, based on the environmental resource under consideration. The geographic scope of the analysis for cumulative impacts on hydrology and water quality resources encompasses and is limited to the Project area and the San Pablo Creek watershed. Table 3.0-1 lists the reasonably foreseeable projects in the vicinity of the Project area. The Wildcat Pumping Plant, 23rd Street Streetscape Improvements, Pearl Pumping Plant Rehabilitation, Water Treatment Plant Chemical Safety Systems Improvement Project, and Verde Reservoir Rehabilitation project sites within the San Pablo Creek watershed and potentially could overlap with the Project. The Project, combined with other cumulative projects, would not be anticipated to adversely impact hydrology and water quality resources in the Project's vicinity because new development and the Project would be required to comply with State and local regulations, including the Construction General Permit for stormwater discharges, designed to address cumulative water quality impacts. Compliance with applicable regulations would reduce the risk of a cumulative violation of any water quality standards or waste discharge requirements. The Project also would not contribute to any existing cumulative water quality violation because it would not involve use of diazinon, and all trash would be contained in the Project area. The cumulative projects would not generate impacts that would combine to result in a cumulatively significant impact on water quality violations; therefore, the cumulative impact would be less than significant.

The Project would create additional impervious areas on the SOWTP resulting in potential additional stormwater runoff. The cumulative projects proposed in proximity to the SOWTP could also create new impervious surface areas. However, both the Project and cumulative projects would need to comply with the Contra Costa Clean Water MRP, requiring proper management of stormwater runoff, and effectively would avoid cumulative impacts on the stormwater drainage system. Through implementation of proper stormwater runoff controls in compliance with the MRP, the projects would not generate impacts that would combine to result in a cumulatively significant impact on stormwater runoff; therefore, the cumulative impact would be less than significant.

3.9 HYDROLOGY AND WATER QUALITY

The Project would require temporary construction dewatering in areas of shallow groundwater. EBMUD has developed a groundwater sustainability plan for sustainable groundwater management of the Santa Clara Valley–East Bay Plan Groundwater Basin, which also would cover the EBMUD cumulative projects. The groundwater sustainability plan has been developed by EBMUD to provide a framework for cumulative sustainable groundwater management of the basin. Temporary construction dewatering would have a localized and minimal impact on groundwater supplies and would not interfere with sustainable groundwater management. The cumulative projects would not generate impacts that would combine to cause a cumulatively significant impact on groundwater supplies and groundwater sustainability; therefore, the cumulative impact would be less than significant.

The Project would not impede or redirect flood flows and would have no impact on areas that currently are subject to flood risk. The Project would have very minimal potential to introduce pollutants to areas of potential dam inundation during construction of the Central North Aqueduct pipeline. Cumulative projects within the areas subject to inundation would include the Water Treatment Plant Chemical Safety Systems Improvement Project and the Wildcat Pumping Plant, which are EBMUD projects that would be subject to similar requirements as the Project, to not impede or redirect flood flows. The cumulative projects would not combine to cause a cumulatively significant impact from flooding and dam inundation; therefore, the cumulative impact would be less than significant.

3.9.5 References

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3.10 Land Use and Planning

This section describes the physical, environmental, and regulatory setting for land use and planning in the Project area and vicinity, identifies the significance criteria for determining environmental impacts, and evaluates the potential impacts on land use and planning that could result from the implementation of the Project.

3.10.1 Environmental Setting

The Project would include infrastructure improvements at the SOWTP site and installation of the Central North Aqueduct pipeline. The SOWTP site is within the city of Richmond and unincorporated Contra Costa County. The Central North Aqueduct pipeline is in roadways or EBMUD rights-of-way (ROWs) in the city of Richmond, city of San Pablo, and unincorporated Contra Costa County. Table 3.10-1 lists the locations, jurisdictions, general plan designations, and zoning for the Project components. Existing land uses and zoning at the SOWTP site are shown on Figure 3.10-1 and Figure 3.10-2. Existing land uses and zoning surrounding the Central North Aqueduct pipeline are shown on Figure 3.10-3 and Figure 3.10-4. Land uses and zoning have been grouped into categories in Figure 3.10-4 to simplify mapping across jurisdictions with different naming conventions.

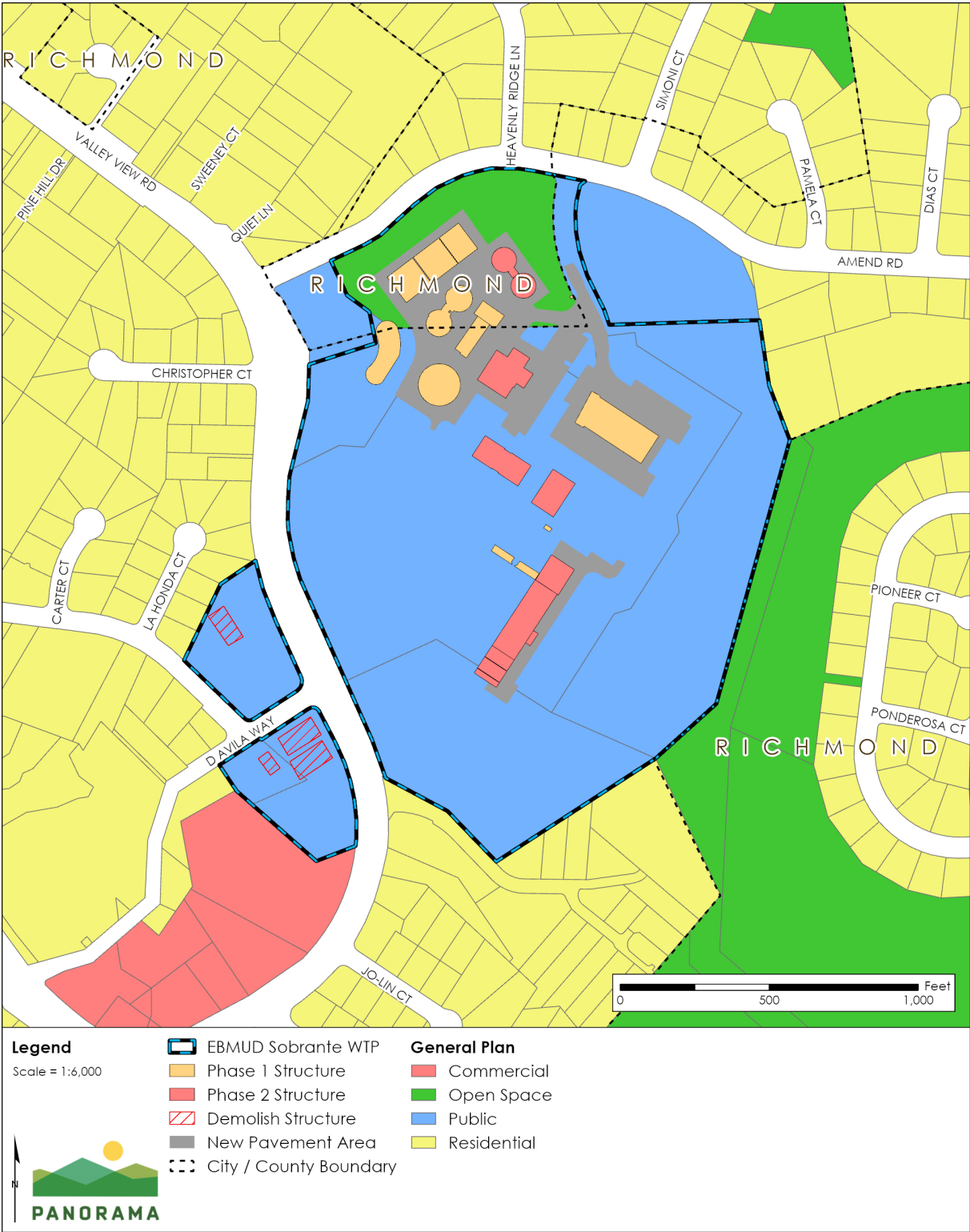
Table 3.10-1: Project Locations and Land Use Planning Designations

Project Component	Location	Jurisdiction	General Plan Designation(s)	Zoning
Sobrante Water Treatment Plant	5500 Amend Road	Contra Costa County	Public and Semi-Public Open Space	General Agricultural District (A-2) east of Valley View Road Residential (M-29 and R-7) west of Valley View Road
		City of Richmond	Open Space	Open Space
Central North Aqueduct Pipeline	D Avila Way, San Pablo Dam Road, El Portal Drive, Rollingwood Drive, Road 20	Contra Costa County	<ul style="list-style-type: none"> N/A (public ROW) San Pablo Creek crossing jack and bore location: multiple-family residential low density (ML) (EBMUD ROW) 	<ul style="list-style-type: none"> N/A (public ROW) San Pablo Creek crossing jack and bore location: multiple-family residential (M-29) (EBMUD ROW)
		City of Richmond	N/A (public ROW)	N/A (public ROW)
		City of San Pablo	N/A (public ROW)	N/A (public ROW)

Sources: (Contra Costa County, 2021; Contra Costa County, 2023a; City of Richmond, 2012; City of San Pablo, 2018a)

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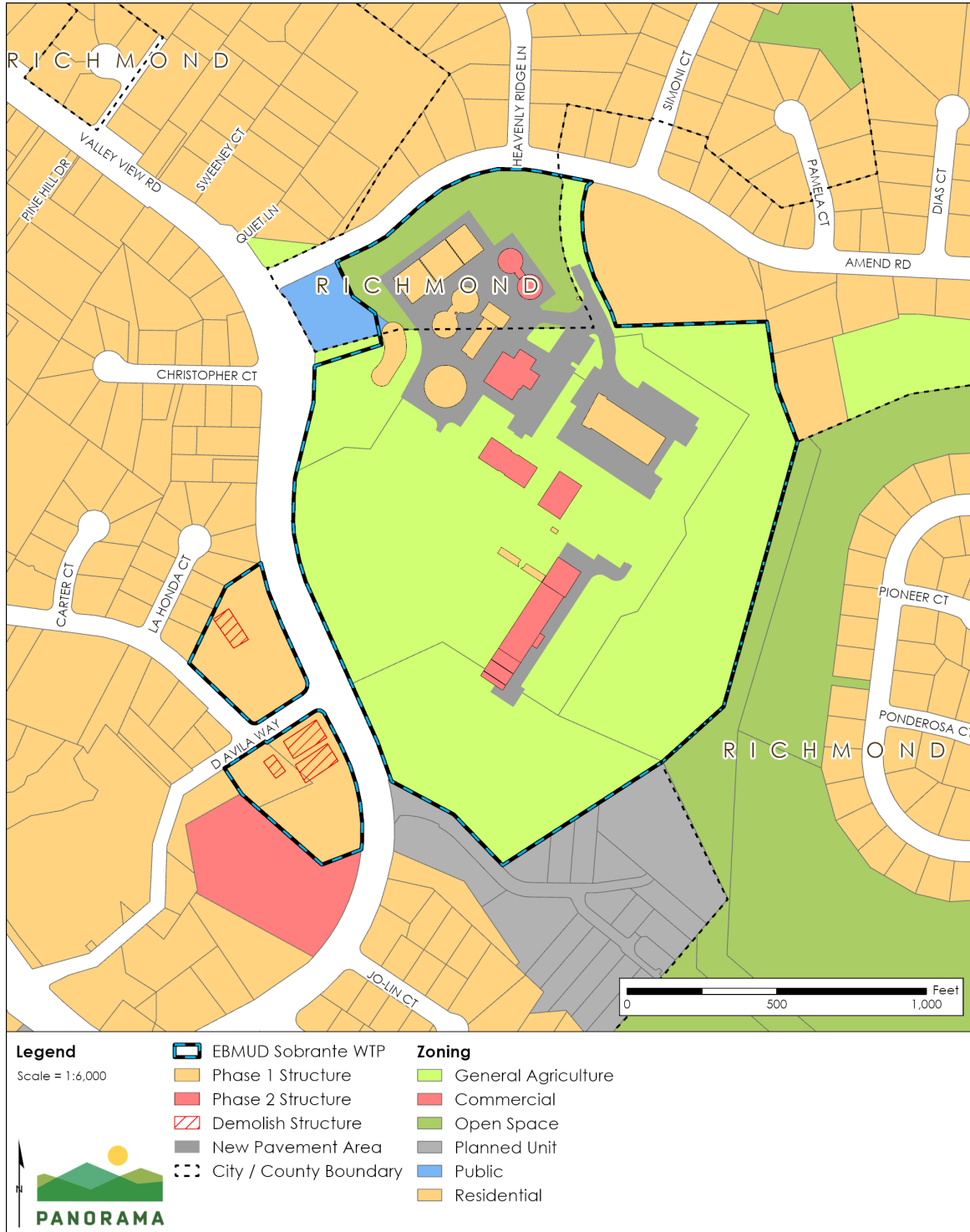
Figure 3.10-1: General Plan Land Use Designations in the SOWTP Vicinity



Source: (Contra Costa County, 2017; Contra Costa County, 2023a; City of Richmond, 2023b; City of Richmond, 2023c)

3.10 LAND USE AND PLANNING

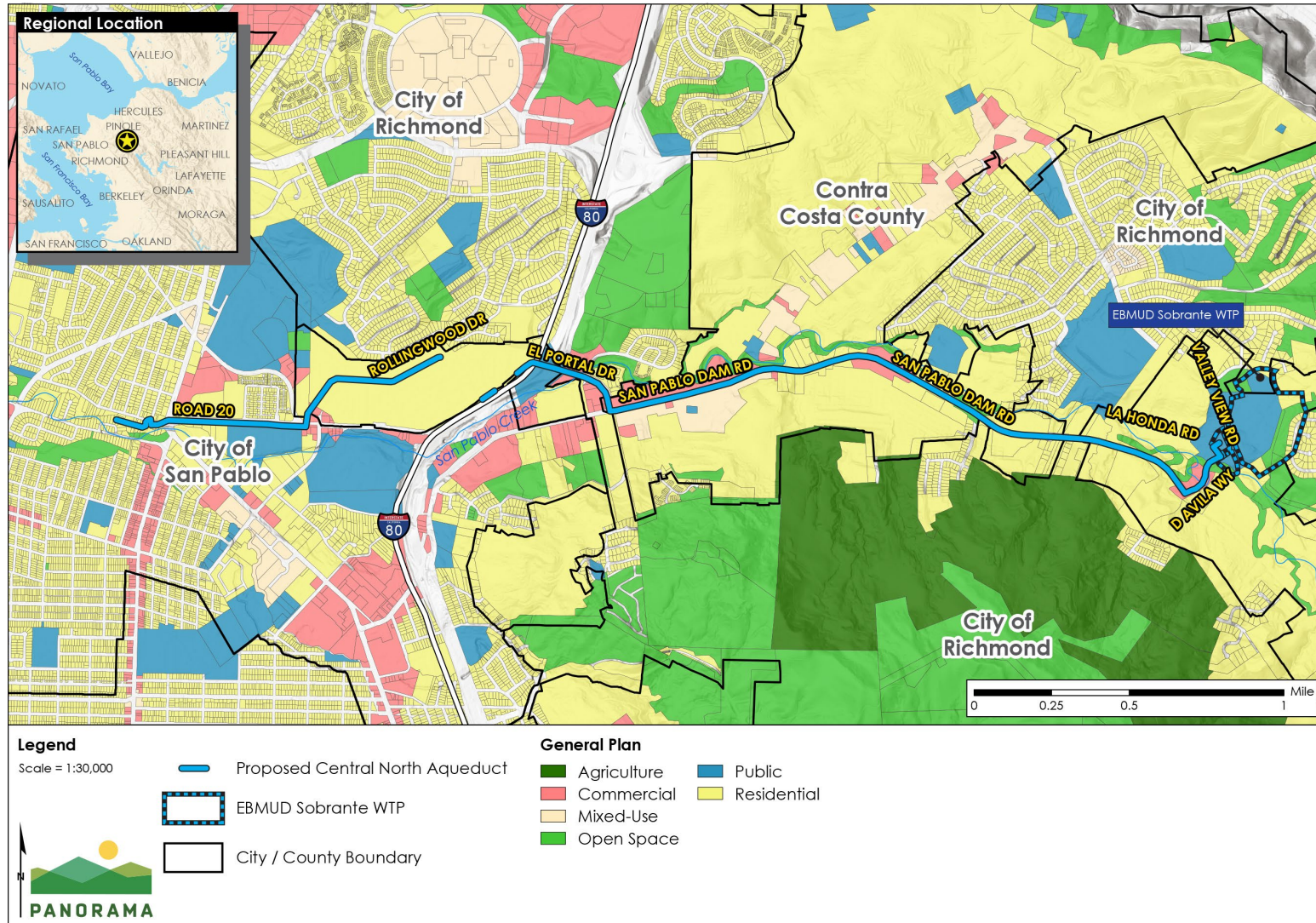
Figure 3.10-2: Zoning in the SOWTP Vicinity



Source: (Contra Costa County, 2017; Contra Costa County, 2023a; City of Richmond, 2023b)

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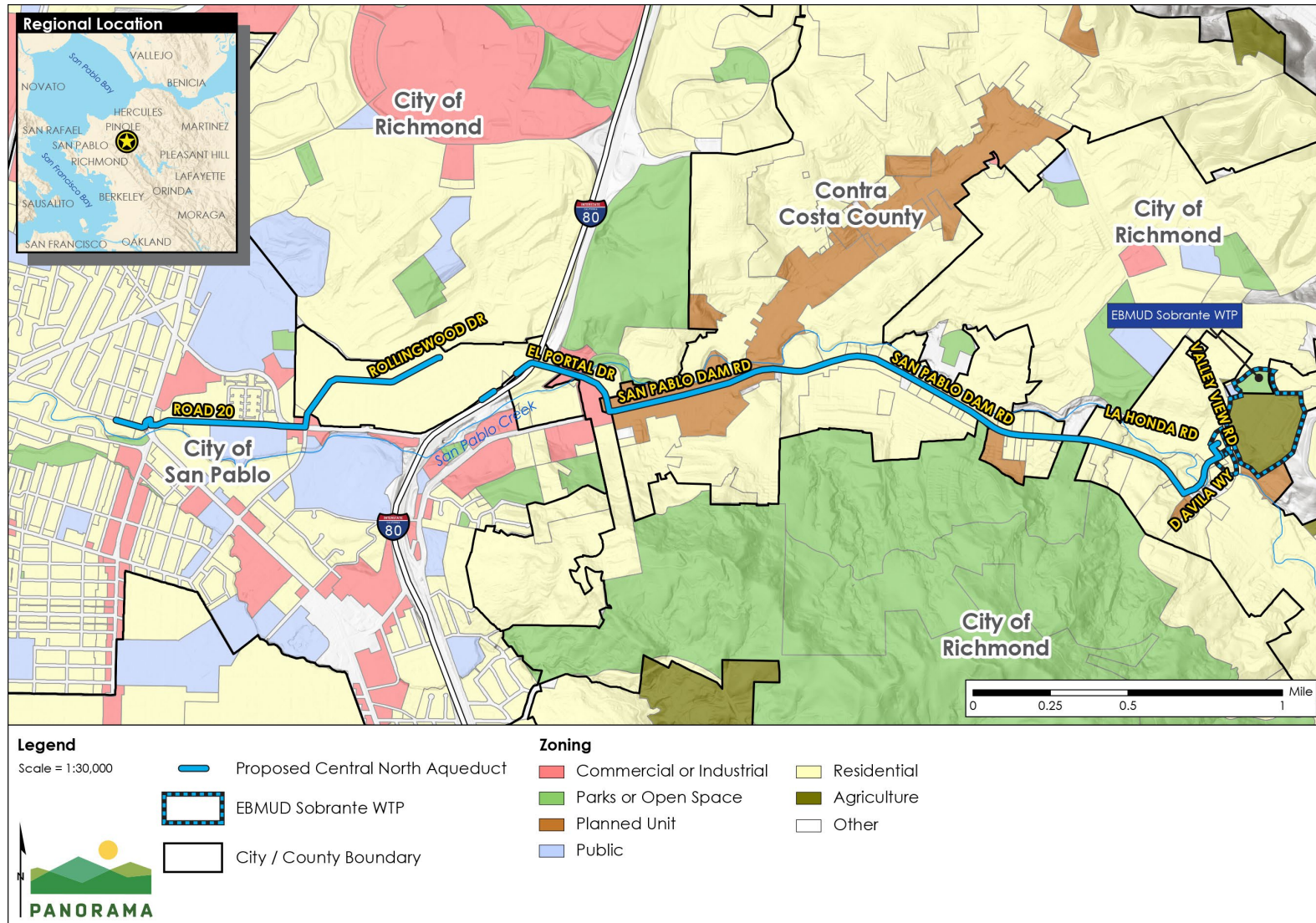
Figure 3.10-3: General Plan Land Use Designations in the Central North Aqueduct Pipeline Vicinity



Source: (Contra Costa County, 2017; Contra Costa County, 2023a; City of Richmond, 2023b; City of Richmond, 2023c; City of San Pablo, 2018c)

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Figure 3.10-4: Zoning in the Central North Aqueduct Pipeline Vicinity



Source: (Contra Costa County, 2017; Contra Costa County, 2023a; City of Richmond, 2023b; City of San Pablo, 2018e)

3.10 LAND USE AND PLANNING

SOWTP Site

The SOWTP site is on EBMUD property within the city of Richmond and unincorporated Contra Costa County. The portion of the SOWTP site within unincorporated Contra Costa County currently is occupied by water treatment facilities, including an untreated water vault, flocculation basin, clearwell, solids handling facilities, chemical and ozone generation building, and maintenance sheds. Outside the water treatment facilities, the SOWTP site includes developed areas with paved roads, parking areas, and ornamental landscaping. The undeveloped portion of the SOWTP site, including the area within the city of Richmond, contains open space consisting of non-native grassland, and limited areas of seasonal wetland, coast live oak woodland, and willow riparian vegetation. The open space area is outside the existing SOWTP security fence but within private land owned by EBMUD.

The areas surrounding the SOWTP are designated as public at the adjacent Richmond Fire Department Station #63; single-family residential to the north, south and west; open space immediately east of the SOWTP and commercial south of the reclaim pumping plant. A PG&E electrical substation is northeast of the SOWTP site and shares the EBMUD driveway.

The *City of Richmond General Plan 2030* and *Contra Costa County General Plan*, described further in Section 3.10.2, Regulatory Framework, designate land uses in the SOWTP vicinity. The surrounding land use and zoning are summarized in Table 3.10-2 and shown on Figure 3.10-1 and Figure 3.10-2.

Central North Aqueduct Pipeline

The Central North Aqueduct pipeline would be constructed in the public ROW in city of Richmond, city of San Pablo, and unincorporated Contra Costa County, and in an EBMUD ROW at the jack and bore crossing of San Pablo Creek. General plan land use designations and zoning for areas along the Central North Aqueduct pipeline alignment are summarized in Table 3.10-2 and shown on Figure 3.10-3 and Figure 3.10-4. The pipeline would be adjacent to residential, commercial, office, and public/institutional areas.

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Table 3.10-2: Land Use Planning Designations Adjacent to Project Components

Project Component	Jurisdiction	Adjacent General Plan Land Use Designation(s)	Adjacent Zoning
Sobrante Water Treatment Plant	Contra Costa County	Residential, Open Space, Public, Commercial	Residential, Planned Unit District, Open Space, Commercial
	City of Richmond	Residential, Open Space, Public	Residential, Open Space, Public, Agricultural
Central North Aqueduct Pipeline	Contra Costa County	Residential, Commercial, Mixed-Use, Open Space, Public and Semi-Public	Residential, Office, Planned Unit District, Commercial
	City of Richmond	Residential, Commercial, Mixed-Use	Residential, Commercial
	City of San Pablo	Residential, Commercial, Mixed-Use, Neighborhood Commercial, Public/Institutional	Residential, Commercial, Mixed-Use, Institutional

Source: (Contra Costa County, 2021; Contra Costa County, 2023a; City of Richmond, 2012; City of Richmond, 2023b; City of San Pablo, 2018a; City of San Pablo, 2018b; City of San Pablo, 2018d)

3.10.2 Regulatory Framework

This section describes policies and regulations related to land use and planning that may apply to the Project.

Federal and State Policies and Regulations

No federal or state policies or regulations are applicable to the analysis of land use and planning for the Project.

Local Policies and Regulations

Under section 53091 of the California Government Code, EBMUD, as a local agency and utility district, is not subject to building and land use zoning ordinances for projects involving facilities for the production, generation, storage, treatment, or transmission of water. However, EBMUD's practice is to work with local jurisdictions and neighboring communities during project planning, and to consider local environmental protection policies for guidance.

Contra Costa County

Contra Costa County General Plan

The *Contra Costa County General Plan* sets forth goals and policies to guide land use decisions in the county. The *Contra Costa County General Plan* Land Use Element contains the following goals and policies relevant to the Project (Contra Costa County, 2005):

Goal 3-A. To coordinate land use with circulation, development of other infrastructure facilities, and protection of agriculture and open space, and to allow growth and the maintenance of the county's quality of life. In such an environment, all residential,

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commercial, industrial, recreational, and agricultural activities may take place in safety, harmony, and to mutual advantage.

Goal 3-C. To encourage aesthetically and functionally compatible development, which reinforces the physical character and desired images of the county.

Goal 3-M. Protect and promote the economic viability of agricultural land.

Policy 3-12. Preservation and buffering of agricultural land should be encouraged as it is critical to maintaining a healthy and competitive agricultural economy and assuring a balance of land uses. Preservation and conservation of open space, wetlands, parks, hillsides and ridgelines should be encouraged as it is crucial to preserve the continued availability of unique habitats for wildlife and plants, protect unique scenery, and provide a wide range of recreational opportunities for county residents.

Policy 3-18. Flexibility in the design of projects shall be encouraged in order to enhance scenic qualities and provide for a varied development pattern.

The *Contra Costa County General Plan Public Facilities/Services Element* contains the following goals relevant to the Project (Contra Costa County, 2005):

Goal 7-F. To assure potable water availability in quantities sufficient to serve existing and future residents.

Goal 7-J. To protect and enhance the quality of water supplied to County residents.

The *Contra Costa County General Plan* also establishes land use designations for unincorporated areas of the County. The portion of the SOWTP site in Contra Costa County (including the proposed work areas west of Valley View Road) is designated for public and semi-public (PS) land use. The PS designation includes properties owned by public governmental agencies, such as libraries, fire stations, and schools. The PS designation also applies to public transportation corridors as well as privately-owned transportation and utility corridors, such as pipelines. A wide variety of public and private uses are allowed by the PS designation. Construction of private residences or private commercial uses and subdivision of land are not considered compatible with the PS designation. The portion of the SOWTP site south of D Avila Way and west of Valley View Road also includes land that is zoned for open space (OS) land use. The OS area consists of the area along San Pablo Creek, which is outside the proposed work areas, and therefore is not discussed further.

The *Contra Costa County General Plan* designation for the locations of the jack and bore launching and receiving pits is multiple-family residential low density (ML). Primary land uses in the ML designation include attached single-family residences, multiple-family residences (e.g., condominiums, town houses, apartments, and mobile home parks), and accessory buildings and structures. Secondary land uses that do not conflict with primary uses may be allowed, such as churches and childcare facilities.

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Contra Costa County Zoning Ordinance

The Contra Costa County Zoning Ordinance (Contra Costa County Code of Ordinances, Title 8) describes regulations for each zoning district within the unincorporated county. The majority of the SOWTP site within Contra Costa County is zoned as a general agricultural district (A-2) (Contra Costa County, 2023b). The work areas west of Valley View Road are zoned for single-family residential uses (R-7) and multiple-family residential uses (M-29). The jack and bore launching and receiving pit locations along D Avila Way also are zoned M-29. Publicly owned buildings and structures are permitted in all three of these zoning districts, with issuance of a land use permit (Contra Costa County, 2023b). Table 3.10-3 summarizes zoning information in Contra Costa County, including the zoning district, Project components, and building height limits.

Table 3.10-3: Summary of Zoning Districts in Contra Costa County

Zoning District	Project Component	Publicly Owned Buildings and Structures Allowed?	Permissible Building Height
A-2: General Agricultural District	<ul style="list-style-type: none"> Consolidated maintenance building Phase 2 facility improvements 	Yes	35 feet
R-7: Single-Family Residential District	<ul style="list-style-type: none"> Reclaim and solids basins demolition 	Yes	35 feet
M-29: Multiple-Family Residential District	<ul style="list-style-type: none"> Reclaim and solids basins demolition San Pablo Creek crossing jack and bore location 	Yes	30 feet (reduced to 20 feet if a building is constructed within 50 feet of an abutting single-family residential district)

Source: (Contra Costa County, 2023a; Contra Costa County, 2023b)

The Contra Costa County zoning ordinance also identifies certain zoning districts that are deemed to be zoning districts for open space when applied in conformance with the open space policies of the *Contra Costa County General Plan* (Contra Costa County, 2023b). The A-2 district, as well as other agricultural districts, are included in this determination.

Chapter 82-2.010 of the zoning ordinance provides additional detail on utilities and pipelines. Generally, the use of land for ROWs for construction and repair of public utilities and publicly owned utilities, and for privately owned pipelines for the transmission of oil, gas, water, and other substances transportable by pipelines, is not regulated or restricted by the zoning ordinance; and accessory and appurtenant structures forming a part of public utilities, publicly owned utilities, and pipelines are not regulated or restricted, except for setback regulations (Contra Costa County, 2023b).

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City of Richmond

City of Richmond General Plan 2030

The *City of Richmond General Plan 2030* is the guiding document for growth and development in the city. The *City of Richmond General Plan 2030* Land Use and Urban Design Element provides a framework for decisions about land use and development patterns, and the Open Space and Conservation Element covers goals and policies related to open spaces.

The Land Use and Urban Design Element describes the land use classifications. The OS land use classification includes wetlands, mudflats, creek corridors, and other natural preservation areas, as well as private lands used for recreational purposes or deed-restricted for OS preservation, and utilities. The *City of Richmond General Plan 2030* states that public access should be allowed where appropriate (City of Richmond, 2012).

The goals and policies from the Land Use and Urban Design Element that are relevant to the Project are as follows (City of Richmond, 2012).

Policy LU1.3: A Range of High-Quality Community Facilities and Infrastructure.

Maintain high-quality facilities and infrastructure to serve diverse community needs. Upgrade, maintain and expand infrastructure to meet current and future needs and provide an effective and consistent level of services and utilities in all neighborhoods. Retain existing public facilities and uses in the Downtown, and actively work to attract new public facilities, especially within walking distance of the Richmond BART/Amtrak Station. Facilities and infrastructure may include community and recreation centers, parks and playgrounds, libraries and senior centers, schools, multi-use trails, pedestrian-scale lighting, and police and fire stations.

Policy LU5.3: Land Use Compatibility. Minimize conflicts between land uses to protect wetlands, marshlands, and creeks, human and environmental health and safety, preserve community character and retain job generating activities that have long-term viability. Types, intensities and ranges of use and development should be compatible with existing uses and should minimize or eliminate conflicts that adversely impact wetlands, marshlands, creeks, mudflats, public safety, human or environmental health or generate nuisances. All new development must avoid or mitigate to the greatest extent feasible potential negative impacts such as noise, odors, and pollution. [...]

New development should complement the character and scale of existing neighborhoods, cultural resources, historic structures and landscapes. In particular, existing industrial and residential uses can successfully coexist through well-conceived circulation and urban design strategies including buffers (which may be in the form of sound walls and/or enclosed buildings and appropriate transitional habitat zones between wetlands, marshlands, creeks, and mudflats) and transitional uses, rerouting of truck traffic and design components that mark transitions in land use. Similar to other cities that host mixed uses, consider requiring land use covenants for new development in areas where new uses may generate a perception of conflict with existing uses. Require sufficient visual open space and/or landscaped screening between industrial

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operations and adjacent residential or recreational activities in order to create adequate buffers.

Goal LU6: High-Quality and Sustainable Development. Maintain a high standard of design, planning and construction of new and renovated public and private facilities, infrastructure and services. Continue committing to a comprehensive planning approach that supports a sustainable and healthy community and reduces impacts on the natural environment. [...]

Policy LU6.4 Long-Term Environmental Sustainability. Promote development standards and land use patterns that encourage long-term sustainability. Support the restoration of natural features such as creeks and wetlands in urban areas and existing neighborhoods as a means of connecting residents with nature and reversing damage to natural systems. Promote landscaping that incorporates native, drought-tolerant plants and sustainable maintenance practices and standards. Provide trees on residential and mixed-use streets and green infrastructure to reduce stormwater runoff. Encourage compact development close to amenities and green buildings to reduce energy use.

Policy LU6.5: High-Quality Design, Planning and Construction. Promote high-quality design, planning, construction and maintenance of development and infrastructure projects. Require higher standards for affordable housing, streetscape improvements and development proximate to local and regional transit, the shoreline and industrial uses. Provide guidance regarding green building standards, seismic requirements, and pedestrian friendly design by implementing the Green Building Ordinance. Promote best practices for crime prevention.

Relevant goals and policies from the Open Space and Conservation Element are as follows:

Goal CN2: Conserved Open Space. Conserve open space to ensure that Richmond's expansive shoreline, network of parklands, trails, hillsides and undeveloped natural areas remain viable in supporting biological communities and providing sanctuary for future generations. Conserve open space, expand public access to open space, where appropriate, and acquire additional lands where feasible. Continue to protect surrounding hills and viewsheds as character-defining features that provide scenic backdrops, as well as publicly accessible trails and vistas.

Policy CN2.3 Natural Topography and Hillside Protection. Protect natural topography to preserve and enhance Richmond's natural beauty and require developers to concentrate residential development below the 400-foot elevation, and only allow agricultural, rural and open space uses in Richmond Hills Initiative Area. The natural characteristics of the Berkeley Hills, San Pablo Ridge, El Sobrante Ridge, Point Potrero and San Pablo Peninsula should be protected and enhanced by regulating allowable methods of site preparation, grading, soils repair, foundation design and topographic alteration, as well as the height, color, material and siting of structures and roadways, quantities of cut and fill, placement of utility crossings and removal of vegetation, and

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also allowing for a transfer of development credits and regulating building size in the Richmond Hills Initiative Area.

City of Richmond Zoning Ordinance

The City of Richmond Zoning Ordinance (Richmond Municipal Code, Article 15) separates land uses into specified geographic districts and details development standards for buildings within districts. The development standards regulate items such as use, height, lot coverage, setbacks, and parking.

The portion of the SOWTP site that falls within the Richmond city limits is zoned as OS (City of Richmond, 2023b). The purpose of the OS district is to provide land for development of OS uses, consistent with the *City of Richmond General Plan 2030*. The OS district is intended for undeveloped publicly owned lands, visually significant open lands, water areas, and wildlife habitat. OS districts are set aside as permanent OS preserves and may include trails, trail heads, agricultural uses, and other facilities for low-impact public recreational uses. Major utility¹ uses are conditionally permitted in the OS district (City of Richmond, 2023a). Project water treatment and related facilities are considered major utility uses. Underground water pipelines are considered minor utility² uses, which are permitted in the OS district.

Additional development standards that apply to projects in the OS district include (City of Richmond, 2023a):

- Maximum structure height of 35 feet.
- Development must be subordinate to and blend harmoniously with the natural and open space qualities of the surrounding area. The alteration of natural topography, vegetation, and other characteristics shall be minimized. Appropriate landscaping, preservation of vegetation, design, and building materials are required to reduce the visibility of development as much as practicable.
- Structures shall not be located on ridgelines or hilltops, or where they will project into the view of a ridgeline or hilltop from public streets and other publicly owned land, unless no less obtrusive site is available. To the extent practicable, structures shall be located on that part of a parcel that minimizes visibility from roads, trails, and other publicly owned land.
- New utilities shall be installed underground.

¹ Major utilities are defined as “generating plants, electric substations, and solid waste collection, including transfer stations and materials recovery facilities, solid waste treatment and disposal, water or wastewater treatment plants, biomass and waste to energy conversion facilities, and similar facilities of private companies, public agencies, or public utilities.”

² Minor utilities are defined as “facilities necessary to support established uses involving only minor structures, such as electrical distribution lines, and underground water and sewer lines.”

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City of San Pablo

The *City of San Pablo General Plan 2030* outlines land use policies for the city (City of San Pablo, 2011). Policies relate to balancing existing and future needs of the City, ensuring compatibility between land uses, guiding design in the city, and encouraging a mix of residential, commercial, and other land uses. No specific goals or policies in the *City of San Pablo General Plan 2030* relevant to Project work in the city (i.e., work in the public ROW).

The City of San Pablo Zoning Ordinance establishes various zoning districts and regulates land use and buildings within the districts. The purpose of the zoning ordinance is to promote growth of the city in an orderly manner, and to promote and protect the public health, safety, peace, comfort, and general welfare in conformance with the *City of San Pablo General Plan 2030* (City of San Pablo, 2023). The zoning ordinance does not apply to roadway ROWs.

3.10.3 Impact Analysis

Methodology for Analysis

Land use impacts are assessed based on the Project's consistency with local and regional land use policies. Existing site conditions before Project implementation are compared to site conditions during and after Project construction.

Significance Criteria

Consistent with *Appendix G* of the State *CEQA Guidelines*, an impact would be considered significant if the Project would:

1. Physically divide an established community.
2. 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.

Criteria Requiring No Further Evaluation

Criteria listed above that are not applicable to actions associated with the Project are identified below, along with a supporting rationale as to why further consideration is unnecessary and a no-impact determination is appropriate.

- **Criterion 1: Physically divide an established community.** The SOWTP facilities would be located adjacent to the existing SOWTP infrastructure and would not physically divide an established community. The Central North Aqueduct pipeline would be buried within existing roadways and would not physically divide a community. Therefore, no impact would occur.

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Impacts and Mitigation Measures

Impact Land Use-1: 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. (*Criterion 2*)

As summarized in Table 3.10-1, the Project area would be in three jurisdictions: Contra Costa County, the city of Richmond, and the city of San Pablo. The following sections discuss the Project's consistency with land use plans, policies, and regulations, and are organized by Project component and jurisdiction.

Sobrante Water Treatment Plant

Contra Costa County

The Project would install new water treatment facilities at the SOWTP site. The facilities that would be installed in Contra Costa County would include a consolidated maintenance building, chlorine contact basin, fifth-stage flocculation, untreated water vault, and sediment retention basin in Phase 1, and dewatering building, chemical building, additional flocculation and sedimentation basins, and cable vac pumping plant in Phase 2. The Project also would demolish the existing reclaim basin, solids basin, and untreated water vault in areas west of Valley View Road along D Avila Way in Phase 1. The proposed facilities in Contra Costa County would be on EBMUD property and be consistent with the existing use of the SOWTP site for water treatment and distribution activities. The proposed facilities on the Contra Costa County portion of the site would be constructed in areas currently occupied by non-native grassland, existing roads and water treatment plant facilities, and a small area of willow riparian vegetation in Phase 2. The Project would add facilities and expand the physical footprint of the water treatment facilities and associated security fence, but the overall land use would not change.

The land use designation for the portion of the SOWTP Phase 1 and Phase 2 facilities in Contra Costa County is public service, which would allow a wide variety of public uses. The Project would be considered a public utility use, consistent with the public service designation. The Project also would be consistent with *Contra Costa County General Plan's* goals and policies. For example, Goal 3-C and Policy 3-18 encourage aesthetically and functionally compatible development and flexibility of design to enhance scenic qualities. The Project's design features would support Goal 3-C and Policy 3-18 because the new facilities that would be visible from surrounding roads, including the power and polymer building and dewatering building, would have architectural treatments compatible with the existing adjacent fire station on the corner of Valley View Road and Amend Road, allowing the new facilities to blend with surrounding development (refer to Figure 2-7 in Project Description, for an example of the architectural treatment). Goal 3-A is to coordinate land use with other planning needs, including development of other infrastructure facilities. The Project would support Goal 3-A by providing water treatment infrastructure improvements to reliably serve existing and planned future EBMUD customers in the county. *Contra Costa County General Plan* Goal 3-M and Policy 3-12 relate to protecting agricultural land and OS. Although the Project would construct some

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facilities at the SOWTP site in areas that are undeveloped, the undeveloped areas are not designated for agricultural or OS use in the *Contra Costa County General Plan*, and they are composed primarily of non-native grassland, not notable as OS or scenic areas. Thus, the Project would not conflict with Goal 3-M or Policy 3-12. Furthermore, the Project would provide water treatment reliability for existing and planned future residents of Contra Costa County and would protect water quality, consistent with Goals 7-F and 7-J. The Project would be consistent with *Contra Costa County General Plan* goals and policies.

The majority of the SOWTP site in Contra Costa County is zoned for general agricultural use, with the demolition areas west of Valley View Road zoned for residential uses. Each of the overlying zoning districts allows publicly owned buildings and structures. While the Project's public water treatment and distribution facilities would fall under the uses allowed with a permit, local zoning ordinances do not apply to construction of facilities for the production, generation, storage [and] transmission of water. Thus, EBMUD would not be required to obtain a permit (California Government Code section 53091). Although no permit would be required, the proposed facilities would be consistent with the uses that are allowed conditionally by the County. In addition, no Project facilities would be taller than 35 feet above grade, which is the height limit for the agricultural zone. No new aboveground Project facilities are proposed in the residential zones west of Valley View Road. Therefore, the Project would be consistent with the zoning ordinance.

The proposed SOWTP facilities would be compatible with existing land uses for several reasons. Water treatment, storage, and transmission uses already exist at the site and have coexisted adjacent to residential and OS uses since 1965. The Project would not be inconsistent with existing uses; in fact, the uses would be complementary. The proposed facilities would expand the water utility uses at the site and would not introduce a new use to the area. Although some of the proposed facilities would be constructed on land that currently is undeveloped and occupied by non-native grassland, the proposed facilities would be entirely on EBMUD property. The Project would not physically change adjacent or nearby land uses. Thus, the Project would not conflict with land use policies that are designed to reduce or mitigate environmental impacts.

The proposed SOWTP facilities would not introduce a new land use or influence surrounding residential and OS land uses (e.g., by adding or removing housing or changing use patterns of OS uses) and would be exempt from local land use designations as set forth in California Government Code section 53091. Therefore, the Project would not conflict with any Contra Costa County land use plans, policies, or regulations that are intended to protect the environment. Because the Project would be consistent with applicable plans, policies, and regulations adopted for avoiding or mitigating an environmental effect, the impact would be less than significant.

City of Richmond

The portion of the SOWTP site in the city of Richmond mainly consists of undeveloped areas of non-native grassland, with limited areas of seasonal wetlands, woodland, and riparian

3.10 LAND USE AND PLANNING

vegetation present. EBMUD manages the vegetation at the site via mowing and grazing. The Project would construct facilities such as equalization basins and gravity thickeners on the portion of the SOWTP site in the city of Richmond. Perimeter fencing and security fencing would be installed to protect the facilities. The current land use designation for the portion of the SOWTP site in the city of Richmond is OS. The Project improvements would change the land use to public water treatment facilities. The Project would install trees, shrubs, and other landscaping to screen the facilities from public views.

Several goals and policies from the *City of Richmond General Plan 2030* would be relevant to the Project. Policy LU1.3 relates to maintaining and expanding infrastructure to meet community needs and provide high-quality facilities and utility service. The Project would support Policy LU1.3 by improving the reliability of the water treatment facilities and providing high-quality facilities and water supply for customers in the city of Richmond and nearby jurisdictions. Interrelated goals and policies include ensuring compatibility with existing land uses and topography, providing visual buffers, and implementing a high standard of design (including Goal LU6, Policies LU5.3, LU6.4, LU6.5, and CN2.3). The Project would include appropriate grading, landscaping, and screening vegetation (including native trees and shrubs), and architectural treatments to provide compatibility with the surrounding area. The Project also would be set back from Amend Road, incorporating a visual buffer/berm to improve screening of the facilities. The infrastructure proposed in the city of Richmond would be primarily below grade and would extend approximately 5 feet above grade, which would reduce the visibility of the structures. Taller structures, such as the dewatering building or power and polymer building would be set back from the road and designed to match the existing adjacent fire station on the corner of Valley View Road and Amend Road, to reduce the visual contrast with the community. Thus, Project design features would support Goal LU6, Policies LU5.3, LU6.4, LU6.5, and CN2.3. In addition, the Project would support Policy LU6.5's directive to promote best practices for crime prevention, because the proposed planting plan and fencing would balance the need for visual screening, with visibility along the fence line for site security.

The *City of Richmond General Plan 2030* also contains Goal CN2, related to preservation of OS. Goal CN2 encourages conservation of OS areas to support biological communities, provide sanctuary natural areas for residents, and protect character-defining features and scenic backdrops. Although the Project would alter the land use at the site from an undeveloped area to a water treatment facility, the site is not currently considered a unique OS, visually important area, unique recreational area, or home of unique biological communities. The site mainly is composed of non-native grassland adjacent to a PG&E substation, existing water treatment facilities, and fire station. Because of the isolated nature of the undeveloped area within the SOWTP site, the site does not retain the integrity of other open spaces that are specifically identified in the *City of Richmond General Plan 2030* (e.g., Sobrante Ridge Regional Park, Point Pinole Regional Shoreline). The Project also has been designed to minimize impacts on wetlands within the parcel, and any wetland impacts that would occur on site would be compensated, as discussed in Section 3.3, Biological Resources. Therefore, the Project would not conflict with

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City of Richmond General Plan 2030 goals or policies that are intended to avoid or mitigate an environmental effect.

The portion of the SOWTP site in the city of Richmond is zoned as an OS district. Major utility uses, which would include water treatment facilities, are permitted conditionally in the OS district. As described above, local zoning ordinances do not apply to EBMUD, and EBMUD would not be required to obtain a permit (California Government Code section 53091). Although no permit would be required, the proposed facilities would be consistent with the uses that may be allowed on parcels zoned for OS in Richmond. Furthermore, the Project would be consistent with many of the requirements of the OS district, such as meeting structure height limits, blending development with the surrounding area (e.g., through appropriate building materials and design), using appropriate landscaping, and minimizing alteration of natural vegetation communities. Therefore, the Project would not conflict with the city of Richmond zoning ordinance.

The proposed SOWTP facilities would be compatible with existing land uses for several reasons. Water treatment, storage, and transmission uses already exist at the SOWTP site and coexist with residential and OS uses. The proposed facilities would expand the water utility uses at the site but would not introduce a new use to the area. Because the Project would expand the same uses that already are present at the SOWTP site, it would not create an incompatible land use in the area. Although some of the proposed facilities would be constructed on land that currently is undeveloped (consisting mainly of non-native grassland), the proposed facilities would be entirely on EBMUD property. The proposed facilities would not encroach on neighboring properties, and the Project would not develop any adjacent residential or open space areas in the city of Richmond or in Contra Costa County. The OS corridor east of the Project area, which connects San Pablo Creek to regional open space areas, would be unaffected by the proposed facilities. The Project would not physically change adjacent land uses in the vicinity and would not influence existing uses in the area.

Because the proposed SOWTP facilities would not introduce a new land use or influence surrounding residential and OS land uses (e.g., by adding or removing housing or changing use patterns of OS uses), and because the proposed facilities would be exempt from local land use designations as set forth in California Government Code section 53091, the Project would not conflict with any City of Richmond land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect, and the impact would be less than significant.

Central North Aqueduct Pipeline

Contra Costa County

The Central North Aqueduct pipeline would be constructed almost entirely in the roadway ROW in unincorporated Contra Costa County. A limited portion of the pipeline would be constructed using jack and bore methods to cross under San Pablo Creek. As shown on Figure 2-19 in the Project Description, the launching and receiving pits would be outside the D Avila Way ROW in adjacent parcels. The jack and bore work would be temporary, and the

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ground surface would be restored following Project construction. The Contra Costa County zoning ordinance specifies that land use for ROWs for construction and repair of public utilities and publicly owned utilities is not regulated or restricted (Contra Costa County, 2023b). Therefore, construction of the Central North Aqueduct pipeline would be exempt from county land use regulations. Furthermore, the pipeline would be installed underground, and the ground surface would be restored following construction, and thus the pipeline would not have the potential to impact the surrounding land uses. Because the Central North Aqueduct pipeline would be buried and would not have the capacity to alter or induce changes to existing land uses, construction of the Central North Aqueduct pipeline would not conflict with any Contra Costa County land use plan, policy, or regulation adopted for avoiding or mitigating an environmental effect, and the impact would be less than significant.

Cities of Richmond and San Pablo

The portion of the Central North Aqueduct pipeline in the city of Richmond and city of San Pablo would be constructed below grade in the roadway ROW, and the roadway surface would be restored following Project construction. Because the pipeline would be buried, it would not have the capacity to alter or induce changes to existing land uses. Thus, construction of the Central North Aqueduct pipeline would not conflict with any city of Richmond or city of San Pablo land use plan, policy, or regulation, and the impact would be less than significant.

Significance Determination before Mitigation

Less than significant.

Mitigation Measures

None required.

3.10.4 Cumulative Impact Analysis

As noted above, the Project would have no impact with respect to dividing an established community. Accordingly, the Project could not contribute to cumulative impacts on dividing an established community.

As described under Impact LU-1, the Project would not create inconsistencies with land use or zoning policies, and the proposed facilities would be exempt from local land use designations in accordance with California Government Code section 53091. In addition, the Project facilities would consist solely of water treatment facilities, directly related facilities (such as the consolidated maintenance building and dewatering building), and a buried pipeline. The Project facilities would add to the existing water treatment facilities and would not alter the existing land uses. The Project would not impact adjacent land uses and would not induce future land use changes because it would serve existing and planned future water demands.

As described in Section 3.0.4, Approach to Analysis of Cumulative Impacts, one planned EBMUD project would occur at the SOWTP site (the Water Treatment Plant Chemical Safety Systems Improvement Project). Several other projects would occur in the Project vicinity. The Central North Aqueduct pipeline would not have the potential to impact land use patterns

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because it would be underground in existing roadway ROW. As with the Project, the Water Treatment Plant Chemical Safety Systems Improvement Project would be within EBMUD property boundaries at the existing water treatment facilities. The Water Treatment Plant Chemical Safety Systems Improvement Project would be directly related to production, generation, storage, treatment, or transmission of water, and would thus be consistent with existing land uses at the site. The Water Treatment Plant Chemical Safety Systems Improvement Project may demolish, construct, or reconfigure facilities at the water treatment facilities, but it would not introduce new uses that could change land use patterns. Water treatment facilities and associated facilities would not have the potential to add or displace other land uses (e.g., housing, commercial, or industrial development) that would impact land use patterns. Therefore, the Project, in combination with reasonably foreseeable future projects, would not have the potential to displace, encroach on, or convert existing land uses. The Project would not change land use in the SOWTP vicinity or near the Central North Aqueduct pipeline and thus would have no potential to contribute to cumulative impacts related to conflicts with a land use regulation or policy adopted for avoiding or mitigating an environmental effect. The Project would not, combined with other reasonably foreseeable probably future projects, result in a cumulatively significant impact.

3.10.5 References

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3.11 Noise and Vibration

This section describes the physical, environmental, and regulatory setting for noise and vibration, identifies the significance criteria for determining environmental impacts, and evaluates the potential noise and vibration impacts that could result from implementation of the Project. The analysis focuses on potential impacts on humans and structures. Potential effects on wildlife are addressed in Section 3.3, Biological Resources. Supporting model output and calculations for the noise impact analysis and the results of the long-term noise measurements are provided in Appendix G.

3.11.1 Environmental Setting

Concepts and terminology used in noise and vibration evaluation are introduced below along with descriptions of the existing conditions in the vicinity of the Project.

Fundamentals of Sound and Vibration

Sound is characterized by various parameters that describe the rate of oscillation (frequency) of sound waves, the distance between successive troughs or crests in the wave, the speed that the wave travels, and the pressure level or energy content of a given sound. The sound pressure level is the most common descriptor used to characterize the loudness of an ambient sound, and the decibel (dB) scale is used to quantify sound intensity. Because sound can vary in intensity by over one million times within the range of human hearing, a logarithmic loudness scale is used to reflect this wide range. Because the human ear is not equally sensitive to all sound frequencies within the entire spectrum, human response is reflected in the A-weighted decibel (expressed as “dBA”), which refers to a scale of noise measurement that approximates the range of sensitivity of the human ear to sounds of different frequencies. On the dBA scale, the normal range of human hearing extends from about 0 dBA to about 140 dBA. Except in carefully controlled laboratory experiments, a change of only 1 dBA in sound level cannot be perceived. Outside the laboratory, a 3-dBA change is considered a perceptible difference, while a 5-dBA change is readily noticeable. A 10-dBA increase in the level of a continuous noise represents a perceived doubling of loudness (Caltrans, 2013).

Noise Descriptors and Metrics

Noise generally is defined as sound that is loud, unpleasant, unexpected, or undesired (Caltrans, 2013). Sound is mechanical energy transmitted in the form of a wave by a disturbance or vibration causing pressure variation in air that the human ear can detect. Variations in noise exposure over time typically are expressed in terms of a steady-state energy level (called L_{eq}) that represents the acoustical energy of a given measurement, or alternatively as a statistical description of what sound level is exceeded over some fraction (10, 50, or 90 percent) of a given measurement period (i.e., L_{10} , L_{50} , L_{90} , respectively). L_{eq} is the steady-state acoustical energy level measured over a 24-hour period. L_{max} is the maximum, instantaneous noise level registered during a measurement period.

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Because community receptors are more sensitive to unwanted noise intrusion during the evening and at night, 24-hour noise descriptors called the Community Noise Equivalent Level (CNEL) and day-night noise level (Ldn) are used for planning purposes; these levels add a dBA penalty increment to evening and nighttime noise levels to account for the increased sensitivity. CNEL adds a 5-dBA penalty during the evening (7 p.m. to 10 p.m.) and a 10-dBA penalty at night (10 p.m. to 7 a.m.). The Ldn descriptor is similar to CNEL. Both CNEL and Ldn add a 10-dBA penalty to all nighttime noise levels between 10 p.m. and 7 a.m., but Ldn does not add the evening 5-dBA penalty between 7 p.m. and 10 p.m. In practice, Ldn and CNEL usually differ by less than 1 dBA at any given location for transportation noise sources (Caltrans, 2013). Table 3.11-1 presents representative noise sources and their corresponding noise levels in dBA at varying distances from the noise sources.

Attenuation of Noise

A receptor's distance from a noise source affects how noise levels attenuate (decrease). Transportation noise sources tend to be arranged linearly, so that roadway traffic attenuates at a rate of 3 to 4.5 dBA per doubling of distance from the source, depending on the intervening surface (paved or vegetated, respectively). Point sources of noise, such as stationary equipment or construction equipment, typically attenuate at a rate of 6 to 7.5 dBA per doubling of distance from the source. For example, a sound level of 80 dBA at 50 feet from the noise source will be reduced to 74 dBA at 100 feet, 68 dBA at 200 feet, and so on. Noise levels also can be attenuated by "shielding" or providing a barrier between the source and the receptor. With respect to interior noise levels, noise attenuation effectiveness depends on whether windows are closed or open. Based on the United States (U.S.) Environmental Protection Agency (EPA) national average, closed windows reduce noise levels by approximately 25 dBA, while open windows reduce noise levels by about 15 dBA (EPA, 1974).

Speech Interference

Speech interference is an indicator of impact on typical daytime and evening activities. A speech interference indicator, in the context of impact duration and time of day, can be used to identify "substantial" increases in noise from temporary construction activities. Noise peaks generated by construction equipment could result in speech interference in adjacent buildings if the noise level in the interior of the building exceeds 45 to 60 dBA for people talking at 3 feet distance from each other¹ (USEPA, 1974). Thus, with windows closed an exterior level of 70 dBA could cause some speech interference and an exterior level of 85 could cause intolerable speech interference; with windows open, an exterior level of 60 dBA could cause some speech interference and 75 dBA could cause intolerable speech interference.

¹ For indoor noise environments, the highest noise level that permits relaxed conversation with 100 percent intelligibility throughout the room is 45 dBA. Speech interference is considered to become intolerable when normal conversation is precluded at 3 feet, which occurs when background noise levels exceed 60 dBA.

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Table 3.11-1 Representative Environmental Noise Levels

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
	110	Rock Band
Jet Fly-Over at 100-feet		
	100	
Gas Lawnmower at 3-feet		
	90	
Diesel Truck going 50-mph at 50-feet		Food Blender at 3-feet
	80	Garbage Disposal at 3-feet
Noisy Urban Area during Daytime		
Gas Lawnmower at 100-feet	70	Vacuum Cleaner at 10-feet
Commercial Area		Normal Speech at 3-feet
Heavy Traffic at 300-feet	60	
		Large Business Office
Quiet Urban Area during Daytime	50	Dishwasher in Next Room
Quiet Urban Area during Nighttime	40	Theater, Large Conference Room (background)
Quiet Suburban Area during Nighttime		
	30	Library
Quiet Rural Area during Nighttime		Bedroom at Night, Concert Hall (background)
	20	
		Broadcast/Recording Studio
	10	
	0	

Notes:

dBA = A-weighted decibel

mph = miles per hour.

Source: (Caltrans, 2013)

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Sleep Disturbance

Noise can disturb sleep by making it more difficult to fall asleep, by waking someone after they are asleep, or by altering their sleep stage, e.g., reducing the amount of rapid eye movement (REM) sleep. Noise exposure for people who are sleeping has also been linked to increased blood pressure, increased heart rate, increased body movements, and other physiological effects. People whose sleep is disturbed by noise often experience secondary effects such as increased fatigue, depressed mood, and decreased work performance. An interior nighttime level of 35 dBA is considered acceptable (USEPA, 1974). The exterior shell of a house can reduce exterior noise levels by 25 dBA with the windows closed and 15 dBA with the windows open. During Project construction, it is expected that affected residents would have their windows open at times during warm weather periods for ventilation. Therefore, exterior noise levels of 50 dBA (windows open) or 60 dBA (windows closed) would maintain an acceptable interior noise environment of 35 dBA.

Vibration

Vibrations caused by construction activities can be interpreted as energy transmitted in waves through the soil mass. The energy waves generally dissipate with distance from the vibration source (e.g., pile driving or sheet pile driving). Because energy is lost during the transfer of energy from one particle to another, vibration that is distant from a source usually is less perceptible than vibration closer to the source. However, actual human and structure response to different vibration levels is influenced by a combination of factors, including soil type, distance between source and receptor, duration, and the number of perceived events.

If great enough, the energy transmitted through the ground as vibration can cause structural damage. To assess the potential for structural damage associated with vibration, the vibratory ground motion in the vicinity of the affected structure is measured in terms of peak particle velocity (PPV) in the vertical and horizontal directions (vector sum), typically in units of inches per second (in/sec). For comparison, a freight train passing at 100 feet can cause vibrations of 0.1-in/sec PPV, while a strong earthquake can produce vibration in the range of 10-in/sec PPV. Minor cosmetic damage to buildings can occur at vibration levels as low as 0.5-in/sec PPV for single-event sources (FTA, 2018).

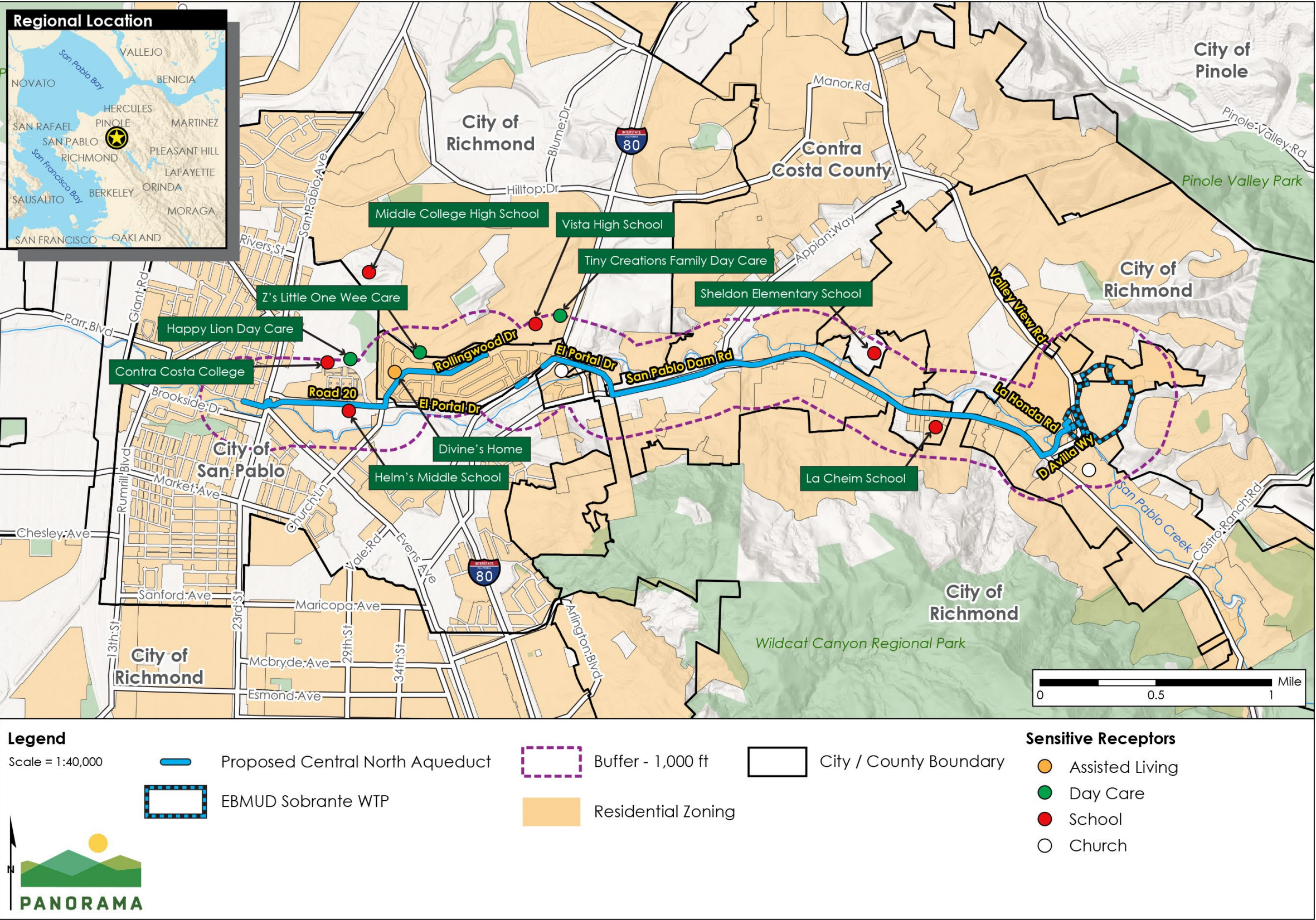
Another useful vibration descriptor is known as vibration decibels (VdB). VdB generally are used when evaluating human response to vibration, as opposed to structural damage (for which PPV is the more commonly used descriptor). VdB are established relative to a reference quantity, typically 1×10^{-6} in/sec (FTA, 2018).

Existing Noise Environment

The Sobrante Water Treatment Plant (SOWTP) site is bordered by Amend Road and Valley View Road and is surrounded by single-family residential homes. The Central North Aqueduct pipeline alignment is within roadways adjacent to single-family residential, multi-family residential, and commercial areas. Five schools, two day care facilities, two churches, and an assisted living facility are in proximity to the Central North Aqueduct pipeline alignment (Figure 3.11-1). Traffic is the predominant source of ambient noise in the area.

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Figure 3.11-1 Location of Sensitive Land Use and Noise Receptors



Source: (Maxar, 2021; USGS, 2012; Contra Costa County Department of Information Technology, 2017; Menendian, Stephen, Samir Gambhir, Karina French, Arthur Gales, 2020) (Google, Inc., 2022)

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To characterize the existing noise environment in the Project vicinity, long-term (72-hour) noise measurements were taken from February 22 to February 24, 2022, at seven locations (sites 1 to 4 and sites 11 to 13). Short-term (10-minute) noise measurements were taken at 21 locations (sites 1 to 21). Figure 3.11-2 and Figure 3.11-3 show the noise measurement locations. Table 3.11-2 and Table 3.11-3 summarize the long-term and short-term noise measurements, respectively.

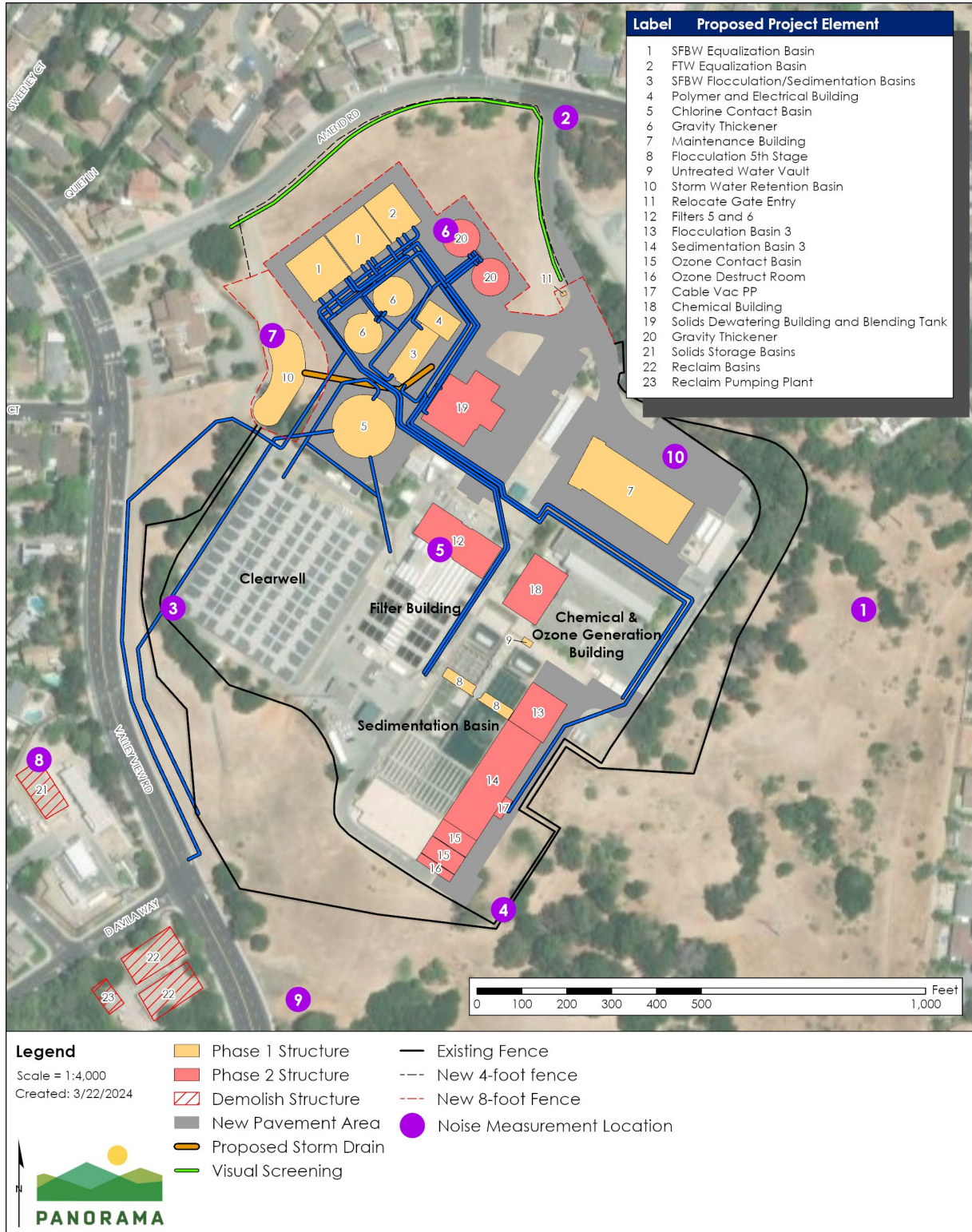
In general, noise levels in the Project vicinity ranged from 44 to 71 dBA (Leq), with higher noise levels occurring along the Central North Aqueduct pipeline along San Pablo Dam Road. Noise levels surrounding the SOWTP site area varied with elevation, distance, and the presence of topographic barriers, such as hillsides and berms. No elevation or barriers occur near the Central North Aqueduct pipeline alignment. In general, hourly average noise levels ranged from 46 to 60 dBA (Leq) during the daytime hours (7 a.m. to 7 p.m.), 48 to 58 dBA (Leq) during the evening hours (7 p.m. to 10 p.m.), and 45 to 60 dBA (Leq) during the nighttime hours (10 p.m. to 7 a.m.) at the SOWTP site and along the Central North Aqueduct pipeline, with higher average noise levels (CNEL) observed along San Pablo Dam Road and Road 20 in proximity to the Central North Aqueduct pipeline alignment.

Sensitive Receptors

Some land uses are considered more sensitive to ambient noise levels than others because of the amount of noise exposure, in terms of both duration and insulation from noise, and the types of activities typically involved. Residences, hospitals, schools, and nursing homes generally are more sensitive to noise than commercial and industrial land uses. The Project is in the cities of Richmond and San Pablo and Contra Costa County. Noise-sensitive land uses are defined by the local jurisdictions to include residences, schools, churches, and hospitals. Figure 3.11-1 shows the location of noise sensitive land uses and receptors in the Project vicinity which include five schools, two day care facilities, two churches, and an assisted living facility.

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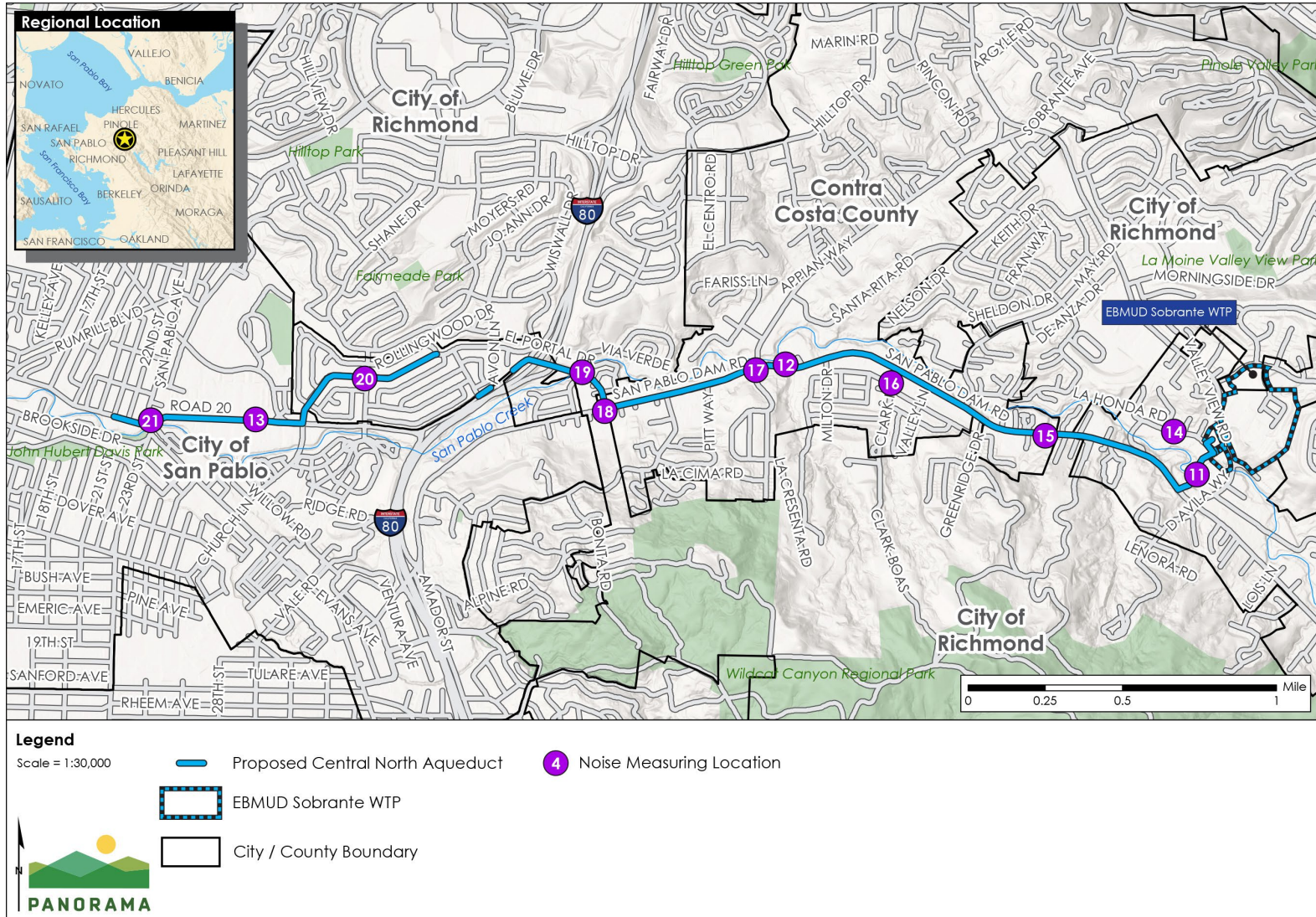
Figure 3.11-2 Noise Measurement Locations at SOWTP (Sites 1–10)



Source: (RCH Group, 2023)

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Figure 3.11-3 Noise Measurement Locations along the Central North Aqueduct Pipeline (Sites 11–21)



Source: (RCH Group, 2023)

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Table 3.11-2 Long-Term Noise Measurements

Location	Time Period (72 hour measurement)	Noise Levels (decibels) ¹
Site 1: southeast of SOWTP, approximately 300 feet north of residences on Fascination Circle	2/22/22, 12 a.m. through 2/24/22, 11:59 p.m.	Hourly Leq ranged from 48 to 66 CNELs ranged from 56 to 64
Site 2: SOWTP entrance, north of the SOWTP, approximately 80 feet south of homes along Amend Road	2/22/22, 12 a.m. through 2/24/22, 11:59 p.m.	Hourly Leq ranged from 46 to 60 CNELs ranged from 57 to 58
Site 3: east boundary of SOWTP, attached on a tree directly west of the clearwell	2/22/22, 12 a.m. through 2/24/22, 11:59 p.m.	Hourly Leq ranged from 48 to 60 CNELs ranged from 58 to 60
Site 4: southwest boundary of SOWTP, approximately 250 feet southwest of the sedimentation basins	2/22/22, 12 a.m. through 2/24/22, 11:59 p.m.	Hourly Leq ranged from 46 to 57 CNELs ranged from 56 to 59
Site 11: along D Avila Way, approximately 45 feet east of apartment complex	2/22/22, 12 a.m. through 2/24/22, 11:59 p.m.	Hourly Leq ranged from 44 to 69 CNELs ranged from 56 to 60
Site 12: intersection of Campbell Lane and San Pablo Dam Road, approximately 50 feet north of San Pablo Dam Road	2/22/22, 12 a.m. through 2/24/22, 11:59 p.m.	Hourly Leq ranged from 53 to 71 CNELs (for all three days): 69
Site 13: along Road 20, directly south of residences, approximately 160 feet north of Helms Middle School	2/22/22, 12 a.m. through 2/24/22, 11:59 p.m.	Hourly Leq ranged from 52 to 69 CNELs (for all three days): 66

Note: ¹ Noise sources were not identified for long-term unattended noise measurements.

Source: (RCH Group, 2022)

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Table 3.11-3 Short-Term Noise Measurements

Location	Time Period	Noise Levels 5-minute Leq ¹	Noise Sources
Site 1: southeast of SOWTP, approximately 300 feet north of residences on Fascination Circle	2/22/22, 9:35 a.m. to 9:45 a.m.	51 dB, 50 dB	Distant plane 50 dB; operational noise from SOWTP 48 dB
Site 2: SOWTP entrance, north of the SOWTP, approximately 80 feet south of homes along Amend Road	2/22/2022, 9:55 a.m. to 10:05 a.m.	54 dB, 55 dB	Traffic on Amend Road up to 60 dB; no audible operational noise from SOWTP
Site 3: east boundary of SOWTP, attached on a tree directly west of the clearwell	2/22/2022, 10:52 a.m. to 11:02 a.m.	56 dB, 53 dB	Traffic on Valley View Road up to 57 dB; operational noise from SOWTP 52 dB
Site 4: southwest boundary of SOWTP, approximately 250 feet southwest of the sedimentation basins	2/22/2022, 10:25 a.m. to 10:35 a.m.	50 dB, 50 dB	Fountain noise at sedimentation basin 50 dB
Site 5: nearby main office building	2/22/2022, 10:40 a.m. to 10:50 a.m.	51 dB, 52 dB	Fan noise from clearwell 52 dB
Site 6: north area of SOWTP	2/22/2022, 11:29 a.m. to 11:39 a.m.	49 dB, 47 dB	Traffic on Amend Road up to 48 dB; wind 45 dB; no audible operational noise from SOWTP
Site 7: eastern boundary of the north area of SOWTP	2/22/2022, 11:42 a.m. to 11:52 a.m.	48 dB, 48 dB	Traffic on Amend Road up to 47 dB; wind 45 dB; no audible operational noise from SOWTP
Site 8: solids handling basins, directly south of homes on La Honda Court	2/22/2022, 11:14 a.m. to 11:24 a.m.	45 dB, 46 dB	Traffic on Valley View Road up to 55 dB
Site 9: along Valley View Road	2/22/2022, 12:11 p.m. to 12:21 p.m.	65 dB, 65 dB	Traffic on Valley View Road up to 65 dB
Site 10: trailer yard	2/22/2022, 10:12 a.m. to 10:22 a.m.	46 dB, 48 dB	Operations at nearby building to the north 45 dB; dogs barking in the distance 42 dB
Site 11: along D Avila Way, approximately 45 feet east of apartment complex	2/22/2022, 12:46 p.m. to 12:56 p.m.	59 dB, 68 dB	Traffic up to 85 dB, neighbors playing music 60 dB

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Location	Time Period	Noise Levels 5-minute Leq ¹	Noise Sources
Site 12: intersection of Campbell Lane and San Pablo Dam Road, approximately 50 feet north of San Pablo Dam Road	2/22/2022, 1:06 p.m. to 1:16 p.m.	64 dB, 64 dB	Constant traffic on San Pablo Dam Road up to 65 dB
Site 13: along Road 20, directly south of residences, approximately 160 feet north of Helms Middle School	2/22/2022, 1:28 p.m. to 1:38 p.m.	61 dB, 60 dB	Traffic on Road 20 up to 70 dB
Site 14: along La Honda Road	2/25/2022, 10:17 a.m. to 10:27 a.m.	45 dB, 47 dB	Cars passing up to 62 dB; birds chirping 45 dB
Site 15: south intersection of San Pablo Dam and Pheasant Lane	2/25/2022, 11 a.m. to 11:10 a.m.	66 dB, 67 dB	Traffic on San Pablo Dam up to 70 dB
Site 16: intersection of Clark Road and Wesley Way	2/25/2022, 11:14 a.m. to 11:24 a.m.	55 dB, 56 dB	Traffic on Clark Road up to 72 dB
Site 17: south intersection of Appian Way and San Pablo Dam Road, busy commercial/industrial area	2/25/2022, 11:28 a.m. to 11:38 a.m.	76 dB, 67 dB	Busy area; ambulance siren 80 dB; constant traffic on San Pablo Dam Road up to 74 dB,
Site 18: south intersection of El Portal Drive and San Pablo Dam Road	2/25/2022, 11:48 a.m. to 11:58 a.m.	64 dB, 61 dB	Traffic on San Pablo Dam up to 70 dB
Site 19: intersection of El Portal Drive and Via Verdi, directly west of apartment complex	2/25/2022, 12:07 p.m. to 12:17 p.m.	64 dB, 65 dB	Traffic on El Portal Drive up to 70 dB
Site 20: residential area in Rollingwood, intersection of Fordham Street and Rollingwood Drive	2/25/2022, 12:21 p.m. to 12:31 p.m.	63 dB, 69 dB	Cars passing up to 70 dB, distant construction on home remodel 50 dB
Site 21: intersection of Road 20 and San Pablo Avenue	2/25/2022, 12:39 p.m. to 12:49 p.m.	62 dB, 62 dB	Traffic on San Pablo Avenue up to 65 dB

Note: ¹Two measurements were recorded at each location. The first number is the Leq for the first 5-minute measurement period. The second number is the Leq for the second 5-minute measurement period.

Source (RCH Group, 2022)

3.11 NOISE AND VIBRATION

3.11.2 Regulatory Framework

This section describes federal, state, and local policies and regulations related to noise that may apply to the Project.

Federal Policies and Regulations

No federal policies or regulations related to noise are applicable to the Project. The federal Noise Control Act of 1972 divides powers between federal, state, and local governments, in which the primary federal responsibility is for noise source emission control. State and local governments are responsible for controlling the operation of fixed noise sources (e.g., air conditioning, swimming pool equipment) and determining the levels of noise to be permitted in their environment (EPA, 1974).

State Policies and Regulations

State regulations include requirements for the construction of new hotels, motels, apartment houses, and dwellings other than detached single-family dwellings, intended to limit the extent of noise transmitted into habitable spaces. These requirements collectively are known as the California Noise Insulation Standards and are found under Title 24 of the California Code of Regulations.

The State of California updated its Building Code requirements with respect to sound transmission, effective January 2014. Section 1207 of the California Building Code (Title 24 of the California Code of Regulations) establishes material requirements in terms of a sound transmission class (STC)² rating of 50 for all common interior walls and floor/ceiling assemblies between adjacent dwelling units or between dwelling units and adjacent public area. It also sets an interior performance standard of 45 dBA from exterior noise sources.

Local Policies and Regulations

Under Section 53091 of the California Government Code, local agency building and zoning ordinances do not apply to projects involving the location or construction of facilities for the production, generation, storage, treatment, or transmission of water. However, EBMUD's practice is to work with local jurisdictions and neighboring communities during project planning, and to consider local environmental protection policies for guidance.

Contra Costa County General Plan

The *Contra Costa County General Plan* outlines the County's goals for physical growth, conservation, and community life in the unincorporated Contra Costa County area and contains the policies and actions necessary to achieve those goals. The *Contra Costa County General Plan* was adopted in 1991 and has been reconsolidated twice, once for 1990 to 2005 and again for

² The STC is used as a measure of a material's ability to reduce sound. The STC is equal to the number of decibels a sound is reduced as it passes through a material.

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2005 to 2020 (Contra Costa County, 2020). The following policy relevant to noise is included in the *Contra Costa County General Plan* Noise Element:

Noise Policy 11-1. New projects shall be required to meet acceptable exterior noise level standards as established in the Noise and Land Use Compatibility Guidelines contained in Figure 11-6. These guidelines, along with the future noise levels shown in the future noise contours maps, should be used by the county as a guide for evaluating the compatibility of “noise sensitive” projects in potentially noisy areas.

Noise Policy 11-8. Construction activities shall be concentrated during the hours of the day that are not noise-sensitive for adjacent land uses and should be commissioned to occur during normal work hours of the day to provide relative quiet during the more sensitive evening and early morning periods.

The *Contra Costa General Plan* Noise Element includes guidelines for noise compatibility with land use. Residential land uses presented in the Contra Costa County land use compatibility guidelines are shown Table 3.11-4. According to the *Contra Costa County General Plan*, noise levels of up to 60 dB and 65 dB Ldn/CNEL are considered normally acceptable for single-family residential land use and multi-family residential land use, respectively.

Table 3.11-4 Land Use Compatibility Guidelines for Community Noise in Contra Costa County

Land Use Category	Community Noise Exposure Ldn or CNEL, dB
Residential – Low Density Single-Family, Duplex, Mobile Homes	50 to 60 = Normally acceptable 55 to 70 = Conditionally acceptable 70 to 75 = Normally unacceptable 75 to 85 = Clearly unacceptable
Residential – Multi-family	50 to 65 = Normally acceptable 60 to 70 = Conditionally acceptable 70 to 75 = Normally unacceptable 75 to 85 = Clearly unacceptable

Notes:

Normally acceptable: Specified land use is satisfactory, based on the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements

Conditionally acceptable: New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features are included in the design.

Conventional construction, but with closed windows and fresh air supply systems or air conditioning normally will suffice.

Normally unacceptable: New construction or development should be discouraged. If new construction or development proceeds, a detailed analysis of the noise reduction requirement must be made, and needed noise insulation features need to be included in the design.

Clearly unacceptable: New construction or development generally should not be undertaken

Source: (Contra Costa County, 2020)

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Contra Costa County Ordinance Code (Title 7–Building Regulations)

Contra Costa County does not have a noise ordinance, but the zoning code addresses impacts related to construction noise under Article 716-8.10 Miscellaneous Provisions, which limits excavation and grading operations to weekdays between 7:30 a.m. and 5:30 p.m. for all excavation and grading activities within 500 feet of residential and commercial occupancies. Section 716-8.1008 states that operations shall be controlled to prevent nuisances to public and private ownerships because of dust, drainage, removal of natural support of land and structures, encroachment, noise, and/or vibration (Contra Costa County, 2022).

City of Richmond General Plan

The *City of Richmond General Plan 2030* contains 15 elements addressing land use, economic development, housing, transportation, climate change, public safety, arts and culture, and open space conservation strategies. The *City of Richmond General Plan 2030* provides a comprehensive framework for developing a healthy city and healthy neighborhoods (City of Richmond, 2012). The following policy related to noise is included as a part of the *City of Richmond General Plan 2030* Public Safety and Noise Element:

Policy SN4.1: Work with regulatory agencies to monitor and enforce noise standards in the community. Reduce or mitigate objectionable noise sources and require new noise sources to comply with noise standards. Regulate both indoor and outdoor noise levels to protect health and safety. Use a combination of noise standards and existing noise levels to determine impacts and mitigation measures.

Richmond’s Noise Element includes land use compatibility guidelines for community exterior noise environments for residential land uses (Table 3.11-5). According to the *City of Richmond General Plan 2030*, noise levels of up to 60 dB Ldn/CNEL and 65 dB Ldn/CNEL are considered normally acceptable for single-family residential and multi-family residential land uses, respectively.

Table 3.11-5 Land Use Compatibility Guidelines for Community Noise in the City of Richmond

Land Use Category	Community Noise Exposure Ldn or CNEL, dB
Residential – Low Density Single-Family, Duplex, Mobile Homes	50 to 60 = Normally acceptable
	55 to 70 = Conditionally acceptable
	70 to 75 = Normally unacceptable
	75 to 85 = Clearly unacceptable
Residential – Multi-family	50 to 65 = Normally acceptable
	60 to 70 = Conditionally acceptable
	70 to 75 = Normally unacceptable

Notes:

Normally acceptable: Specified land use is satisfactory, based on the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements.

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Conditionally acceptable: New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features are included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning normally will suffice.

Normally unacceptable: New construction or development should be discouraged. If new construction or development proceeds, a detailed analysis of the noise reduction requirement must be made, and needed noise insulation features need to be included in the design.

Clearly unacceptable: New construction or development generally should not be undertaken.

Source: (City of Richmond, 2012)

City of Richmond Noise Ordinance (Chapter 9.52)

The City of Richmond's Community Noise Ordinance outlines the City's standards and limitations on noise sources within the city limits. Chapter 9.52 establishes noise performance standards for community noise sources and construction activities (City of Richmond, 2011):

- Section 9.52.100 establishes the following maximum exterior noise levels (as measured at the property line of the property from which the noise emanates):
 - In single-family and multi-family residential zoning districts: 50dB, L_{max} (levels not to be exceeded for more than 5 minutes of any hour during the nighttime) (10 p.m. to 7 a.m.) at the property line of a residential use.
 - Section 9.52.100 also notes that the exterior noise limits for any source of noise within any residential zone should be reduced by 10 dBA between 10 p.m. and 7 a.m.
 - Section 9.52.110 limits construction activities to between 7 a.m. and 7 p.m. on weekdays and between 9 a.m. and 8 p.m. on Saturdays and Sundays and legal holidays if they would result in a noise disturbance across a residential property line.

The City of Richmond's Community Noise Ordinance also states that "where technically and economically feasible" temporary construction activity should be conducted in such a manner that the maximum sound levels at affected properties do not exceed the maximum sound level thresholds established in the Noise Ordinance. Table 3.11-6 shows maximum allowable noise levels for mobile construction equipment. Table 3.11-7 shows the maximum allowable noise levels for stationary construction equipment.

- Section 9.52.060 of the Community Noise Ordinance includes the following requirements for construction equipment that are relevant to the Project:
 - All construction equipment powered by internal combustion engines should be properly muffled and maintained.
 - Unnecessary idling of internal combustion engines is prohibited.
 - All stationary noise-generating construction equipment, such as tree grinders and air compressors, are to be located as far as is practical from existing residences.
 - Quiet construction equipment, particularly air compressors, are to be selected whenever possible.

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- Use of pile drivers, sources of impulsive sound, and jack hammers are prohibited on Sundays and holidays, except for emergencies or as approved in advance by the Building Official.
- Section 9.52.050(i)(1) of the Community Noise Ordinance indicates the following:
 - When construction activities on a construction project that is adjacent to noise sensitive use(s) are anticipated to last for a year or more, temporary noise barriers should be constructed to break the line of sight between the noise-sensitive use(s) and the construction project, to minimize noise impacts.

Table 3.11-6 Maximum Allowable Noise Levels for Mobile Equipment in the City of Richmond (Lmax)

Time	Single-Family Residential Zoning District	Multifamily Residential Zoning District
Weekdays, 7 a.m. to 7 p.m.	75 dB	80 dB
Weekends, including legal holidays 9 a.m. to 8 p.m.	60 dB	65 dB

Note: Mobile construction equipment: maximum sound levels for nonscheduled, intermittent, and short-term operation of less than 15 days.

Source: (City of Richmond, 2011)

Table 3.11-7 Maximum Allowable Noise Levels for Stationary Equipment in the City of Richmond (Lmax)

Time	Single-Family Residential Zoning District	Multifamily Residential Zoning District
Weekdays, 7 a.m. to 7 p.m.	60 dB	65 dB
Weekends, including legal holidays 9 a.m. to 8 p.m.	55 dB	60 dB

Source: (City of Richmond, 2011)

City of San Pablo General Plan

The *City of San Pablo General Plan 2030* provides a vision of how San Pablo should be in the future by establishing guidelines that reflect City policies, goals, and efforts while enhancing quality of life. The *City of San Pablo General Plan 2030* serves as a blueprint for the future, outlines policies that guide development and conservation, and provides the basis for establishing detailed plans and implementing programs, such as development standards and specific plans (City of San Pablo, 2011). The following policies relevant to noise are included in the *City of San Pablo General Plan 2030* Safety and Noise Element:

Policy SN-I-38: Require proposed industrial, commercial, and other uses with potential noise and vibration-producing activities to submit a noise study report identifying noise and vibration mitigation measures that would reduce the adjacent noise level to acceptable ranges based on the Community Noise Environmental Standards.

Policy SN-I-39: Require new, fixed noise sources to use best available control technology to minimize noise and vibration.

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San Pablo's Noise Element includes land use compatibility guidelines for community exterior noise environments for residential land uses, as shown in Table 3.11-8. According to the *City of San Pablo General Plan 2030*, noise levels of up to 60 dB and 65 dB, Ldn/CNEL are considered normally acceptable for single-family residential land uses and multi-family residential land uses, respectively.

Table 3.11-8 Land Use Compatibility Guidelines for Community Noise in the City of San Pablo

Land Use Category	Community Noise Exposure Ldn or CNEL, dB
Residential – Low Density Single-Family, Duplex, Mobile Homes	50 to 60 = Normally acceptable 55 to 70 = Conditionally acceptable 70 to 75 = Normally unacceptable 75 to 85 = Clearly unacceptable
Residential – Multi-family	50 to 65 = Normally acceptable 65 to 70 = Conditionally acceptable 70 to 75 = Normally unacceptable 75 to 85 = Clearly unacceptable

Notes:

Normally acceptable: Specified land use is satisfactory, based on the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements.

Conditionally acceptable: New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features are included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning normally will suffice.

Normally unacceptable: New construction or development should be discouraged. If new construction or development proceeds, a detailed analysis of the noise reduction requirement must be made, and needed noise insulation features need to be included in the design.

Clearly unacceptable: New construction or development generally should not be undertaken

Source: (City of San Pablo, 2011)

City of San Pablo Noise Ordinance (Chapter 17.50)

Section 17.50.050 of the San Pablo Municipal Code establishes the following maximum exterior noise levels (as measured at the adjacent residential property line or within a neighboring home):

- Exterior Noise Limits are 60 dB, Lmax (between 10 p.m. and 7 a.m.) and 65 dB, Lmax (between 7 a.m. and 10 p.m.).
- Interior Noise Limits are 45 dB, Lmax (between 10 p.m. and 7 a.m.) and 50 dB, Lmax (between 7 a.m. and 10 p.m.).

The City of San Pablo's Municipal Code prohibits all construction operations between 10 p.m. and 7 a.m. unless an emergency occurs.

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EBMUD Standard Construction Specifications

EBMUD's Standard Construction Specifications and Procedures apply to all contractors completing work for EBMUD, and to work completed by EBMUD staff. The following EBMUD practices and procedures are applicable to noise and vibration control.

- **EBMUD Standard Construction Specification 01 35 44, Environmental Requirements, Sections 1.4(G and H), 3.7, and 3.8**

EBMUD Standard Construction Specification 01 35 44, Environmental Requirements, includes practices and procedures for reducing noise and vibration impacts, including restrictions on noise-generating activities, and noise and vibration control methods and monitoring, described as follows (EBMUD, 2023):

- Section 1.4(G), Noise Control and Monitoring Plan
 - Submit a plan detailing the means and methods for controlling and monitoring noise generated by construction activities, including demolition, alteration, repair, or remodeling of or to existing structures and construction of new structures, as well as by items of machinery, equipment or devices used during construction activities on the site for EBMUD's acceptance prior to any work at the jobsite. The plan shall detail the equipment and methods used to monitor compliance with the plan.
- Section 1.4(H), Vibration Control and Monitoring Plan
 - Submit a plan detailing the means and methods for controlling and monitoring surface vibration generated by demolition and other work on the site for EBMUD's acceptance prior to any work at the jobsite. The plan shall detail the equipment and methods used to monitor compliance with the plan.
- Section 3.7, Vibration Control
 - Limit continuous surface vibration to no more than 0.5 in/sec Peak Particle Velocity (PPV), measured at the nearest residence or other sensitive structure. See Section 01 14 00.
- Section 3.8, Noise Control
 - Comply with sound control and noise level rules, regulations, and local ordinances and in the CEQA documents which apply to any work performed pursuant to the contract. Noise-generating activities shall be limited to the hours specified in Section 01 14 00.
 - Take appropriate measures, including muffling of equipment, selecting quieter equipment, erecting noise barriers, modifying work operations, and other measures as needed to bring construction noise into compliance.
 - Each internal combustion engine, used for any purpose on the job or related to the job, shall be equipped with a muffler of a type recommended by the manufacturer.
 - Use the best available noise control techniques (including mufflers, intake silencers, ducts, engine enclosures, and acoustically attenuating shields or shrouds) for all equipment and trucks, as necessary.

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- Truck operations (haul trucks and concrete delivery trucks) shall be limited to the daytime hours specified in Section 01 14 00.
- Stationary noise sources (e.g., chippers, grinders, compressors) shall be located as far from sensitive receptors as possible. Enclosure opening or venting shall face away from sensitive receptors. Enclosures shall be designed by a registered engineer regularly involved in noise control analysis and design.
- If impact equipment (e.g., jack hammers, pavement breakers, rock drills etc.) is used during project construction, Contractor is responsible for taking appropriate measures, including but not limited to the following:
 - Hydraulically or electric-powered equipment shall be used wherever feasible to avoid the noise associated with compressed-air exhaust from pneumatically powered tools. However, where use of pneumatically powered tools is unavoidable, an exhaust muffler on the compressed-air exhaust shall be used. External jackets on the tools themselves shall be used, where feasible. Quieter procedures, such as drilling rather than impact equipment, shall be used whenever feasible. It is the Contractor's responsibility to implement any measures necessary to meet applicable noise requirements.
 - Impact construction including jackhammers, hydraulic backhoe, concrete crushing/recycling activities, vibratory pile drivers etc. shall be limited to the daytime hours specified in Section 01 14 00.
 - Erect temporary noise barriers or noise control blankets around the construction site, particularly along areas adjacent to residential buildings.
 - Limit the noisiest phases of construction to 10 workdays at a time, where feasible.
 - Notify neighbors/occupants within 300 feet of project construction at least thirty days in advance of extreme noise generating activities about the estimated duration of the activity.
 - Noise Monitoring shall be conducted periodically during noise generating activities. Monitoring shall be conducted using a precision sound-level meter that is in conformance with the American National Standards Institute (ANSI) Standard S1.4, Specification for Sound Level Meters. Monitoring results shall be submitted weekly to EBMUD.
- **EBMUD Procedure 600**
 - Designates a Public Affairs liaison to respond to construction-related issues, including noise. Contact information for the Public Affairs liaison (i.e., phone number, email address) and capital project site address will be provided via conspicuous signage at construction sites, on all advance notifications, and on the District project website. The Public Affairs liaison will coordinate with the construction project manager/engineer and any contractors to resolve any issues.
 - Notifies residents at least seven days (and preferably fourteen days) in advance of potentially disruptive construction activities (e.g., noise, traffic, parking);

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notifications will include the activities' geographical extent and estimated duration. The Public Affairs liaison will coordinate with the project manager/engineer and any contractors to provide advance notification via email, mailed notices, door-hangers, social media, or other means, as appropriate.

3.11.3 Impact Analysis

Methodology for Analysis

Potential noise and vibration impacts are analyzed based on the potential for the Project to result in substantial changes in the noise environment during construction or operation. The estimated noise during construction was compared to quantitative thresholds for construction noise in the city of Richmond and speech interference and sleep disturbance indicators in the Contra Costa County and city of San Pablo where the zoning ordinance does not contain quantitative noise thresholds for construction. The estimated vibration during construction was compared to building damage and annoyance criteria. Existing site conditions before Project construction are compared to site conditions both during construction activities and after the facilities are operational.

Noise Analysis

Project construction would result in a temporary increase to noise within the vicinity of the Project. The noise impact assessment evaluated temporary impacts associated with Project construction and demolition. For Impact NOI-1, described below, the determination of impact significance for noise considered the combined construction noise from the simultaneous use of on-site equipment, noise ordinance standards, proximity of noise sensitive uses, and the potential duration that sensitive receptors would be subject to construction noise. Analysis of the temporary construction noise impacts was based on the estimated types and numbers of construction equipment and duration of use. The analysis accounted for attenuation of noise because of the distances separating the construction activity from the nearest sensitive receptor.

The improvements at the SOWTP would be constructed in two different phases separated by an unknown time gap, as described in the Project Description and shown on Figure 2-2. Each Phase would progress through several construction stages to build each facility with multiple stages occurring concurrently across the site. In addition, the Central North Aqueduct pipeline would be constructed with open trench and jack and bore methods. The open trench construction would proceed in segments of 40 to 120 feet per day as described in the Project Description.

Noise levels were estimated for the following Phase 1 construction activities because they would generate the highest noise levels at receptors based on the equipment that would be used and the distance to the nearest residence:

- Site preparation and mobilization
- Installation of I-beams to support excavations
- Excavation and installation of lagging for the spent filter backwash (SFBW) basin, equalization basins, and gravity thickeners

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- Drilling and pouring piers for the SFBW and equalization basins
- Pouring the mat foundation for the SFBW and equalization basins
- Drilling and pouring piers for the power and polymer building
- Jack and bore construction of the 90-inch-diameter chlorine contact basin pipeline
- Construction of the 8-inch-diameter solids-to-sewer pipeline
- Demolition of the existing pumping plant facilities along D Avila Way

Noise levels were estimated for the following Phase 2 construction activities at the SOWTP because they would generate the highest noise levels at receptors based on the equipment that would be used and the proximity to the nearest residence:

- Chemical building construction
- Installation of I-beams for the gravity thickener excavation and lagging
- Dewatering building drilling and pouring of piers for the dewatering building

Noise levels were estimated for the following Phase 2 construction of the Central North Aqueduct pipeline:

- Jack and bore construction within Contra Costa County
- Open trench construction within city of Richmond, Contra Costa County, and city of San Pablo

The distances of noise sources from receptors would vary throughout construction because demolition activities and Central North Aqueduct pipeline construction would occur adjacent to the sensitive receptors' property line, while other activities such as some improvements at the SOWTP site would occur in the middle of the site. Noise levels were estimated using two-dimensional propagation modeling, a conservative approach that does not account for noise attenuation that may result from intervening structures and topography. Combined intermittent noise levels from the simultaneous operation of on-site equipment expected to be used in construction were estimated based on equipment noise data published by the Federal Highway Administration (FHWA). The FHWA Roadway Construction Noise Model (RCNM) was used to assess whether construction activities could exceed local noise ordinance limits (FHWA, 2006). RCNM was used for the construction noise impact analysis because it contains a robust inventory of off-road equipment and reference noise levels common to large-scale construction and demolition projects. For construction activity scenarios in the city of Richmond, distances were modeled between the construction equipment and the nearest residential property line consistent with the Richmond Community Noise Ordinance. For construction activity scenarios in Contra Costa County, distances were modeled between the construction equipment and the nearest residence itself because the zoning code addresses the residential occupancies. Because distances between construction equipment and the nearest residential receptor would be variable throughout construction, noise levels were conservatively modeled at the construction site work area location nearest to the residential receptor.

Vibration

The CEQA significance criterion evaluates the potential for construction to result in excessive groundborne vibration or groundborne noise. Groundborne noise is experienced inside a

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building or structure but is the result of vibrations produced outside the building and transmitted as ground vibrations between source and receiver. Groundborne noise can be problematic in situations where the primary airborne noise path is blocked, as in the case of a subway tunnel passing near homes or other noise-sensitive structures.

The proposed noise and vibration generating construction activities associated with the Project would involve techniques (e.g., pile driving, pavement cutting, drilling, excavation, and paving) that would generate airborne noise and surface vibration. Project implementation would not result in groundborne noise, which is generally associated with unique construction activities, such as blasting. Groundborne noise is not described further because any potential groundborne noise from construction activities would be imperceptible; environmental vibration is rarely of sufficient magnitude to be perceptible or cause audible groundborne noise unless a specific vibration source is close by, such as a rail transit line (FTA, 2018); therefore, no impact related to groundborne noise would occur.

Groundborne vibration impacts were analyzed by estimating vibration levels at the nearest structure or building to each Project vibration source and comparing with recommended limits or significance thresholds. The vibration level at the nearest building/structure was determined based on the vibration level for each piece of equipment and setback distance from the vibration source.

Significance Criteria

Consistent with *Appendix G* of the *CEQA Guidelines*, an impact on noise would be considered significant if the Project would result in:

1. 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.
2. Generation of excessive groundborne vibration or groundborne noise levels.
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 area to excessive noise levels.

Noise Thresholds

Table 3.11-9 summarizes the construction noise thresholds in each jurisdiction. Construction noise impacts are considered significant if construction noise levels would exceed the thresholds outlined in Table 3.11-9.

Table 3.11-9 Construction Noise Thresholds

Jurisdiction	Construction Noise Threshold
City of Richmond	Mobile Construction Noise Limits: 75 dB, Lmax
	Stationary Construction Noise Limits: 60 dB, Lmax

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Jurisdiction	Construction Noise Threshold
	Hours of Construction: 7 a.m. to 7 p.m. (weekdays) and 9 a.m. to 8 p.m. (weekends and legal holidays)
	Nighttime Residential Threshold (10 p.m. to 7 a.m.): 50dB, L _{max}
Contra Costa County ¹	Hours of Construction: 7:30 a.m. to 5:30 p.m. (weekdays) within 500 feet of residential and commercial occupancies.
City of San Pablo ¹	Hours of Construction: 7 a.m. to 10 p.m.

Note: ¹Contra Costa County and City of San Pablo have established hours when construction can occur but have not set construction noise limits for mobile or stationary construction equipment.

The Contra Costa County and City of San Pablo noise ordinances do not contain quantified noise limits applicable to construction and rather limit construction activities to specific hours of the day. It is EBMUD's practice is to consider local environmental protection policies for guidance; however, because neither Contra Costa County nor the City of San Pablo have set numeric noise thresholds, speech and sleep disturbance thresholds are used in both Contra Costa County and city of San Pablo to evaluate the significance of noise impacts. Because the pipeline construction noise (Central North Aqueduct pipeline and discharge pipeline from the solids handling facilities to the sewer) would move along the alignment and the peak noise from pavement cutting and excavation would last approximately 5 days at each receptor, the Project's construction noise impacts are compared to the intolerable speech interference indicator of 85 dBA Leq, assuming residents can close their windows during the noisiest construction activities. Because demolition activities and jack and bore construction would occur for a longer duration and would be localized to the demolition site and jack and bore sites, the speech interference threshold with windows open of 75 dBA Leq was used for the demolition and jack and bore construction in Contra Costa County. For nighttime construction noise (i.e., early morning concrete pours), a significant impact would occur if noise levels exceed the sleep disturbance indicator with windows open of 60 dBA Leq at a receptor location outside the approved construction hours.

For long-term operational noise, the City of Richmond identifies a Ldn of 55 to 60 dBA or less as "Normally Acceptable". Since the Ldn is a 24-hour metric, the *City of Richmond General Plan* does not identify a separate threshold for daytime versus nighttime noise. Long-term operational noise in the city of Richmond would be considered potentially significant if it caused ambient noise in a residential area to increase above 60 dBA Ldn at a receptor location.

Vibration Thresholds

Construction vibration impacts are considered significant if vibration levels would damage nearby structures or buildings. The vibration thresholds applicable to building damage are shown in Table 3.11-10. Vibration levels would also be considered potentially significant if they exceed the Federal Transit Administration's (FTA) groundborne vibration impact criteria for

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human annoyance (shown in Table 3.11-11) or if the vibrations cause sleep disturbance during nighttime hours (Category II receptor uses where people sleep; see Table 3.11-11).

Table 3.11-10 Groundborne Vibration Impact Criteria for Building Damage

Building Category	PPV (in/sec)	VdB
I. Reinforced concrete, steel, or timber (no plaster)	0.5	102
II. Engineered concrete and masonry (no plaster)	0.3	98
III. Non-engineered timber and masonry	0.2	94
IV. Buildings extremely susceptible to vibration damage	0.12	90

Notes:

^a in/sec = inches per second; PPV = peak particle velocity;

^b VdB = vibration decibels (referenced to 1-microinch per second).

Source: (FTA, 2018)

Table 3.11-11 Groundborne Vibration Impact Criteria for Human Interference

Land Use Category	Frequent Events ^a	Occasional Events ^b	Infrequent Events ^c
Category I: Buildings where vibration would interfere with interior operations	65 VdB	65 VdB ^d	65 VdB
Category II: Residences and buildings where people normally sleep	72 VdB	75 VdB	80 VdB
Category III: Institutional land uses with primarily daytime use	75 VdB	78 VdB	83 VdB

Notes:

^a More than 70 vibration events of the same source per day.

^b Between 30 and 70 vibration events of the same source per day.

^c Less than 30 vibration events of the same source per day.

^d This criterion is based on levels that are acceptable for most moderately sensitive equipment, such as optical microscopes. Vibration-sensitive manufacturing or research always requires detailed evaluation to define the acceptable vibration levels. Ensuring low vibration levels in a building requires special design of heating, ventilation, and air conditioning systems, and stiffened floors.

Source: (FTA, 2018)

Criteria Requiring No Further Evaluation

The criteria listed above that are not applicable to actions associated with the Project are identified as follows, along with a supporting rationale as to why further consideration is unnecessary and a no-impact determination is appropriate.

Criterion 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 area to excessive noise levels.

No public airports or private airstrips are within 2 miles of the Project. The

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nearest airports are the Oakland International Airport, approximately 18 miles to the southwest, and Buchanan Field Airport in Concord, approximately 12 miles to the east. Therefore, no impact would occur related to exposure of people (workers) in the Project area to excessive noise levels from aircraft operations.

Impacts and Mitigation Measures

Impact NOI-1: Result in the 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. (Criterion 1)

Construction

Operation of construction equipment would result in a temporary increase in ambient noise levels in the Project vicinity. Construction is expected to occur between 7 a.m. and 7 p.m., Monday through Friday, and typically would include 8-hour workdays. Extended work hours including concrete pours for basins and structures at the SOWTP would start as early as 6 a.m. Phase 2 Central North Aqueduct pipeline construction could require extended work hours and night-time construction work at busy intersections or tie-in locations. Weekend work may be required occasionally.

Construction activities would include site grading, clearing, mass excavation work, foundation construction, structure and facility construction, trenching, pipeline installation, and demolition of existing facilities. Construction activities would require the use of numerous pieces of noise-generating equipment, such as excavating machinery (e.g., excavators, loaders) and other construction equipment (e.g., scrapers, dozers, compactors, trucks). The noise levels generated by construction equipment would vary greatly, depending on the type and specific model of the equipment, the operation being performed, the condition of the equipment, and the prevailing wind direction.

Phase 1 Daytime Construction Activities

Table 3.11-12 shows the reference noise level (L_{max} in dBA) at 50 feet for each piece of equipment used during the modeled Phase 1 construction activities. Table 3.11-12 also presents the average hourly (L_{eq}) and maximum instantaneous (L_{max}) at the nearest sensitive receptor based on the distance to the nearest receptor. The predicted noise levels shown in Table 3.11-12 are conservative because they represent the activity at the closest point to each sensitive receptor, which would occur for only a fraction of the entire duration of construction activity for mobile activities. As mobile noise sources progress away from the receptor location, noise levels experienced by the closest receptor would be reduced. In addition, the modeled construction scenarios were selected because they represent the worst-case scenario. Therefore, the noise levels in Table 3.11-12 reflect construction activity in a worst-case scenario. Noise levels from individual pieces of equipment are calculated as well as a cumulative noise level from each construction activity. The duration of each activity is listed in days.

3.11 NOISE AND VIBRATION

As shown in Table 3.11-12, the combined operation of construction equipment for Phase 1 SOWTP site preparation would exceed the City of Richmond mobile source threshold of 75 dB, Lmax. The combined operation of construction equipment during Phase 1 site preparation; I-beam for lagging of mass excavation; mass excavation for SFBW basins, equalization basin, and gravity thickeners; drill and pour piers for SFBW and equalization basins; pour foundation for SFBW basin and equalization basin; drill and pour piers for power and polymer building; and jack and bore at the chlorine contact basin would exceed the City of Richmond stationary source threshold of 60 dB, Lmax at residential property lines within the city limits. Because construction activities would produce noise levels that would exceed the city noise standards at residential receptors, the temporary noise impact would be significant.

Phase 1 construction of the 8-inch-diameter solids to sewer pipeline and demolition of the existing reclaim facilities would occur in Contra Costa County. Contra Costa County does not set noise thresholds for construction activities occurring during daytime hours; therefore, the speech interference threshold of 75 dBA for stationary demolition activities and 85 dBA for mobile pipeline construction was applied to these two construction and demolition activities.

Demolition activities would generate noise levels at sensitive receptors that would exceed 75 dBA and would be potentially significant.

As detailed in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, have been incorporated into the Project, including Standard Construction Specification 01 35 44, Environmental Requirements, Section 1.4(G), Noise Control and Monitoring Plan and Section 3.8, Noise Control, which include a range of noise control measures, including restricting noise generating activities greater than 90 dBA to 7:30 a.m. to 5:30 p.m., developing a Noise Control and Monitoring Plan, and requiring the contractor to implement noise control measures (e.g., mufflers or noise-attenuating shields) on all equipment. EBMUD Procedure 600 also requires providing information to the public regarding the project including a Public Affairs liaison who would respond to construction-related issues, such as noise, as well as providing advance notification of the potentially disruptive construction activities, including noise. The EBMUD Practices and Procedures Monitoring and Reporting Plan (Appendix C) lists the applicable standard specifications language.

3.11 NOISE AND VIBRATION

Table 3.11-12 Phase 1 SOWTP, Highest Noise Levels from Activities at Adjacent Sensitive Receptors

Duration ¹	Receptor Location	Principal Noise Sources	Reference Noise Level (dB) ²	Distance to Receptor (feet)	Usage Factor	Leq(h) Level (dB) ³	Lmax Level (dB)*	Lmax Level with Mitigation (dB)	Threshold (dB, Lmax)	Exceeds Noise Ordinance?	
										No MM	With MM
Site preparation											
121 days	Amend Road, Richmond	Backhoe	78	60	40%	72.0	76.0	60.0 ^{4,5}	75 ⁹	Yes	No
		Dozer	82	60	40%	76.1	80.1	64.1 ^{4,5}	75 ⁹	Yes	No
		Dump Truck	77	60	40%	70.9	74.9	58.9 ^{4,5}	75 ⁹	No	No
		Combined Total	NA	60	NA	78.4	80.1*	64.1 ^{4,5}	75 ⁹	Yes	No
I-beam for lagging of excavation											
20 days	Amend Road, Richmond	Dump Truck	77	160	40%	62.4	66.3	50.3 ^{4,5}	75 ⁹	No	No
		Vibratory Pile Driver	95	160	20%	77.9	84.9	68.9 ^{4,5}	60 ¹⁰	Yes	Yes
		Crane	81	160	16%	62.5	70.4	54.4 ^{4,5}	60 ¹⁰	Yes	No
		Combined Total	NA	160	NA	82.2	84.9*	68.9 ^{4,5}	60 ¹⁰	Yes	Yes
Excavation for SFBW basins, equalization basin, and gravity thickeners											
53 days	Amend Road, Richmond	Excavator	81	160	40%	66.6	70.6	54.6 ^{4,5}	75 ⁹	No	No
		Loader	79	160	40%	65.0	69.0	53.0 ^{4,5}	75 ⁹	No	No
		Crane	81	160	16%	62.5	70.4	54.4 ^{4,5}	60 ¹⁰	Yes	No
		Dump Truck	77	160	40%	62.4	66.3	50.3 ^{4,5}	75 ⁹	No	No
		Dozer	82	160	40%	67.6	71.6	55.6 ^{4,5}	75 ⁹	No	No

3.11 NOISE AND VIBRATION

Duration ¹	Receptor Location	Principal Noise Sources	Reference Noise Level (dB) ²	Distance to Receptor (feet)	Usage Factor	Leq(h) Level (dB) ³	Lmax Level (dB)*	Lmax Level with Mitigation (dB)	Threshold (dB, Lmax)	Exceeds Noise Ordinance?	
										No MM	With MM
		Combined Total	NA	160	NA	72.3	71.6*	55.6 ^{4,5}	60 ¹⁰	Yes	No
Drill and pour piers for SFBW basins and equalization basin											
8 days	Amend Road, Richmond	Auger Drill Rig	84	160	20%	67.3	74.3	58.3 ^{4,5}	60 ¹⁰	Yes	No
		Concrete Mixer Truck	79	160	40%	64.7	68.7	52.7 ^{4,5}	75 ⁹	No	No
		Concrete Mixer Truck	79	160	40%	64.7	68.7	52.7 ^{4,5}	75 ⁹	No	No
		Combined Total	NA	160	NA	70.5	74.3*	58.3 ^{4,5}	60 ¹⁰	Yes	No
Pour foundation for SFBW basins and equalization basin											
3 days	Amend Road, Richmond	Concrete Boom Pump Truck	81	160	20%	64.3	71.3	55.3 ^{4,5}	75 ⁹	No	No
		Forklift	77	160	40%	62.9	66.9	50.9 ^{4,5}	75 ⁹	No	No
		Concrete Mixer Truck	79	160	40%	64.7	68.7	52.7 ^{4,5}	75 ⁹	No	No
		Concrete Mixer Truck	79	160	40%	64.7	68.7	52.7 ^{4,5}	75 ⁹	No	No
		Compressor	78	160	40%	63.6	67.6	51.6 ^{4,5}	60 ¹⁰	Yes	No
		Bobcat	80	160	40%	65.9	69.9	53.9 ^{4,5}	75 ⁹	No	No

3.11 NOISE AND VIBRATION

Duration ¹	Receptor Location	Principal Noise Sources	Reference Noise Level (dB) ²	Distance to Receptor (feet)	Usage Factor	Leq(h) Level (dB) ³	Lmax Level (dB)*	Lmax Level with Mitigation (dB)	Threshold (dB, Lmax)	Exceeds Noise Ordinance?	
										No MM	With MM
		Combined Total	NA	160	NA	72.2	71.3*	55.3 ^{4,5}	60 ¹⁰	Yes	No
Drill and pour piers for power and polymer building											
7 days	Amend Road, Richmond	Auger Drill Rig	84	370	20%	60.0	67.0	57.0 ⁶	60 ¹⁰	Yes	No
		Concrete Mixer Truck	79	370	40%	57.4	61.4	51.4 ⁶	75 ⁹	No	No
		Concrete Mixer Truck	79	370	40%	57.4	61.4	51.4 ⁶	75 ⁹	No	No
		Combined Total	NA	370	NA	63.2	67.0 ^a	57.0 ⁶	60 ¹⁰	Yes	No
Jack and bore at chlorine contact basin											
50 days	Amend Road, Richmond	Excavator	81	430	40%	58.0	62.0	52.0 ⁶	75 ⁹	No	No
		Dump Truck	77	430	40%	58.3	61.3	51.3 ⁶	75 ⁹	No	No
		Forklift	77	430	40%	54.3	58.3	48.3 ⁶	75 ⁹	No	No
		Welding Machine	74	430	40%	51.3	55.3	48.3 ⁶	75 ⁹	No	No
		Horizontal Boring Hydraulic Jack	82	430	25%	57.3	63.3	53.3 ⁶	60 ¹⁰	Yes	No
		Combined Total	NA	430	NA	63.5	63.3*	53.3 ⁶	60 ¹⁰	Yes	No

3.11 NOISE AND VIBRATION

Duration ¹	Receptor Location	Principal Noise Sources	Reference Noise Level (dB) ²	Distance to Receptor (feet)	Usage Factor	Leq(h) Level (dB) ³	Lmax Level (dB)*	Lmax Level with Mitigation (dB)	Threshold (dB, Lmax)	Exceeds Noise Ordinance?	
										No MM	With MM
8-inch solids to sewer pipeline											
5 days	La Honda Court, Contra Costa	Excavator	81	100	40%	70.7	74.7	NA ⁷	85 ¹²	No	NA ¹³
		Roller	80	100	20%	67.0	74.0	NA ⁷	85 ¹²	No	NA ¹³
		Loader	79	100	40%	69.1	73.1	NA ⁷	85 ¹²	No	NA ¹³
		Scraper	84	100	40%	73.6	77.6	NA ⁷	85 ¹²	No	NA ¹³
		Concrete Saw	90	100	20%	76.6	83.6	NA ⁷	85 ¹²	No	NA ¹³
		Combined Total	NA	100	NA	79.7	83.6*	NA ⁷	85 ¹²	No	NA ¹³
Demolition of existing reclaim facilities											
60 days	La Honda Court, Contra Costa	Bobcat	80	60	40%	74.4	78.4	66.4 ⁸	75 ¹²	Yes	No
		Excavator	81	60	40%	75.1	79.1	67.1 ⁸	75 ¹²	Yes	No
		Crane	81	60	16%	71.0	79.0	67 ⁸	75 ¹²	Yes	No
		Dump Truck	77	60	40%	70.9	74.9	62.9 ⁸	75 ¹²	Yes	No
		Haul Truck	77	60	40%	71.4	75.4	63.4 ⁸	75 ¹²	Yes	No
		Welding Machine	74	60	40%	68.4	72.4	60.4 ⁸	75 ¹²	Yes	No
		Compactor	83	60	20%	74.7	81.6	69.6 ⁸	75 ¹²	Yes	No
		Loader	79	60	40%	73.5	77.5	65.5 ⁸	75 ¹²	Yes	No
		Combined Total	NA	60	NA	82.0	81.6*	69.6 ⁸	75 ¹²	Yes	No

3.11 NOISE AND VIBRATION

Notes:

- * RCNM does not calculate a combined Lmax total for all equipment inputs, it uses the highest Lmax of all equipment at 50 feet from the noise source.
- ¹ Project construction activity and duration information originated from Technical Memorandum 1, prepared by Brown and Caldwell in October 2021.
- ² Rounded to the nearest dB.
- ³ The hourly Leq is the average sound pressure level during a period of 1 hour. RCNM calculates the Leq from the calculated Lmax values, equipment usage factors, and selected adjustment factors (e.g., distances to receptors) (FHWA, 2006).
- ⁴ Reduction from a 16-foot-tall outdoor sound barrier along the northern property of SOWTP, adjacent to Amend Road (Mitigation Measure NOI-1). This sound barrier would effectively break the line of sight between residences on Amend Road and the construction occurring at the SOWTP.
- ⁵ A 16 dB reduction from the use of a 16-foot-tall outdoor sound barrier could be expected because of the location of the noise source relative to the location of the sound wall (Mitigation Measure NOI-1).
- ⁶ The noise source would occur approximately 370 to 430 feet south of the nearest receptor and at a distance from the 16-foot-tall sound wall; therefore, a 10 dB reduction from the use of a 16-foot-tall outdoor sound barrier can be expected, as a conservative estimate for attenuation of construction noise (Mitigation Measure NOI-1).
- ⁷ Because of the location of the 8-inch-diameter solids pipeline on a hill slope and the short duration of pipeline construction, no temporary sound barrier would be necessary.
- ⁸ Reduction from a 12-foot-tall outdoor sound barrier directly north of the solids handling facilities, adjacent to residences on La Honda Court, as required by Mitigation Measure NOI-1. This sound barrier would effectively break the line of sight between residences on La Honda Court and construction occurring at the solids handling facilities.
- ⁹ For construction activity where the residential receptor is in the city of Richmond, temporary construction noise levels from mobile equipment would be significant if they exceeded 75 dB, Lmax during the permitted hours of construction. Construction noise outside the permitted construction hours would be a significant impact.
- ¹⁰ For construction activity where the single-family residential receptor is in the city of Richmond, temporary construction noise levels from stationary equipment would be a significant impact if they exceeded 60 dB, Lmax during the permitted hours of construction. Construction noise outside the permitted construction hours would be a significant impact.
- ¹¹ For mass excavation and lagging, a 75 dB, Lmax threshold was used because the majority of equipment would be mobile and the use of a crane (the only proposed use of stationary equipment) would not exceed the 60 dB, Lmax threshold for stationary equipment.
- ¹² For construction activity where the residential receptor is in Contra Costa County, temporary construction noise levels would be significant if construction occurs outside the hours of 7:30 a.m. to 5:30 p.m. within 500 feet of residential or commercial occupancies or exceed speech interference thresholds. For pipeline construction activities, the intolerable speech interference threshold of 85 dBA is used due to the short duration of exposure at each receptor. For demolition activities, the speech interference threshold of 75 dBA is used due to the longer and more stationary nature of the demolition activities.
- ¹³ No mitigation is applicable to pipeline construction activities.

Source: (RCH Group, 2023)

3.11 NOISE AND VIBRATION

Even with incorporation of EBMUD's standard practices and procedures for noise control, and notification of noisy activities, construction equipment to be used during Phase 1 construction at the SOWTP would generate noise levels that would exceed the construction noise ordinance limits, resulting in a significant impact. Implementation of Mitigation Measure NOI-1 would require EBMUD to erect a 16-foot-tall temporary noise barrier between the residential area along Amend Road and the construction area during Phase 1 construction at the SOWTP. A 16-foot-tall noise barrier is the tallest noise barrier that is feasible and commercially available. The noise barrier would be installed near EBMUD's property line parallel to Amend Road north of the SFBW and equalization basins as shown in Figure 3.11-4. The noise barrier would be removed or relocated adjacent to the SFBW and equalization basins to the location indicated as "Phase 1 Alternative Noise Barrier" as shown in Figure 3.11-4, as appropriate for landscaping and site restoration. The noise barrier would be STC-rated and specific to sound attenuation applications.

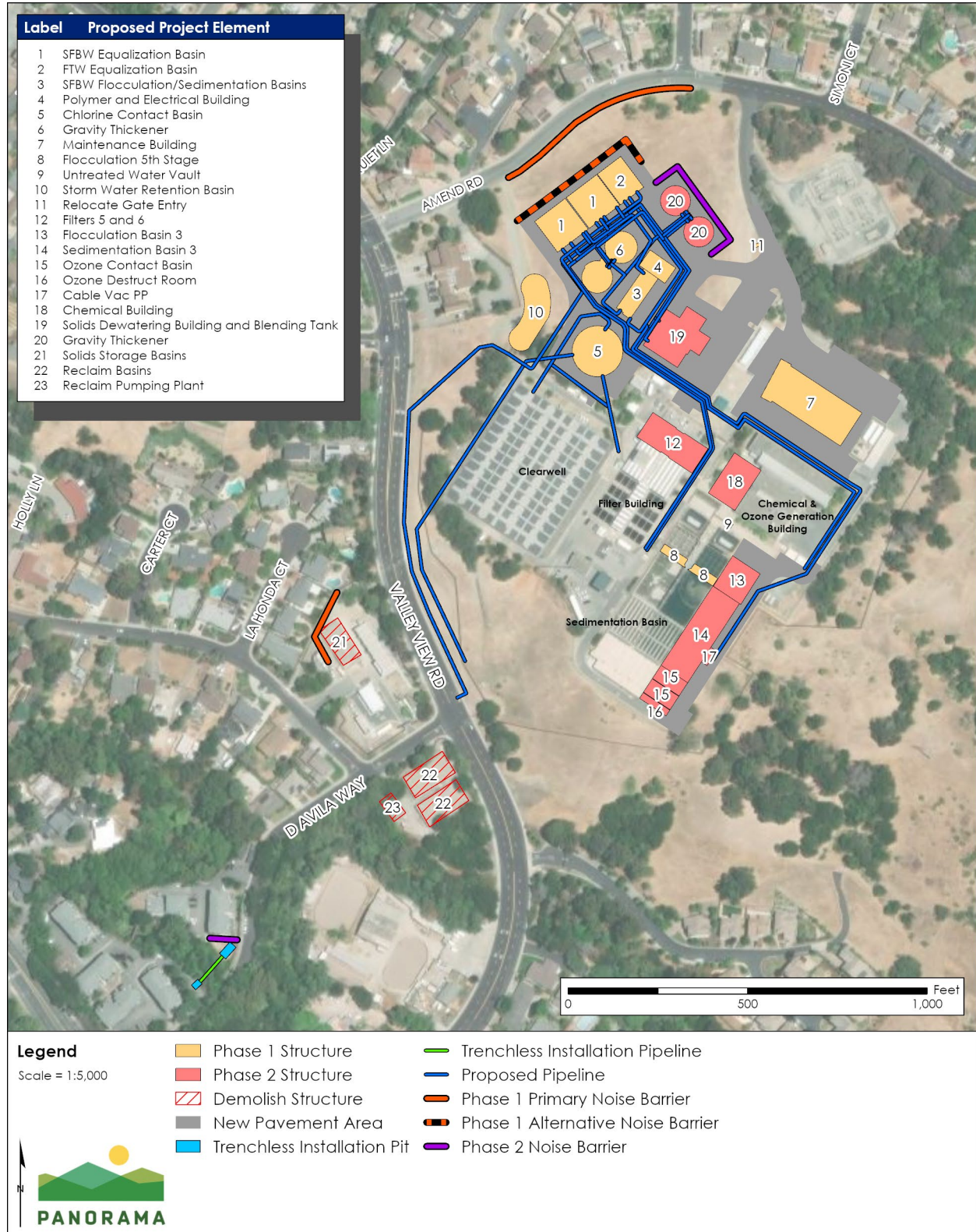
Mitigation Measure NOI-1 also requires a 12-foot-tall temporary noise barrier be installed between the demolition site along La Honda Court and residential receptors. With implementation of Mitigation Measure NOI-1, noise exceeding the threshold would be mitigated to the furthest extent feasible, and all steps would be taken to reduce the noise generated by construction equipment; however, noise levels at sensitive receptors along Amend Road still would exceed the daytime stationary source threshold for approximately 20 days during pile driving activities at the SFBW equalization basins. Because the noise level would exceed the noise threshold for a period of 20 days after implementation of all feasible mitigation measures, the Project would result in a significant and unavoidable impact from a substantial temporary increase in ambient noise levels. The Mitigation Monitoring and Reporting Plan (Appendix C) lists the applicable mitigation measure language.

Phase 2 Daytime Construction at SOWTP Site

Table 3.11-13 shows the noise levels for individual pieces of equipment that would be used during Phase 2 construction at the SOWTP, as well as for their combined operation. As shown in Table 3.11-13, the combined operation of equipment during drill and concrete pours for piers for the dewatering building and I-beams for gravity thickeners would involve use of stationary equipment that would generate noise levels at receptors exceeding the City of Richmond threshold of 60 dB, Lmax.

3.11 NOISE AND VIBRATION

Figure 3.11-4 Phase 1 and Phase 2, Location of Noise Barriers



3.11 NOISE AND VIBRATION

Table 3.11-13 Phase 2 SOWTP, Highest Noise Level at Adjacent Sensitive Receptors

Duration ¹	Receptor Location	Principal Noise Sources	Reference Noise Level (dB) ²	Distance to Receptor (feet)	Usage Factor	Leq(h) Level (dB) ³	Lmax Level (dB)*	Lmax Level with Mitigation (dB)	Threshold (dB, Lmax)	Exceeds Noise Ordinance?	
										No MM	With MM
Excavation for chemical building											
6 days	Fascination Circle, Richmond	Bobcat	80	580	40%	54.7	58.7	NA ⁴	75 ⁷	No	No
		Excavator	81	580	40%	55.4	59.4	NA ⁴	75 ⁷	No	No
		Dump Truck	77	580	40%	51.2	55.2	NA ⁴	75 ⁷	No	No
		Combined Total	NA	580	NA	58.9	59.4 ^a	NA ⁴	75 ⁷	No	No
Drill and concrete pour piers for dewatering building											
16 days	Amend Road, Richmond	Auger Drill Rig	84	490	20%	57.5	64.5	52.5 ⁵	60 ⁶	Yes	No
		Concrete Mixer Truck	79	490	40%	55.0	59.0	47.0 ⁵	75 ⁷	No	No
		Concrete Mixer Truck	79	490	40%	55.0	59.0	47.0 ⁵	75 ⁷	No	No
		Combined Total	NA	490	NA	60.8	64.5*	52.5 ⁵	60 ⁶	Yes	No
I-beam for gravity thickeners											
3 days		Auger Drill Rig	84	260	20%	63.1	70.0	58.0 ⁵	60 ⁶	Yes	No

3.11 NOISE AND VIBRATION

Duration ¹	Receptor Location	Principal Noise Sources	Reference Noise Level (dB) ²	Distance to Receptor (feet)	Usage Factor	Leq(h) Level (dB) ³	Lmax Level (dB)*	Lmax Level with Mitigation (dB)	Threshold (dB, Lmax)	Exceeds Noise Ordinance?	
										No MM	With MM
	Richmond, Amend Road	Crane	81	260	16%	58.3	66.2	54.2 ⁵	60 ⁶	Yes	No
		Haul Truck	77	260	40%	58.7	62.7	54.7 ⁵	75 ⁷	No	No
		Combined Total	NA	260	NA	65.4	70.0*	58.0⁵	60⁶	Yes	No

Notes:

CNA = Central North Aqueduct pipeline

* RCNM does not calculate a combined Lmax total for all equipment inputs, it uses the highest Lmax of all equipment at 50 feet from the noise source.

¹ Project construction activity and duration information originated from Technical Memorandum 1, prepared by Brown and Caldwell in October 2021 and revisions to Phase 2 equipment by EBMUD (August 2022).

² Reference decibel level at 50 feet rounded to the nearest dB.

³ The hourly Leq is the average sound pressure level during a period of 1 hour. RCNM calculates the Leq from the calculated Lmax values, equipment usage factors, and selected adjustment factors (e.g., distances to receptors) (FHWA, 2006).

⁴ Because of the location of the chemical building, no temporary sound barrier would be needed to reduce construction noise at receptors.

⁵ Mitigation Measure NOI-2 applied reduction from a 12-foot-tall outdoor sound barrier located north of construction occurring for the Phase 2 gravity thickeners and dewatering building.

⁶ For construction activity where a single-family residential receptor is in the city of Richmond, temporary construction noise levels from stationary equipment would be significant if they exceed 60 dB, Lmax during the permitted hours of construction. The impact from construction noise outside the permitted construction hours would be significant.

⁷ For construction activity where the residential receptor is in the city of Richmond, the impact from temporary construction noise levels from mobile equipment would be significant if they exceed 75 dB, Lmax during the permitted hours of construction. The impact from construction noise outside the permitted construction hours would be significant.

Source: (RCH Group, 2023)

3.11 NOISE AND VIBRATION

As detailed in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, would be incorporated into the Project, including Construction Noise, and Standard Construction Specification 01 35 44 Environmental Requirements, Section 1.4(G), Noise Control and Monitoring Plan, and Section 3.8, Noise Control, which include a range of noise control measures such as limiting construction hours for noise greater than 90 dBA to 7:30 a.m. to 5:30 p.m., developing a Noise Control and Monitoring Plan and requiring the contractor to implement noise control measures (e.g., mufflers or noise-attenuating shields) on all equipment. EBMUD Procedure 600 also requires providing information to the public regarding the project including a Public Affairs liaison who would respond to construction-related issues, such as noise, as well as providing advance notification of the potentially disruptive construction activities, including noise.

Even with incorporation of EBMUD Standard Construction Specification 01 35 44, Environmental Requirements, Sections 1.4(G) and Section 3.8, construction equipment operating during Phase 2 construction at the SOWTP would generate noise levels that would exceed the construction noise ordinance limits in the city of Richmond, resulting in a significant impact. Implementation of Mitigation Measure NOI-2 would require EBMUD to erect a 12-foot-tall temporary noise barrier in proximity to the Phase 2 gravity thickeners and dewatering building, to block the line of site from the noise-generating equipment to the nearest receptor (Figure 3.11-4). Because the sound barrier(s) would effectively reduce the noise levels at residential receptors to below the City of Richmond threshold, the impact from Phase 2 construction within the SOWTP site would be less than significant. The EBMUD Practices and Procedures Monitoring and Reporting Plan (Appendix C) lists the applicable standard specifications language. The Mitigation Monitoring and Reporting Plan (Appendix C) lists the applicable mitigation measure language.

Phase 2 Daytime Construction of Central North Aqueduct Pipeline

Table 3.11-14 shows the noise levels for individual pieces of equipment that would be used during Central North Aqueduct pipeline construction, as well as for their combined operation.

Jack and Bore Construction, Contra Costa County. Contra Costa County does not set noise thresholds for construction activities occurring during daytime hours of 7:30 a.m. to 5:30 p.m.; therefore, the speech interference threshold of 75 dBA was applied to jack and bore construction in Contra Costa County, as explained in the Noise Thresholds. Jack and bore construction would generate peak noise levels of approximately 92.5 dB, L_{max} at the adjacent residential receptors in Contra Costa County for more than 8 weeks. The noise impact from jack and bore construction would exceed the noise threshold of 75 dBA and would be potentially significant.

3.11 NOISE AND VIBRATION

Table 3.11-14 Phase 2 Central North Aqueduct Pipeline, Highest Noise Levels at Nearest Sensitive Receptors

Duration ¹	Receptor Location	Principal Noise Sources	Reference Noise Level (dB) ²	Distance to Receptor (feet)	Usage Factor	Leq(h) Level (dB) ³	Lmax Level (dB)*	Lmax Level with Mitigation (dB)	Threshold (dB, Lmax)	Exceeds Noise Ordinance?	
										No MM	With MM
Jack and bore construction											
8.4 weeks	Apartments on D Avila Way, Contra Costa	Dump Truck	77	15	40%	82.9	86.9	74.9 ⁴	75 ⁶	Yes	No
		Excavator	81	15	40%	87.2	91.2	79.2 ⁴	75 ⁶	Yes	Yes
		Horizontal Boring Hydraulic Jack	82	15	25%	86.4	92.5	80.5 ⁴	75 ⁶	Yes	Yes
		Backhoe	78	15	40%	84.0	88.0	76.0 ⁴	75 ⁶	Yes	Yes
		Combined Total	NA	15	NA	91.5	92.5 ^b	80.5 ⁴	75 ⁶	Yes	Yes
Open trench construction											
5 days	San Pablo Dam Road, Richmond	Compressor (Air)	78	5	40%	93.7	97.7	NA ⁵	75 ⁸	Yes	NA ⁵
		Excavator	81	5	40%	96.7	100.7	NA ⁵	75 ⁸	Yes	NA ⁵
		3 Dump Trucks	77	5	40%	92.5	96.5	NA ⁵	75 ⁸	Yes	NA ⁵
		Crane	81	5	16%	92.6	100.6	NA ⁵	75 ⁸	Yes	NA ⁵
		Loader	79	5	40%	95.1	99.1	NA ⁵	75 ⁸	Yes	NA ⁵
		Combined Total	NA	5	NA	102.4	100.7*	NA ⁵	75 ^{8,9}	Yes	NA ⁵
5 days		Compressor (Air)	78	25	40%	79.7	83.7	NA ⁵	85 ⁶	Yes	NA ⁵

3.11 NOISE AND VIBRATION

Duration ¹	Receptor Location	Principal Noise Sources	Reference Noise Level (dB) ²	Distance to Receptor (feet)	Usage Factor	Leq(h) Level (dB) ³	Lmax Level (dB)*	Lmax Level with Mitigation (dB)	Threshold (dB, Lmax)	Exceeds Noise Ordinance?	
										No MM	With MM
5 days	San Pablo Dam Road, Contra Costa	Excavator	81	25	40%	82.8	86.7	NA ⁵	85 ⁶	Yes	NA ⁵
		3 Dump Trucks	77	25	40%	78.5	82.5	NA ⁵	85 ⁶	No	NA ⁵
		Crane	81	25	16%	78.6	86.6	NA ⁵	85 ⁶	Yes	NA ⁵
		Loader	79	25	40%	81.2	85.1	NA ⁵	85 ⁶	Yes	NA ⁵
		Combined Total	NA	25	NA	88.4	86.7*	NA⁵	85⁶	Yes	NA⁵
	Rollingwood Drive, Contra Costa	Compressor (Air)	78	25	40%	79.7	83.7	NA ⁵	85 ⁶	No	NA ⁵
		Excavator	81	25	40%	82.8	86.7	NA ⁵	85 ⁶	Yes	NA ⁵
		3 Dump Trucks	77	25	40%	78.5	82.5	NA ⁵	85 ⁶	No	NA ⁵
		Crane	81	25	16%	78.6	86.6	NA ⁵	85 ⁶	Yes	NA ⁵
		Loader	79	25	40%	81.2	85.1	NA ⁵	85 ⁶	Yes	NA ⁵
		Combined Total	NA	25	NA	88.4	86.7*	NA⁵	85⁶	Yes	NA⁵

Notes:

CNA = Central North Aqueduct pipeline

* RCNM does not calculate a combined Lmax total for all equipment inputs, it uses the highest Lmax of all equipment at 50 feet from the noise source.

¹ Project construction activity and duration information originated from Technical Memorandum 1, prepared by Brown and Caldwell in October 2021 and revisions to Phase 2 equipment by EBMUD (August 2022).

² Reference decibel level at 50 feet rounded to the nearest dB.

³ The hourly Leq is the average sound pressure level during a period of 1 hour. RCNM calculates the Leq from the calculated Lmax values, equipment usage factors, and selected adjustment factors (e.g., distances to receptors) (FHWA, 2006).

3.11 NOISE AND VIBRATION

- ⁴ Reduction in noise level from a 12-foot-tall outdoor sound barrier directly adjacent to the D'Avila Woods Apartment complex on D Avila Way (Mitigation Measure NOI-2).
- ⁵ Because of the location and short duration of installation of the proposed Central North Aqueduct pipeline at any one location, no temporary sound barrier would be feasible.
- ⁶ For construction activity where the residential receptor is in Contra Costa County, temporary construction noise levels would be significant if construction occurs outside the hours of 7:30 a.m. to 5:30 p.m. or noise levels exceeded the unacceptable speech interference threshold of 85 dBA for pipeline construction activities.
- ⁷ For construction activity where a single-family residential receptor is in the city of Richmond, temporary construction noise levels from stationary equipment would be significant if they exceed 60 dB, Lmax during the permitted hours of construction. The impact from construction noise outside the permitted construction hours would be significant.
- ⁸ For construction activity where the residential receptor is in the city of Richmond, the impact from temporary construction noise levels from mobile equipment would be significant if they exceed 75 dB, Lmax during the permitted hours of construction. The impact from construction noise outside the permitted construction hours would be significant.
- ⁹ Because pipeline construction would occur over a linear path and most equipment would be mobile, a 75-dB, Lmax threshold was used for pipeline construction occurring in the city of Richmond.

Source: (RCH Group, 2023)

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Mitigation Measure NOI-2 requires installation of a 12-foot-tall temporary noise barrier between the jack and bore pits and the adjacent apartment buildings to reduce noise levels from jack and bore construction as shown on Figure 3.11-4. Even with implementation of Mitigation Measure NOI-2, noise levels would exceed 75 dBA at the nearest receptor for 8.4 weeks and the impact would remain significant and unavoidable. The EBMUD Practices and Procedures Monitoring and Reporting Plan (Appendix C) lists the applicable standard specifications language. The Mitigation Monitoring and Reporting Plan (Appendix C) lists the applicable mitigation measure language.

Open Trench Construction, Contra Costa County and City of San Pablo. Neither Contra Costa County nor the City of San Pablo set noise thresholds for construction activities. Contra Costa County limits excavation and grading activities to the hours of 7:30 a.m. to 5:30 p.m. within 500 feet of residential and commercial occupancies, and the City of San Pablo limits construction to the hours of 7:00 a.m. to 10:00 p.m. Because Contra Costa County and City of San Pablo do not set noise limits during the approved daytime construction hours, the noise threshold used for open trench construction activities during the approved construction hours in Contra Costa County and city of San Pablo is the unacceptable speech interference threshold of 85 dBA because the construction activities would be proceeding in a linear manner and noise would not be concentrated in any area. Open trench construction within Contra Costa County and the city of San Pablo would be located in proximity to residential areas, two day care facilities, two churches, and an assisted living facility.

As described in the Project Description, Project construction would generally occur between 7 a.m. and 7 p.m. Contra Costa County limits excavation and grading activities to the hours of 7:30 a.m. to 5:30 p.m. within 500 feet of residential and commercial occupancies. Open trench construction of the Central North Aqueduct pipeline would generate noise levels of approximately 88.4 dB, Leq for approximately 5 days at the nearest individual residential receptors (e.g., along San Pablo Dam Road) and approximately 14 months total in Contra Costa County and approximately 4 months total in the city of San Pablo.

Construction could be conducted outside approved construction hours specified in the Contra Costa County noise standards. The noise generated from the open trench construction of the Central North Aqueduct pipeline before 7:30 a.m. and after 5:30 p.m. within 500 feet of residential and commercial occupancies in Contra Costa County would conflict with the local zoning code, which would be a significant impact. Implementation of Mitigation Measure NOI-3 would require EBMUD to limit construction of the Central North Aqueduct pipeline within Contra Costa County to 7:30 a.m. and 5:30 p.m. whenever feasible.

While Mitigation Measure NOI-3 would limit construction to the hours approved by Contra Costa County, the Central North Aqueduct pipeline construction would exceed the 85 dBA unacceptable speech interference threshold at the nearest receptors in both Contra Costa County and the city of San Pablo including numerous residences, two day care facilities, two churches, and an assisted living facility. Each receptor would only be exposed to noise levels of 85 dBA or greater for approximately 5 days when pavement cutting, excavation, and paving

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activities are at their nearest point to the residence. Noise levels would decrease as the pipeline construction commences and equipment moves further along the alignment (refer to Figure 2-18 in the Project Description). It would be infeasible to install a temporary sound barrier between the Central North Aqueduct pipeline construction area and the adjacent residents and other sensitive receptors because there is insufficient space between the construction area in the road and private property and because the construction will be moving along the alignment every day; therefore, the peak Central North Aqueduct pipeline construction noise would exceed the unacceptable speech interference threshold and the impact would be significant and unavoidable for approximately 5 days at each receptor when the active work area is adjacent to the receptor. The EBMUD Practices and Procedures Monitoring and Reporting Plan (Appendix C) lists the applicable standard specifications language. The Mitigation Monitoring and Reporting Plan (Appendix C) lists the applicable mitigation measure language.

Open Trench Construction, City of Richmond. Three segments (approximately 330, 230, and 880 feet) of the Central North Aqueduct pipeline would be constructed within or adjacent to the city of Richmond. Construction of the Central North Aqueduct pipeline in the city of Richmond would generate noise levels at the nearest residential property in excess of the City of Richmond mobile source threshold of 75 dB, L_{max}, which would exceed the local noise standards. The Central North Aqueduct pipeline construction would generate noise levels that exceed local noise standards during pavement cutting, excavation, and repaving activities, which last approximately 5 days total in each location. Noise levels would decrease as the pipeline construction commences and equipment moves further along the alignment (refer to Figure 2-18 in the Project Description). It would be infeasible to install a temporary sound barrier between the Central North Aqueduct pipeline construction area and the adjacent residents because there is insufficient space between the construction area in the road and private property and because the construction will be moving along the alignment every day; therefore, the Central North Aqueduct pipeline construction noise would exceed the noise standards in the City of Richmond noise ordinance and the impact would be significant and unavoidable for up to 5 days at each receptor when the active work area is adjacent to the receptor.

Open Trench Construction Adjacent to Schools. The Central North Aqueduct pipeline would be installed in Road 20 adjacent to Helms Middle School and within 1,000 feet of Contra Costa College; and in San Pablo Dam Road within 1,000 feet of Sheldon Elementary School, Vista High School, Tiny Creations Family Day Care, and La Cheim School. All the schools, within 1,000 feet of the Central North Aqueduct pipeline, with the exception of Helms Middle School, are separated from the construction area by existing structures and walls that would reduce the noise level substantially at the schools and day care facility. Furthermore, the schools would be more than 300 feet from the construction area. Because of the existing structures, vegetation, and topography between the noise source and the schools, the exterior noise levels at the schools and day care facility over 300 feet from the Central North Aqueduct pipeline would be less than 75 dBA and less than the speech interference threshold. Helms Middle School would be within 50 feet of the Central North Aqueduct pipeline and would have a direct line-of-sight to the Central North Aqueduct pipeline construction area. Construction during daytime hours

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would generate noise that would be audible and potentially could disturb classroom learning at Helms Middle School if the construction occurs during school hours. As noted in the Project Description, construction of the Central North Aqueduct pipeline alignment on Road 20 adjacent to the Helms Middle School would be coordinated with the school to schedule construction during periods when school is not in session to the extent that it is feasible. Because construction of the Central North Aqueduct pipeline would be coordinated with the school to avoid construction noise disturbance of classroom learning, the impact on sensitive receptors at schools would be less than significant.

Nighttime Construction at Receptors in City of Richmond

Project construction at the SOWTP would require several days of early concrete pours in the city of Richmond. Concrete pours would require a 6 a.m. start time because of the need for setup in the morning to mobilize a pump truck before the first concrete delivery. Pump trucks typically would arrive at 6 a.m., ahead of the rest of the concrete crew. Disruptions in the concrete pours could affect the quality of the concrete work and service life of the structure; therefore, it would be critical for the concrete trucks to arrive at regular intervals and the deliveries would need to start as early as 6 a.m. According to the City of Richmond's Municipal Code, 6 a.m. would be considered a nighttime hour.

The City of Richmond Noise Ordinance establishes a noise limit of 50dB, Lmax not to be exceeded for more than 5 minutes of any hour during the nighttime (10 p.m. to 7 a.m.) at the property line of a residential use. Noise generated from use of a concrete truck would exceed 50 dB at the nearest residential receptors during construction of the SFBW basins, equalization basin, gravity thickeners, power and polymer building, SFBW flocculation and sedimentation basins, chlorine contact basin, solids dewatering building and blending tanks. Mitigation Measure NOI-1 requires use of a 16-foot-tall noise barrier along Amend Road to effectively reduce noise at residential receptors. The noise level from operation of a concrete truck (Lmax) with mitigation would be less than 50 dB during concrete pours at the solids dewatering building, blending tanks, and chlorine contact basin. Noise levels would exceed 50 dB during concrete pours at SOWTP at the SFBW and equalization basins, gravity thickeners, power and polymer building and SFBW flocculation and sedimentation basins for a total of 36 days during Phase 1 and at the gravity thickeners for a total of 33 days during Phase 2 even after implementation of all feasible mitigation; therefore, the impact from concrete pours before 7 a.m. would be a significant and unavoidable impact. The Mitigation Monitoring and Reporting Plan (Appendix C) lists the applicable mitigation measure language.

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Nighttime Construction at Receptors in Contra Costa County

Construction of the Central North Aqueduct pipeline at busy intersections (e.g., near the Interstate 80 crossing³) could require nighttime construction, if required for approval of the encroachment permit. In addition, extended work hours could be required at tie-in locations as the work would need to be completed within approximately one day and would continue until the activity is complete. The Contra Costa County noise ordinance does not have any specific thresholds for construction during nighttime hours; therefore, the sleep disturbance threshold of 60 dBA Leq was used as the standard for evaluating significant nighttime noise construction impacts. Nighttime construction of the Central North Aqueduct pipeline would generate noise levels of approximately 84.3 dBA, Leq, at a distance of 50 feet. Noise levels from construction would exceed the nighttime noise threshold for a distance of approximately 660 feet. Because nighttime noise levels could disturb sleep for residences within 660 feet of the nighttime construction area, the impact would be potentially significant. Implementation of Mitigation Measure NOI-4 would require that EBMUD offer alternative lodging during the period of nighttime construction work to residents within 660 feet of the pipeline construction site within busy intersections and at tie-in locations. Even after implementation of Mitigation Measure NOI-4, the noise impact from nighttime construction would be significant and unavoidable, because nighttime construction would still conflict with the Contra Costa County noise standards for construction, which only allows excavation and grading activities between 7:30 a.m. and 5:30 p.m. The Mitigation Monitoring and Reporting Plan (Appendix C) lists the applicable mitigation measure language.

Operation

Operation of the proposed facilities at the SOWTP would involve use of mechanical equipment that would generate noise such as the submersible pumps at the equalization and SFBW basins. In addition, the SOWTP would be subject to routine maintenance. While the proposed facilities and associated maintenance activities would be located closer to receptors than the existing SOWTP facilities, maintenance activities would be conducted on an as-needed basis and would not be a regular source of noise at receptors. To determine the noise level from operation of the submersible pumps, which would be the closest operational equipment to the receptors, ambient noise measurements were recorded at the Walnut Creek Water Treatment Plant (WTP) during operation of the submersible pumps which are of similar size and capacity as the submersible pumps proposed for the Project. The submersible pumps were operated at both standard and high flow rates to capture a range of operating conditions. As shown in Table 3.11-15, noise from the submersible pumps when operating at 1 million gallons per day (MGD), was 55 dB, Leq at a reference distance of 25 feet. The submersible pumps would be on the south

³ Interstate 80 has sound walls along the highway in the vicinity of the Central North Aqueduct pipeline. Because of sound walls and the distance between the highway and the nearest residential receptors, nighttime noise levels (Leq) at the nearest sensitive receptors are less than the 60 dBA Leq nighttime noise threshold identified in the Contra Costa County noise ordinance.

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end of the equalization basins, approximately 240 feet south of the nearest residential property line on Amend Road. Because the equalization basins would operate using similar submersible pumps as the ones observed at the Walnut Creek WTP, noise from the submersible pumps would be expected to attenuate to approximately 32 to 37 dB, Leq at the nearest residence on Amend Road. These levels would not exceed the 50 dB, Lmax for more than 5 minutes of any hour during the nighttime (10 p.m. to 7 a.m.) at the nearest property line of a residential use, as outlined in Section 9.52.100 of the City of Richmond's Community Noise Ordinance.

Table 3.11-15 Noise Measurements at Walnut Creek Water Treatment Plant Submersible Pumps

Location	Time Period	Noise Levels (dB)	Noise Sources
EBMUD Walnut Creek WTP—approximately 25 feet south of equalization basins 1 and 2.	4/28/2022 9:58 a.m. to 10:03 a.m.	5-minute Leq: 58	Recorded noise was pumps operating at 1 MGD (standard flow). The noise meter also captured a vehicle passing nearby at 59 dB, birds chirping at 60 dB, and a plane overhead at 64 dB. These other noise sources increased the Leq for this measurement. Most of the noise from the pump was observed at 55 dB, Leq after the pumps turned on and noise leveled out and was constant at 51 dB.
EBMUD Walnut Creek WTP—approximately 25 feet south from equalization basins 1 and 2.	4/28/2022 10:03 a.m. to 10:08 a.m.	5-minute Leq: 52	Recorded noise from pumps operating at 2 MGD (high flows). Noise was constant at 51 to 52 dB, depending on wind speeds.

Source: (RCH Group, 2023)

Equipment housed within the proposed power and polymer building would be shielded from receptors by the concrete building, so that noise from the power and polymer equipment would not be noticeable at receptors. Noise levels at sensitive receptors from operation of other facilities at the SOWTP site would be less than the noise generated from pumps at SFBW and equalization basin (i.e., less than 32 to 37 dB, Leq) because of the distance between the noise source and receptors. In addition to the noise generated from on-site equipment, the operations of the proposed Phase 2 facilities would generate an average of 2 one-way truck trips per day. These additional truck trips, for the hauling of solids and additional material deliveries due to the increased treatment volume, would not result in an increase in the Leq in the area because the traffic noise would be mobile and would be of such small volume and short duration that it would not cause a permanent increase in the average community noise level. Because noise levels from the operation of the proposed facilities at SOWTP would not exceed the City of Richmond's daytime or nighttime noise thresholds, the impact would be less than significant.

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The Central North Aqueduct pipeline is buried and would not generate noise during operation. Therefore, no impact would occur from the operation of the Central North Aqueduct pipeline.

Significance Determination before Mitigation

Potentially Significant.

Mitigation Measures

Mitigation Measure NOI-1. Phase 1 Temporary Noise Barriers.

EBMUD shall erect a 16-foot-tall temporary noise barrier on EBMUD property between the active Phase 1 construction area and residential receptors on Amend Road throughout the duration of Phase 1 construction. The noise barrier will be STC rated 25 or higher and specific to sound attenuation applications. During some periods of construction, the noise barrier may be moved or dismantled temporarily to accommodate the Project construction area, and EBMUD shall schedule only mobile equipment activities to occur during periods when the noise barrier is being moved. EBMUD shall also erect a 12-foot-tall noise barrier with a STC rating of 25 or higher between the Phase 1 demolition area and adjacent residents north of the demolition area.

Mitigation Measure NOI-2. Phase 2 Temporary Noise Barriers.

EBMUD shall erect a 12-foot-tall temporary noise barrier between the Phase 2 gravity thickeners and sensitive receptors on Amend Road and a separate 12-foot-tall temporary noise barrier between the Central North Aqueduct pipeline jack and bore location and the D'Avila Woods Apartment buildings. The temporary noise barrier will be STC rated 25 or higher and specific to sound attenuation applications. To be effective, the noise barriers will be installed to block the line of sight between the construction activity and residential receptors.

Mitigation Measure NOI-3. Limit Construction Hours in Contra Costa County.

Where feasible, EBMUD shall limit excavation and grading activities within 500 feet of residential and commercial occupancies within Contra Costa County to weekdays within the County approved construction hours of 7:30 a.m. to 5:30 p.m.

Mitigation Measure NOI-4. Off-site Accommodation for Affected Nighttime Receptors.

EBMUD shall notify residents, who could be affected by nighttime (10 p.m. to 7 a.m.) construction of the Central North Aqueduct pipeline at busy intersections or at tie-in locations, at least 10 days in advance. Residences within 660 feet of these nighttime construction work areas may request alternative lodging for the night(s) of the potential nighttime construction from EBMUD; alternative lodging to be provided will consist of a standard room at a hotel within 5 miles of the affected residence or as close as feasible. Alternative lodging will be provided and approved by EBMUD the day before the known nighttime pipeline construction is planned, or earlier, based on the types of construction activities that may occur during the nighttime hours (10 p.m. to 7 a.m.). This measure will be implemented only if nighttime construction at busy intersections or at tie-ins is to occur for the Central North Aqueduct pipeline.

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Significance Determination after Mitigation

Phase 1 Daytime Construction Activities. The impact from daytime (7 a.m. to 7 p.m.) installation of the I-beams for the SFBW basins at the SOWTP in Phase 1 would be significant and unavoidable because the noise levels would exceed the 60 dB stationary source threshold during use of the vibratory pile driver for I-Beam installation. Mitigation Measure NOI-1 would reduce construction noise to less-than-significant levels for all remaining Phase 1 daytime construction activities. Over the entire 4-year duration for Phase 1 construction, daytime construction operations are estimated to exceed the City of Richmond daytime noise standards for a total of 20 days.

Phase 2 Daytime Construction at SOWTP Site. The impact from daytime (7 a.m. to 7 p.m.) construction activities for the Phase 2 facilities at the SOWTP site in the city of Richmond would be reduced to less than significant with implementation of Mitigation Measure NOI-2.

Phase 2 Daytime Construction of Central North Aqueduct Pipeline. The impact from daytime construction of the Central North Aqueduct pipeline would be significant and unavoidable because the noise levels would exceed the City of Richmond mobile source threshold of 75 dB at the adjacent residential receptors and would exceed the unacceptable speech interference threshold in Contra Costa County and city of San Pablo after implementation of Mitigation Measure NOI-3. Due to the location and nature of pipeline construction activities and lack of space between the work area and the residential receptors, it is infeasible to install a temporary sound barrier to attenuate the open trench construction activities and the impact from open trench pipeline construction would remain significant and unavoidable for approximately 5 days at each adjacent receptor during pavement cutting, excavation, and paving activities, and the entire duration of open trench construction would be approximately 18 months.

Jack and bore construction of the Central North Aqueduct pipeline would also continue to exceed the speech interference threshold at the adjacent residences after implementation of Mitigation Measure NOI-2 for approximately 8.4 weeks.

Construction Activities Outside Approved Construction Hours. The noise impact from concrete pours prior to 7 a.m. in the city of Richmond would exceed the City of Richmond nighttime noise threshold of 50 dB after implementation of Mitigation Measure NOI-1 and NOI-2. Nighttime pipeline construction activities would not disturb sleep after implementation of Mitigation Measure NOI-4 assuming sensitive receptors have relocated from the affected area, but the nighttime work would continue to conflict with Contra Costa County requirement to restrict construction activities to 7:30 a.m. to 5:30 p.m. Therefore, the impact from early morning concrete pours at the SOWTP and nighttime construction at tie-in locations and intersections for the Central North Aqueduct pipeline where nighttime work is required by permit conditions would be significant and unavoidable. The duration of nighttime work at tie-in locations and intersections is estimated to be five to ten days at each location.

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Impact NOI-2: Result in the generation of excessive groundborne vibration or groundborne noise levels. (*Criterion 2*)

Construction

Project construction activities could result in varying degrees of temporary ground vibration, depending on the specific construction equipment used and activities involved. In most cases, vibration induced by typical construction equipment would not result in adverse effects on people or structures (Caltrans, 2013). At the highest levels of vibration, damage to structures primarily would be architectural (e.g., loosening and cracking of plaster or stucco coatings) and rarely would result in structural damage. FTA recommends a threshold of 0.5 in/sec PPV for residential and commercial structures, 0.25 in/sec PPV for historic buildings and archaeological sites, and 0.2 PPV for non-engineered timber and masonry buildings (FTA, 2006). The structures in proximity to the Project are modern residential and commercial structures; therefore, the appropriate threshold is 0.5 in/sec PPV.

SOWTP Site

At the SOWTP along Amend Road, several pieces of heavy equipment could be as near as 75 feet from residences; however, most of the construction at the SOWTP would occur at distances greater than 150 feet from residences. The maximum estimated vibration levels at the nearest structure from heavy construction equipment during Project construction activities at the SOWTP site is shown in Table 3.11-16.

Table 3.11-16 Maximum Vibration Levels from Construction at SOWTP Site

Construction Equipment		PPV at 25 feet (in/sec)	Distance to the Nearest Structure	PPV at Nearest Structure (in/sec)	Exceeds 0.5 in/sec PPV Threshold?
Pile Driver (Vibratory)	Upper Range	0.734	150	0.05	No
	Typical	0.17	150	0.01	No
Bulldozer	Large	0.089	75	0.02	No
	Small	0.003	75	0.001	No
Caisson Drilling		0.089	150	0.01	No
Loaded Trucks		0.076	75	0.01	No
Excavator		0.175	75	0.03	No
Backhoe		0.028	75	0.01	No
Loader		0.0263	75	0.01	No

Source: (NHDOT, 2012; FHWA, 2006).

The predicted vibration levels during construction activities would be less than the 0.5 in/sec PPV threshold at the nearest structure. Because vibration levels from heavy construction equipment during Project construction activities at the SOWTP site would not exceed the vibration threshold, the impact would be less than significant.

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Demolition activities would occur at the existing reclaim facilities, adjacent to the residences on La Honda Court. Vibration-inducing demolition activities would occur as close as 60 feet from the nearest residential structures. The estimated PPV at the nearest residence from Project demolition activities are shown in Table 3.11-17. The predicted vibration levels from demolition activities would be less than the 0.5 in/sec PPV threshold for potential architectural damage to residential structures. Because vibration levels from Project demolition activities would not exceed the vibration threshold, the impact would be less than significant.

Table 3.11-17 Maximum Vibration Levels from Demolition at SOWTP

Construction Equipment	PPV at 25 feet (in/sec)	Distance to the Nearest Receptor	PPV at Nearest Receptors (in/sec)	Exceeds 0.5 PPV Threshold?
Loaded Trucks	0.076	60	0.02	No
Excavator	0.175	60	0.05	No
Backhoe	0.028	60	0.01	No
Loader	0.026	60	0.01	No

Source: (FHWA, 2006; NHDOT, 2012)

Central North Aqueduct Pipeline

Jack and bore construction of the Central North Aqueduct pipeline would be as near as 15 feet from the adjacent apartment complex, D'Avila Woods Apartments. The estimated maximum vibration level for heavy construction equipment at the nearest receptor to the jack and bore construction at D'Avila Woods Apartments is shown in Table 3.11-18. The predicted vibration levels from construction activities would be less than the 0.5 in/sec PPV threshold at the nearest receptor/structure. Because vibration levels from jack and bore construction of the Central North Aqueduct pipeline would not exceed the vibration threshold, the impact would be less than significant.

Table 3.11-18 Maximum Vibration Levels from Jack and Bore Construction of the Central North Aqueduct Pipeline

Construction Equipment	PPV at 25 feet (in/sec)	Distance to the Nearest Receptor	PPV at Nearest Receptors (in/sec)	Exceeds 0.5 PPV Threshold?
Loaded Trucks	0.076	15	0.16	No
Excavator	0.175	15	0.38	No
Backhoe	0.028	15	0.06	No
Loader	0.026	15	0.06	No

Source: (NHDOT, 2012; FHWA, 2006).

Open trench construction of the Central North Aqueduct pipeline could occur as near as 25 feet from residences along San Pablo Dam Road, Rollingwood, El Portal Road, and Road 20 and as near as 10 feet from the El Sobrante Chamber of Commerce building along San Pablo Dam Road

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(non-residential building). The estimated vibration levels for heavy construction equipment at 25 feet (closest distance to residences) and 10 feet (closest distance to non-residential buildings) are shown in Table 3.11-19.

Table 3.11-19 Maximum Vibration Levels from Open Trench Construction of the Central North Aqueduct Pipeline

Construction Equipment	PPV at 25 feet (in/sec)	Distance to the nearest residential building	PPV at nearest residential building (in/sec)	Exceeds PPV Threshold of 0.5 in/sec?	Distance to the nearest non-residential building	PPV at nearest non-residential building (in/sec)	Exceeds PPV Threshold of 0.5 in/sec?
Loaded Trucks	0.076	25	0.076	No	10	0.30	No
Excavator	0.175	25	0.175	No	10	0.69	Yes
Backhoe	0.028	25	0.028	No	10	0.11	No
Loader	0.028	25	0.028	No	10	0.11	No
Jackhammer	0.035	25	0.035	No	10	0.14	No
Hoe Ram	0.089	25	0.089	No	10	0.35	No

Source: (NHDOT, 2012; FHWA, 2006).

As shown in Table 3.11-19, the predicted PPV levels from open trench construction of the Central North Aqueduct pipeline would be less than the 0.5 in/sec PPV threshold for potential architectural damage at the nearest residential structures. However, vibration levels at the nearest non-residential building, El Sobrante Chamber of Commerce, would exceed the 0.5 in/sec PPV threshold. As detailed in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, would be incorporated into the Project including Standard Construction Specification 01 35 44, Section 3.7, Vibration Control, and Section 1.4(H), Vibration Control and Monitoring Plan, which require the contractor to submit a plan detailing the means and methods for controlling and monitoring surface vibration generated by demolition and other work on the site for EBMUD's acceptance prior to any work at the jobsite. The construction contractors would be required to conduct activities such that PPV levels would not exceed the 0.5 in/sec PPV threshold and submit a plan detailing the means and methods for controlling and monitoring surface vibration. Additionally, EBMUD Procedure 600 also requires providing information to the public regarding the project including a Public Affairs liaison who would respond to construction-related issues, such as vibration, as well as providing advance notification of the potentially disruptive construction activities.

Because the EBMUD Standard Construction Specification 01 35 44, Section 3.7 and Section 1.4(H) have been incorporated into the Project and would reduce construction-related vibration levels to below the 0.5 in/sec PPV threshold and EBMUD would provide advance notification to the public, the Project impact from generation of vibration would be less than significant. The

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EBMUD Practices and Procedures Monitoring and Reporting Plan (Appendix C) lists the applicable standard specifications language.

Operation

Operation of pumps and power infrastructure at the SOWTP would generate minimal vibration. The pumps and power equipment would be separated from the nearest residential structure by over 200 feet and the low level of vibration generated by operation equipment would be imperceptible at a distance of 200 feet or more. Maintenance activities could involve repair or replacement of buried pipelines and would be conducted on an as-needed basis. Vibration generated from repair or replacement of equipment would be less than or equal to the vibration generated during construction, which would be less than significant, as described above. The vibration generated during operations and maintenance of the Project would be minimal, and the impact would be less than significant.

Significance Determination before Mitigation

Less than significant.

Mitigation Measures

None required.

3.11.4 Cumulative Impact Analysis

This section presents an analysis of the cumulative effects of the Project in combination with other past, present, and reasonably foreseeable probable future projects that could cause cumulatively significant impacts.

The geographic scope of analysis for cumulative noise and vibration construction impacts encompasses sensitive receptors within approximately 500 feet of the Project area. Beyond 500 feet, the contributions of Project-generated noise and vibration to noise and vibration levels generated from other projects would be greatly attenuated through both distance and intervening structures. The Project's contribution to cumulative noise and vibration levels would be minimal at a distance greater than 500 feet. Table 3.0-1 lists the reasonably foreseeable projects in the vicinity of the Project. No cumulative projects are within 500 feet of the SOWTP. None of the reasonably foreseeable project schedules would overlap with the Central North Aqueduct construction. Thus, the project would not contribute to a cumulatively significant noise impact.

3.11.5 References

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3.11 NOISE AND VIBRATION

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3.12 Transportation

This section describes the physical, environmental, and regulatory setting for transportation resources relevant to the Project, identifies the significance criteria used for determining environmental impacts, and evaluates potential impacts on transportation resources that could result from implementation of the Project. Appendix H provides supporting information including traffic count data and modeling calculations and results.

3.12.1 Environmental Setting

Roadway Network

The transportation and circulation study area extends beyond the Project area and includes roadways and transportation facilities that could be affected by the Project. The setting includes descriptions of roadways and documentation of transit service, bicycle, pedestrian, and parking conditions.

Regional Access

The Sobrante Water Treatment Plant (SOWTP) site is located approximately 2.2 miles from Interstate 80 (I-80) and approximately 8 miles from State Route 24 (SR-24) and the Central North Aqueduct pipeline extends east-west and crosses I-80 (Figure 3.12-1). The Caltrans Truck Networks map for District 4 identifies both SR-24 and I-80 as approved for regional truck access (Caltrans, 2020). The Project is also accessible via the local road network. Highways and local roads that provide access to the Project area are described below.

Interstate 80

I-80 is a United States (U.S.) Interstate located west of the SOWTP site that connects San Francisco to the East Bay and Sacramento. I-80 serves as a main freeway for any local commuters and individuals passing through the region. In the vicinity of the Project, I-80 extends in the south-north direction with four lanes in each direction. Access to the SOWTP site from I-80 is provided at the I-80 off ramp at San Pablo Dam Road located west of the SOWTP and the I-80 off-ramp at Appian Way located northwest of the SOWTP. The speed limit on I-80 is 65-miles per hour (mph).

State Route 24

SR-24 is a state highway located southeast of the SOWTP site that connects Oakland to Walnut Creek and Interstate 680 (I-680) and extends east-west with four lanes in each direction. Access to the Project area from SR-24 is provided through Camino Pablo/San Pablo Dam Road in the city of Orinda. The speed limit on SR-24 is 65 mph.

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Figure 3.12-1 Regional Transportation Network



Source: (U.S. Geological Survey, 2020; ESRI, 2011; Bay Area Open Space Council, 2011; Bay Area Open Space Council, 2011; Bay Area Open Space Council, 2017; Contra Costa County Department of Information Technology, 2017)

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San Pablo Dam Road/Camino Pablo

San Pablo Dam Road/Camino Pablo is a northwest-southeast regional road of significance in the Project vicinity that connects SR-24 in Orinda to I-80 in the city of Richmond. San Pablo Dam Road/Camino Pablo is a four-lane roadway between SR-24 and Miner Road, a two-lane roadway from Miner Road to Castro Ranch Road, and a four-lane roadway from Castro Ranch Road to its terminus at San Pablo Avenue, west of I-80. The posted speed limit is 25 mph to 40 mph. Parking is available in striped/designated parking areas.

Local Access

The SOWTP is located adjacent to Amend Road and Valley View Road within a residential area. Neighboring land uses along the nearby road network, San Pablo Dam Road, Valley View Road, Amend Road, and D Avila Way, include residences, schools, and commercial areas. The Central North Aqueduct pipeline would be located within San Pablo Dam Road, El Portal Drive, Rollingwood Drive, and Road 20. The land uses along the alignment of the Central North Aqueduct pipeline and the pipeline access roads include commercial, residential, and school uses. The road network in proximity to the Project area is shown on Figure 3.12-2.

Valley View Road

Valley View Road is a north-south four-lane roadway that connects San Pablo Dam Road to Appian Way and passes by the SOWTP. The posted speed limit is 30 mph. Parking is available on the southwest side of the road from approximately Christopher Court to Pine Hill Drive where striped/designated.

Appian Way

Appian Way is a southwest-northeast road that connects San Pablo Dam Road to I-80. Appian Way is a two-lane roadway with a two-way left-turn lane between San Pablo Dam and Michael Drive. North of Michael Drive, it is a four-lane roadway. The posted speed limit is 35 mph. Parking is available in striped/designated parking areas.

Amend Road

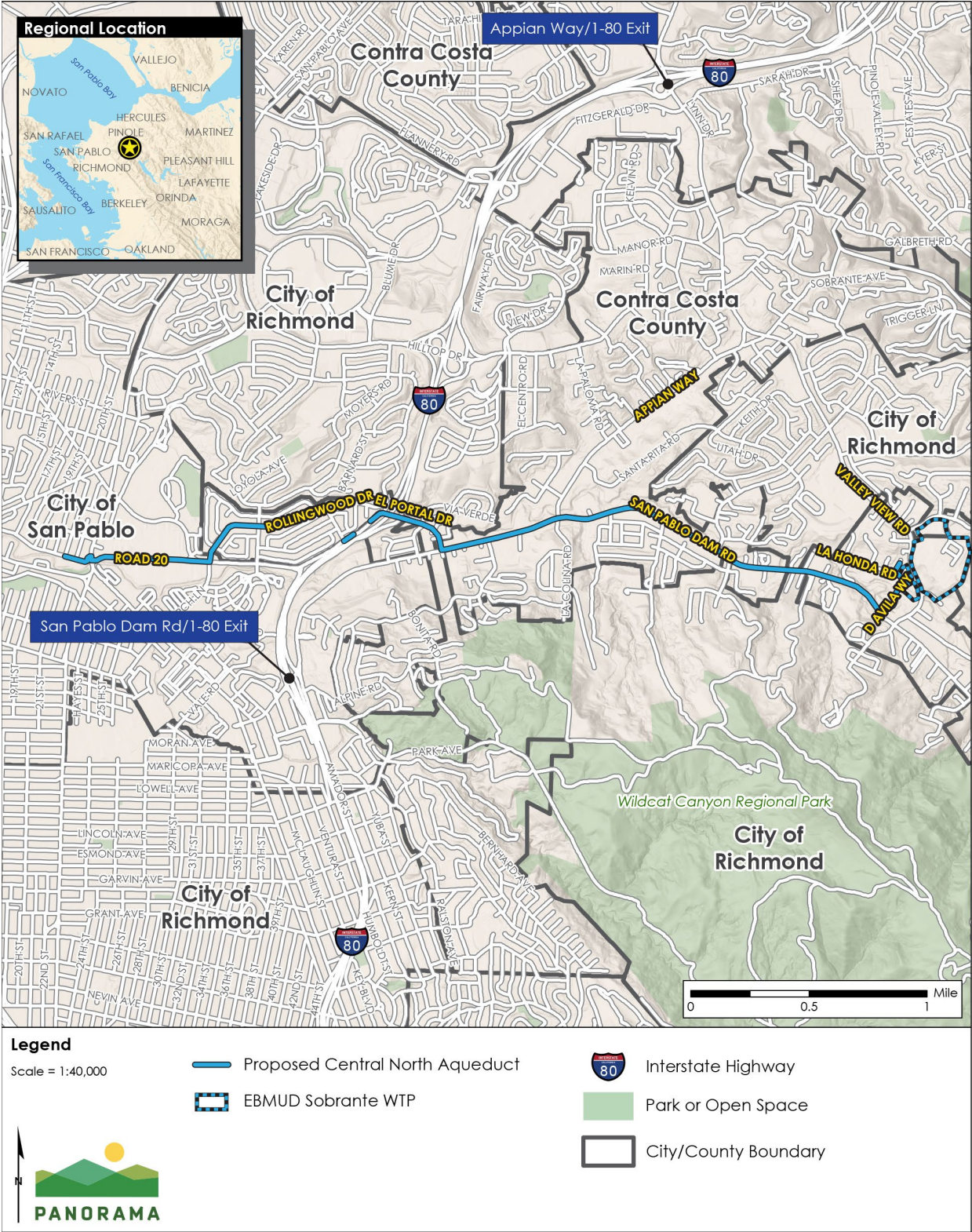
Amend Road is a northwest-southeast local street that connects Valley View Road to Castro Ranch Road. Amend Road provides sole access to the SOWTP via a driveway intersection between Heavenly Ridge Lane and Simoni Court and an unpaved construction access road adjacent to the Richmond Fire Station. The posted speed limit is 25 mph. Parking is available on both sides of the road.

D Avila Way

D Avila Way is a northeast-southwest local street that connects San Pablo Dam Road to Valley View Road. D Avila Way is wide enough for one vehicle in each direction. There is no posted speed limit. Parking is available on both sides of the street.

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Figure 3.12-2 Local Road Network



Source: (U.S. Geological Survey, 2020; ESRI, 2011; Bay Area Open Space Council, 2011; Bay Area Open Space Council, 2017; Contra Costa County Department of Information Technology, 2017)

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El Portal Drive

El Portal Drive is an east-west road that connects San Pablo Avenue with San Pablo Dam Road. El Portal Drive provides alternative access connecting San Pablo Dam Road and I-80. El Portal Drive contains one lane in each direction east of Fordham Street and two lanes in each direction west of Fordham Street. The posted speed limit is 30 mph. Parking is available east of I-80 where designated.

Road 20

Road 20 is an east-west road that connects El Portal Drive to San Pablo Avenue and Rumrill Boulevard. Road 20 contains one lane in each direction with a two-way left-turn lane. The posted speed limit is 30 mph. Parking is available on both sides of the road.

Rollingwood Drive

Rollingwood Drive is an east-west residential street that connects residential neighborhoods north of El Portal Drive. Rollingwood Drive extends from El Portal Drive to Wilart Drive with one lane provided in each direction. The posted speed limit is 25 mph. Parking is allowed on both sides of the street.

Existing Traffic Operations

Level of Service

Traffic operating characteristics of intersections are described by the concept of level of service (LOS). LOS is a qualitative description of traffic flow based on factors such as vehicle speed, travel time, delay, and maneuverability. Signalized intersection LOS and unsignalized LOS are stated in terms of average delay per vehicle (in seconds) during a specified time period, such as a.m. and p.m. peak hours. LOS has six levels ranging from LOS A (best operating conditions) to LOS F (worst operating conditions) which are defined in Table 3.12-1. When volumes exceed capacity, stop-and-go conditions result, and operations are designated as LOS F.

Table 3.12-1 Definitions for Intersection Level of Service

LOS	Definition	Signalized Delay (Seconds)	Unsignalized Delay (Seconds)
A	Operations with very low delay occurring with favorable progression and/or short cycle length.	< 10.0	< 10.0
B	Operations with low delay occurring with good progression and/or short cycle lengths.	> 10.0 to 20.0	>10.0 to 15.0
C	Operations with average delays resulting from fair progression and/or longer cycle lengths. Individual cycle failures begin to appear.	> 20.0 to 35.0	>15.0 to 25.0
D	Operations with longer delays due to a combination of unfavorable progression, long cycle lengths, or high V/C ratios. Many vehicles stop and individual cycle failures are noticeable	> 35.0 to 55.0	>25.0 to 35.0

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LOS	Definition	Signalized Delay (Seconds)	Unsignalized Delay (Seconds)
E	Operations with high delay values indicating poor progression, long cycle lengths, and high V/C ratios. Individual cycle failures are frequent occurrences.	> 55.0 to 80.0	>35.0 to 50.0
F	Operation with delays unacceptable to most drivers occurring due to over saturation, poor progression, or very long cycle lengths.	> 80.0	>50.0

Source: (Transportation Research Board, 2010)

Intersection Level of Service

Traffic count data was collected at 18 intersections as shown Figure 3.12-3. Traffic counts were collected from 7 a.m. to 9 a.m. and 2 p.m. to 6 p.m. to capture peak commute and traffic periods including periods of school drop off and pickup. All intersection traffic counts were conducted on Thursday, March 3, 2022, when local schools were in session (Appendix H).

Traffic conditions at signalized intersections were evaluated using the 2000 Highway Capacity Manual operations methodology, which determines the capacity for each lane group approaching the intersection (Transportation Research Board, 2000) and Highway Capacity Manual, 6th Edition (Transportation Research Board, 2016). Table 3.12-2 presents the LOS and delay data for the study intersections under existing conditions. The study intersections currently operate at LOS D or better during the a.m. and p.m. peak hours except for the San Pablo Dam Road/Amador Road/East Bound I-80 ramp.

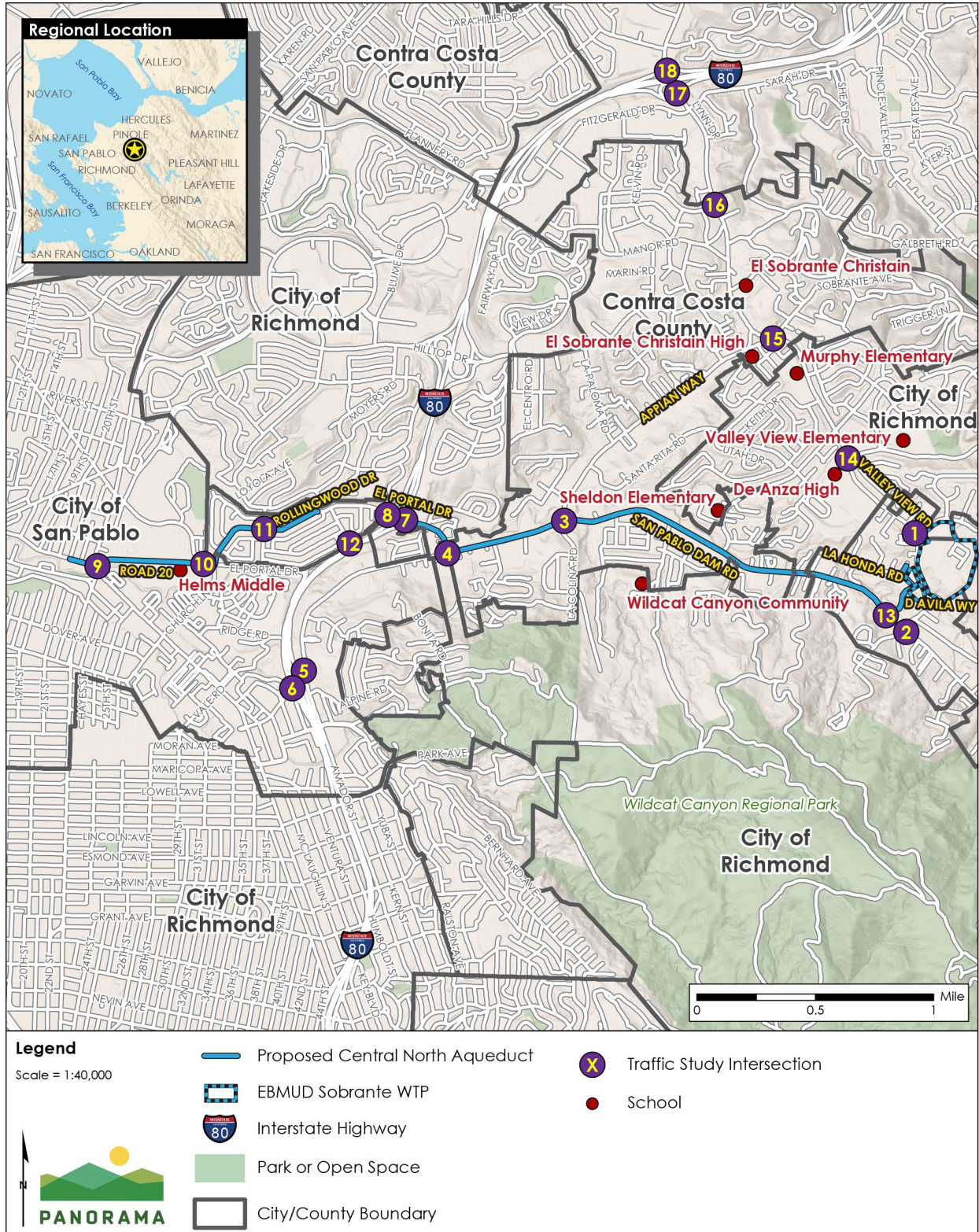
Daily Traffic Conditions

To assess existing traffic conditions along roadways around the Project, traffic counts were collected from 7 a.m. to 9 a.m. and 2 p.m. to 6 p.m. to capture peak commute and traffic periods on thirteen road segments around the Project as shown on Figure 3.12-4. Traffic segment counts were conducted on Thursday, March 3, 2022, for all segments except D Avila Way (location 13), which was collected on Tuesday, April 5, 2022.

Table 3.12-3 summarizes the average daily traffic (ADT) volumes along the roadways near the Project.

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Figure 3.12-3 Study Intersections



Source: (ESRI, 2011; Bay Area Open Space Council, 2011; Bay Area Open Space Council, 2011; Bay Area Open Space Council, 2017; Contra Costa County Department of Information Technology, 2017)

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Table 3.12-2 Intersection Level of Service in Project Area

Intersection	Control	Peak Hour	Existing	
			Delay(s)	LOS
Amend Road/Valley View Road	Signalized	AM	6	A
		PM	7	A
San Pablo Dam Road/Valley View Road	Signalized	AM	16	B
		PM	11	B
San Pablo Dam Road/Appian Way	Signalized	AM	22	C
		PM	35	D
San Pablo Dam Road/El Portal Drive	Signalized	AM	33	C
		PM	27	C
San Pablo Dam Road/Amador Street/EB I-80 Ramps*	Signalized	AM	55	E
		PM	92	F
San Pablo Dam Road/West Bound I-80 Ramps*	Signalized	AM	50	D
		PM	40	D
El Portal Drive/East Bound I-80 Ramps	Signalized	AM	24	C
		PM	26	C
El Portal Drive/West Bound I-80 Ramps	Signalized	AM	22	C
		PM	55	D
San Pablo Avenue/Road 20	Signalized	AM	45	D
		PM	35	D
Road 20/ El Portal Drive	Signalized	AM	11	B
		PM	14	B
Fordham Street/Rollingwood Drive	All-Way Stop Control	AM	11	B
		PM	10	A
Glenlock Street/El Portal Drive	Signalized	AM	10	A
		PM	9	A
San Pablo Dam Road/D Avila Way	Side-Street Stop Controlled	AM	0.1 (11)	A (B)
		PM	0.2 (12)	A (B)
Valley View Road/Morningside Drive	Signalized	AM	12	B
		PM	18	B

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Intersection	Control	Peak Hour	Existing	
			Delay(s)	LOS
Valley View Road/Sobranite Avenue	Signalized	AM	13	B
		PM	13	B
Appian Way/Allview Avenue	Signalized	AM	13	B
		PM	16	B
Appian Way/East Bound I-80 Ramps	Signalized	AM	7	A
		PM	6	A
Appian Way/West Bound I-80 Ramps	Signalized	AM	30	C
		PM	29	C

Notes:

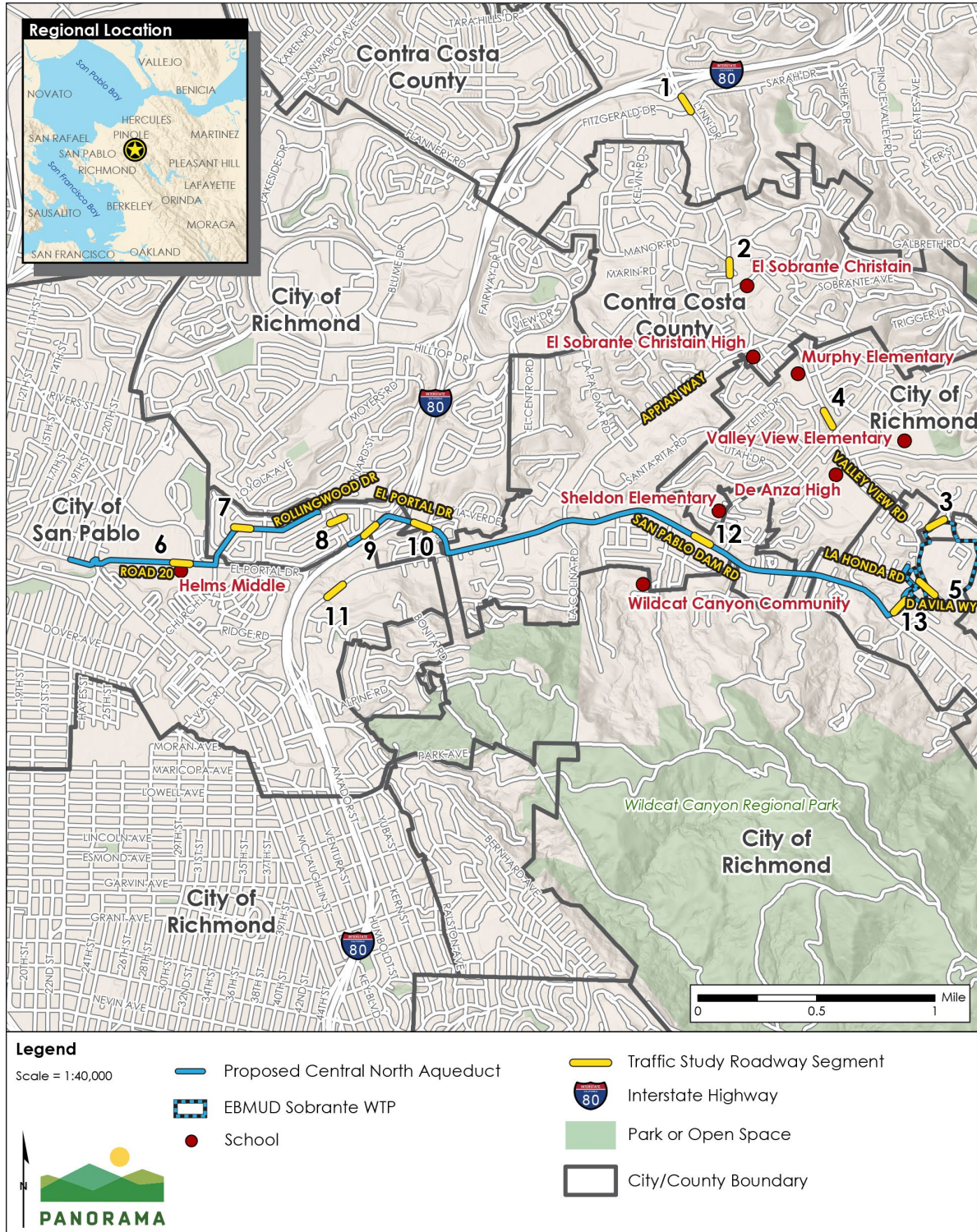
LOS and delay in parentheses represent the worst-performing approach of the intersection.

* Intersection 5 is five-legged (i.e., has five traffic lanes approaching the intersection instead of four) and Intersections 5 and 6 are controlled by one set of signal timing.

Source: (Fehr & Peers, 2023a)

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Figure 3.12-4 Roadway Study Segments



Source: (ESRI, 2011; Bay Area Open Space Council, 2011; Bay Area Open Space Council, 2011; Bay Area Open Space Council, 2017; Contra Costa County Department of Information Technology, 2017)

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Table 3.12-3 Existing Average Daily Traffic Volumes of Study Segments

Highway/Road	Jurisdiction	Existing Two-Way ADT Volume
1. Appian Way (between WB I-80 Ramps and Fitzgerald Drive/Sarah Drive)	Unincorporated Contra Costa County (CCC)	32,685
2. Appian Way (between Manor Road and Argyle Road)	Unincorporated CCC	21,549
3. Amend Road (between Valley View Road and Heavenly Ridge Lane)	Unincorporated CCC	2,989
4. Valley View Road (between Keith Drive and May Road)	Unincorporated CCC	13,348
5. Valley View Road (between D Avila Way and Spanish Trails Road)	Unincorporated CCC	8,485
6. Road 20 (between Abella Circle west and Abella Circle east)	Unincorporated CCC	4,892
7. Rollingwood Drive (between Bancroft Lane and Fordham Street)	Unincorporated CCC	4,301
8. Glenlock Street (between Baywood Lane and Chevy Way)	Unincorporated CCC	2,333
9. El Portal Drive (between Glenlock Street and WB I-80 Ramps)	City of San Pablo	27,021
10. El Portal Drive (between EB I-80 Ramps and Via Verdi)	City of San Pablo	18,925
11. San Pablo Dam Road (between Morrow Drive and Miffin Avenue)	Unincorporated CCC	19,348
12. San Pablo Dam Road (between Clark Road and May Road)	Unincorporated CCC	19,151
13. D Avila Way (between San Pablo Dam Road and La Honda Road)	Unincorporated CCC	227

Source: (Fehr & Peers, 2023a)

Transit Network

The Alameda-Contra Costa Transit District (AC Transit) serves 13 cities¹ and adjacent unincorporated areas in Alameda and Contra Costa counties and the Transbay Terminal in San Francisco. The seven AC Transit routes that serve the Project area are shown in Figure 3.12-5 and include:

- Route 669 is a school route that operates along San Pablo Dam Road, Castro Ranch Road, Valley View Road, and Appian Way, connecting various schools in the area.

¹ Cities served by AC Transit include Alameda, Albany, Berkeley, Emeryville, Fremont, Hayward, Newark, Oakland, Piedmont, San Leandro, Union City, El Cerrito, and Richmond.

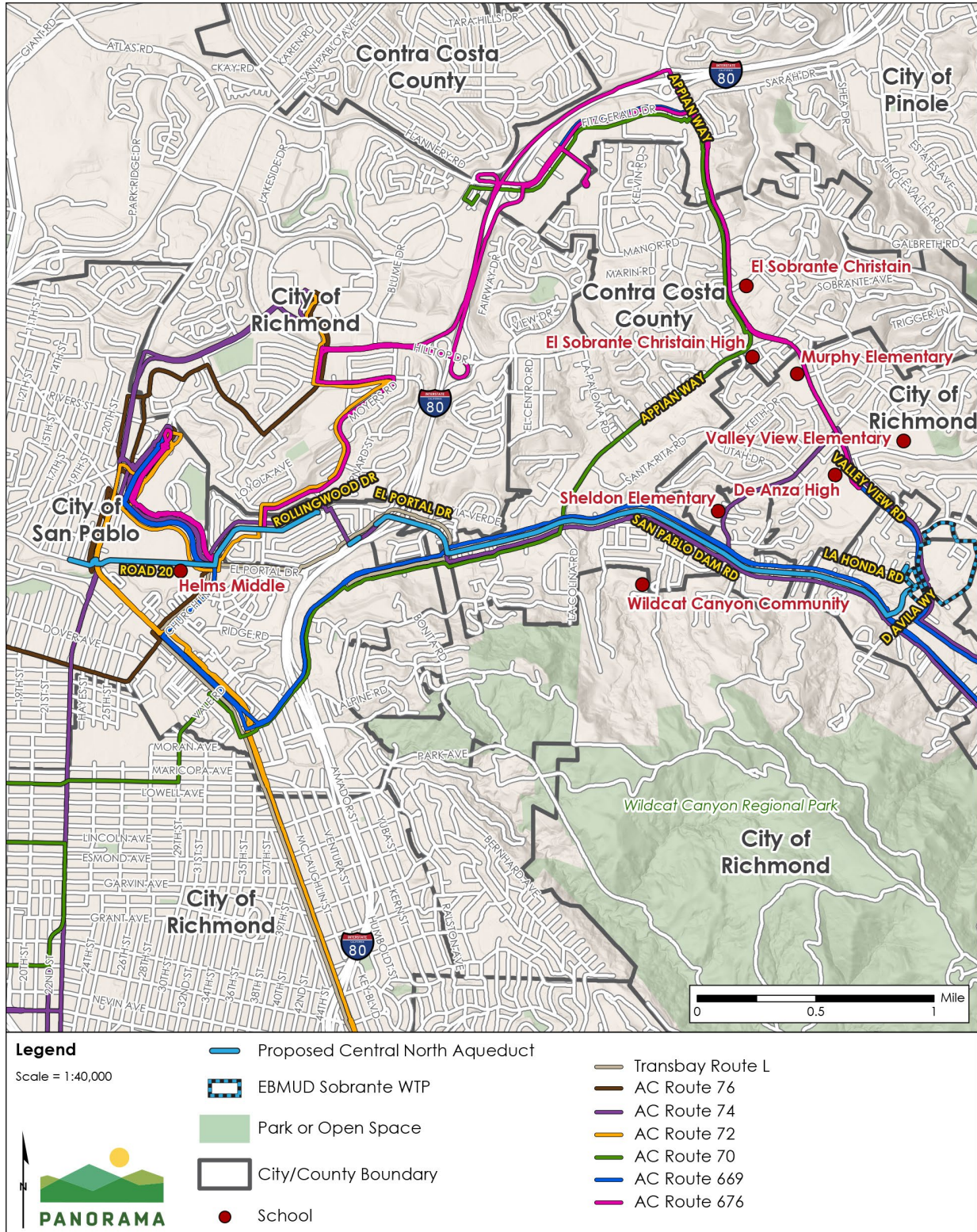
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Route 669 operates during school arrival (approximately 7 a.m.) and dismissal times (approximately 3 p.m.). Route 669 has a bus stop near the Project area at the intersection of Valley View Road and Amend Road.

- Route 676 is a school route that operates along El Portal Drive, Appian Way, and Valley View Road, connecting to De Anza High School and Helms Middle School. Route 676 operates during school arrival (approximately 7 a.m.) and dismissal times (approximately 3 p.m.). Route 676 has a bus stop near the Project area at the intersection of May Road and Valley View Road.
- Route 70 operates along Appian Way and San Pablo Dam Road connecting Pinole, El Sobrante, and San Pablo to Richmond. Route 70 provides hourly service throughout the day from Monday to Friday, and on weekends.
- Route 74 operates along Valley View Road, San Pablo Dam Road, and May Road, connecting El Sobrante and the SOWTP site with San Pablo, Richmond, and the Richmond Bay Area Rapid Transit (BART) station. Route 74 provides bus service every 30 minutes throughout the day from Monday to Friday, and hourly service on weekends.
- Route 72 operates along El Portal Drive and adjacent to Road 20, connecting Hilltop Mall to Jack London Square. Route 72 provides hourly service every day in the early morning hours typically 1 a.m. and 5 a.m.
- Route 76 operates along Road 20 for a short distance, connecting El Cerrito del Norte BART station to Richmond Parkway Transit Center. Route 76 provides bus service every 30 minutes every day of the week.
- Transbay Line L operates through the East Bay and provides service to San Francisco. The Transbay Line L operates through San Pablo Dam Road. and Princeton Plaza Shopping Center to Salesforce Transit Center, San Francisco. Transbay Line L runs during morning commuter peak hours (approximately 7 a.m.) and evening commuter peak hours (approximately 5 p.m.). Transbay Line L has a bus stop near the Project area at San Pablo Avenue and El Portal Drive.

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Figure 3.12-5 Transit Routes Serving the Project Area



Source: (U.S. Geological Survey, 2020; ESRI, 2011; Bay Area Open Space Council, 2011; Bay Area Open Space Council, 2011; Bay Area Open Space Council, 2017; Contra Costa County Department of Information Technology, 2017)

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Bicycle Circulation

Bicycle facilities in proximity to the Project are described below by jurisdiction and shown on Figure 3.12-6.

City of Richmond

Bikeways in the City of Richmond are defined in the *City of Richmond Bicycle Master Plan* as follows (City of Richmond, 2011):

- Bike paths (Class I): Paved trails that are separated from roadways.
- Bike lanes (Class II): Lanes on roadways designated for use by bicycles through striping, pavement legends, and signs.
- Bike routes (Class III): Designated roadways for bicycle use by signs only; may or may not include additional pavement width for cyclists.

Valley View Road between De Anza High School and its terminus at Appian Way is a Class II bikeway within the city of Richmond (City of Richmond, 2011). The remainder of Valley View Road and Amend Road do not contain any designated bicycle facilities.

Contra Costa County

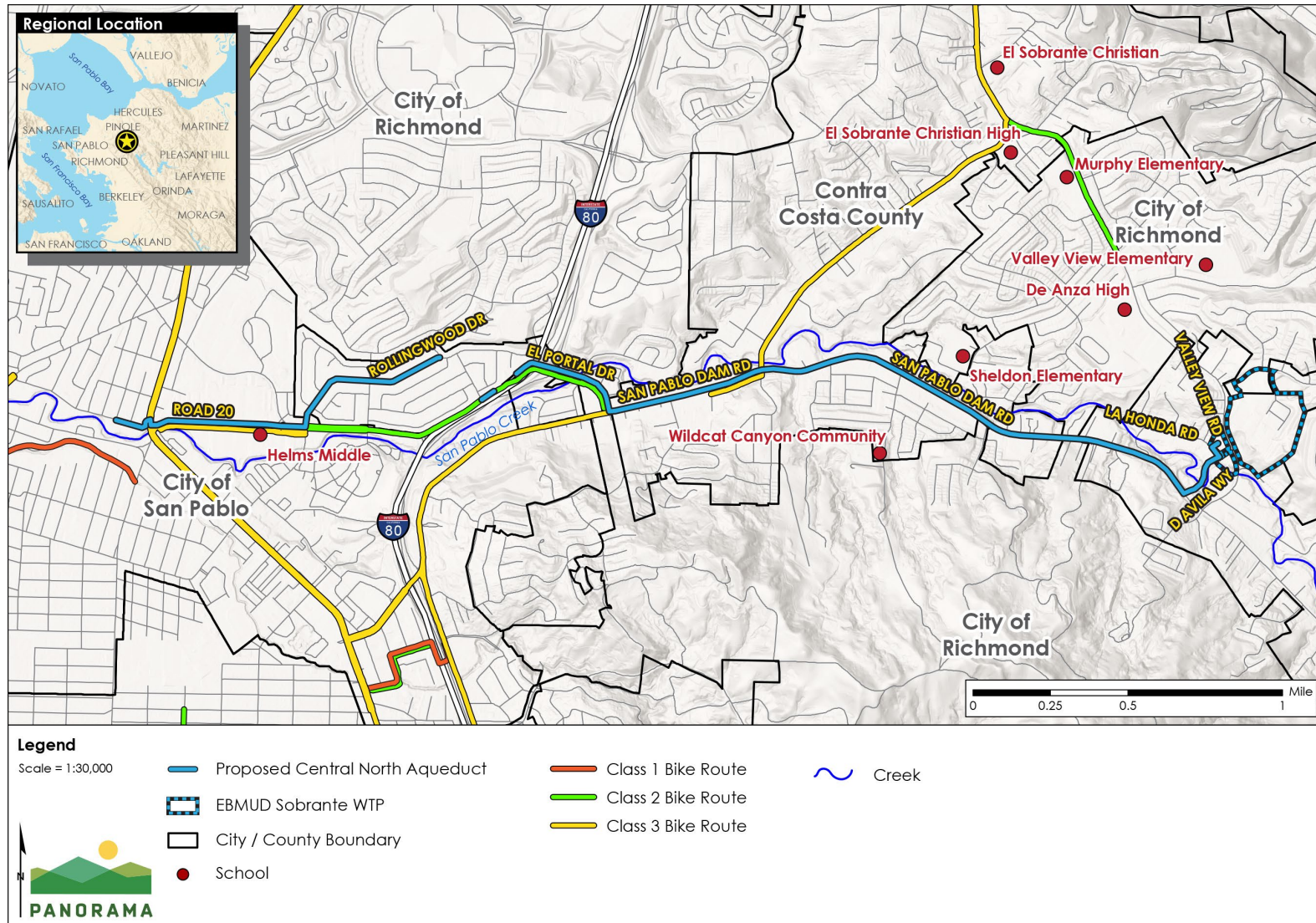
The Contra Costa Transportation Authority defines bikeways in the *Contra Costa Countywide Bicycle and Pedestrian Plan* as follows (CCTA, 2018):

- Class I Bikeway (Shared Use Path): Provides a completely separated right-of-way designated for the exclusive use of bicycles and pedestrians with crossflows by motorists minimized.
- Class II Bikeway (Bike Lane): Provides a restricted right-of-way designated for the exclusive use or semi-exclusive use of bicycles with through travel by motor vehicles or pedestrians prohibited, but with vehicle parking and crossflows by pedestrians and motorists permitted. Buffered bike lanes increase separation through painted buffers between vehicle lanes and/or parking, and green paint at conflict zones (such as driveways or intersections).
- Class III Bikeway (Bike Route): Provides enhanced mixed-traffic conditions for bicyclists through signage, sharrow striping, and/or traffic calming treatments, and provides continuity to a bikeway network.
- Class IV Bikeway (Protected Bikeway): Set aside for the exclusive use of bicycle and physically separated from vehicle traffic. Separation may include, but is not limited to grade separation, flexible posts, physical barriers, or on-street parking.

The portion of San Pablo Dam Road and Camino Pablo east of the Project is an existing Class II bicycle facility and San Pablo Dam Road from Valley View Road to I-80 is a proposed Class II bicycle facility. Appian Way from Allview Avenue to Garden Road is a Class II bicycle facility. A Class I bicycle facility is planned along San Pablo Creek and Class II bicycle lanes are proposed on both sides of Valley View Road from San Pablo Dam Road to the City of Richmond (CCTA, 2018). D Avila Way, La Honda Road, and Valley View Road between San Pablo Dam Road and Amend Road do not contain any designated bicycle facilities.

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Figure 3.12-6 Bicycle Facilities in Proximity to the Project



Source: (U.S. Geological Survey, 2020; ESRI, 2011; Bay Area Open Space Council, 2011; Bay Area Open Space Council, 2011; Bay Area Open Space Council, 2017; Contra Costa County Department of Information Technology, 2017)

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City of San Pablo

The City of San Pablo defines bicycles facilities in the *San Pablo Bicycle and Pedestrian Master Plan* according to Caltrans standards as follows (City of San Pablo, 2017):

- Class I (Shared Use Path): Off-street facilities dedicated exclusively to use by bicyclists and pedestrians.
- Class II (Bicycle Lane): Delineate a portion of the street for bicyclists through the use of pavement markings and signage.
- Class III (Bicycle Routes): Where the travel lane is shared by drivers and bicyclists. Generally designated on roadways with low levels of motor vehicle traffic where bicyclists may share the bicycle lane.
- Class IV (Separated Bikeways): On-street bicycle facilities that are separated from vehicle traffic by physical protection.

El Portal Drive from San Pablo Dam Road to Road 20 is a Class II bicycle route. Road 20 from El Portal Drive to San Pablo Avenue is a Class III bicycle route. Rollingwood Drive does not contain any designated bicycle facilities.

Pedestrian Circulation

Pedestrian circulation includes sidewalks, crosswalks, and pedestrian signals. The extent of sidewalks within the Project area are summarized below:

- **Amend Road.** Sidewalk on the north side of the road; sidewalk is available for a short segment on south side of the road adjacent to Valley View Road.
- **Valley View Road:** Sidewalks on both sides of the road from San Pablo Dam Road to Appian Way.
- **D Avila Way.** Sidewalk on east side of the road.
- **San Pablo Dam Road.** Sidewalks on both sides of the road from El Portal Drive to May Road; inconsistent sidewalk between May Road and Creekside Court; no sidewalk between Creekside Court and La Honda Road; inconsistent sidewalk between La Honda Road and D Avila Way.
- **Rollingwood Drive.** Sidewalks on both sides of the road.
- **Moyers Road.** Sidewalks on both sides of the road
- **El Portal Drive.** Sidewalks on the north side of the road; inconsistent sidewalk on the south side of the road.
- **Road 20.** Sidewalks on both sides of the road.
- **Appian Way.** Sidewalk on east side of the road from San Pablo Dam Road to I-80. Inconsistent sidewalks on west side of the road from Valley View Road to I-80 where parking lots are located along commercial properties.

Marked crosswalks and pedestrian push buttons are present on roadways throughout the Project area. Pedestrian volumes are highest near schools (see Figure 3.12-6) during the arrival and dismissal periods. Table 3.12-4 summarizes the pedestrian and bicycle volumes observed at all intersections during traffic counts conducted between 7 a.m. to 9 a.m. and 2 p.m. to 6 p.m. on Thursday, March 3, 2022, at Project study intersections (Appendix H).

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Table 3.12-4 Pedestrian and Bicyclist Volumes at Intersections in Project Area

ID	Intersection	AM		PM	
		Pedestrians	Bicyclist	Pedestrians	Bicyclist
1	Amend Road/Valley View Road	6	1	6	1
2	San Pablo Dam Road/Valley View Road	4	0	3	1
3	San Pablo Dam Road/Appian Way	7	5	16	7
4	San Pablo Dam Road/El Portal Drive	13	4	8	11
5	San Pablo Dam Road/Amador Street/EB I-80 Ramps	14	6	8	8
6	San Pablo Dam Road/WB I-80 Ramps	11	4	9	1
7	El Portal Drive/EB I-80 Ramps	4	3	2	1
8	El Portal Drive/WB I-80 Ramps	4	2	2	3
9	San Pablo Avenue/Road 20	62	14	42	11
10	Road 20/El Portal Drive	13	4	9	3
11	Fordham Street/Rollingwood Drive	19	6	5	2
12	Glenlock Street/El Portal Drive	0	2	2	1
13	San Pablo Dam Road/D Avila Way	1	0	8	2
14	Valley View Road/Morningside Drive	75	1	226	1
15	Valley View Road/Sobrante Avenue	3	0	10	1
16	Appian Way/Allview Avenue	5	1	6	1
17	Appian Way/EB I-80 Ramps	8	4	5	0
18	Appian Way/WB I-80 Ramps	11	4	12	1

Source: (Fehr & Peers, 2023a)

Parking Conditions

The SOWTP is within a residential area and the Central North Aqueduct pipeline is within residential and commercial areas. On-street parking on residential streets within the Project area is described for each road in the Project area under *Roadway Network*, above. There are several parking lots along San Pablo Dam Road and Appian Way that are associated with commercial use in the area.

3.12.2 Regulatory Framework

This section describes federal, state, and local policies and regulations related to transportation that may apply to the Project.

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Federal Policies and Regulations

There are no federal policies or regulations that pertain to transportation in the Project area.

State Policies and Regulations

Senate Bill 743

On September 27, 2013, Senate Bill (SB) 743 was signed into law, building on legislative changes from SB 375 and Assembly Bill (AB) 32. SB 743 created a shift in transportation impact analysis under CEQA from a focus on automobile delay, as measured by LOS and similar metrics, toward a focus on reducing vehicle miles traveled (VMT). SB 743 also includes amendments that revise the definition of “infill opportunity zones” to allow cities and counties to opt out of traditional LOS standards established by Congestion Management Programs and requires the Governor’s Office of Planning and Research to update the *CEQA Guidelines* and establish criteria for determining the significance of transportation impacts. SB 743 states that upon certification of the new criteria, automobile delay, as described solely by LOS or similar measures of vehicular capacity or traffic congestion, would not be considered a significant impact on the environment under CEQA, except in certain locations specifically identified in the new criteria.

The criteria contained in *CEQA Guidelines* Section 15064.3, were certified and adopted in December 2018 and applied statewide on July 1, 2020. *CEQA Guidelines* Section 15064.3 states that VMT is the most appropriate metric to assess transportation impacts and that, with limited exceptions, a project’s effect on automobile delay does not constitute a significant environmental impact.

California Vehicle Code

The California Vehicle Code specifies limits for vehicle height, weight, and width on state of California highways. Caltrans can issue a special permit to operate or move a vehicle or combination of vehicles or special mobile equipment of a size or weight of vehicle or load exceeding the maximum limitations specified in the California Vehicle Code. Caltrans can issue the following special permits:

- Single Trip Permit - loads greater than 8'-6" wide, 14'-0" high, and over 80,000 pounds.
- Annual Permit - loads up to 12'-0" wide, 14'-0" high, and Kingpin to Rear Axle (KPRA) 40'-0" maximum (except as specifically allowed per CVC). Travel on red routes prohibited.
- Repetitive Permit - loads up to 12'-0" wide, 14'-6" high, and 90'-0" long.
- Sea Container Permit - 4-Axle tractor and 3-Axle trailer of maximum Overall Length (OAL) of 65'-0", and Kingpin to Rear Axle (KPRA) 40'-0" maximum, transporting intermodal cargo containers on state highways in the vicinity of the Port of Los Angeles and the Port of Long Beach.
- Variance Permit - vehicles greater than 15'-0" wide, 17'-0" high, and 135'-0" long, or on special hauling equipment which exceeds the Department's standard method of weight classification.

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Local Regulations

Under Section 53091 of the California Government Code, local building and land use zoning ordinances do not apply to projects involving the location or construction of facilities for the production, generation, storage, treatment, or transmission of water. However, EBMUD's practice is to work with local jurisdictions and neighboring communities during a project's planning, and to consider local environmental protection policies for guidance.

Contra Costa Transportation Authority

The Contra Costa Transportation Authority (CCTA) serves as the Congestion Management Agency (CMA) for Contra Costa County. As the CMA, the CCTA must, under State law, prepare a Congestion Management Program (CMP) and update it every two years. The CMP is meant to outline the CMA's strategies for managing the performance of the regional transportation within its county. The CMP for Contra Costa County incorporates various strategies and measures to improve congestion management on the Contra Costa County multi-modal transportation system, including LOS monitoring of a designated CMP roadway network. CCTA updated the CMP in 2021 to include changes from LOS to VMT statewide under SB 743, as well as potential impacts to the CMP legislation, of which LOS is currently a required performance measure (CCTA, 2021).

CCTA developed the *Contra Costa County Transportation Analysis Guidelines* to aid in the preparation of traffic analysis for projects. The *Contra Costa County Transportation Analysis Guidelines* establish a uniform approach, methodology, and tool set to evaluate the impacts of land use decisions and related transportation projects on the county transportation system (CCTA, 2020). The *Contra Costa County Transportation Analysis Guidelines* were adopted in 2020 to include guidance for both CEQA VMT and non-CEQA LOS analyses.

West County Action Plan

The *West County Action Plan* (West Contra Costa County Transportation Advisory Committee, 2023) outlines goals including routes of regional significance, establishes regional transportation objectives, and establishes actions to support the regional transportation objectives (West Contra Costa County Transportation Advisory Committee, 2023). The *West County Action Plan* defines San Pablo Dam Road as a route of regional significance and includes the following objectives for LOS at intersections and roadways:

- **Existing target.** LOS E on San Pablo Avenue and San Pablo Dam Road intersection; no roadways segment target.
- **2027 and 2050 targets.** LOS D at intersections in all areas except for downtowns, key school sites, and freeway ramps; LOS E at freeway ramp intersections; no LOS standards for downtowns, key school sites, or Transit Priority Areas (TPAs). LOS E for roadway segments including San Pablo Dam Road.

Contra Costa Countywide Bicycle and Pedestrian Plan

The CCTA updated the *Contra Costa Countywide Bicycle and Pedestrian Plan* in 2018 to reflect current policies, best practices, and standards for walking and bicycling and reflect current funding and planning efforts for bicycle and pedestrian projects (CCTA, 2018). The *Contra Costa*

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Countywide Bicycle and Pedestrian Plan includes approaches for supporting pedestrian and bicycle safety and planning for a “low-stress Countywide Bikeway Network”.

Contra Costa County General Plan

The *Contra Costa County General Plan* outlines the County’s goals for physical growth, conservation, and community life in the unincorporated area, and contains the policies and actions necessary to achieve those goals. The *Contra Costa County General Plan* was adopted in 1991 and has been reconsolidated twice, once for 1990 to 2005 and again for 2005 to 2020 (Contra Costa County, 2020). The following goals, policies, and measures related to transportation are included as a part of the *Contra Costa County General Plan*, Transportation and Circulation Element:

5-J. To reduce single-occupant auto commuting and encourage walking and bicycling.

5-8. Access points on arterials and collectors shall be minimized.

5-14. Physical conflicts between pedestrians, bicyclists, and vehicular traffic, bicyclists, and pedestrians shall be minimized.

5-24. Use of alternative forms of transportation, such as transit, bike, and pedestrian modes, shall be encouraged in order to provide basic accessibility to those without access to a personal automobile and to help minimize automobile congestion and air pollution.

5-33. Landscaping and maintenance of street medians and curb areas shall be provided where appropriate.

5-bd. Review capital improvement projects to make sure that needs of non-motorized travelers (including pedestrians, bicyclist and persons with disabilities) are considered in programming, planning, maintenance, construction operations and project development activities and products.

5-bg. Accommodate cyclists and pedestrians during construction of transportation improvements and other development projects

City of Richmond General Plan

The *City of Richmond General Plan 2030* contains 15 elements addressing land use, economic development, housing, transportation, climate change, public safety, arts and culture, and open space conservation strategies. The *City of Richmond General Plan 2030* provides a comprehensive framework for developing a healthy city and healthy neighborhoods (City of Richmond, 2012). The following policy related to transportation is included as a part of the Circulation Element:

CR1.10 Vehicular Level of Service Standards for West County Routes of Regional Significance. Maintain vehicular level of service (LOS) standards for signalized intersections consistent with the Contra Costa Transportation Authority’s (CCTA) West County Action Plan for Routes of Regional Significance. Require a traffic impact study for projects that would generate more than 100 net new peak-hour vehicular trips. Require traffic impact studies to be prepared by professional transportation consultants

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selected and hired by the City and require the studies to be fully paid for by the project applicant. Traffic impact studies shall be prepared according to CCTA's travel demand model and technical procedures. Approve projects only if they are found to be consistent with the CCTA's West County Action Plan for Routes of Regional Significance. Projects found to be inconsistent with the CCTA's West County Action Plan for Routes of Regional Significance may be approved if findings of special circumstances, including appropriate mitigation measures, are adopted by the City.

City of Richmond Bicycle Master Plan

The *City of Richmond Bicycle Master Plan* includes a proposed system of bikeways connecting neighborhoods and key activity centers throughout the city and provides recommendations for increasing the supply of bicycle parking and improving bicyclist safety in support of the city General Plan (City of Richmond, 2011).

San Pablo General Plan 2030

The *San Pablo General Plan 2030* provides a vision of how San Pablo should be in the future by establishing guidelines that reflect City policies, goals, and efforts while enhancing quality of life. The *San Pablo General Plan 2030* serves as a blueprint for the future, outlines policies that guide development and conservation, and provides the basis for establishing detailed plans and implementing programs, such as development standards and specific plans (City of San Pablo, 2011). The following goals, policies, and measures related to transportation are included as a part of the *San Pablo General Plan 2030* Circulation Element:

C-G-4: Maintain Acceptable Levels of Service for all Modes of Travel. As part of this General Plan the City has established mode priorities by street type, as shown in Table 5.2-1.

C-I-1: Design and operate city streets based on a "Complete Streets" Concept that enables safe, comfortable, and attractive access and travel for pedestrians, bicyclists, motorists, and transit users of all ages and abilities.

C-I-7: Apply traffic Level of Service (LOS) standards to signalized intersections on Regional Routes of Significance to be consistent with the Contra Costa Transportation Authority's West County Action Plan.

C-I-8: Accept LOS F at the intersection of San Pablo Dam Road and San Pablo Avenue opposite Lytton Casino and I-80 ramps at El Portal Drive and San Pablo Dam Road/Amador Street during two peak hours (a.m. and p.m.) as an interim standard until feasible traffic improvements can be designed funded and constructed.

San Pablo Bicycle and Pedestrian Master Plan

The *San Pablo Bicycle and Pedestrian Master Plan* supports local and regional policies that advocate for improved health, air quality, and transportation choices. The *San Pablo Bicycle and Pedestrian Master Plan* was developed to help the City of San Pablo implement its General Plan

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by defining bicycle and pedestrian opportunities in the city and the plan includes priorities for pedestrian and bicycle facility improvements (City of San Pablo, 2017).

EBMUD Standard Construction Specifications

EBMUD's Standard Construction Specifications and Procedures apply to all contractors completing work for EBMUD, and to work completed by EBMUD staff. The following EBMUD practices and procedures are applicable to transportation:

- **EBMUD Standard Construction Specification 01 32 36, Video Monitoring and Documentation, Sections 1.1 and 1.2**

EBMUD Standard Construction Specification 01 31 36, Video Monitoring and Documentation, requires the contractor to provide audio-video recording of the project (EBMUD, 2017b):

- Section 1.1, Summary
 - Audio-video documentation utilizing digital recording of surface features, supplemented by photography, that may be taken along the entire length of the project and may include work and storage areas, adjacent properties, and/or intersecting roadways.
 - Prior to audio-video recording of the project, all areas to be inventoried shall be investigated visually with notations made of items not readily visible by audio-video recording or supplemental photographic methods.
- Section 1.2, Site Survey Audio-Video Recording Requirements
 - The Contractor shall employ a qualified videographer, experienced in taking properly documented and annotated video to perform the Pre-Construction Site Survey, which shall be completed within 20 days after the issuance of the Notice to Proceed. The Pre-Construction Site Survey shall be completed and accepted prior to EBMUD issuance of the Notice to Commence Field Work (NTCFW).
 - Prior to commencement of the Pre-Construction Site Survey recording, the Contractor shall notify EBMUD in writing within 48 hours of the recording. EBMUD will provide a designated representative to accompany and observe audio-video recording operations. Audio-video recording completed without an EBMUD Representative present will be unacceptable unless specifically authorized in writing and in advance by EBMUD.
 - Provide a copy of the Pre-Construction Site Survey to EBMUD for review and comment. The Survey shall include all audio-video recordings, photography, annotations and all documentation. If EBMUD determines that critical areas are missing from the survey, the Contractor shall provide additional recording and documentation of the requested area and locations.
 - Post-Construction Site Survey: The Contractor shall perform a Post-Construction Site Survey of the same areas recorded in the Pre-Construction Site Survey following the same path/route of the Pre-Construction Site Survey. EBMUD will review post-construction survey findings with the Contractor and develop a complete listing of project site restoration requirements to be accomplished by the Contractor. Prior to commencement of Post-Construction

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Site Survey recording, the Contractor shall notify EBMUD in writing within 48-hours of the recording. EBMUD will provide a designated representative to accompany and observe audio-video recording operations. Audio-video recording completed without an EBMUD Representative present will be unacceptable unless specifically authorized in writing and in advance by EBMUD.

- The Contractor shall be responsible for repairing any damage or defects not documented as existing prior to construction.

- **EBMUD Standard Construction Specification 01 55 26, Traffic Regulation, Sections 1.1, 1.2(A), 1.3, 2.1(A), 3.1, 3.2, 3.3(A), and 3.4**

EBMUD Standard Construction Specification 01 55 26, Traffic Regulation, requires implementation of the following measures that are aimed at complying with the traffic regulations and requirements (EBMUD, 2017a):

- Section 1.1, Summary
 - All proposed street closures shall be clearly identified in the Traffic Control Plan (TCP) and shall conform to the section “Traffic Control Devices” below. Construction area signs for street closure and detours shall be posted a minimum of forty-eight (48) hours prior to the commencement of street closure. Contractor shall maintain safe access around the project limit at all times. Street closures shall be limited to those locations indicated on the construction documents.
- Section 1.2(A), Submittals
 - Submit at least 15 calendar days prior to work a detailed Traffic Control Plan, that is approved by all agencies having jurisdiction and that conforms to all requirements of these specifications and the most recently adopted edition of the Manual on Uniform Traffic Control Devices (MUTCD). Traffic Control Plan shall include:
 - Circulation and detour plans to minimize impacts to local street circulation. Use haul routes minimizing truck traffic on local roadways to the extent possible.
 - A description of emergency response vehicle access. If the road or area is completely blocked, preventing access by an emergency responder, a contingency plan must be included.
 - Procedures, to the extent feasible, to schedule construction of project elements to minimize overlapping construction phases that require truck hauling.
 - Designated Contractor staging areas for storage of all equipment and materials, in such a manner to minimize obstruction to traffic.
 - Locations for parking by construction workers.

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- Section 1.3, Quality Assurance
 - Detailed Traffic Control Plan shall be prepared by a California licensed Traffic Engineer.
 - The Traffic Engineer who prepares the detailed Traffic Control Plan shall be available at any time during the life of the contract to modify the Traffic Control Plan if and as required by the agency having jurisdiction.
 - No changes or deviations from the approved detailed Traffic Control Plan shall be made, except temporary changes in emergency situations, without prior approval of the Traffic Engineer, the EBMUD's Engineer, and all agencies having jurisdiction.
 - Immediately notify the Traffic Engineer, the EBMUD's Engineer, and the agencies having jurisdiction of occurrences that necessitate modification of the approved Traffic Control Plan.
- Section 2.1(A) Traffic Control Devices
 - Traffic signs, flashing lights, barricades and other traffic safety devices used to control traffic shall conform to the requirements of the most recently adopted edition of the MUTCD and the agency having jurisdiction.
 - Portable signals shall not be used unless permission is given in writing by the agency having jurisdiction.
 - Warning signs used for nighttime conditions shall be reflectorized or illuminated. "Reflectorized signs" shall have a reflectorized background and shall conform to the current State of California Department of Transportation specification for reflective sheeting on highway signs.
- Section 3.1, General
 - Except where public roads have been approved for closure, traffic shall be permitted to pass through designated traffic lanes with as little inconvenience and delay as possible.
 - Install temporary traffic markings where required to direct the flow of traffic. Maintain the traffic markings for the duration of need and remove by abrasive blasting when no longer required.
 - Convenient access to driveways and buildings in the vicinity of work shall be maintained as much as possible. Temporary approaches to, and crossing of, intersecting traffic lanes shall be provided and kept in good condition.
 - When leaving a work area and entering a roadway carrying public traffic, the Contractor's equipment, whether empty or loaded, shall in all cases yield to public traffic.
 - Provide temporary signs as required by the traffic control plan and remove signs when no longer required.
 - Haul routes for each construction phase shall be provided to all trucks serving the site during the construction period.

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- For complete road closures, immediate emergency access to be provided if needed to emergency response vehicles.
- A minimum of twelve (12) foot travel lanes must be maintained unless otherwise approved.
- Section 3.2, Alternative One-Way Traffic
 - Where alternating one-way traffic has been authorized, the following shall be posted at each end of the one-way traffic section at least one week prior to start of work:
 - The approximate beginning and ending dates that traffic delays will be encountered.
 - The maximum time that traffic will be delayed.
 - The maximum delay time shall be approved by the agency having jurisdiction.
- Section 3.3(A), Flagging
 - Provide flaggers to control traffic where required by the approved Traffic Control Plan.
 - Flaggers shall perform their duties and shall be provided with the necessary equipment in accordance with the current “Instructions to Flaggers” of the California Department of Transportation.
 - Flaggers shall be employed full time on traffic control and shall have no other duties.
- Section 3.4, Temporary Traffic Control
 - All traffic control devices shall conform to the latest edition of the MUTCD, and as amended by the latest edition of the MUTCD California supplement. Electronic signage board with changeable message shall be placed on a street in both directions 2 weeks in advance.
 - The Contractor shall replace within 72 hours, all traffic signal loop detectors damaged during construction. Any work that disturbs normal traffic signal operations and ensure proper temporary traffic control (lane shifts, lane closures, detours etc.) shall be coordinated with the agency having jurisdiction, at least 72 hours prior to commencing construction.
 - A minimum of 12-foot travel lanes must be maintained unless otherwise approved.
 - Access to driveways will be maintained at all times unless other arrangements are made.
 - All traffic control devices shall be removed from view when not in use.
 - Before leaving a work area, ensure the area is left orderly. Trenches must be backfilled or plated during non-working hours.
 - Sidewalks for pedestrians will remain open if safe for pedestrians. Alternate routes and signing will be provided if pedestrian routes are to be closed.

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EBMUD Procedure 600

- Designates a Public Affairs liaison to respond to construction-related issues, including noise. Contact information for the Public Affairs liaison (i.e., phone number, email address) and capital project site address will be provided via conspicuous signage at construction sites, on all advance notifications, and on the District project website. The Public Affairs liaison will coordinate with the construction project manager/engineer and any contractors to resolve any issues.
- Notifies residents at least seven days (and preferably fourteen days) in advance of potentially disruptive construction activities (e.g., noise, traffic, parking); notifications will include the activities' geographical extent and estimated duration. The Public Affairs liaison will coordinate with the project manager/engineer and any contractors to provide advance notification via email, mailed notices, door-hangers, social media, or other means, as appropriate.

3.12.3 Impact Analysis

Methodology for Analysis

The *Contra Costa County Transportation Analysis Guidelines* provide guidance for evaluating the effects of projects on the performance of transportation facilities. The County requires LOS operational analysis for development projects that generate 100 or more net new peak hour vehicle trips, add 50 more new peak hour vehicle trips to an intersection, or create safety or operational concerns. The Project does not exceed the County thresholds for conducting LOS operational analysis because the increased traffic would be short-term and isolated to the construction phase. An intersection operational analysis was conducted for the Project at key locations to provide information on projected intersection operating conditions with the addition of the Project construction traffic and evaluate if highly congested conditions that could lead to hazardous conditions for vehicles, bicycles, and pedestrians would occur. The Highway Capacity Manual, 6th edition (Transportation Research Board, 2016) and Synchro 11² were used to calculate signalized intersection LOS and delay resulting from Project construction.

Traffic volumes along studied roadway segments were analyzed using the existing average daily traffic volume and the daily Project construction traffic volume by month during construction to evaluate the percentage increase in average daily traffic volume as a result of Project construction. The *Contra Costa County Transportation Analysis Guidelines* do not provide guidance or standards for evaluating increase in traffic volume along roadway segments.

² Synchro is a software application produced by Cubic designed to simulate traffic conditions.

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Short Term Construction Traffic

Construction traffic volumes generated by the Project were estimated based on the number of construction-related vehicle trips needed during each major construction activity for the Project. Construction-related vehicle trips include trips made by construction workers traveling to and from the SOWTP site, material (e.g., soil, concrete) hauling and delivery truck trips, and equipment delivery trips. The number of Project-generated trips would vary daily, depending on the construction phase, planned activity, and material delivery needs. The approach used to estimate travel demand generated by construction-related vehicles is described for construction worker vehicles and trucks below.

Construction Worker Vehicle Trips

The maximum and average of daily worker vehicle trips were estimated based on the number of daily construction workers assigned for each construction phase. The maximum daily worker vehicle trips were estimated for each month for Phase 1 and Phase 2 construction at SOWTP and for Phase 2 of the Central North Aqueduct pipeline. The number of worker vehicle trips would vary from an average of 6 to 52 per day depending on the phase and activity level. Construction would typically occur between 7:00 a.m. and 7:00 p.m. Monday through Friday. Construction personnel may arrive and depart 30 minutes before and after regular construction work times but would generally arrive on site during the morning commute peak period (7:00 a.m. to 9:00 a.m.) and leave the site at different times, with most workers leaving the site during the evening commute peak period (4:00 p.m. to 6:00 p.m.). However, concrete trucks may arrive at the SOWTP site as early as 6:00 a.m. during concrete pours. Nighttime work may be required for the Central North Aqueduct pipeline at busy intersections and due to encroachment permit conditions. Central North Aqueduct pipeline construction along Road 20 in proximity to the Helms Middle School would be scheduled in coordination with the middle school to occur when school is not in session to the extent feasible. Construction personnel may arrive and depart 30 minutes before or after regular construction work times.

A conservative assessment of potential traffic impacts was developed using the following criteria:

- All construction workers would arrive during an a.m. peak hour and depart during a p.m. peak hour.
- Construction workers would drive alone to the Project, would not use public transit, and would be nonlocal residents of the Project area.
- Worker trips were distributed on local roads assuming 30 percent of workers access the site from I-80 north exiting at San Pablo Dam Road, 30 percent from I-80 south exiting at Appian Way, 20 percent from San Pablo Dam Road travelling south, 10 percent from residential areas west of I-80 in Richmond and San Pablo and 10 percent from residential areas north of I-80 in Pinole (Figure 3.12-7).
- Workers were assumed to use the most direct access to the Project.

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Hauling and Material Delivery Truck Trips

Construction would typically occur between 7:00 a.m. and 7:00 p.m. Monday through Friday. Large haul trucks (soil and demolition off-haul and heavy equipment delivery trucks) would occur during typical construction hours. However, concrete trucks may arrive at the SOWTP site as early as 6:00 a.m. during concrete pours. All trucks would access the Project using roadways that provide the most direct access from freeways. Trucks traveling to the SOWTP site would travel from either San Pablo Dam Road or Appian Way/Valley View Road to access the site via the sole entrance on Amend Road.

Truck trips were distributed on local roads assuming 40 percent of the trucks access the site from I-80 north at San Pablo Dam Road, 15 percent from I-80 south exiting at Appian Way, 10 percent traveling through Pinole and along Appian, 15 percent traveling through industrial areas along Richmond Parkway, and 20 percent traveling south along San Pablo Dam Road (Figure 3.12-7). Trucks traveling to the Central North Aqueduct pipeline would generally exit I-80 at El Portal Drive and travel east on San Pablo Dam Road to access construction areas east of I-80 and travel west on El Portal Drive to access construction areas west of I-80. Phase 1 construction would generate a maximum of approximately 139 trucks daily traveling to the SOWTP site during peak construction (estimated to be 2033). Phase 2 construction would generate a maximum of approximately 103 trucks daily traveling to the SOWTP site and approximately 184 trucks daily for construction of the Central North Aqueduct pipeline with trucks traveling to two active construction areas (approximately 92 trucks at each construction site) during peak construction traffic/hauling. Large construction trucks (e.g., dump, haul, fueling, and concrete trucks) take longer to accelerate, decelerate, and negotiate turns than passenger vehicles and affect intersection and roadway operations differently. Truck trips were analyzed as passenger car equivalents (PCE) for the purpose of estimating vehicle delay based on guidance in the Highway Capacity Manual (Transportation Research Board, 2016).

Long-Term Operational Traffic

After Project construction, the Project would be operated and maintained by EBMUD operations and maintenance staff. Operation and maintenance activities would be conducted by new and existing staff, with the improvements generating up to 24 additional worker vehicle trips, 18 additional light-duty vehicle trips, and 2 truck trips per day.

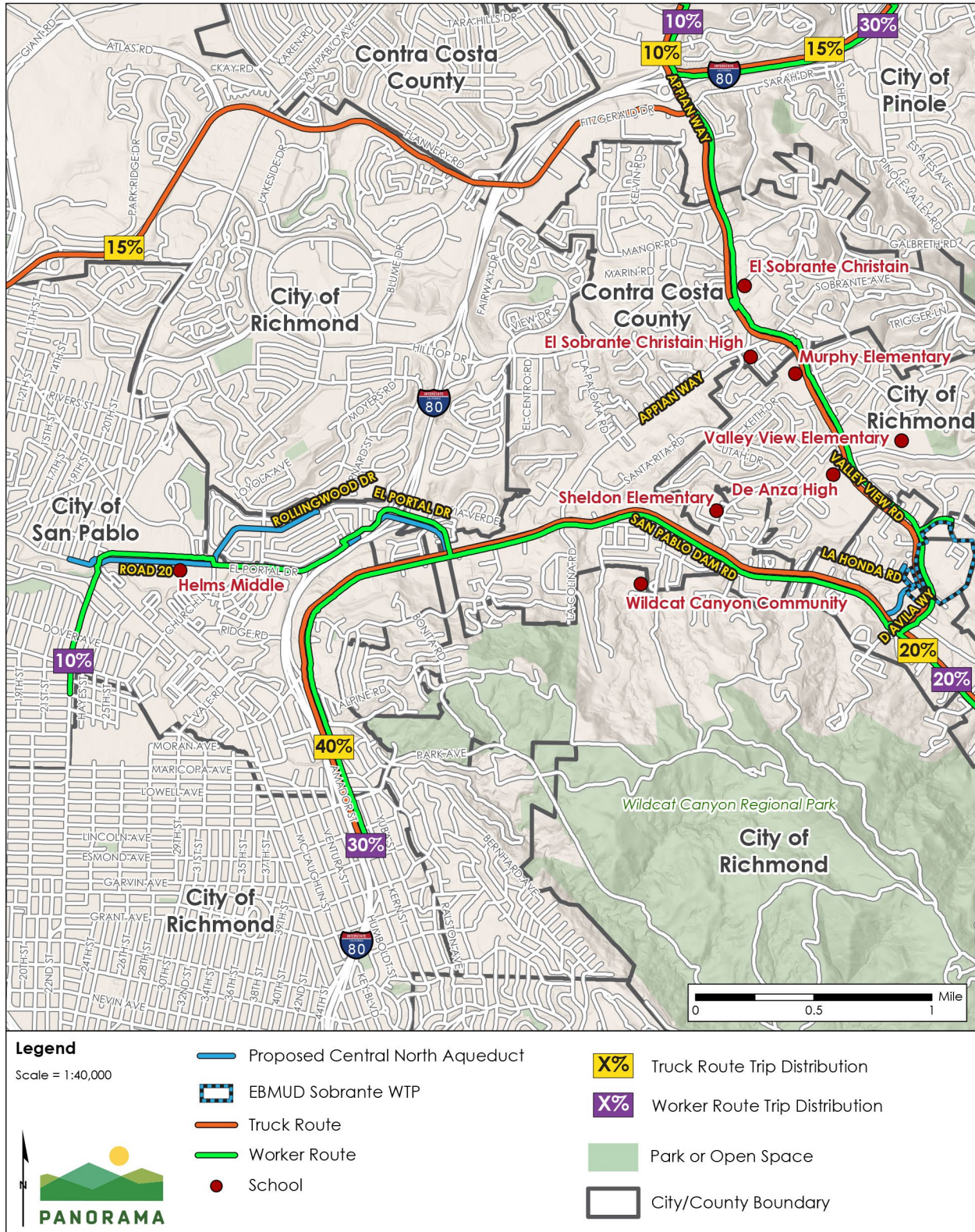
Significance Criteria

Consistent with *Appendix G of CEQA Guidelines*, an impact would be considered significant if the Project would:

1. Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities.
2. Conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b).
3. Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).
4. Result in inadequate emergency access.

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Figure 3.12-7 Truck and Worker Routes



Source: (ESRI, 2011; Bay Area Open Space Council, 2011; Bay Area Open Space Council, 2011; Bay Area Open Space Council, 2017; Contra Costa County Department of Information Technology, 2017)

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Impacts and Mitigation Measures

Impact TRA-1: Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities. (Criterion 1)

Construction

Intersection Operational Policies and Programs

The governing policies and plans for operation of the roadway circulation system in the Project area include the *West County Action Plan*, *City of Richmond General Plan 2030*, and *City of San Pablo General Plan*. The *West County Action Plan* sets a target intersection operation standard of LOS D for all roadway intersections and LOS E at freeway ramp intersections for 2027 and 2050 (West Contra Costa County Transportation Advisory Committee, 2023). The *City of Richmond General Plan 2030* Policy CR1.10 requires intersection operational analysis for projects that generate more than 100 new peak-hour vehicular trips and approval of projects only if they are found to be consistent with the CCTA's *West County Action Plan* (City of Richmond, 2012). The *City of San Pablo General Plan 2030* Policy C-I-7 applies LOS standards consistent with the CCTA *West County Action Plan* and Policy C-I-8 accepts an LOS F at the I-80 ramp at San Pablo Dam Road/Amador Street during peak hours (a.m. and p.m.) as an interim standard until feasible traffic improvements can be designed funded and constructed (City of San Pablo, 2011).

Contra Costa County does not require an analysis of intersection operation unless a project would generate more than 100 new peak hour vehicle trips, add 50 more new peak hour vehicle trips to an intersection, or create safety or operational concerns (CCTA, 2020). Phase 1 construction at the SOWTP site would generate a maximum of approximately 46 total trips during a.m. and p.m. peak hours during the period with the most workers and truck traffic at the site. Phase 2 construction at the SOWTP site would generate a maximum of approximately 42 trips during a.m. and p.m. peak hours during the period with the most workers and truck traffic at the site (Table 3.12-5). Both peak construction periods would last approximately 1 month. The Central North Aqueduct pipeline construction would generate a maximum of approximately 84 trips during a.m. and p.m. peak hours assuming two crews are constructing the pipeline simultaneously. Construction traffic for the Central North Aqueduct pipeline would be greatest on San Pablo Dam Road when there are two construction crews working simultaneously on San Pablo Dam Road.

The maximum one-way trips generated would be less than 100 new trips during a peak hour on the peak day of construction. Peak construction for the Phase 2 SOWTP is not expected to overlap with peak construction for the Central North Aqueduct pipeline and the traffic generated for Phase 2 SOWTP construction would travel on different roads than vehicles traveling to the two Central North Aqueduct pipeline active construction areas. Central North Aqueduct pipeline construction is the only phase of construction that could generate more than 50 peak hour trips assuming there are two simultaneous work areas. Because the two work areas would generate traffic that would be disbursed on area roads traveling to the separate work sites, Central North Aqueduct pipeline construction would not generate more than 50

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additional new peak hour vehicle trips at any intersection. The Project would, therefore, not generate more than 50 new peak hour vehicle trips at any intersection.

Table 3.12-5 Maximum One-Way Trip Generation During Construction Phase with Highest Volume (PCE-Adjusted)

Trip Type	Daily Trips ¹		AM Peak Hour		PM Peak Hour	
	IB	OB	IB	OB	IB	OB
Phase 1						
Workers	19	19	19	0	0	19
Administrative and Supervisory Trucks	6	6	2	1	1	2
Heavy Trucks	139	139	12	12	12	12
Total Phase 1	164	164	33	13	13	33
Phase 2						
SOWTP Site						
Workers	22	22	22	0	0	22
Administrative and Supervisory Trucks	5	5	1	1	1	1
Heavy Trucks	103	103	9	9	9	9
Phase 2 SOWTP Site Total	225	225	32	10	10	32
Central North Aqueduct Pipeline²						
Workers	52	52	54	0	0	54
Heavy Trucks	184	184	15	15	15	15
Central North Aqueduct Pipeline Total	236	236	69	15	15	69

Notes:

IB = In-bound trips; OB = Out-bound trips

¹ Trips = one-way vehicle trips either in-bound or out-bound.

² The maximum Central North Aqueduct pipeline trip generation estimates assumes pipeline construction at two work areas concurrently.

Source: (Fehr & Peers, 2023a) (Fehr & Peers, 2023b)

Intersection operational analysis was performed for key locations along the Project access routes to provide information on projected intersection operating conditions with the addition of the Project construction traffic. Table 3.12-6 provides the existing and existing plus Project LOS and Table 3.12-7 summarizes the change in traffic volume along the roadway study segments that would result during Project construction. The existing plus Project LOS reflects the maximum delay under the maximum construction traffic scenario. Appendix H includes detailed LOS

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calculations. As shown in Table 3.12-6, the Project construction would not cause any roadway intersection to exceed the LOS D standard or any off-ramp to exceed the LOS E standard where the off-ramp is currently meeting the standard.

Table 3.12-6 Potential Change to Intersection Level of Service in Project Area

Intersection	Control	Peak Hour	Existing		Existing Plus Project Phase 1		Existing Plus Project Phase 2	
			Delay (s)	LOS	Delay	LOS	Delay	LOS
Amend Road/Valley View Road	Signalized	AM	<10	A	<10	A	<10	A
		PM	<10	A	<10	A	<10	A
San Pablo Dam Road/Valley View Road	Signalized	AM	16	B	16	B	16	B
		PM	11	B	12	B	12	B
San Pablo Dam Road/Appian Way	Signalized	AM	22	C	21 ¹	C	21 ¹	C
		PM	35	D	35	D	35	D
San Pablo Dam Road/El Portal Drive	Signalized	AM	33	C	33	C	33	C
		PM	27	C	27	C	27	C
San Pablo Dam Road/Amador Street/East Bound I-80 Ramps	Signalized	AM	55	E	56	E	57	E
		PM	92	F	92	F	94	F
San Pablo Dam Road/West Bound I-80 Ramps	Signalized	AM	50	D	51	D	52	D
		PM	40	D	41	D	42	D
El Portal Drive/East Bound I-80 Ramps	Signalized	AM	24	C	24	C	24	C
		PM	26	C	26	C	26	C
El Portal Drive/West Bound I-80 Ramps	Signalized	AM	22	C	22	C	22	C
		PM	55	D	55	D	55	D
San Pablo Avenue/Road 20	Signalized	AM	45	D	45	D	45	D
		PM	35	D	35	D	35	D
Road 20/ El Portal Drive	Signalized	AM	11	B	11	B	11	B
		PM	14	B	14	B	14	B
Fordham Street/Rollingwood Drive	All-Way Stop Controlled	AM	11	B	11	B	11	B
		PM	10	A	10	A	10	A
Glenlock Street/El Portal Drive	Signalized	AM	10	A	10	A	10	A
		PM	<10	A	<10	A	<10	A

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Intersection	Control	Peak Hour	Existing		Existing Plus Project Phase 1		Existing Plus Project Phase 2	
			Delay (s)	LOS	Delay	LOS	Delay	LOS
San Pablo Dam Road/D Avila Way [a]	Side-Street Stop Controlled	AM ²	<10 (11)	A (B)	<10 (11)	A (B)	<10(11)	A (B)
		PM ²	<10 (12)	A (B)	<10 (12)	A (B)	<10(12)	A (B)
Valley View Road/Morningside Drive	Signalized	AM	12	B	12	B	12	B
		PM	18	B	18	B	18	B
Valley View Road/Sobrante Avenue	Signalized	AM	13	B	13	B	13	B
		PM	13	B	13	B	13	B
Appian Way/Allview Avenue	Signalized	AM	13	B	13	B	14	B
		PM	16	B	17	B	18	B
Appian Way/East Bound I-80 Ramps	Signalized	AM	<10	A	<10	A	<10	A
		PM	<10	A	<10	A	<10	A
Appian Way/West Bound I-80 Ramps	Signalized	AM	30	C	30	C	31	C
		PM	29	C	29	C	29	C

Notes:

¹ Project vehicles will approach the intersection from a direction that has a shorter delay than the average for the entire intersection. Although the Project will increase the vehicle count at the intersection, the shorter delay for the Project vehicles will result in a net decrease in the average delay for the entire intersection.

² LOS and delay in parentheses represent the worst-performing approach of the intersection.

Source: (Fehr & Peers, 2023a)

Table 3.12-7 Potential Change to Traffic Volume of Study Segments

Highway/Road	Existing Two-Way ADT Volume	Maximum Project Two-Way ADT	Percent of Existing ADT
1. Appian Way (between WB I-80 Ramps and Fitzgerald Drive/Sarah Drive)	32,685	236	1%
2. Appian Way (between Manor Road and Argyle Road)	21,549	260	1%
3. Amend Road (between Valley View Road and Heavenly Ridge Lane)	2,989	196	7%
4. Valley View Road (between Keith Drive and May Road)	13,348	260	2%
5. Valley View Road (between D Avila Way and Spanish Trails Road)	8,485	392	5%

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	Highway/Road	Existing Two-Way ADT Volume	Maximum Project Two-Way ADT	Percent of Existing ADT
6.	Road 20 (between Abella Circle west and Abella Circle east)	4,892	163	3%
7.	Rollingwood Drive (between Bancroft Lane and Fordham Street)	4,301	160	4%
8.	Glenlock Street (between Baywood Lane and Chevy Way)	2,333	160	7%
9.	El Portal Drive (between Glenlock Street and WB I-80 Ramps)	27,021	213	1%
10.	El Portal Drive (between EB I-80 Ramps and Via Verdi)	18,925	213	1%
11.	San Pablo Dam Road (between Morrow Drive and Mifflin Avenue)	19,348	244	1%
12.	San Pablo Dam Road (between Clark Road and May Road)	19,151	302	2%
13.	D Avila Way (between San Pablo Dam Road and La Honda Road)	227	118	52%

Source: (Fehr & Peers, 2023a)

Roadways would continue to meet the standard of LOS D and off-ramps would meet the standard of LOS E established in the West County Action Plan and referenced in the City of Richmond General Plan 2030 and City of San Pablo General Plan 2030 policies. The San Pablo Dam Road/Amador Street I-80 ramp would continue to operate at LOS F, which is accepted in City of San Pablo General Plan Policy C-I-8. Because the operating conditions at study intersections under the existing plus Project scenario would not exceed Contra Costa County, City of Richmond, or City of San Pablo operational standards, the impact from conflict with any intersectional operational policies would be less than significant.

Transit Network

AC Transit Routes 669, 70, 74, and Transbay Line L provide access around or near the SOWTP site. AC Transit Routes L, 70, 72, 74, 76, 669, and 676 provide access around or near the Central North Aqueduct pipeline. While there are bus stops in proximity to the Project, Project construction activities are not expected to generate transit riders because construction workers are expected to drive to and from the Project area.

The entrance to the SOWTP facility is off Amend Road where there is no existing bus operation. Large trucks or construction vehicles entering and exiting the SOWTP site from Amend Road would not affect bus operations. Due to the low volume of vehicle traffic generated by the Project on roads where transit services operate, the impact of construction traffic on transit operations near the SOWTP would be less than significant.

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AC Transit operates a number of bus routes located along the construction area for the Central North Aqueduct pipeline. Construction of the Central North Aqueduct pipeline in public roadways would necessitate the closure of at least one travel lane, depending on roadway width and the size of the pipeline and trench. Complete road closures to through traffic are anticipated during open trench construction of the Central North Aqueduct pipeline within La Honda Road, D Avila Way, Rollingwood Drive, El Portal Drive from I-80 to Glenlock Street, and Road 20 from San Pablo Avenue to 21st Street where the entire roadway width could be required for construction of the pipeline. Approximately 40 to 120 feet of pipeline would be constructed and installed per day and the temporary lane and road closures would move along the alignment each day. AC Transit Routes 676, 669, 70, 72, 74, 76, and Transbay Line L operate along areas where temporary lane or road closures would occur. Construction of the Central North Aqueduct pipeline could cause temporary delay due to lane closures, temporary closures of bus stops where active construction is occurring, and temporary detours where road closures occur on bus routes, which would be a significant impact due to temporary transit delays and reduced transit access, which would temporarily conflict with policies for improving transit access and use.

As detailed in the Project Description, a number of EBMUD standard practices and procedures applicable to all EBMUD projects have been incorporated into the Project, including Standard Construction Specification 01 55 26, Traffic Regulation, Section 1.1, Summary, Section 1.2(A), Submittals, Section 1.3, Quality Assurance, Section 2.1(A), Traffic Control Devices, Section 3.1, General, Section 3.2, Alternative One-Way Traffic, Section 3.3(A), Flagging, and Section 3.4, Temporary Traffic Control. Standard Construction Specification 01 55 26, Traffic Regulation, requires the contractor to prepare a Traffic Control Plan and obtain approval from the local regulatory agency with jurisdiction, use traffic control devices, install temporary traffic markings and signs, procedures for one-way travel lanes, use of flaggers for traffic control, and use of temporary traffic control devices. While EBMUD Standard Construction Specification 01 55 26, Traffic Regulation, would reduce impacts on transit operations from delays associated with open trench construction, the Central North Aqueduct pipeline construction could still result in temporary closures of bus stops or temporarily affect bus routing, which would be a significant impact. Mitigation Measure TRA-1 requires notification to AC Transit at least 60 days prior to any bus stop closure or road closures that could affect bus traffic and temporary relocation of bus stops, where needed.

Because EBMUD will implement Standard Construction Specification 01 55 26, which requires preparation and implementation of a Traffic Control Plan, traffic control devices, and procedures for detours and Mitigation Measure TRA-1 which requires advance notification and coordination with AC Transit for closures and relocation of any bus stops or detours of any bus routes as a result of construction, the impact from conflict with transit operations would be less than significant with mitigation. The EBMUD Practices and Procedures Monitoring Plan (Appendix C) lists the applicable standard specifications language. The Mitigation Monitoring and Reporting Plan (Appendix C) includes the applicable mitigation measures to be implemented and the timing for implementation.

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Bicycle Circulation

Construction Traffic. Multiple Class II bike routes are located on roads that would be used by construction workers and trucks accessing the SOWTP site and Central North Aqueduct during construction including existing and planned Class II bikeways on Valley View Road, San Pablo Dam Road, Camino Pablo, and Appian Way. Based on intersection traffic counts conducted for the Project, bicycle volumes are highest at Valley View Road/Morningside Drive near De Anza High School, Murphy Elementary, Valley View Elementary, El Sobrante Christian, and San Pablo Avenue/Road 20 and Road 20/El Portal Drive near Helms Middle School (see Figure 3.12-6 and Table 3.12-4). Delivery trucks would not travel adjacent to Wagner Ranch Elementary School, which is on Wagner Ranch Road, parallel to Camino Pablo.

The maximum construction traffic generated by the Project during any phase of construction on each of the study roadway segments is presented in Table 3.12-7. Construction traffic at the SOWTP site would generate up to a 2 percent increase in traffic on Valley View Road near De Anza High School, Murphy Elementary, Valley View Elementary, and El Sobrante Christian (see Valley View Road between Keith Drive and May Road in Table 3.12-7). Central North Aqueduct pipeline construction would generate up to a 3 percent increase in temporary construction traffic near Helms Middle School (see Road 20 between Abella Circle west and Abella Circle east in Table 3.12-7) when construction is occurring on Road 20 and a 2 percent increase in temporary construction traffic near Sheldon Elementary and Wildcat Canyon Community School when construction is occurring on San Pablo Dam Road. Construction vehicles and trucks accessing the SOWTP site traveling on San Pablo Dam Road could use Camino Pablo which is near Wagner Ranch Elementary School. While the increase in traffic would be minimal relative to the existing traffic volume on area roads, the increased heavy-duty truck traffic could be noticeable to bicyclists along the area roadways.

As detailed in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, have been incorporated into the Project, including EBMUD Standard Construction Specification 01 32 36, Video Monitoring and Documentation and EBMUD Standard Construction Specification 01 55 26, Traffic Regulation. Standard Construction Specification 01 32 36, Video Monitoring and Documentation, Section 1.1, Summary and Section 1.2, Site Survey Audio-Video Recording Requirements requires pre- and post-construction surveys and requires the contractor to repair any damage or defect not documented as existing prior to construction. EBMUD Standard Construction Specification 01 55 26, Section 1.1, Summary, Section 1.2(A), Submittals, Section 1.3, Quality Assurance, Section 2.1(A) Traffic Control Devices, and Section 3.3(A) Flagging define the requirements for preparation of a Traffic Control Plan by a licensed Traffic Engineer and implementation of traffic control devices including use of flaggers to control traffic, and other traffic safety measures to maintain bicycle safety on roadways near the SOWTP site. While the Standard Construction Specification would reduce conflicts between trucks traveling to the Project site and with bicycle travel, there remains a potential for conflict with bicycle travel, particularly during peak travel times such as school start and dismissal periods at the local schools. Mitigation Measure TRA-2 requires the contractor to limit soil and demolition off-haul trucks

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between 9:00 a.m. to 4:00 p.m. at the SOWTP and further limits off-haul and large equipment delivery truck travel along Valley View Road and Camino Pablo where trucks would travel adjacent to schools to the hours of 9:00 a.m. to 3:00 p.m. Mitigation Measure TRA-3 requires the contractor to limit soil and demolition off-haul and large equipment delivery trucks to 9:00 a.m. to 3:00 p.m. on Road 20 where trucks would travel adjacent to Helms Middle School.

Because EBMUD would implement Standard Construction Specifications 01 55 26 and 01 32 36, which require a Traffic Control Plan and repair of area roadways to match pre-construction conditions, and Mitigation Measures TRA-2 and TRA-3 which restrict the timing for off-haul and large equipment delivery truck travel to the SOWTP site, on Valley View Road, on Camino Pablo, and on Road 20, the impact on bicycle circulation from SOWTP construction traffic and Central North Aqueduct pipeline construction traffic would be less than significant with mitigation. The EBMUD Practices and Procedures Monitoring Plan (Appendix C) lists the applicable standard specifications language. The Mitigation Monitoring and Reporting Plan (Appendix C) includes the applicable mitigation measures to be implemented and the timing for implementation.

Central North Aqueduct Pipeline Open Trench Construction. Open trench construction of the Central North Aqueduct pipeline in roadways containing bicycle routes could require construction within bike lanes, which would displace bicycle travel into traffic lanes. Displacement of bicyclists into vehicle travel lanes could increase potential conflicts between vehicles and bicyclists and conflict with Policy 5-14 and Policy 5-bg of the *Contra Costa County General Plan 2030*. The conflict with Policy 5-14 and Policy 5-bg of the *Contra Costa County General Plan 2030* would be a significant impact.

As detailed in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, have been incorporated into the Project, including Standard Construction Specification 01 55 26, Traffic Regulation and Standard Construction Specification 01 32 36, Video Monitoring and Documentation. Standard Construction Specification 01 55 26, Traffic Regulation, Section 1.1, Summary, Section 1.2(A), Submittals, Section 1.3, Quality Assurance, Section 2.1(A), Traffic Control Devices, Section 3.1, General, Section 3.2, Alternative One-Way Traffic, Section 3.3(A), Flagging, and Section 3.4, Temporary Traffic Control, require the contractor to prepare a Traffic Control Plan and obtain approval from the local regulatory agency with jurisdiction, use traffic control devices, define procedures for one-way travel lanes, use of flaggers for traffic control, and use of temporary traffic control devices during construction. Standard Construction Specification 01 32 36, Video Monitoring and Documentation requires documentation of both pre- and post-construction pavement conditions and repair of pavement to pre-existing conditions. While EBMUD Standard Construction Specification 01 55 26, Traffic Regulation, would reduce impacts on bicycle circulation through use of flaggers and other safety control devices and reduce impacts on bicycle circulation through proper repair of the pavement conditions in the bicycle lane, Standard Construction Specification 01 55 26 does not specify procedures for training of flaggers to address bicycle safety or timeframes for repair of bicycle markers/separation to avoid conflicts with vehicle travel; therefore, a significant impact on bicycle circulation could

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remain after implementation of the Standard Construction Specifications. Mitigation Measure TRA-4 requires posting of signs regarding closure and detour of bicycle lanes at least 14 days prior to bicycle lane closure; training of flaggers to properly conduct bicycle traffic during lane closures; and restriping or replacement of any demarcation of bicycle lanes within 14 days following trench backfill and installation of temporary or permanent asphalt.

Because EBMUD will implement Standard Construction Specification 01 55 26, Traffic Regulation and Standard Construction Specification 01 32 36, Video Monitoring and Documentation, which requires preparation and implementation of a Traffic Control Plan, traffic control devices, and procedures for detours as well as post-construction road repair, and Mitigation Measure TRA-4 which requires advance notification for bicyclists, repair of bicycle facility demarcation, and traffic control to reduce physical conflicts between bicyclists and traffic, the impact of Central North Aqueduct pipeline construction from conflict with policies for bicycle circulation would be less than significant with mitigation. The EBMUD Practices and Procedures Monitoring Plan (Appendix C) lists the applicable standard specifications language. The Mitigation Monitoring and Reporting Plan (Appendix C) includes the applicable mitigation measures to be implemented and the timing for implementation.

Pedestrian Circulation

The pedestrian volumes in the vicinity of the Project are generally moderate, with higher pedestrian traffic observed near schools, including a maximum of 301 pedestrian crossings at the intersection of Valley View Road and Morningside Drive adjacent to De Anza High School in the combined AM and PM peak hour (Table 3.12-4).

Construction Traffic. The maximum construction traffic generated by the Project during any phase of construction on each of the study roadway segments is presented in Table 3.12-7. During peak construction traffic at the SOWTP, the Project would generate a 2 percent increase in traffic volume in proximity to De Anza High School, Murphy Elementary, Valley View Elementary, and El Sobrante Christian. Central North Aqueduct pipeline construction would generate up to a 3 percent increase in temporary construction traffic near Helms Middle School when construction is occurring on Road 20 and a 2 percent increase in temporary construction traffic near Sheldon Elementary and Wildcat Canyon Community School when construction is occurring on San Pablo Dam Road. Traffic could potentially also increase on Camino Pablo near Wagner Ranch Elementary School if construction vehicles and trucks are traveling from Highway 24 to the SOWTP site; however, Camino Pablo does not have pedestrian access on much of the route near Wagner Ranch Elementary School and the entrance to the Wagner Ranch Elementary School is off Wagner Ranch Road. While the increase in traffic would be minimal relative to the existing traffic volume on area roads, the increased heavy-duty truck traffic could be noticeable to pedestrians along the area roadways.

As detailed in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, have been incorporated into the Project, including EBMUD Standard Construction Specification 01 55 26, Traffic Regulation. EBMUD Standard Construction Specification 01 55 26, Traffic Regulation Section 1.1 Summary, Section 1.2(A)

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Submittals, and Section 1.3, Quality Assurance requires preparation of a Traffic Control Plan to minimize impacts on pedestrian circulation. The Traffic Control Plan would identify specific measures to be implemented during construction activities, which may include installing signs, flashing lights, barricades, and other traffic safety and slowing devices to maintain pedestrian safety on roadways near the SOWTP site and Central North Aqueduct pipeline. EBMUD Procedure 600 also requires providing information to the public regarding the project including a Public Affairs liaison who would respond to construction-related issues, such as traffic, as well as providing advance notification of the potentially disruptive construction activities, including traffic to nearby residents. While the Standard Construction Specification and EBMUD Procedure 600 would reduce conflicts between trucks traveling to the Project site and pedestrians, there remains a potential for conflict with pedestrians, particularly during pedestrian traffic such as school start and dismissal periods at the local middle and high schools. Mitigation Measure TRA-2 requires the contractor to limit soil and demolition off-haul trucks to between 9:00 a.m. to 4:00 p.m. at the SOWTP and further limits off-haul and large equipment delivery truck trips to the hours of 9:00 a.m. to 3:00 p.m. on Valley View Road and Camino Pablo adjacent to schools. Mitigation Measure TRA-3 also limits haul trips Road 20 where the construction route is adjacent to Helms Middle School.

Because EBMUD would implement Standard Construction Specifications 01 55 26, which requires a Traffic Control Plan, EBMUD Procedure 600, Mitigation Measures TRA-2, and TRA-3, which restrict the timing for delivery truck travel to the SOWTP site and timing for hauling adjacent to Helms Middle School, the impact on pedestrians from construction traffic would be less than significant with mitigation. The EBMUD Practices and Procedures Monitoring Plan (Appendix C) lists the applicable standard specifications language. The Mitigation Monitoring and Reporting Plan (Appendix C) includes the applicable mitigation measures to be implemented and the timing for implementation.

Central North Aqueduct Pipeline Open Trench Construction. Construction of the Central North Aqueduct pipeline could require temporary construction activities including staging of vehicles or equipment within sidewalks during construction within the adjacent roadway. Temporary sidewalk closures would affect pedestrian circulation and could conflict with Policy 5-bg of the *Contra Costa County General Plan 2030*. The Project could also require closure of crosswalks during open trench construction, which could conflict with policies for “complete streets”.

As detailed in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, have been incorporated into the Project, including EBMUD Standard Construction Specification 01 55 26, Traffic Regulation. Standard Construction Specification 01 55 26, Traffic Regulation, Section 1.1, Summary, Section 1.2(A) Submittals, Section 1.3, Quality Assurance, Section 2.1(A) Traffic Control Devices, Section 3.1, General, Section 3.2, Alternative One-Way Traffic, Section 3.3(A) Flagging, and Section 3.4, Temporary Traffic Control requires the contractor to prepare a Traffic Control Plan and obtain approval from the local regulatory agency with jurisdiction, use traffic control devices, procedures for one-way travel lanes, use of flaggers for traffic control, use of temporary traffic control devices

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and to maintain access to buildings and that sidewalks for pedestrians remain open if safe for pedestrians, and use of alternative routes with signage provided if pedestrian access is closed. EBMUD Procedure 600 also requires providing information to the public regarding the project including a Public Affairs liaison who would respond to construction-related issues, such as traffic, as well as providing advance notification of the potentially disruptive construction activities, including traffic to nearby residents. While Standard Construction Specification 01 55 26, Traffic Regulations, would address impact from temporary sidewalk closure, and EBMUD Procedure 600 would provide notification to nearby residents, the impact on pedestrian circulation would remain significant if there were no alternative safe detour or crossing point along the Central North Aqueduct pipeline, particularly on high travel roadways. Mitigation Measure TRA-5 requires that a pedestrian access plan be included in the Traffic Control Plan to specifically address pedestrian access.

Because the contractor would implement Standard Construction Specification 01 55 26, Section 1.1, Summary, Section 1.2(A) Submittals, Section 1.3, Quality Assurance. Section 2.1(A) Traffic Control Devices, Section 3.1, General. Section 3.2, Alternative One-Way Traffic, Section 3.3(A) Flagging, and Section 3.4, Temporary Control, EBMUD Procedure 600, and Mitigation Measure TRA-5 which requires a pedestrian access plan to ensure pedestrian access during construction, the Project would not conflict with any policies for pedestrian circulation including policies for pedestrian access or safety and the impact would be less than significant with mitigation. The EBMUD Practices and Procedures Monitoring Plan (Appendix C) lists the applicable standard specifications language. The Mitigation Monitoring and Reporting Plan (Appendix C) includes the applicable mitigation measures to be implemented and the timing for implementation.

Operation and Maintenance

Operation and maintenance activities would be conducted by new and existing staff, with the improvements generating up to 24 additional worker vehicle trips, 18 additional light-duty truck vehicle trips, and 2 additional truck trips per day. The additional worker, light-duty truck, and heavy truck trips per day would be less than 100 trips per peak hour or 50 trips per peak hour at any intersection. The use of regional roadways by workers and heavy trucks during operation would not conflict with any program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities. Therefore, the impact would be less than significant.

Significance Determination Before Mitigation

Potentially significant.

Mitigation Measures

Mitigation Measure TRA-1. Minimize Impacts on Transit Service

At least 60 days prior to construction activities involving temporary roadway centerline adjustment, rerouting of any bus line(s), or temporary closure and relocation of any bus stop, EBMUD shall coordinate with AC Transit. Roadway centerline adjustment and transit rerouting plans shall be reviewed and approved by the relevant city or county and reviewed by AC Transit prior to construction and included in the Project's Traffic Control Plan. EBMUD shall coordinate with AC Transit, to temporarily relocate any bus stops that are affected by construction of the Central North Aqueduct pipeline. Any parking obstruction, sidewalk obstruction, travel lane obstruction, or other accommodation required for the temporary bus stop shall be reviewed and approved by AC Transit prior to construction and included in the Project's Traffic Control Plan.

Mitigation Measure TRA-2: Minimize Impacts of Heavy Truck Traffic at SOWTP

- Use of soil and demolition off-haul trucks to and from the SOWTP will be restricted to between the hours of 9:00 a.m. to 4:00 p.m.
- Use of soil and demolition off-haul and large equipment delivery trucks on Valley View Road and Camino Pablo in front of the school will be limited to the hours of 9:00 a.m. to 3:00 p.m.
- Concrete deliveries may begin as early as 6:00 a.m.
- The required Traffic Control Plan shall include the following measures:
 - EBMUD's Contractor shall distribute written traffic safety requirements to all Contractor heavy construction vehicle drivers. All drivers shall provide signed acknowledgement of having read and understood all traffic safety requirements and consequences of non-compliance.
 - Written traffic safety requirements shall include:
 - Construction work hours specifying when construction traffic would be allowed to access the SOWTP and staging areas.
 - Construction haul routes and associated speed limits.
 - Designated parking locations.
- Contractor shall provide a Project sticker or equivalent to drivers who have provided written acknowledgement of traffic safety requirements.
- Project sticker shall be made available upon request by EBMUD during the construction contract period.
- Contractor heavy construction vehicle drivers shall conform to designated construction hours, including no driving, queuing, idling or parking on local roadways outside of designated construction hours as outlined in written traffic safety requirements.
- Contractor heavy construction vehicle drivers shall use only designated construction traffic haul routes.
- Contractor shall provide Radar Speed Feedback Signs along Valley View Road and Amend Road for the entire Project duration (two, one in each direction of traffic on Valley View Road and Amend Road) to deter speeding by heavy construction vehicles on construction traffic routes.

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- Contractor heavy construction vehicle drivers shall comply with roadway traffic safety rules as outlined in written traffic safety requirements, including, but not limited to:
 - Stoplight signals and stop signs.
 - Roadway speed limits (reduced speeds in construction zones and near schools).

Mitigation Measure TRA-3. Minimize Impacts of Heavy Traffic at Road 20

- Use of soil and demolition off-haul and large equipment delivery trucks on Road 20 in front of Helms Middle School will be limited to the hours of 9:00 a.m. to 3:00 p.m.
- The required Traffic Control Plan shall include the following measures:
 - EBMUD's Contractor shall distribute written traffic safety requirements to all Contractor heavy construction vehicle drivers. All drivers shall provide signed acknowledgement of having read and understood all traffic safety requirements and consequences of non-compliance.
 - Written traffic safety requirements shall include:
 - Construction work hours specifying when construction traffic would be allowed to access the work area at Road 20
 - Construction haul routes and associated speed limits.
 - Designated parking locations.
 - Contractor shall provide a Project sticker or equivalent to drivers who have provided written acknowledgement of traffic safety requirements.
 - Project sticker shall be made available upon request by EBMUD during the construction contract period.
 - Contractor heavy construction vehicle drivers shall conform to designated construction hours, including no driving, queuing, idling or parking on local roadways outside of designated construction hours as outlined in written traffic safety requirements.
 - Contractor heavy construction vehicle drivers shall use only designated construction traffic haul routes.
 - Contractor shall provide Radar Speed Feedback Signs along Road 20 during construction on Road 20 (two, one in each direction of traffic on Road 20) to deter speeding by heavy construction vehicles on construction traffic routes.
 - Contractor heavy construction vehicle drivers shall comply with roadway traffic safety rules as outlined in written traffic safety requirements, including, but not limited to:
 - Stoplight signals and stop signs.
 - Roadway speed limits (reduced speeds in construction zones and near schools).

Mitigation Measure TRA-4. Bicycle Safety

The following protocols shall be implemented to protect bicyclist safety during open trench construction in roadways:

- Striped/designated bikeways (Class II) shall be avoided by construction staging and activities to the extent feasible.
- Notices shall be posted 14 days prior to construction along roadways where open trench construction will occur. Notices shall include the following information:

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- Location of construction within the roadway.
 - Timing of construction in the area.
 - Detour routes for bicyclists where designated bike lanes will be impacted by construction.
- Flaggers shall be trained to safely direct bicyclists around the work area without creating conflicts with pedestrians or vehicle traffic.
 - Any impacted bikeway shall be restriped and any physical demarcation of bikeways shall be replaced within 14 days following installation of permanent or temporary asphalt within the impacted roadways.

Mitigation Measure TRA-5: Pedestrian Access

Construction of the Central North Aqueduct pipeline shall be phased such that at least one crosswalk at each of the affected signalized intersections on San Pablo Dam Road, Valley View Road, El Portal, and Road 20 is accessible at any given time to the extent feasible. Pedestrian access plans shall be included in the Traffic Control Plan and reviewed and approved by the local agency with jurisdiction over the roadway.

Significance Determination after Mitigation

Less than significant. Mitigation Measures TRA-1 requires coordination with transit operators to relocate affected bus stops and address rerouting of bus routes to minimize conflicts with transit policies. Mitigation Measure TRA-2 defines procedures for heavy duty truck traffic to the Project to minimize conflicts with policies for pedestrian and bicycle circulation. Mitigation Measure TRA-3 limits the timing of haul truck travel on road 20 to minimize impacts on pedestrians and bicyclists accessing the middle school. Mitigation Measure TRA-4 defines protocols to avoid bike lanes where feasible, detour bike routes where avoidance is not feasible, protect bicyclist safety during construction, and repair bicycle facilities following construction, which avoids conflicts with policies for bicycle facilities. Mitigation Measure TRA-5 requires a pedestrian access plan to minimize conflicts with policies for pedestrian circulation.

Impact TRA-2: Conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision(b). (*Criterion 2*)

Construction

Per *CEQA Guidelines* section 15064.3 subdivision (b) Criterion 1 (Land Use Projects), projects that involve VMT exceeding an applicable threshold of significance may indicate a significant impact. The *Technical Advisory on Evaluating Transportation Impacts in CEQA* (Governor's Office of Planning and Research, 2018) provides the following guidance for evaluating projects that include heavy truck traffic:

***Vehicle Types.** Proposed Section 15064.3, subdivision (a), states, "For the purposes of this section, 'vehicle miles traveled' refers to the amount and distance of automobile travel attributable to a project." Here, the term "automobile" refers to on-road passenger vehicles, specifically cars and light trucks.*

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The technical advisory also provides a screening threshold for small projects, stating that: "... projects that generate or attract fewer than 110 trips per day generally may be assumed to cause a less-than-significant transportation impact."

The advisory thus indicates that heavy truck trips, such as haul truck trips generated by the Project, are not subject to VMT analysis, thresholds, or reduction requirements as part of the CEQA review process. Rather, VMT analysis for the purposes of identifying potentially significant impacts under CEQA are for use in evaluating office, residential, and retail projects. Therefore, Project truck trips, by definition, do not create an inconsistency with CEQA Guidelines section 15064.3(b) and do not create a significant impact with regards to VMT.

The Project would require a maximum of approximately 26 workers daily during Phase 1 and Phase 2 construction, including Central North Aqueduct pipeline construction. The 26 workers would be expected to generate 52 trips per day (i.e., one inbound and one outbound trip) during construction. The administrative and supervisory staff would generate an additional 12 passenger vehicle trips. Project construction would generate a maximum of 78 passenger vehicle trips, which is fewer than the screening threshold of 110 trips per day. Because the Project construction would generate fewer than 110 passenger vehicle trips per day and the trips would be temporary, the Project would not conflict with or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b), and the impact would be less than significant.

Operation and Maintenance

Operation and maintenance activities would be conducted by new and existing EBMUD staff, with the improvements requiring up to 24 additional worker vehicle trips and 18 additional light-duty truck vehicle trips; therefore, long-term operations would generate approximately 42 vehicle trips per day, which is less than the screening threshold of 110 trips per day. Because the Project operation would generate fewer than 110 passenger vehicle trips per day and the trips would be temporary, the Project would not conflict with or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b), and the impact would be less than significant.

Significance Determination Before Mitigation

Less than significant.

Mitigation Measures

None required.

Impact TRA-3: Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment). (Criterion 3)

Construction

Truck Traffic and Site Access

The existing driveways and site access roads at the SOWTP currently accommodate the movements of large trucks, including maintenance and delivery trucks. The primary truck routes to the SOWTP site including Appian Way, Valley View Road, and San Pablo Dam Road

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experience a high volume of traffic and the Project construction truck traffic on the major area roadways would not create a substantial hazard or incompatible use. During portions of Phase 1 construction, the Project would use an additional temporary entrance road off Amend Road adjacent to the fire station as a secondary access point for vehicles and equipment deliveries. While the existing driveway to the SOWTP has been designed to accommodate truck access, the secondary temporary access road along Amend Road is a temporary access road without an extended driveway and was not previously constructed for truck turning radii. As discussed in the Project Description, the temporary access road would be designed to accommodate construction vehicles including haul trucks and could be widened to accommodate large truck turning radii. Because the existing access road and driveway has a large apron capable of accommodating large trucks and the temporary access roads would be designed to accommodate large truck access, the impact from access to the SOWTP would be less than significant.

As discussed in Impact TRA-1, construction of the Project would generate increased heavy-duty truck travel on area roads. The increased truck traffic or damage to the roadways adjacent to the Project site have the potential to create a traffic hazard.

As detailed in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, have been incorporated into the Project, including EBMUD Standard Construction Specification 01 55 26, Traffic Regulation, which would require the contractor to prepare a Traffic Control Plan to minimize impacts on bicycle circulation on local streets, and EBMUD Standard Construction Specification 01 32 36, Video Monitoring and Documentation, which would require documentation of both pre- and post-construction pavement conditions in the Project vicinity. Standard Construction Specification 01 55 26, Traffic Regulation, Section 1.1, Summary, Section 1.2(A) Submittals, Section 1.3, Quality Assurance, Section 3.1, General, and Section 3.3(A) Flagging require a Traffic Control Plan with specific measures to be implemented during construction activities, which may include installing signs, flashing lights, barricades, and other traffic safety and slowing devices to maintain safety on roadways near both the SOWTP site. Standard Construction Specification 01 32 36, Video Monitoring and Documentation, Section 1.1, Summary and Section 1.2, Site Survey Audio-Video Recording Requirements, requires pre- and post-construction surveys and requires the contractor to repair any damage or defect not documented as existing prior to construction. While the Standard Construction Specification would reduce conflicts between trucks traveling to the Project site and other vehicles, bicyclists, or pedestrians, the impact from increased hazards due to the increased truck traffic is potentially significant. Mitigation Measure TRA-2 requires the contractor to limit soil and demolition off-haul trucks to the hours of 9:00 a.m. to 4:00 p.m. at the SOWTP, and further limits soil off-haul and large equipment delivery trucks on Valley View Road and Camino Pablo to the hours of 9:00 a.m. to 3:00 p.m. Mitigation Measure TRA-3 also limits off-haul to the hours of 9:00 a.m. and 3:00 p.m. on Road 20 in front of Helms Middle School.

Because EBMUD would implement Standard Construction Specifications 01 55 26, Traffic Regulation and Standard Construction Specification 01 32 36, Video Monitoring and

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Documentation, which require a Traffic Control Plan and repair of area roadways to match pre-construction conditions and Mitigation Measures TRA-2 and TRA-3 restricts the timing for delivery truck travel to the SOWTP site and on Road 20, the impact from hazards due to increased truck traffic would be less than significant with mitigation. The EBMUD Practices and Procedures Monitoring Plan (Appendix C) lists the applicable standard specifications language. The Mitigation Monitoring and Reporting Plan (Appendix C) includes the applicable mitigation measures to be implemented and the timing for implementation.

Open Trench Construction within Roadways

Construction of the Central North Aqueduct pipeline would occur within the roadway and would require closure of one or more travel lanes to avoid vehicle travel within the active construction area and open trench within the roadway. Temporary lane closures for the Central North Aqueduct pipeline could create a hazard to vehicles as vehicle travel lanes would be temporarily relocated around the active work area. Nighttime construction within the roadway could create increased hazards to workers and drivers due to reduced visibility. In addition, at the completion of construction, the roadway could be damaged due to changes in pavement along the open trench and work area or impacts on lane striping, which could cause roadway safety hazards if drivers attempt to swerve around damaged pavement or cannot see the lane designations. As discussed in Impact TRA-1, the open trench construction could also affect bicycle lanes, sidewalk access, and crosswalks, which would create a temporary safety hazard to bicyclists and pedestrians as they need to detour around work areas or temporarily lose access to separated and designated access facilities.

As detailed in the Project Description, a number of EBMUD standard practices and procedures applicable to all EBMUD projects have been incorporated into the Project, including Standard Construction Specification 01 32 36, Video Monitoring and Documentation, and Standard Construction Specification 01 55 26, Traffic Regulation. Standard Construction Specification Section 01 55 26, Traffic Control Section 1.1, Summary, Section 1.2(A), Submittals, Section 1.3, Quality Assurance, Section 2.1(A), Traffic Control Devices, Section 3.1, General, Section 3.2, Alternative One-Way Traffic, Section 3.3(A), Flagging, and Section 3.4, Temporary Traffic Control requires the contractor to prepare a Traffic Control Plan, use traffic control devices, defines procedures for one-way travel lanes and nighttime construction safety, requires use of flaggers for traffic control, and requires use of temporary traffic control devices, which would provide for the safety of drivers and vehicles during the open trench construction. Standard Construction Specification 01 32 36, Video Monitoring and Documentation, Section 1.1, Summary and Section 1.2, Site Survey Audio-Video Recording Requirements, requires pre-construction and post-construction documentation of roadway conditions and repair of the roadway to pre-construction conditions. While the Standard Construction Specifications would address the impacts from safety hazards to drivers and vehicles, the Standard Construction Specifications do not include specifics to address impacts on bicyclists and pedestrians due to impacts on bike lanes and crosswalks, and the potential safety hazards to bicyclists and pedestrians would be significant. Mitigation Measure TRA-4 requires advance notice of bike lane detours, repair to bicycle lanes/facilities following construction, and training of flaggers to

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properly conduct bicycle traffic during lane closures and Mitigation Measure TRA-5 requires a pedestrian access plan to ensure pedestrian safety.

Because EBMUD would implement with Standard Construction Specification 01 32 36, Video Monitoring and Documentation and Standard Construction Specification 01 55 26, Traffic Regulation, which require restoration of the roadway, preparation and implementation of a Traffic Control Plan, including procedures for one-way travel and nighttime work activities, and traffic control devices, and Mitigation Measure TRA-4 and TRA-5 require safe detours for bicyclists and restoration of bicycle lane demarcation as well as a pedestrian access plan, the impact from increased traffic hazards would be less than significant with mitigation. The EBMUD Practices and Procedures Monitoring Plan (Appendix C) lists the applicable standard specifications language.

Operation and Maintenance

Project operation and maintenance activities would be contained within the SOWTP site and within the roadways where the Central North Aqueduct is located. Maintenance activities on the Central North Aqueduct would be very infrequent and would occur from defined access locations along the route. The presence of the buried Central North Aqueduct pipeline would not change the design configuration of the roadway or otherwise introduce a safety hazard. The Project would not include any design features that present traffic hazards and would not modify the entrance to the SOWTP site. Because the Project operation and maintenance would not modify any roadways or involve activities that would create traffic hazards, the impact from traffic hazards would be less than significant.

Significance Determination Before Mitigation

Potentially significant.

Mitigation Measures

Mitigation Measure TRA-2, Minimize Impacts of Heavy Traffic at the SOWTP, Mitigation Measure TRA-3, Minimize Impacts of Heavy Truck Traffic at Helms Middle School, Mitigation Measure TRA-4, Bicycle Safety, and Mitigation Measure TRA-5, Pedestrian Access.

Significance Determination after Mitigation

Less than Significant. Mitigation Measure TRA-2 requires the contractor to limit soil off-haul trucks to between 9:00 a.m. to 4:00 p.m. at the SOWTP and further limits soil and demolition off-haul and large equipment delivery trucks to 9:00 a.m. to 3:00 p.m. on Valley View Road and Camino Pablo to reduce conflicts with pedestrians and bicyclists, particularly those traveling to school or work. Mitigation Measure TRA-3 limits the timing of off-haul to 9:00 a.m. to 3:00 p.m. to reduce conflicts with traffic including bicyclists and pedestrians at Helms Middle School. Mitigation Measures TRA-4 and TRA-5 require implementation of protocols to protect bicyclists, including measures to promote safe detours of bicyclists during periods of temporary impacts to bicycle lanes and implementation of a pedestrian access plan to maintain safe pedestrian access. Implementation of Mitigation Measures TRA-2, TRA-3, TRA-4, and TRA-5 would avoid a significant impact due to temporary hazards or incompatible uses.

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Impact TRA-4: Result in inadequate emergency access. (*Criterion 4*)

Construction

Construction at the SOWTP site, including staging and parking activities would be contained within the SOWTP site and would not block any emergency access to the site or surrounding community. Construction of the Central North Aqueduct pipeline would require temporary lane and road closures along the pipeline alignment, that could affect emergency access to residential and commercial properties along the alignment of the Central North Aqueduct pipeline.

As detailed in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, have been incorporated into the Project, including Standard Construction Specification 01 55 26, Traffic Regulation. Standard Construction Specification 01 55 26, Traffic Regulation, Section 1.2(A) Submittals, Section 1.3, Quality Assurance, Section 3.1, General, and Section 3.4, Temporary Traffic Control requires preparation of a Traffic Control Plan, including a description of emergency response vehicle access, maintenance of minimum travel lanes where feasible, maintenance of access to driveways, and providing immediate emergency access if needed to emergency response vehicles. Open trenches would also be covered (plated) at the end of each day to provide access.

Because the contractor would implement with Standard Construction Specification 01 55 26, Traffic Regulation, which requires maintenance of emergency access, the Project would not cause inadequate emergency access and the impacts would be less than significant.

Operation and Maintenance

Project operation and maintenance activities would be contained within the SOWTP site. The SOWTP would remain accessible via the driveway from Amend Road and the Project operation and maintenance would have no impact on emergency access. Operation of the Central North Aqueduct pipeline would not cause lane closures that would restrict emergency access. The Central North Aqueduct pipeline would be accessed for maintenance via manholes within the roadway. The temporary access of the pipeline via manholes would not affect emergency access.

Significance Determination Before Mitigation

Less than significant.

Mitigation Measures

None required.

3.12.4 Cumulative Impact Analysis

The geographical extent for cumulative impacts related to transportation includes roads and highways in the vicinity of the SOWTP site that would experience construction activity at the same time as Phase 1 of the Project. Given that the Project would not result in substantial additional traffic during its operational period, only the construction period is evaluated relative to potential cumulative impacts. Because of increased traffic disruptions, concurrent

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construction of Phase I of the Project and the projects listed in Table 3.0-1 could result in potentially significant cumulative impacts on traffic. No cumulative projects have been identified during Phase 2 construction. Therefore, the Project's impacts would not combine with any reasonably foreseeable probable future projects and no cumulative traffic impact would occur during Phase 2 construction.

Cumulative impacts on transportation during Phase 1 construction could include a short-term increase in vehicle traffic, particularly large trucks used for hauling of construction materials to the SOWTP site and cumulative project construction areas. In addition, concurrent construction of cumulative projects has the potential to create traffic safety hazards for vehicles, bicyclists, and pedestrians on public roadways. Access to adjacent land uses and streets for both general traffic and emergency vehicles could be disrupted if multiple projects are being constructed concurrently in close proximity. Projects listed in Table 3.0-1 and shown on Figure 3.0-1 that could overlap with the Phase 1 construction schedule include the Central Pressure Zone Pipeline, Wildcat Pumping Plant, North Reservoir Replacement, and Pearl Pumping Plant Rehabilitation. None of the cumulative projects that would be constructed concurrent with the Phase 1 of the Project are located in proximity to the Project and the cumulative projects would not generate traffic or require hauling of construction materials on the same local roadways as the Project. Because the cumulative projects that would be constructed concurrent with the Project would not affect the same roadways, the cumulative impact on transportation during Phase 1 construction would not be considerable and would be less than significant.

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3.13 Tribal Cultural Resources

This section describes the physical, environmental, and regulatory setting for tribal cultural resources, identifies the significance criteria for determining environmental impacts, and evaluates the potential impacts on tribal cultural resources that could result from implementation of the Project. This section is based on information contained in a Cultural Resources Assessment Report (PaleoWest, 2022).

3.13.1 Environmental Setting

Tribal cultural resources are defined as site features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe that are either on or eligible for the California Register of Historical Resources (California Register) or that a local historic register, or the lead agency, at its discretion, chooses to treat as tribal cultural resources. Section 3.4, Cultural Resources, describes the natural and cultural background for cultural resources including tribal cultural resources as well as a summary of the background research and survey efforts (refer to Section 3.4.1, Environmental Setting).

Native American Outreach

On April 27, 2021 and February 18, 2022, EBMUD contacted the California Native American Heritage Commission (NAHC) for a review of the Sacred Land Files (SLF) and to generate a list of tribal contacts for additional outreach. A response was received from the NAHC on May 18, 2021 and April 4, 2022, that provided a list of eight Native American representatives, representing seven tribes. EBMUD contacted the Native American representatives by letter on July 9, 2021, informing them of the Project and that the SLF search was positive for the Project. Follow-up emails to the Native American representatives were made on March 25, 2022, to clarify that the Project area included additional areas along the Central North Aqueduct pipeline. No specific tribal cultural resources were identified within or near the Project area by any Native Americans. Table 3.13-1 summarizes EBMUD correspondence with Native Americans that are on the NAHC list.

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Table 3.13-1 Correspondence with Native American Tribes

Native American Tribe	Correspondence and Date	Responses Received
Amah Mutsun Tribal Band of Mission San Juan Bautista	Letter sent July 9, 2021 Email sent July 12, 2021 Follow-up call August 13, 2021 Email sent March 25, 2022	No response to letter/email. Phone conversation with Tribal member who requested that because the Sacred Lands File results were positive, a sensitivity training should be conducted and monitoring should be implemented if any inadvertent discoveries occur.
Guidiville Indian Rancheria	Letter sent July 9, 2021 Email sent July 12, 2021 Follow up call August 13, 2021 Email sent March 25, 2022	No response to letter/email. No response to the call.
Indian Canyon Mutsun Band of Costanoan (name on response email was Indian Canyon Band of Costanoan Ohlone)	Letter sent July 9, 2021 Email sent July 12, 2021 Email sent July 21, 2021 Follow up call August 13, 2021 Email sent March 25, 2022	July 21, 2021 email response recommended the presence of a Native American monitor and an archaeologist on site during Project ground-disturbing activities because of positive Sacred Lands Files search. Responded with an email on July 21, 2021. No response to phone call.
Muwekma Ohlone Indian Tribe of the San Francisco Bay Area	Letter sent July 9, 2021 Email sent July 12, 2021 Follow up call August 13, 2021 Email sent March 25, 2022 Letter sent March 29, 2022	No response to July 12, 2021 letter/email. No response to the call. March 25, 2022 email was returned as undeliverable.
The Ohlone Indian Tribe	Letter sent July 9, 2021 Email sent July 12, 2021 Follow up call August 13, 2021 Email sent March 25, 2022	No response to letter/email. No response to call.
Wuksache Indian Tribe/Eshom Valley Band	Letter sent July 9, 2021 Email sent July 12, 2021 Follow up call August 13, 2021 Email sent March 25, 2022	No response to letter/email. No response to call.

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Native American Tribe	Correspondence and Date	Responses Received
The Confederated Villages of Lisjan	Letter sent July 9, 2021 Email sent July 12, 2021 Response email July 12, 2021 Email sent March 25, 2022	Email response on August 7, 2021, requesting a copy of the cultural resource assessment report along with the Draft EIR. Email response on March 30, 2022, stating that the tribe had no further information to supply about the Project area but requested notification if Native American cultural resources or human remains were discovered during ground-disturbing activities.

3.13.2 Regulatory Framework

This section describes federal, state, and local policies and regulations related to tribal cultural resources that may apply to the Project.

Federal Regulations and Policies

No applicable federal regulations and policies specifically address tribal cultural resources.

State Regulations and Policies

Assembly Bill 52

Assembly Bill (AB) 52 took effect July 1, 2015, and established a formal consultation process for California Native American Tribes. The AB 52 amendments to the State California Environmental Quality Act (CEQA) specify that a project with an effect that may cause a substantial adverse change in the significance of a tribal cultural resource, as defined in Public Resources Code (PRC) Section 21074, is one that may have a significant effect on the environment. In particular, AB 52 requires lead agencies to analyze project impacts on “tribal cultural resources” separately from archaeological resources (PRC Section 21074, 21083.09). The bill defines “tribal cultural resources” in a new section of the PRC Section 21074. AB 52 requires a lead agency to begin consultation with a California Native American tribe that is traditionally and culturally affiliated with the geographic area of a proposed project, if the tribe requested to the lead agency, in writing, to be informed by the lead agency of proposed projects in that geographic area and the tribe requests consultation, prior to determining which form of CEQA documentation is required for a project (PRC Sections 21080.3.1, 21080.3.2, 21082.3). Consultation may include discussion of issues such as the appropriate level of environmental review for a proposed project, the significance of a proposed project’s potential impacts to tribal cultural resources, and the availability of mitigation measures of project alternatives that could lessen effects of a project, if any, on tribal cultural resources. EBMUD has received no requests from Native American tribes for consultation under AB 52 for this Project.

Local Regulations and Policies

Under Section 53091 of the California Government Code, local agency building and zoning ordinances do not apply to projects involving the location or construction of facilities for the production, generation, storage, treatment, or transmission of water. However, EBMUD’s

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practice is to work with local jurisdictions and neighboring communities during project planning, and to consider local environmental protection policies for guidance.

No applicable local regulations and policies specifically address tribal cultural resources.

EBMUD Standard Construction Specifications

EBMUD's Standard Construction Specifications and Procedures apply to all contractors completing work for EBMUD, and to work completed by EBMUD staff. The following EBMUD practices and procedures are applicable to tribal cultural resources.

- **EBMUD Standard Construction Specification 01 35 45, Biological, Cultural, and Paleontological Resource Requirements, Section 3.3**

EBMUD Standard Construction Specification 01 35 45, Biological, Cultural, and Paleontological Resource Requirements, includes safety practices and procedures to minimize effects on cultural resources (EBMUD, 2023a):

- Section 3.1, Training and Certification
 - Before beginning construction, all Contractor personnel involved in ground-disturbing activities are required to attend an environmental training program provided by EBMUD, of up to one day for site supervisors, foremen and project managers and up to 30 minutes for non-supervisory Contractor personnel. Contractor general personnel will receive a worker environmental awareness training.
 - The Contractor is responsible for ensuring that all workers requiring environmental training are identified to EBMUD.
 - Prior to accessing or performing construction work, the identified Contractor personnel shall:
 - Sign a wallet card provided by EBMUD verifying that the Contractor personnel has attended the appropriate level of training relative to their position; have understood the contents of the environmental training, and shall comply with all project environmental requirements.
 - Display an environmental training hard hat decal (provided by EBMUD after completion of the training) at all times.
- Section 3.3, Protection of Cultural and Paleontological Resources
 - Confidentiality of Information on Cultural and Paleontological Resources
 - In conjunction with Contractor's performance under this contract, the Contractor may obtain information as to the location and/or nature of certain cultural or paleontological resources, including Native American artifacts and remains. This information may be provided to the Contractor by EBMUD or a third party, or may be discovered directly by the Contractor through its performance under the contract. All such information shall be considered "Confidential Information" for the purposes of this Article.

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- Pursuant to California Government Code Section 6254.10, cultural resource information is protected from public disclosure. The Contractor agrees that the Contractor, its subcontractors, and their respective agents and employees shall not publish or disclose any Confidential Information to any person, unless specifically authorized in advance, in writing by the EBMUD.
- Conform to the requirements of statutes as they relate to the protection and preservation of cultural and paleontological resources. Unauthorized collection of prehistoric or historic artifacts or fossils along the Work Area, or at Work facilities, is strictly prohibited.
- In addition to the training identified in Article 3.1.A above, identified Contractor personnel shall attend a cultural and paleontological resources training course provided by EBMUD of up to two hours. The training program will be completed in person or by watching a video, at an EBMUD designated location, conducted or prepared by a Qualified Archaeologist and/or Paleontologist. The program will discuss cultural and paleontological resources awareness within the project work limits, including the responsibilities of Contractor personnel, applicable mitigation measures, confidentiality, and notification requirements. Prior to accessing the construction site, or performing site work, identified Contractor personnel shall:
 - Sign an attendance sheet provided by the EBMUD verifying that all Contractor construction personnel involved in ground disturbing activities have attended the appropriate level of training; have read and understood the contents of the training; have read and understood the contents of the “Confidentiality of Information on Cultural and Paleontological Resources” document, and shall comply with all project environmental requirements.
- In the event that potential cultural or paleontological resources are discovered at the site of construction, the following procedures shall be instituted:
 - Discovery of prehistoric or historic-era archaeological resources requires that all construction activities shall immediately cease at the location of discovery and within 100 feet of the discovery.
 - The Contractor shall immediately allow EBMUD to evaluate the find. The Contractor is responsible for stopping work and notifying EBMUD and shall not recommence work until authorized to do so by EBMUD.
 - EBMUD will retain a qualified archaeologist to inspect the findings within 24 hours of discovery. If it is determined that the Project could damage a historical resource as defined by CEQA (or a historic property as defined by the NHPA), construction shall cease in an area determined by the archaeologist until a management plan has been prepared, approved by EBMUD, and implemented to the satisfaction of the archaeologist (and Native American representative if the resource is prehistoric, who shall be identified by the NAHC). In consultation

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with EBMUD, the archaeologist (and Native American representative) will determine when construction can resume.

- Discovery of human remains requires that all construction activities immediately cease at, and within 100 feet of the location of discovery.
 - The Contractor shall immediately notify EBMUD who will engage a qualified archaeologist provided by EBMUD to evaluate the find. The Contractor is responsible for stopping work and notifying EBMUD and shall not recommence work until authorized to do so by EBMUD.
 - EBMUD will contact the County Coroner, who will determine whether or not the remains are Native American. If the remains are determined to be Native American, the Coroner will contact the NAHC. The NAHC will then identify the person or persons it believes to be the most likely descendant from the deceased Native American, who in turn would make recommendations to EBMUD for the appropriate means of treating the human remains and any associated funerary objects. Otherwise, the County Coroner shall be allowed to complete their investigation and the Contractor shall not recommence work until authorized to do so by both the Coroner and EBMUD.
- If EBMUD determines that the cultural or paleontological resource discovery requires further evaluation, at the direction of EBMUD, the Contractor shall suspend all construction activities at the location of the find and within a larger radius, as required.

3.13.3 Impacts Analysis

Methodology for Analysis

Impacts on tribal cultural resources are assessed in consultation with affiliated Native American tribes that have requested consultation, in accordance with PRC Section 21080.3. This CEQA analysis considers whether the Project would cause damaging effects on any tribal cultural resource, including archaeological resources and human remains.

Significance Criteria

Consistent with *Appendix G* of the *CEQA Guidelines*, an impact on tribal cultural resources would be considered significant if the Project would:

1. 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. 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), or

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- b. 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.

Impacts and Mitigation Measures

Impact TCR-1: 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 define in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe. (*Criterion 1*)

Construction

As summarized in Section 3.4, Cultural Resources, archival and field reviews were conducted in 2021 and 2022 to assess the potential for cultural and tribal cultural resources to occur in the Project area. The reviews consisted of a Northwest Information Center Database Search, pedestrian field surveys of the Sobrante Water Treatment Plant (SOWTP), and SLF search. The SLF search for the Project area was positive; however, no specific tribal cultural resources were identified within or near the Project area by any Native Americans during Native American outreach efforts as summarized in Table 3.13-1. Further, EBMUD did not receive any requests for AB 52 consultation related to the Project. Although no specific tribal cultural resources have been identified by Native Americans, the positive SLF search indicates that the area is sensitive for tribal cultural resources. In addition, as discussed under Impact CUL-2 in Section 3.4, one pre-contact archaeological site (P-07-000068) may be adjacent to or extend into the construction footprint of the Central North Aqueduct pipeline under San Pablo Dam Road. The pre-contact archaeological site could be a tribal cultural resource, as defined in PRC Section 21074. If the site is within the Central North Aqueduct pipeline construction area, impacts from construction activities could cause a substantial adverse change in the significance of a tribal cultural resource, resulting in a potentially significant impact.

The western portion of the Central North Aqueduct pipeline follows the historic course of the San Pablo Creek, which is often sensitive for pre-contact Native American habitation and resource processing sites. While existing development would have disturbed the surface of these areas, the potential exists for the preservation of tribal cultural resources with a high degree of integrity. Tribal cultural resources may be found mixed throughout and in secondary context in coarse debris flow deposits within the western portion of the Central North Aqueduct pipeline due to proximity to San Pablo Creek. The potential depth of tribal cultural resource deposits may extend through the entire vertical limits of the trench excavation area. Because of the moderate sensitivity for buried tribal cultural resources within the western portion of the Central North Aqueduct pipeline alignment, construction of the Central North Aqueduct pipeline could cause a substantial adverse change in the significance of a previously undocumented tribal cultural resource, resulting in a potentially significant impact.

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As detailed in the Project Description, a number of EBMUD standard practices and procedures applicable to all EBMUD projects have been incorporated into the Project, including EBMUD's Standard Construction Specification 01 35 45, Biological, Cultural, and Paleontological Resource Requirements. Section 3.1, Training and Certification, requires preconstruction cultural resource training for all construction personnel. Section 3.3, Protection of Cultural and Paleontological Resources requires that in the event that a cultural resource is identified during construction activities, all work within 100 feet of the resource be halted until a qualified archaeologist could review, identify, and evaluate the resource for its significance. If the archaeologist determined that an archaeological resource would have the potential to be a tribal cultural resource, a Native American monitor would be retained by EBMUD to monitor work in the area where the tribal cultural resource was discovered.

While Standard Construction Specification 01 35 45, Biological, Cultural, and Paleontological Resources includes protections for tribal cultural resources, because the SLF searches for the Project area were positive for presence of Native American resources, site P-07-000068 could extend into the Central North Aqueduct pipeline construction limits, and the western portion of the Central North Aqueduct pipeline alignment has a moderate sensitivity for tribal cultural resources, tribal cultural resources are likely to occur within the Central North Aqueduct construction area. Implementation of Mitigation Measure CR-1 would require a tribal monitor to be present in areas with moderate sensitivity for tribal cultural resources and in proximity to the known pre-contact buried cultural resource, to address impacts on tribal cultural resources.

Because EBMUD Standard Construction Specification 01 35 45, Environmental Requirements, Section 3.1, Training and Certification and Section 3.3, Protection of Cultural and Paleontological Resources require preconstruction cultural resources training and implementation of procedures addressing the inadvertent discovery of tribal cultural resources, and because implementation of Mitigation Measure CR-1 would require a tribal monitor to be present during archaeological monitoring in areas with moderate sensitivity for tribal cultural resources and in proximity to the known pre-contact buried cultural resource, the Project construction impact related to tribal cultural resources would be reduced to a less-than-significant level with mitigation incorporated. The EBMUD Practices and Procedures Monitoring and Reporting Plan (Appendix C) lists the applicable standard specifications language. The Mitigation Monitoring and Reporting Plan (Appendix C) includes the applicable mitigation measures to be implemented and the timing for implementation.

Operation

No known tribal cultural resources are in proximity to the Project. Project operations would not require activities that could affect tribal cultural resources. Therefore, operations would not result in an adverse change in the significance of any tribal cultural resource.

Significance Determination before Mitigation

The impact would be potentially significant because of the positive SLF search and known pre-contact resource in proximity to the Project area, indicating the potential for tribal cultural resources to occur in the Project area and potential for impacts during construction.

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Mitigation Measure

Mitigation Measure CR-1, Archaeological and Tribal Monitoring (see Section 3.4)

Significance Determination after Mitigation

Implementation of Mitigation Measure CR-1 would require tribal monitoring in proximity to potential tribal cultural resources and where resource sensitivity is moderate, to document tribal cultural resources properly. The impact would be reduced to less than significant with mitigation incorporated.

3.13.4 Cumulative Impacts Analysis

The geographic scope of analysis for cumulative impacts on tribal cultural resources encompasses planned future projects at the SOWTP and along the Central North Aqueduct pipeline. The Project would not contribute to significant tribal cultural impacts at the SOWTP or along the Central North Aqueduct pipeline alignment except at the location of P-07-000068 and the western portion of the Central North Aqueduct pipeline alignment, which has a moderate sensitivity for tribal cultural resources. A cumulatively significant impact could result if incremental effects of the Project, after implementation of EBMUD's Standard Construction Specifications, combined with the impacts of planned projects, after implementation of their mitigation as applicable, cause a substantial adverse effect on the same cultural resource. As there is one potential tribal cultural resource with unknown boundaries and a moderate sensitivity for tribal cultural resources along the western alignment of the Central North Aqueduct pipeline, the Project would potentially contribute to a significant cumulative effect on tribal cultural resources.

Federal, state, and local laws can generally protect cultural resources, including tribal cultural resources, in most instances. The Central Pressure Zone Pipeline and Wildcat Pumping Plant Project are in the same roadways as the work at the Central North Aqueduct pipeline and could impact the same tribal cultural resources if present. These projects would be required to comply with the same provisions of CEQA and implement measures similar to those identified above (EBMUD's Standard Construction Specification 01 35 45, Biological, Cultural, and Paleontological Resource Requirements, Section 3.1, Training and Certification and Section 3.3, Protections of Cultural and Paleontological Resources) as they are both EBMUD projects. These measures would require protocols for responding in the event of inadvertent discovery of tribal cultural resources. Additionally, the Wildcat Pumping Plant Mitigated Negative Declaration includes a mitigation measure that requires a qualified Native American monitor and archaeologist to inspect sediments and soils for any sign of potential archaeological deposits (EBMUD, 2023b).

Through compliance with applicable regulations and implementation of standard construction specifications and mitigation measures, the Project would not contribute considerably to adverse effects on tribal cultural resources and the cumulative impact would be less than significant.

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3.13.5 References

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3.14 Wildfire

This section describes the physical, environmental, and regulatory setting for wildfire, identifies the significance criteria used for determining environmental impacts, and evaluates potential impacts related to wildfire that could result from implementation of the Project.

3.14.1 Environmental Setting

Wildfire Background

A wildfire is any uncontrolled fire occurring on undeveloped land that requires fire suppression. Wildfires can be ignited by lightning or by human activity, such as smoking, campfires, equipment use, and arson. Fire hazards present a considerable risk to human life, vegetation, and wildlife habitats. Short-term loss caused by a wildfire can include the destruction of timber, wildlife habitat, scenic vistas, and watersheds. Long-term effects include smaller timber harvests, reduced access to affected recreational areas, and destruction of cultural and economic resources and community infrastructure. In addition, vulnerability to flooding and high-turbidity runoff can increase because of the destruction of watersheds. The potential for significant damage to life and residential property exists in areas designated as “wildland urban interface areas,” where development is adjacent to densely vegetated areas (Contra Costa County, 2018).

Topography, type and condition of fuel, and weather patterns can all play a role in fire behavior. Topography includes slope and elevation of landforms and can influence the speed at which a fire spreads (fire spreads more easily uphill than downhill). Fuel may include wooden structures as well as living and dead vegetation on the ground, along the surface as brush and small trees, and above the ground in tree canopies. Lighter fuels, such as grasses, leaves, and needles, burn rapidly, while heavier fuels, such as tree branches, logs, and tree trunks, take longer to ignite.

Weather conditions affecting the potential for fire include temperature, relative humidity, wind speed and direction, cloud cover, precipitation amount and duration, and the stability of the atmosphere. Wind and thunderstorms are of particular importance for wildfire activity. Strong, dry winds produce extreme fire conditions. Lightning events can ignite fires, and high winds can cause fires to spread swiftly.

Site Conditions

The topography, weather patterns, and vegetation in the East Bay provide ideal conditions for recurring wildfires.

Topography

The majority of the SOWTP site occurs on a terrace that slopes moderately to steeply to the south and west. The Central North Aqueduct pipeline alignment crosses San Pablo Creek at D Avila Way and El Portal Drive and extends within San Pablo Dam Road to El Portal Drive,

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Rollingwood Drive, and to the western terminus of the Central North Aqueduct pipeline on Road 20. The Central North Aqueduct pipeline alignment slightly slopes toward San Pablo Bay and the Pacific Ocean.

Fuels

Land uses surrounding the SOWTP site are a blend of residential development and vegetated landscapes that make it vulnerable to fire from flammable vegetation, a Mediterranean climate, and variable wind patterns. Terrain type has a strong influence over fire behavior, and steep terrain often can increase fire behavior. The SOWTP is less than 1 mile from regional open space areas that could be susceptible to wildfires, including Sobrante Ridge Regional Park to the northeast, Kennedy Grove Regional Recreation Area to the east, and Wildcat Canyon Regional Park to the south. The Central North Aqueduct pipeline alignment is within existing paved roadways surrounded by urban and suburban development.

The baseline wildfire risk in the Project area and vicinity is exacerbated by the abundant hazards and risk associated with a statewide history of fire suppression, proximity to sprawling urban areas, and proximity to open space lands. The urban side of this wildland–urban interface brings new hazards into the equation, with introduced vegetation, structures constructed of flammable materials, and many potential ignition sources.

Climate and Weather

The Project area is characterized as having a Mediterranean climate with hot, dry summers and cool, dry winters (Diablo Fire Safe Council, 2019). Daily summer temperatures in Contra Costa County average approximately 85 degrees Fahrenheit, although the western portion of the County tends to be cooler due to the closer proximity to the Pacific ocean (typically varies from 42°F to 77°F and is rarely below 35°F or above 87°F) (Weather Spark, 2022). The region receives an annual average of 20 to 30 inches of precipitation.

Dry summers, low precipitation, and seasonal gusty winds generally create fire-prone conditions in Contra Costa County. The area is subject to hot, dry, northeasterly winds, known as “Diablo winds.” The term Diablo winds refers to winds that flow from the east or northeast to the west up and over the Diablo Range and down into the East Bay region of the San Francisco Bay area. Diablo winds typically occur in fall, can have a high velocity (up to 40 miles per hour or more), and can cause significant fire spreading (East Bay Regional Park District, 2010). “Red Flag” warnings are issued by the National Weather Service when weather forecasts call for conditions such as low relative humidity and strong winds, which can lead to sudden increases in wildfire activity. Red Flag warnings serve to alert firefighters and the public to take extra steps to prevent wildfires.

Fire Hazard Severity Zones

Fire hazards in Contra Costa County are present in both developed and undeveloped areas. Interface areas are areas susceptible to wildfires and where wildland vegetation and urban or suburban development occur together. In undeveloped areas, large brush and grass fires can occur, which, because of their distance from firefighting resources, can be difficult to contain.

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The California Department of Forestry and Fire Protection (CAL FIRE) has developed a Fire Hazard Severity Zone ranking system that predicts the likelihood of an area burning. The ranking system is based on vegetation, topography, weather, crown fire potential, and ember production and movement. The ranking system classifies areas as Very High, High, or Moderate Fire Hazard Severity Zones. As shown in Figure 3.14-1, the Project area is not in an area designated as a Very High Fire Hazard Severity Zone (VHFHSZ). VHFHSZ areas are within 1,000 feet north of the SOWTP site on Heavenly Ridge Lane, approximately 1,600 feet east of the SOWTP on Amend Road, and approximately 700 feet south of the Central North Aqueduct pipeline alignment at the nearest points.

CAL FIRE identifies the agency responsible for fire response in the area (federal, State, or local). CAL FIRE is responsible for fire prevention and suppression in its State Responsibility Areas (SRAs), while local entities are responsible for fire response in their Local Responsibility Areas (LRAs). LRAs include incorporated cities, urban regions, agriculture lands, and portions of the desert where the local government is responsible for wildfire protection. Wildfire protection in LRAs typically is provided by city fire departments, fire protection districts, counties, and by CAL FIRE under contract. The Sobrante Ridge Regional Park is an SRA approximately 1,600 feet east of the SOWTP site and is connected to open space areas through the hills of the East Bay. The Sobrante Ridge Regional Park has a fire hazard severity ranging from moderate to very high (Cal Fire, 2023).

The cities of Richmond and San Pablo do not have any local regulations related to wildfire and have developed mutual aid agreements with Contra Costa County to provide assistance in the event of a wildfire.

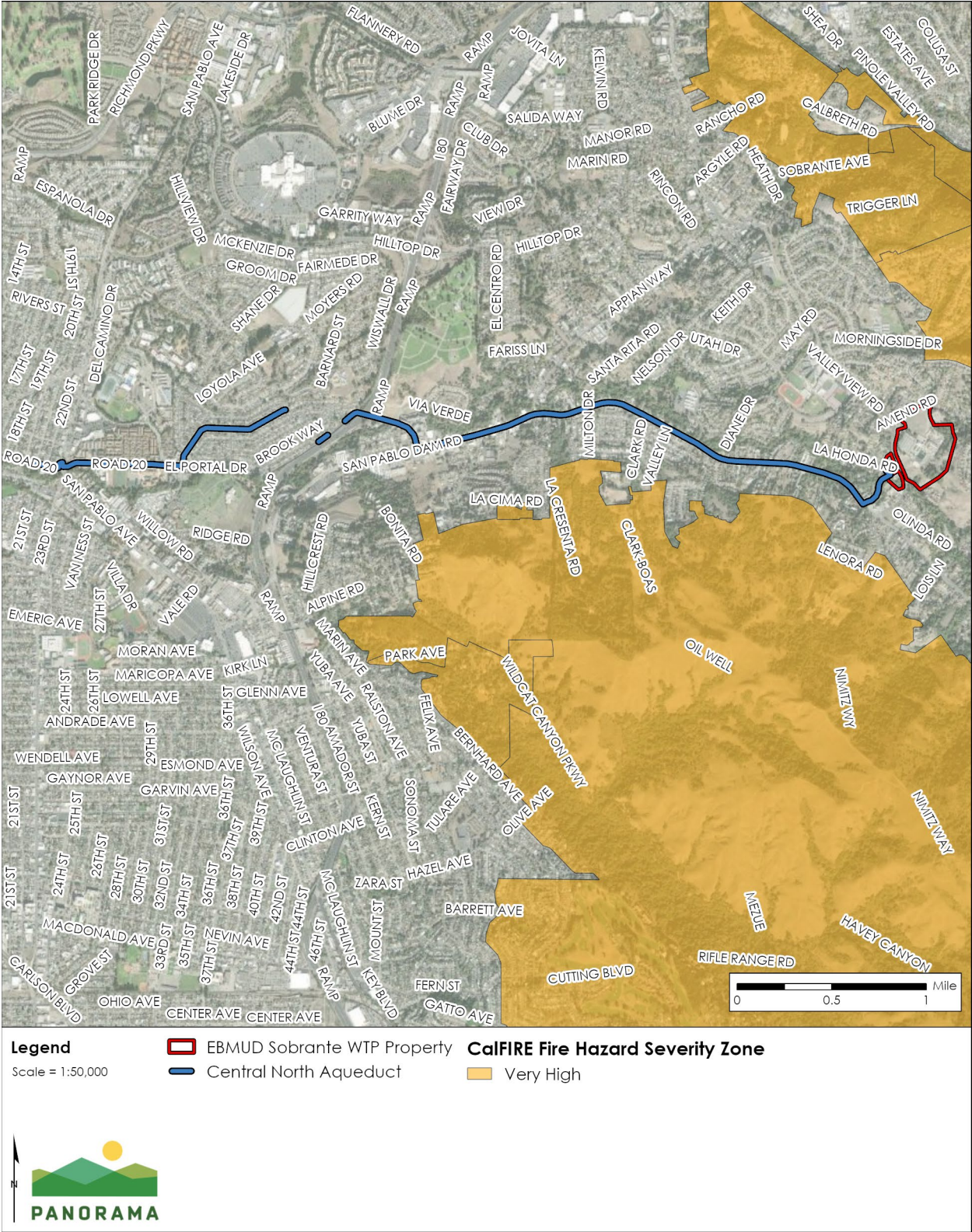
Fire History

Contra Costa County historically experiences wildfires every 2 to 3 years. With drought conditions in recent years, wildfires have occurred annually. None of the fires in the Contra Costa County Fire Protection District's (CCCFPD) service area have caused sufficient damage to trigger a State or federal disaster declaration. According to the CCCFPD 2021 Annual Report, there were 78,813 incidents reported in the County of which 2,207 were designated as "Fire – Exterior/ Vegetation" (Contra Costa County Fire Protection District, 2021).

According to CALFIRE 2022 Wildfire Activity Statistics, there were 46 recorded fires in 2022 in Contra Costa County of which 7 were between 10 to 99 acres and 1 was between 100 to 299 acres (CalFire, 2022). Over the past few years, California has experienced a dramatic rise in both the number and severity of wildland fires. The largest wildfire to occur in Contra Costa County, the Santa Clara Unit (SCU) Lightning Complex, occurred in 2020. The SCU Lightning Complex burned 396,624 acres and destroyed 222 structures in Santa Clara, Contra Costa, Alameda, Stanislaus, and San Joaquin counties (Contra Costa County Fire Protection District, 2023).

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Figure 3.14-1 Wildfire Hazards Map



Emergency Response

The Project area is in the CCCFPD service area. The CCCFPD is responsible for providing emergency fire protection, first-responder emergency and medical services, and fire prevention services to the cities of Richmond and San Pablo, as well as to the 12 other cities and unincorporated areas across its 304-square-mile jurisdiction (Contra Costa County Fire Protection District, 2023)

The CCCFPD deploys from 30 staffed fire stations that are located throughout its service area (Contra Costa County Fire Protection District, 2023). Firefighting response time to suburban portions of the service area is 12 minutes, 90 percent of the time (Contra Costa County Fire Protection District, 2023). It should be noted that the Richmond Fire Station #63 is located immediately adjacent to SOWTP so response times to wildfire(s) on or near the SOWTP site are assumed to be quick and efficient, which further reduces the potential spread of wildfire.

3.14.2 Regulatory Framework

This section describes the regulatory framework for potential wildfire impacts in the Project vicinity.

Federal Regulations

Disaster Mitigation Act

The Disaster Mitigation Act of 2000 amended the existing statutes (the Stafford Act and the Public Works Act) to require local governments to prepare hazard mitigation plans as a condition of receiving funding from the Federal Emergency Management Agency's (FEMA) Hazard Mitigation Grant Program. The general purpose of the Disaster Mitigation Act was to reduce preventable, repetitive disaster losses by encouraging states and local jurisdictions to plan more wisely through mitigation of natural hazards, vulnerability, and risk.

State Regulations

California Fire Code

The California Fire Code (Title 24, Part 9 of the California Code of Regulations) includes provisions and standards for numerous aspects of fire prevention and response, including emergency planning and preparedness, fire service features, fire protection and life safety systems, means of egress, fire safety during construction and demolition, hazardous materials, fire flow and fire hydrant requirements, and vegetation clearance in wildfire hazard areas.

Among the California Fire Code's regulations for hazardous materials are specific requirements for the safe storage and handling of flammable and combustible liquids. Article 80 of the California Fire Code includes specific requirements for the safe storage and handling of hazardous materials. These requirements are intended to reduce the potential for a release of hazardous materials, and for the mixing of incompatible chemicals and specify secondary containment, separation of incompatible materials, and spill response procedures to reduce the potential for a release of hazardous materials that can affect public health or the environment.

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California Public Resources Code

Section 4291 et seq. of the Public Resources Code includes requirements for defensible space in mountainous areas, forest-covered lands, shrub-covered lands, grass-covered lands, or land that is covered with flammable material. Property owners are required to remove flammable vegetation and brush within 100 feet of buildings, with more stringent fuel reductions required within 30 feet of a structure.

2019 Strategic Fire Plan for California

Developed by the Board of Forestry and Fire Protection, the *2019 Strategic Fire Plan* for California outlines the goals and objectives to implement CAL FIRE's overall policy direction and vision (CAL FIRE, 2019). The *2019 Strategic Fire Plan* demonstrates CAL FIRE's focus on: (1) fire prevention and suppression activities to protect lives, property, and ecosystem services; and (2) natural resource management to maintain the state's forests as a resilient carbon sink, to meet California's climate change goals, and to serve as important habitat for adaptation and mitigation. Unit plans are developed and updated to implement the programs and goals of the *2019 Strategic Fire Plan*. Through the *2019 Strategic Fire Plan*, CAL FIRE implements and enforces the policies and regulations set forth by the Board of Forestry and Fire Protection and carries forth the mandates of the California Governor and the Legislature (CAL FIRE, 2019).

California Multi-Hazard Mitigation Plan

The *2018 California State Hazard Mitigation Plan* represents the State's primary hazard mitigation guidance document. California is required to review and revise its State Hazard Mitigation Plan and resubmit for FEMA approval at least once every 5 years, to ensure continued funding eligibility for certain FEMA grant programs. The 2018 plan includes an updated statewide risk assessment, disaster history, and statistics; recent mitigation progress, success stories, and best practices; updated State hazard mitigation goals, objectives, and strategies; and updated climate mitigation progress and adaptation strategies. The plan is intended to reduce the effects of disasters in the state, including fires, earthquakes and geologic hazards, floods, and others. The plan sets mitigation priorities, strategies, and actions, such as reducing loss of life and property and protecting the environment.

Local Policies and Regulations

Under Section 53091 of the California Government Code, EBMUD, as a local agency and utility district, is not subject to building and land use zoning ordinances for projects involving facilities for the production, generation, storage, treatment, or transmission of water. However, EBMUD's practice is to work with local jurisdictions and neighboring communities during a project's planning, and to consider local environmental protection policies for guidance.

Contra Costa County Fire Ordinance

The Contra Costa County Fire Ordinance (Ordinance No. 2019-37), adopted in 2019 by Contra Costa County and the CCCFPD, establishes the provisions of the California Fire Code (Title 24 California Code of Regulations, Part 9), as amended, to be controlling and enforceable within the limits of local jurisdiction.

Contra Costa County Emergency Operations Plan

The *Contra Costa County Emergency Operations Plan* (Contra Costa County, 2015) applies to all emergencies in unincorporated areas of Contra Costa County that generate situations requiring planned, coordinated responses. The Emergency Operations Plan does not provide specific evacuation routes, which are coordinated by local law enforcement and emergency services.

Contra Costa County Hazard Mitigation Plan

The *Contra Costa County Hazard Mitigation Plan* contains goals and objectives that are intended to reduce loss of life and property from natural disasters. The Hazard Mitigation Plan includes strategies for wildfire hazards and other natural disaster risks and mitigation action items that aim to meet the objectives and reduce the impacts of these hazards. The Contra Costa County Office of Emergency Services and Contra Costa County Department of Conservation and Development share the lead responsibility for overseeing plan implementation and maintenance strategy. The Hazard Mitigation Plan includes removing fuel sources, maintaining defensible space, using fire-retardant building materials, using fire-resistant plantings, and establishing water supplies for firefighting as best practices for reducing fire hazards. The actions that address wildfire are as follows:

- **Action #CW-1:** Continue to maintain a County-wide hazard mitigation website that will store the hazard mitigation plan and provide the public an opportunity to monitor plan implementation progress.
- **Action #CW-4:** Where appropriate, support retrofitting, purchase, or relocation of structures in hazard-prone areas to protect the structures from future damage, with repetitive loss and severe repetitive loss properties as a priority. Seek opportunities to leverage partnerships in the planning area in these pursuits.
- **Action #CW-5:** Continue to update hazard mapping with best available data and science as it evolves, within the capabilities of the partnership. Support FEMA's RiskMAP initiative.

Community Wildfire Protection Plan

The *Community Wildfire Protection Plan* for Contra Costa County, most recently updated in 2019, is intended to help agencies, communities, and local homeowners define, plan, and prioritize types of actions that will limit the damage associated with wildland fires (Diablo Fire Safe Council, 2019). The Wildfire Protection Plan analyzes fire hazard and risk in the wildland-urban interface and identifies actions to mitigate wildfire effects. Actions in the plan fall into several broad categories, including education and planning, enhanced suppression capability and emergency preparedness, fuel management, and structure retrofits.

City of Richmond General Plan and the City of San Pablo General Plan

The *City of Richmond General Plan* and the *City of San Pablo General Plan* do not have any local regulations related to wildfire. If a wildfire occurs in the city of Richmond or city of San Pablo, Contra Costa County provides aid. The City of Richmond and the City of San Pablo have a mutual aid agreement to provide fire and emergency services if needed.

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City of Richmond Emergency Operations Plan

The *City of Richmond Emergency Operations Plan* (City of Richmond, 2017) describes the concepts and structures of response and recovery operation; identifies agencies with primary and support emergency management functions; and defines emergency prevention, preparedness, and response and recovery duties and responsibilities. Under the plan, evacuation routes fall under the Department of Public Works.

City of San Pablo Comprehensive Emergency Management Plan

The *City of San Pablo Comprehensive Emergency Management Plan* (City of San Pablo, 2012) provides guidance for the City of San Pablo's response to extraordinary emergency situations associated with natural, human-caused, and technological disasters. The plan notes that evacuations are primarily coordinated by the police department.

East Bay Regional Park District Wildfire Hazard Reduction and Resource Management Plan

The East Bay Regional Park District manages more than 110,000 acres in Contra Costa and Alameda counties. The *East Bay Regional Park District Wildfire Hazard Reduction and Resource Management Plan* is intended to assess the needs and recommended priorities for vegetation management to protect lives, property, and natural resources from catastrophic wildfire (East Bay Regional Park District, 2010). The plan provides specific goals, objectives, guidelines, and best management practices to guide wildfire hazard reduction and resource management activities to be carried out by the East Bay Regional Park District. Goals and guidelines focus on reducing fire hazards on East Bay Regional Park District-owned lands in the wildland–urban interface and include:

- Reducing fuel loads to a level that would produce no greater than an 8-foot flame within 200 feet of structures during a fire incident (which represents a nationally recognized standard).
- Treating trees and shrubs on ridgetops along the wildland-urban interface to reduce the potential for wildfire to reach the crowns of trees (which can lead to burning materials being carried long distances).
- Prioritizing treatment areas, with preference given to maintenance of previously treated areas. New treatment areas are prioritized based on risk of spreading wildfire to adjacent urban properties, location near high-value facilities, strategic locations for firefighting operations, and evacuation and access routes.
- Supporting roadside clearance projects.

EBMUD Local Hazard Mitigation Plan

Hazard mitigation is commonly defined as “sustained action taken to reduce or eliminate long-term risk to human life and property from hazards.” A hazard mitigation plan identifies the hazards a community or region faces, assesses their vulnerability to the hazards, and identifies mitigation actions that can be taken to reduce the risk. EBMUD's current *Local Hazard Mitigation Plan* was adopted in 2023. The *Local Hazard Mitigation Plan* describes wildfire hazards, past wildfire events, and future potential for wildfire events, focusing primarily on EBMUD

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watershed lands. The plan summarizes past actions taken to mitigate wildfire hazards and identifies future projects to mitigate hazards (EBMUD, 2023a).

EBMUD Emergency Action Plans and Fire Prevention Plans

The California Division of Occupational Safety and Health (Cal/OSHA) requires that the water treatment facilities maintain both an Emergency Action Plan and Fire Prevention Plan. EBMUD maintains a Site Security Emergency Action Plan that meets Cal/OSHA's requirement for an Emergency Action Plan and a Fire Prevention Plan. The *Site Security Emergency Action Plan* describes specific features of the water treatment facility that prevent or mitigate hazards and establishes initial responsibilities and actions to be taken to protect the health and safety of employees, contractors, vendors, visitors, and customers in the event of an emergency (e.g., fire, chemical leaks, and spills). The *Site Security Emergency Action Plan* includes information such as evacuation routes and assembly areas, procedures to follow for reporting fires and other emergencies, staff responsible for controlling accumulation of flammable materials, chemicals, and hazardous waste, and staff responsible for maintaining fire prevention systems.

EBMUD Standard Construction Specifications

EBMUD's Standard Construction Specifications apply to all contractors completing work for EBMUD, and to work completed by EBMUD staff. The following EBMUD Standard Construction Specifications are applicable to wildfire.

- **EBMUD Standard Construction Specification 01 35 24, Project Safety Requirements and Site Activities, Sections 1.3(F) and 3.2(F).**

EBMUD Standard Construction Specification 01 35 24, Project Safety Requirements and Site Activities, includes fire prevention practices and procedures as follows (EBMUD, 2023b):

- Section 1.3(F), Submit an Emergency Action Plan
 - Submit an Emergency Action Plan that prepares responses to employee accident/injury events, or any serious unplanned event (e.g.: utility break, fire, structure collapse, etc.) that requires any first aid provider or response agencies (e.g.: fire departments, utility agencies, rescue teams, etc.)
- Section 3.2(F), Fire Prevention and Protection
 - Perform all work in a fire safe manner and supply and maintain on the site adequate fire fighting equipment capable of extinguishing incipient fires. Comply with applicable federal, local, and state fire prevention regulations. Where these regulations do not apply, applicable parts of the National Fire Prevention Standards for Safeguarding Building Construction Operations (NFPA No. 241) shall be followed.
 - A long-handled, round-point shovel, or a fire extinguisher shall be kept at an accessible (unlocked) location on the construction site at all times.
 - Earthmoving and portable equipment with internal combustion engines shall be equipped with a spark arrestor to reduce the potential for igniting a wildfire. Such equipment shall be maintained to ensure proper functioning of spark arrestor.

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- For all work occurring between April 1 and December 1, or any other periods during which a high fire danger has been identified:
 - Equipment that could produce a spark, fire, or flame shall not be used within 10 feet of any flammable materials.
 - Portable tools powered by gasoline-fueled internal combustion engines shall not be used within 25 feet of any flammable materials.
 - Vegetation management for fire prevention and protection
 - Prior to and during construction:
 - Create and maintain a defensible space (100 feet or to EBMUD property boundary, whichever is shorter) around construction site, construction ingress and egress sites through landscaping, mowing, disking, and/or spraying dry brush or native grasses to a height of 4 inches or less.
 - Remove dead trees within 100 feet of construction site.
 - Limb up trees within 100 feet of construction site so that no leafy foliage, twigs or branches are within 5-feet of the ground. To maintain tree health, tree limbing shall not remove more than 25 percent of a tree canopy within one growing season.
 - Ensure and maintain 5-feet of vertical clearance between roof surfaces and portions of trees overhanging all structures within construction site, and keep roofs free of leaves, needles, twigs, and other combustible matter. To maintain tree health, tree limbing shall not remove more than 25 percent of a tree canopy within one growing season.
 - Keep all overhanging trees, shrubs, and other vegetation, or portions thereof, free of dead limbs, branches, and other combustible matter.
 - Neatly stack all combustible materials away from structures within construction site and have all combustible growth cleared 15-feet around the stack.
 - During construction, maintain an unobstructed horizontal clearance at access drives of not less than the required width of the access drives, and an unobstructed vertical clearance of not less than 13 feet 6 inches above all roadways.
- **EBMUD Standard Construction Specification 01 55 26, Traffic Regulation, Sections 1.1, 1.2(A) and 3.1**
EBMUD's Standard Construction Specification 01 55 26, Traffic Regulation, includes practices and procedures that apply to emergency response, as follows (EBMUD, 2017):

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- Section 1.1, Summary
 - All proposed street closures shall be clearly identified in the Traffic Control Plan (TCP) and shall conform to the section “Traffic Control Devices” below. Construction area signs for street closure and detours shall be posted a minimum of forty-eight (48) hours prior to the commencement of street closure. Contractor shall maintain safe access around the project limit at all times. Street closures shall be limited to those locations indicated on the construction documents.
- Section 1.2(A), Submittals
 - Submit at least 15 calendar days prior to work a detailed Traffic Control Plan, that is approved by all agencies having jurisdiction and that conforms to all requirements of these specifications and the most recently adopted edition of the MUTCD. Traffic Control Plan shall include:
 - A description of emergency response vehicle access. If the road or area is completely blocked, preventing access by an emergency responder, a contingency plan must be included.
- Section 3.1, General
 - For complete road closures, immediate emergency access to be provided if needed to emergency response vehicles.

EBMUD Engineering Standard Practices

To address geologic instability, EBMUD uses two primary engineering standard practices for design of new and existing facilities. Engineering Standard Practice 512.1, Water Main Design Criteria, establishes criteria for design of water pipelines and establishes minimum requirements for pipeline construction materials (EBMUD, 2006). Engineering Standard Practice 550.1, Seismic Design Requirements, established minimum criteria for seismic design of all EBMUD facilities, including offices, operating centers, water and wastewater treatment plants, water and other liquids storage structures, pumping plants, retaining walls, underground vaults, pipelines, and other structures (EBMUD, 2018).

Practices and procedures to avoid post-fire instability include using appropriate materials to withstand hazards, and providing flexibility at locations where the pipeline crosses from one soil condition to another. Engineering Standard Practice 550.1 is based on Guidelines for the Seismic Design of Oil and Gas Pipeline Systems, prepared by the American Society of Civil Engineers Committee on Gas and Liquid Fuel Lifelines in 1984. In addition to the practices and procedures listed above, EBMUD follows the recommendations of the American Water Works Association (AWWA) for design and installation of steel pipeline, including design for the appropriate wall thickness, external loadings, pipeline supports, pipe joints, fittings and appurtenances, corrosion control, and protective coatings and linings.

3.14.3 Impact Analysis

Methodology for Analysis

Potential impacts related to wildfire are assessed based on a review of information concerning fire risk factors and behavior, Project activities, conditions in the Project area, and applicable regulations.

Significance Criteria

Consistent with *Appendix G* of the State *CEQA Guidelines*, an impact related to wildfire would be considered significant if the Project would be located in or near SRAs or lands classified as VHFHSZs, and would:

1. Substantially impair an adopted emergency response plan or emergency evacuation plan.
2. 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.
3. 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.
4. 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.

Criteria Requiring No Further Evaluation

Criteria listed above that are not applicable to actions associated with the Project are identified below, along with a supporting rationale as to why further consideration is unnecessary and a no-impact determination is appropriate.

- *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 (Criterion 3).* This criterion addresses associated infrastructure that would be ancillary to a project. The Project would not require installation of associated infrastructure that would exacerbate wildfire risks, such as roads, firebreaks, power lines, or other utilities. The Central North Aqueduct pipeline would not exacerbate fire risk as it would be underground. Thus, no impact would occur.

Impacts and Mitigation Measures

Impact Wildfire-1: Substantially impair an adopted emergency response plan or emergency evacuation plan. (*Criterion 1*)

Construction

Impact HAZ-4 in Section 3.8, Hazards and Hazardous Materials, presents information on the SOWTP site and Central North Aqueduct pipeline access and emergency response during construction.

As presented in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, would be incorporated into the Project, including Standard Construction Specification 01 55 26, Traffic Regulation; Section 1.1, Summary, which requires all proposed street closures shall be clearly identified in the Traffic Control Plan, Section 1.2, Submittals, which requires a Traffic Control Plan; and Section 3.1, General, requires immediate emergency access for emergency response vehicles.

Because EBMUD would implement Standard Construction Specification 01 55 26, Traffic Regulation, which requires a Traffic Control Plan, detailing procedures identifying all proposed street closures, for maintaining access during an emergency, and providing immediate emergency access for emergency response vehicles, the impact on emergency response and evacuation would be less than significant. The EBMUD Practices and Procedures Monitoring and Reporting Plan (Appendix C) lists the applicable standard specifications language.

Operations

The Project would not include any permanent physical changes in the roadways surrounding the SOWTP site and would not impede emergency evacuation or emergency response. During Project operation, emergency response and evacuation could occur along the roadways surrounding the SOWTP site in the same way as under existing conditions. Maintenance along the Central North Aqueduct pipeline could require temporary closure of a road or lane, depending on the work required, but would be limited to the location of maintenance work and would be for a short duration during maintenance activities. As discussed in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, would be incorporated into the Project, including Standard Construction Specification 01 55 26, Traffic Regulation; Section 1.1, Summary, which requires all proposed street closures shall be clearly identified in the Traffic Control Plan; Section 1.2, Submittals, which would require a Traffic Control Plan, including marked detour routes where detours are needed; and Section 3.1, General, requires emergency access be provided for complete road closures. Because EBMUD Standard Construction Specification 01 55 26, Traffic Regulation specifies procedures for emergency response and emergency access, the impact on emergency response and evacuation would be less than significant. The EBMUD Practices and Procedures Monitoring and Reporting Plan (Appendix C) lists the applicable standard specifications language.

Significance Determination before Mitigation

Less than significant.

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Mitigation Measures

None required.

Impact Wildfire-2: 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. (*Criterion 2*)

Construction

Construction activities could exacerbate the risk of wildfire because construction equipment could generate fires from hot exhaust gases or from contact with the hot surfaces of the exhaust system. Construction workers and area residents could be exposed to a risk of wildfire or associated pollutants in the event of a wildfire.

As wildfires burn fuel, substantial amounts of carbon dioxide, black carbon, brown carbon, and ozone precursors are released into the atmosphere. Wildfires also emit a substantial amount of volatile and semi-volatile organic materials and nitrogen oxides that form ozone and organic particulate matter. These emissions can lead to harmful exposures for first responders and local residents. Exposure to these pollutants can cause asthma attacks, coughing, and shortness of breath. Chronic exposure to these pollutants can increase the risk of developing chronic health conditions, such as heart disease, diabetes, and cancer.

Neither the SOWTP site nor the Central North Aqueduct pipeline are within an area designated as VHFHSZ; however, the areas north and east of the SOWTP site and south of the Central North Aqueduct pipeline alignment are designated as VHFHSZ. The majority of the SOWTP site occurs on a terrace that slopes moderately to steeply to the south and west. The Central North Aqueduct pipeline alignment slightly slopes toward San Pablo Creek. The site may be subject to conditions such as prevailing winds that could increase wildfire risk to Project workers and nearby residents during construction. Consistent with existing conditions, sloping topography, prevailing winds, and other factors could impact wildfire conditions.

Project construction would require the use of diesel fuel that would be stored at the SOWTP sites during construction. The Project would adhere to Article 80 of the California Fire Code, with specific requirements for the safe storage and handling of flammable and combustible liquids or hazardous materials.

As detailed in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, have been incorporated into the Project, including EBMUD Standard Construction Specification 01 35 24, dictating Project safety requirements. EBMUD Standard Construction Specification 01 35 24 Section 1.3(F) requires the contractor to submit an Emergency Action Plan that prepares responses to accidents and injuries, as well as to other serious unplanned events, such as fire, which requires notifying any response agencies (including fire departments). Furthermore, EBMUD Standard Construction Specification 01 35 24 Section 3.2(F) requires firefighting equipment on site, construction equipment to be properly maintained (including spark arrestors for internal combustion engines), and maintenance of 100 feet of defensible space around work sites, including mowing brush and grass to a height of 4

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inches or less, and clearing combustible matter, such as tree trimmings. Designated areas with combustible materials would be required to be located away from structures and have combustible growth cleared for 15 feet around the combustible materials. During periods of high fire danger, further restrictions would be in place, as stated in EBMUD Standard Construction Specification 01 35 24 Section 3.2(F). For example, during high fire danger, any gas-powered portable tools would not be used within 25 feet of flammable materials.

Because the Project would comply with applicable regulations, vegetation management, and fire preparedness in accordance with Article 80 of the California Fire Code and would implement EBMUD Standard Construction Specification 01 35 24, which requires fire prevention measures such as the development of an Emergency Action Plan and maintenance of 100 feet of defensible space around work sites, Project construction would not result exacerbate wildfire risks in the area. Therefore, impacts from pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire as a result of the Project would be less than significant. The EBMUD Practices and Procedures Monitoring and Reporting Plan (Appendix C) lists the applicable standard specifications language.

Operations

Although SOWTP operations would not entail high fire risk, an Emergency Action Plan and Fire Prevention Plan would be put in place, as required by Cal/OSHA. The combined plan would require implementation of specific maintenance and inspection activities for fire prevention. Long-term site maintenance would continue as done currently and would involve vegetation management on site, keeping the site clean and free of debris, and trimming shrubbery and trees for both fire prevention and public safety.

Additional features would be constructed at SOWTP that could increase the risk of wildfires during Project operations, such as the additional chemical building that would be constructed across from the liquid oxygen storage tanks and existing chemical building. The additional chemical building would allow the storage of a greater volume of chemicals, such as sodium hypochlorite storage tanks and chemical feed systems. The existing chemical building would be modified to store additional ammonia and caustic. Article 80 of the California Fire Code includes specific requirements for the safe storage and handling of flammable and combustible liquids or hazardous materials, to which the Project would adhere during operations. The site-specific Emergency Action Plan and Fire Prevention Plan would be updated after Project completion, to address the potential fire safety impacts associated with fuel and chemical storage and ensure that safety measures would be included in ongoing operations. Ongoing maintenance activities would continue to be conducted by staff already on site. The fire risk at the site would be comparable to the existing conditions.

Operations and maintenance of the Central North Aqueduct pipeline would not increase the risk of wildfire because the pipeline would be underground. The impact would be less than significant.

3.14 WILDFIRE

Because the Project would be required to comply with numerous laws and regulations, including Article 80 of the California Fire Code, and because long-term site maintenance would continue, including measures to maintain defensible space, operations and maintenance activities would not exacerbate wildfire risk and expose people to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire resulting in a less than significant impact.

Significance Determination before Mitigation

Less than significant.

Mitigation Measures

None required.

Impact Wildlife-3: 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. (Criterion 4)

The Project would increase impervious surface area at the SOWTP site by approximately 5 acres. A stormwater retention basin would be constructed to capture the increased stormwater runoff. The stormwater retention basin would be designed to meet the requirements of the Contra Costa Clean Water Municipal Regional Stormwater Permit, so that the Project would not create additional runoff when accounting for the increased impervious surfaces. Therefore, the Project would not increase the risk of post-fire flooding downstream. As discussed in Section 3.6, Geology and Soils, the existing SOWTP facilities are adjacent to landslide deposits, and a buried pipeline would be on landslide deposits. With the exception of the buried pipeline, the proposed Phase 1 and Phase 2 structures would not be at risk of landslide destabilization in the event of a wildfire, because the structures would be on relatively flat ground, set back from the hill slope, and not on landslide deposits.

As detailed in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, have been incorporated into the Project, including Engineering Standard Practice 512.1, Water Main Design Criteria, which establishes criteria for pipeline design and materials; and Engineering Standard Practice 550.1, Seismic Design Requirements, which specifies pipeline design requirements for landslide areas.

Because the Project would include a stormwater retention basin to avoid changes in post-project runoff, and because the new facilities would be designed and constructed in accordance with applicable Engineering Standard Practices for pipelines in landslide prone areas and the recommendations presented in the geotechnical study, all new structures would be built so that the risk of landslide from the Project would be low, resulting in a less than significant impact. The EBMUD Practices and Procedures Monitoring and Reporting Plan (Appendix C) lists the applicable standard specifications language.

Significance Determination before Mitigation

Less than significant.

Mitigation Measures

None required.

3.14.4 Cumulative Impact Analysis

Impacts related to wildfires generally would be site-specific and depend on the proximity of the wildfires. A significant cumulative impact could occur if the Project exasperated risks of wildland fires in a manner that would expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death.

Cumulative Impacts during Project Construction

The Project is not in an area designated as VHFHSZ, and none of the cumulative projects that would be built at the same time as the Project are within a VHFHSZ. On-site fire risk temporarily would increase during construction because of the presence of construction workers and equipment working in proximity to dry vegetation. Construction contractors for any future cumulative projects proposed in the VHFHSZ similarly would be required to comply with the fire prevention measures that are identified in Sections 4428–4442 of the California Public Resource Code and Article 80 of the California Fire Code. Compliance with the existing fire prevention regulations would reduce the risk of ignition of wildland fires. Therefore, the Project would have a less-than-significant contribution to a cumulative impact with respect to wildland fires.

Cumulative Impacts during Project Operations

Operations and maintenance activities at the SOWTP would adhere to the Emergency Action Plan and Fire Prevention Plan, as required by Cal/OSHA. These plans would require specific maintenance and inspection activities for fire prevention. Fire risk at the SOWTP site would be comparable to the existing operations. The operations and maintenance activities would not contribute to an increased cumulatively risk of wildland fires compared with baseline conditions.

Project maintenance of the Central North Aqueduct pipeline would have the potential to cause temporary road or lane closures. The operational road or lane closures would be isolated to the location of the maintenance work and would be of short duration. The maintenance activities would not interfere cumulatively with an adopted emergency response plan or emergency evacuation plan that would create a risk in the event of a wildfire.

3.14.5 References

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4 Alternatives

This chapter evaluates alternatives to the Project and examines the potential environmental impacts associated with each alternative. The relative environmental advantages and disadvantages of each alternative in relation to the Project are identified.

4.1 Alternatives Analysis Approach

4.1.1 Consideration of Alternatives under CEQA

Section 15126.6 of the *California Environmental Quality Act (CEQA) Guidelines* requires Environmental Impact Reports (EIRs) to evaluate a range of reasonable alternatives to a project, or to the location of a project that would feasibly attain most of the basic project objectives and avoid or substantially lessen significant effects of the project. The following criteria for selecting alternatives are set forth in the CEQA Guidelines:

- An EIR must consider a reasonable range of potentially feasible alternatives that will foster informed decision-making and public participation. The lead agency is responsible for selecting a range of project alternatives for examination and must publicly disclose its reasoning for selecting those alternatives. The range of alternatives addressed in an EIR should be governed by a rule of reason. Not every conceivable alternative must be addressed, nor do infeasible alternatives need to be considered (CEQA Guidelines Section 15126.6[a]). When addressing feasibility, factors that may be taken into account include site suitability, economic viability, availability of infrastructure, general plan consistencies, other plans or regulatory limitations, jurisdictional boundaries, and the proponent's ability to reasonably acquire, control, or otherwise have access to an alternative site (CEQA Guidelines Section 15126.5[f][1]).
- Evaluation should focus on those alternatives capable of avoiding or substantially lessening any significant environmental effects of the project, even if the alternative would impede, to some degree, the attainment of the project objectives, which are identified in Chapter 2, Project Description, or would be costlier. At the same time, 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 (CEQA Guidelines Section 15126.6[c]).
- The EIR should identify alternatives that were considered by the lead agency but were rejected as infeasible and the reasons for the lead agency's determination (Section 15126.6[c]).

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- A “No Project” alternative must be evaluated, and the EIR must also identify an environmentally superior alternative (Section 15126.6[e]).
- The discussion should not consider those alternatives whose implementation is remote or speculative, and the analysis need not be presented in the same level of detail as the assessment of a proposed project.

Based on the CEQA Guidelines, several factors should be considered in determining the range of alternatives to be analyzed in an EIR and the level of analytical detail that should be provided for each alternative. These factors include:

1. The potentially significant impacts identified for the proposed project;
2. The ability of alternatives to reduce or avoid the significant impacts associated with the proposed project;
3. The ability of the alternatives to meet the objectives of the proposed project; and
4. The feasibility of the alternatives.

4.1.2 Approach to Analysis

The alternatives considered in this analysis included those alternatives that were identified by East Bay Municipal Utility District (EBMUD) in the *Sobrante Water Treatment Plant (SOWTP) Basis of Design Report* (EBMUD, 2021a), Central North Aqueduct Alignment Study (EBMUD, 2022), and alternatives suggested by members of the public during public outreach, including relocation of Project facilities on the SOWTP site.

The environmental analysis in this EIR indicates that the Project would not result in any significant and unavoidable long-term operational impacts. The only significant and unavoidable impact would be temporary construction noise, generated during pile driving at the SOWTP (approximately 20 days in Phase 1), extended work hours for concrete pours at the SOWTP (approximately 36 days in Phase 1 and 33 days in Phase 2), jack and bore construction of the Central North Aqueduct (approximately 8.4 weeks), open trench construction adjacent to residences approximately 5 days at each affected residence, and nighttime construction activities at busy intersections and tie-in locations (approximately 5 to 10 days at each location). Thus, the alternatives analysis focuses on whether an alternative would avoid or reduce the severity or magnitude of the Project’s construction noise impacts. Table 2-1 in Chapter 2, Project Description, describes the Project objectives.

The EBMUD Board of Directors will review and consider the information contained in this EIR before deciding whether to approve, disapprove, or modify the Project.

4.2 Project Alternatives Development: Water Treatment and Transmission Master Plan

In 2003, EBMUD developed the *Water Treatment and Transmission Master Plan* (WTTMP), to plan the configuration of the water treatment and transmission system for a 30 to 50-year horizon

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(EBMUD, 2003). The WTTMP developed and analyzed alternatives to address emerging water quality regulations, future water demands, long-term reliability, and cost-effectiveness.

The WTTMP considered and analyzed six alternatives, ranging from reducing the system to three water treatment plants (WTPs) to upgrading all six existing WTPs. The EBMUD Board of Directors accepted the WTTMP which determined that the best alternative was to add transmission improvements, decommission the smaller San Pablo and Lafayette WTPs, and upgrading the existing Orinda, Walnut Creek, Upper San Leandro, and Sobrante WTPs.

4.3 Project Alternatives Development: Water Treatment and Transmission Improvements Program EIR

In 2006, EBMUD prepared the *Water Treatment and Transmission Improvements Program* (WTTIP) Environmental Impact Report (EIR) to address improvements at Orinda, Walnut Creek, Upper San Leandro, Sobrante, and Lafayette WTPs. The EIR evaluated two alternatives whose fundamental difference was whether Lafayette WTP is retained and upgraded or decommissioned. At SOWTP, the improvements consisted of upgrades to ozonation, chlorine contact basin, backwash water treatment system¹, and piping modifications. WTTIP improvements were driven by a variety of overlapping needs: meeting existing and future water demands in Lamorinda and Walnut Creek; meeting future regulatory standards related to water quality; complying with environmental permit conditions; and replacing and upgrading aging infrastructure.

4.4 Project Alternatives Development: Facilities Design at SOWTP Site

EBMUD's 2010 *West of Hills Master Plan* (EBMUD, 2010) recommended increasing the SOWTP capacity, based on the water demand projections from EBMUD's 2040 Demand Study. The SOWTP improvements in the *West of Hills Master Plan* are divided into two phases: Phase 1 restores near-term capacity to 55 million gallons per day (MGD) and Phase 2 increases long-term capacity to 80 MGD.

After EBMUD determined to proceed with improvements at SOWTP, a *Basis of Design Report* (EBMUD, 2021a) was prepared to develop the Project facilities, which was used for preparation of the Project Description that is presented in Chapter 2 of this EIR. EBMUD also conducted additional design meetings to define and evaluate different process alternatives that would be capable of meeting the Project objectives. The Project was defined to improve SOWTP by

¹ Backwash water equalization basin, filter-to-waste equalization basin, flocculation/sedimentation or high rate sedimentation, and sludge storage and disposal.

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restoring reliable capacity to the permitted capacity of 60 MGD in Phase 1 and increasing long-term capacity to 80 MGD in Phase 2.

During Phase 1, the selected Project design (as described in Chapter 2) would add a raw water valve, two fifth-stage flocculation basins, chlorine contact basin, two spent-filter backwash equalization basins, filter-to-waste equalization basin, two spent-filter backwash flocculation/sedimentation basins, polymer and electrical building, two gravity thickeners, discharge pipeline to the sewer, and consolidated maintenance building. In Phase 2, the Project would add a flocculation basin, sedimentation basin, two ozone contact basins, ozone destruct room, cable-vac pumping plant, chemical storage building, two gravity filters, two gravity thickeners, solids dewatering building, and two blending tanks.

Two alternative sites for the SOWTP facilities were considered in the *Basis of Design Report* (EBMUD, 2021a), and one alternative site was suggested by the public during public outreach in 2022. Each of the siting alternatives are described and evaluated below.

4.4.1 Existing Reclaim Site

The Existing Reclaim Site alternative was considered in the SOWTP *Basis of Design Report*, which was prepared prior to upgrades at EBMUD's Maloney Pumping Plant in 2021. The alternative involves locating the proposed spent-filter backwash reclaim and solids handling systems at the existing reclaim system located on D Avila Way. Site constraints at this location would require the use of a high-rate clarification process with a smaller footprint than the preferred flocculation-sedimentation with tube settlers included in the Project. Due to the constraints, the site plan for this alternative was developed using a ballasted flocculation treatment process called Actiflo, a patented system developed by Veolia Water. Although Actiflo has been proven to be an effective process for pretreatment clarification, it does not have a history for treating spent-filter backwash, which has differing characteristics from untreated water. The process also is proprietary, relies heavily on mechanical equipment, and has higher operation costs because of additives and energy requirements. The alternative also would include the installation of gravity thickeners at the Maloney Pumping Plant site.

The alternative would locate the spent-filter backwash and filter-to-waste basins within the footprint of the existing wash water settling basins, requiring either a year-long outage of the SOWTP or, at great cost, a temporary spent-filter backwash reclaim and solids handling system in order to avoid a long-term outage. The alternative would not have space for a consolidated maintenance building or Phase 2 solids dewatering facilities, and construction along San Pablo Creek could pose additional environmental risks because of the sensitivity of the creek habitat.

The alternative at the existing reclaim site is no longer feasible because the Maloney Pumping Plant was upgraded in 2021, to increase capacity, replace aged electrical equipment, and update the control systems; therefore, the alternative site is no longer available. In addition, there is insufficient space for the consolidated maintenance building and the Phase 2 solids dewatering facilities, which would fail to meet Project objectives. The alternative also has the potential to create additional environmental impacts during construction because of proximity to San Pablo

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Creek and adjoining residences. Because the alternative at the existing reclaim site would not be feasible, potentially pose additional environmental risks, and not meet Project objectives, the alternative has not been considered in further detail.

4.4.2 Near Chemical Building

This alternative involves locating the proposed spent-filter backwash reclaim and solids handling systems at the open area northeast of the existing Chemical Building, on the existing SOWTP property. Because of the limited space in the area near the Chemical Building and the topography of the area, the spent-filter backwash and filter-to-waste equalization basins would need to be buried 46 feet deep, which would be approximately 10 feet deeper than the Project and would result in higher construction costs and more truck traffic during construction to off haul the additional excavated soils. In addition, there is insufficient space for the consolidated maintenance building and the Phase 2 solids dewatering facilities. Because the alternative site at the open area northeast of the existing Chemical Building has insufficient space for all the Project facilities, would incur higher construction costs, and require more truck traffic during construction, the alternative has not been considered in further detail.

4.4.3 Southern Portion of SOWTP Property

During the October 2022 public meeting, a community member suggested an alternative that would site some of the new Project facilities in the area adjacent to the existing facilities along Valley View Road and Spanish Trails Road. This southern portion of the SOWTP property is steeply sloped and contains historical landslides, as discussed in Section 3.6 of this EIR. The southern portion of the SOWTP property also contains critical and large untreated water pipelines and high voltage electrical lines that must remain in service, and therefore would need to be avoided when siting the facilities and during construction activities. The two areas with existing facilities that are planned for demolition have insufficient space to fit all of the Phase 1 Project facilities and these facilities must remain in service until the Project is completed and operational. In addition, the steep slopes in the area adjacent to Valley View Road would likely require a large retaining wall that would impact public views along Valley View Road. Because the alternative site at the southern portion of the SOWTP property is steeply sloped with known landslide hazards, has insufficient space for all the Project facilities, and would likely increase visual impacts, the alternative has not been considered in further detail.

4.5 Project Alternatives Development: Pipeline Alignment of Central North Aqueduct

In addition to the Project facilities at SOWTP, Phase 2 of the Project includes installation of a new transmission pipeline to convey the additional treatment capacity from the SOWTP to the distribution system. EBMUD completed the Central North Aqueduct Alignment Study to evaluate alternative alignments and select a preferred alignment for the Central North Aqueduct pipeline (EBMUD, 2022). Potential pipeline alignments were identified by performing

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a tabletop survey of water utility maps, aerial photos, and Google Street View images. From these pipeline alignments, the preferred alignment was selected based on the following criteria:

- roadway width
- typical traffic levels
- geotechnical hazards
- potential cultural resources
- need for EBMUD rights-of-way
- costs

All feasible alignments from SOWTP to the intersection of Road 20 and 21st Street must predominately be in San Pablo Dam Road, El Portal Drive, and Road 20, because avoiding these streets would produce alignments that would drastically increase the overall length and cost of the alignment. As such, alternative alignments were evaluated in only three segments of the alignment where there were feasible alternative alignments.

4.5.1 La Honda Road

The La Honda Road Alignment from Maloney Pumping Plant to San Pablo Dam Road is an alternative to the Project alignment in D Avila Way. The La Honda Road Alignment follows La Honda Road west to San Pablo Dam Road. The La Honda Road Alignment would have greater potential to encounter cultural resources than the Project alignment due to the presence of previously recorded cultural resource sites within the alignment. The crossing of San Pablo Creek on La Honda Way would require similar jack and bore construction to the Project crossing on D Avila Way; however, the areas adjacent to San Pablo Creek on La Honda Road are not developed and contain more areas of riparian habitat with greater biological resource value than the jack and bore crossing at D Avila Way; therefore, the La Honda Road alternative would have a greater risk of impacts on San Pablo Creek riparian habitat and biological resources than the Project alignment. Because the La Honda Road Alignment would result in greater cultural resource and biological resource impacts than the Project, this alternative alignment was rejected from further consideration.

4.5.2 Canyon Road

The Canyon Road Alignment is an alternative to the Project alignment in San Pablo Dam Road between Greenridge Drive and Milton Drive. The Canyon Road Alignment follows Greenridge Drive south to Canyon Road, west on Canyon Road to Clark Road, north on Clark Road to Wesley Way, west on Wesley Way to Milton Road, and north on Milton Road to San Pablo Dam Road. The Canyon Road Alignment has a greater estimated construction cost, approximately \$10.3 million versus approximately \$7 million for the Project alignment in San Pablo Dam Road (EBMUD, 2022). The Canyon Road Alignment would also require construction in narrower roads with widths of 25 feet versus 65 feet in San Pablo Dam Road for the Project alignment, which would require more road closures and have more transportation impacts than the Project. The Canyon Road Alignment would also be located in a residential area where construction activities and associated noise would be closer to a larger number of sensitive

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receptors than the Project alignment in San Pablo Dam Road, which would be located in residential and commercial area. Because the Canyon Road Alignment would result in greater transportation and noise impacts and would be more costly than the Project, this alternative alignment was rejected from further consideration.

4.5.3 El Portal Drive and Greenwood Drive

The El Portal Drive and Greenwood Drive alignments are alternatives to the Project alignment in Greenwood Drive between Glenlock Street and Road 20. The El Portal Drive Alignment follows El Portal Drive west from Glenlock Street to Road 20, while the Greenwood Drive Alignment follows Greenwood Drive west to Fordham Street, south on Fordham Street to Rollingwood Drive, and west on Rollingwood Drive to Road 20.

The El Portal Drive Alignment is in an area with high liquefaction potential and would present greater geologic hazard impacts than the Project alignment; therefore, the El Portal Drive Alignment was rejected from further consideration (EBMUD, 2022).

The Greenwood Drive Alignment has a greater estimated construction cost, approximately \$10.6 million versus \$8.5 million for the Project alignment in Rollingwood Drive. The Greenwood Drive Alignment would require a new private right-of-way due to encroachment on private property, while the Project alignment is located wholly in public rights-of-way (EBMUD, 2022). Because the Greenwood Drive Alignment would require a private right-of-way, which would potentially make the alternative infeasible if the private landowner did not grant the right-of-way or easement and would be significantly more costly than the Project alignment, the Greenwood Drive Alignment was rejected from further consideration.

4.6 Alternatives Rejected from Further Consideration

As indicated in the preceding sections, three alternative sites were considered for the Project facilities at SOWTP: two as a part of the analysis in the *Basis of Design Report* (EBMUD, 2021a), and one suggested by the public during public outreach in 2022. The existing reclaim site was rejected from further consideration because of the infeasibility of the existing reclaim facilities to be removed from service prior to the completion of the Project, a failure to meet Project objectives from insufficient space to construct the consolidated maintenance building and Phase 2 solids dewatering facilities, additional environmental risks from the site's proximity to the creek habitat, and the recent upgrade to the Maloney Pumping Plant has rendered the site unavailable. The near Chemical Building site was rejected from further consideration because of greater construction costs from deeper excavations, greater environmental impacts from additional truck traffic during construction, and a failure to meet Project objectives from insufficient space to construct the consolidated maintenance building and Phase 2 solids dewatering facilities. The southern portion of the SOWTP property was rejected from further consideration because of infeasibility of relocating existing water pipelines and high voltage electrical lines off site, increase to visual impacts from a new large retaining wall, and increased geological hazard impacts from constructing on steeply sloped area with known landslide

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hazards. Because of the significant constraints to Project development within each of the alternative configurations at the SOWTP site, the three on-site alternatives did not meet feasibility criteria for further evaluation in the EIR.

In addition to the alternatives for the Project facilities at SOWTP, EBMUD considered four alternative alignments for segments of the Central North Aqueduct pipeline. The La Honda Road Alignment would result in greater cultural and biological resources impacts than the Project, would not reduce any impacts of the Project, and therefore was rejected from further consideration. The Canyon Road Alignment would result in greater transportation impacts than the Project, would require significantly greater costs to construct, and therefore was rejected from further consideration. The El Portal Drive Alignment would result in greater geologic hazards than the Project, and Greenwood Drive Alignment would have substantially greater cost than the Project; therefore, both options were rejected from further consideration.

During the October 2022 public meeting, a community member suggested a water conservation alternative to avoid the need for the Project by offsetting the need to increase SOWTP capacity with savings from water conservation. For many years, EBMUD has promoted water conservation and adopted water conservation strategies, most recently in the *Water Conservation Strategic Plan 2021*, which included a water conservation target of 70 MGD by 2050 (EBMUD, 2021b). However, EBMUD uses a planning level of demand to assess its need for water and to size infrastructure. The planning level of demand incorporates uncertainties in the forecast (e.g., not meeting all recycled water or water conservation goals) to create a conservative demand forecast that ensures EBMUD has properly sized infrastructure. The increase in treatment capacity for SOWTP to 80 MGD was based on these forecasted planning level of demands. Therefore, the conservation measures included in the *Water Conservation Strategic Plan* were considered when determining the need for the Project and the Project is needed to meet the forecasted water demand. Phase 2 Project facilities will be constructed as needed to meet future demands, maintain flexibility to treat supplemental supplies from the Sacramento River, and continue to meet drinking water and environmental regulations.

4.7 No Project Alternative

4.7.1 Alternative Description

Under the No Project Alternative, the proposed improvements at the SOWTP and the Central North Aqueduct pipeline would not be constructed; the capacity of the SOWTP would continue to be constrained to approximately 45 MGD. Demands would continue to increase, and there would be a need for additional treatment capacity at the SOWTP to meet future demands, maintain flexibility to treat supplemental supplies from the Sacramento River via the Freeport Regional Water Project during periods of drought, and continue to meet drinking water and environmental regulations. Consequently, under the No Project Alternative, the SOWTP would not have capacity to meet future occurrences of high demand, to meet future demands during outages of other facilities (e.g., Claremont Tunnel) and to respond to drought conditions.

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EBMUD customers may be required to ration more frequently when the SOWTP does not have sufficient treatment capacity to meet the demands or respond to droughts. EBMUD facilities must be periodically upgraded to meet the changing needs of the future.

Under the No Project Alternative, the SOWTP would continue to lack a dedicated chlorine contact basin, requiring free-chlorine to be added before filtration, and resulting in higher concentrations of disinfection byproducts. The scattered maintenance facilities at the SOWTP site would remain under the No Project Alternative and would be inadequate for the existing levels of maintenance served by the SOWTP.

4.7.2 Project Objectives

Table 4-1 shows the Project objectives and an evaluation of whether the No Project Alternative would meet those objectives. As shown in Table 4-1, the No Project Alternative would not meet any of the Project-specific objectives. With regard to the secondary objectives, the No Project Alternative would meet the aesthetic objective, because with the No Project Alternative, no aesthetic changes would occur. The No Project Alternative would maximize the life of existing facilities and existing energy consumption and efficiency would be maintained during operations because no change would occur to the existing facilities. However, the No Project Alternative would not meet objectives related to minimizing greenhouse gas (GHG) emissions, because in the future discharges into the sewer may be prohibited by West County Wastewater District or environmental regulation and require all solids to be hauled off site. The No Project Alternative would not include gravity thickeners and solids dewatering facilities and would require more truck trips for solids removal than the Project. The No Project Alternative would not require any construction and Project construction objectives would not apply.

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Table 4-1 Evaluation of No Project Alternative and Project Objectives

Issue	Project Objectives	Would the No Project Alternative Achieve Objective?
Project Specific Objectives	Improve water service reliability by increasing the reliable water treatment capacity to meet planned future demands.	No. The existing treatment capacity would be insufficient to meet planned future demands.
	Maintain flexibility to treat a broad range of water quality from supplemental water supplies entering EBMUD's water system such as the Sacramento River via the Freeport Regional Water Project.	No. The existing treatment capacity would be less than the full allotment of 50 MGD of supplemental water supplies to be treated at SOWTP.
	Continue to meet drinking water and environmental regulations and achieve EBMUD's internal long-term water quality goals.	No. The lack of a dedicated chlorine contact basin would require free chlorine to be added before filtration, resulting in higher concentrations of disinfection byproducts that would exceed EBMUD's internal long-term water quality goals.
	Improve efficiency of maintenance operations at the SOWTP site.	No. Without a consolidated maintenance building, existing maintenance facilities would remain scattered throughout the SOWTP site and be inadequate for existing levels of maintenance.
	Minimize life-cycle costs (capital, operating, and maintenance) to EBMUD's customers.	No. Without solids dewatering facilities, the operational costs of solids removal and disposal would be greater than the Project. In addition to higher landfill disposal costs, additional trucking costs would be incurred because of the greater volume of solids.
Secondary Operational Objectives	Maintain a similar and acceptable aesthetic site-environment after construction.	Yes. The aesthetics of the SOWTP would be unchanged.
	Maximize the useful life of existing facilities in a manner that reduces costs for customers.	Yes. No change would occur, and the existing useful life would remain unchanged.

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Issue	Project Objectives	Would the No Project Alternative Achieve Objective?
	Minimize operational emissions of greenhouse gases.	No. Although greenhouse gas emissions from operations would not increase, the No Project Alternative would require more truck trips for solids removal than the Project. Without gravity thickeners and solids dewatering facilities, the volume and moisture content of the solids from the SOWTP would be significantly greater.
	Maximize energy efficiency during operations.	Yes. Existing energy efficiency would be maintained.
Construction Objectives	Minimize environmental impacts on the community during construction.	Not applicable. No construction would be associated with the No Project Alternative.
	Reuse or recycle building materials on site to the extent feasible, including concrete demolition materials and excavated earth.	
	Maintain water service and emergency flows during construction.	
	Protect the local community from construction hazards.	
	Provide safe travel routes for motorists and pedestrians.	
	Provide safe construction site conditions.	

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4.7.3 Impact Discussion

If the Project was not implemented, none of the impacts identified in Chapter 3, Environmental Setting, Impacts, and Mitigation Measures, would occur. The conditions described in the setting sections that are presented in Chapter 3 would persist. The short-term significant impact of construction noise on Amend Road during pile driving and concrete pours as well as the short-term construction noise at sensitive receptors adjacent to the Central North Aqueduct pipeline would be eliminated. Because none of the Phase 1 or Phase 2 facilities would be constructed under the No Project Alternative, all construction and operational impacts resulting from the Project would not occur.

As described in Section 2.3, the Project would provide a long-term, cost-effective solution for the SOWTP to restore reliable treatment capacity to the full permitted capacity, reduce disinfection byproducts improve maintenance operations, maintain flexibility to treat supplemental supplies, and increase treatment capacity as needed to meet future demands. EBMUD is obligated to continue to comply with water quality regulations, as noted in Section 2.2.4. Operation of the SOWTP would continue in the same manner as the existing condition, where capacity of the SOWTP would be limited to approximately 45 MGD because of deficiencies in the flocculation process and reclaim and solids handling systems. The existing design of the SOWTP, which lacks a dedicated chlorine contact basin, would continue to limit the ability of SOWTP to meet primary disinfection requirements and result in higher concentrations of disinfection byproducts.

4.8 No Solids Dewatering Facilities Alternative

4.8.1 Alternative Description

The No Solids Dewatering Facilities Alternative would eliminate the solids dewatering building and blending tanks from Phase 2 of the Project. This alternative would reduce the temporary construction impacts associated with the Project by avoiding all impacts associated with construction of the solids dewatering facilities, including a reduced footprint, earthwork, and soil removal. This alternative also would reduce the long-term visual impacts by not constructing the solids dewatering facilities as well as would reduce long-term energy use associated with operation of the solids dewatering facilities.

Without the solids dewatering facilities, the Project would generate a larger volume of wetter solids, because the solids dewatering facilities would reduce the overall volume of solids by removing the water and condensing the solids. The maximum treatment capacity of 80 MGD could be achieved but would require additional trucking of solids offsite. The No Solids Dewatering Facilities Alternative would generate an average of 32 trucks trips per day and a maximum of 53 truck trips per day for solids removal and disposal in a landfill.

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4.8.2 Project Objectives

Table 4-2 shows the Project objectives along with an evaluation of whether the No Solids Dewatering Facilities Alternative would meet those objectives. As shown in Table 4-2, the No Solids Dewatering Facilities Alternative would meet most Project-specific objectives but would not meet the objective of minimizing life-cycle costs because the operational costs of solids removal and disposal in a landfill would be greater than for the Project. The No Solids Dewatering Facilities Alternative would meet most secondary operational objectives but would not minimize GHG emissions because of the increase in trucking required for solids removal without dewatering of the solids. The No Solids Dewatering Facilities Alternative would meet the construction objectives because the alternative would reduce the extent of construction required.

4.8.3 Impact Discussion

The aesthetic impacts of the No Solids Dewatering Facilities Alternative would be less than those of the Project because the solids dewatering facilities would not be visible in Phase 2 (see Figures 3.1-5 and 3.1-9 in Section 3.1 for views of the solids dewatering facilities as part of the Project). Although the solids dewatering facilities would be constructed in Phase 2 after landscaping has matured and the building would be primarily screened by the mature landscaping installed during Phase 1, without the solids dewatering building and blending tanks, the visual impact of the Project would be reduced.

Air quality and GHG emissions impacts during construction would be reduced under the No Solids Dewatering Facilities Alternative because less grading and fewer emissions from construction equipment would occur because of the reduced extent of construction. Operational haul truck emissions of criteria pollutants and GHGs would be greater with this alternative than with the Project because without dewatering, higher volumes of wetter solids would generate an average of 32 trucks trips per day and a maximum of 53 truck trips per day for sludge removal and disposal in a landfill, which would be substantially more operational truck trips for disposal than the Project; however, the operational air quality and GHG emissions impacts would be expected to remain less than significant.

For biological resources, the No Solids Dewatering Facilities Alternative construction would require less ground disturbance and would avoid the construction earthwork associated with the Phase 2 solids dewatering facilities. The solids dewatering facilities are proposed in areas of non-native grassland, which do not contain sensitive resources; therefore, the removal of the solids dewatering facilities would only marginally reduce biological resources impacts and the impacts on wetlands, riparian areas, sensitive vegetation communities, and potential effects on special-status species would be the same as the Project.

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Table 4-2 Evaluation of No Solids Dewatering Facilities Alternative and Project Objectives

Issue	Project Objectives	Would the No Solids Dewatering Facilities Alternative
Project Specific Objectives	Improve water service reliability by increasing the reliable water treatment capacity to meet planned future demands.	Yes. EBMUD would be able to reach the 80-MGD capacity that is projected to be needed to meet future demands.
	Maintain flexibility to treat a broad range of water quality from supplemental water supplies entering EBMUD's water system such as the Sacramento River via the Freeport Regional Water Project.	Yes. The existing ability to treat water quality from supplemental water supplies would be maintained.
	Continue to meet drinking water and environmental regulations and achieve EBMUD's internal long-term water quality goals.	Yes. The new dedicated chlorine contact basin would allow free chlorine to be added after filtration, resulting in lower concentrations of disinfection byproducts that would meet EBMUD's internal long-term water quality goals.
	Improve efficiency of maintenance operations at the SOWTP site.	Yes. The new consolidated maintenance building would consolidate the existing maintenance facilities at the SOWTP.
	Minimize life-cycle costs (capital, operating, and maintenance) to EBMUD's customers.	No. Without solids dewatering facilities, the operational costs of solids removal and disposal would be greater than for the Project. In addition to higher landfill disposal costs, additional trucking costs would be incurred because of the greater volume of solids.
Secondary Operational Objectives	Maintain a similar and acceptable aesthetic site-environment after construction.	Yes. With fewer facilities to be constructed, visual changes to the SOWTP would be reduced; however, the Phase 1 facilities still would be constructed adjacent to Amend Road.
	Maximize the useful life of existing facilities in a manner that reduces costs for customers.	Yes. Elimination of the solids dewatering facilities from the Project would not change the useful life of the existing water treatment facilities.

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Issue	Project Objectives	Would the No Solids Dewatering Facilities Alternative
	Minimize operational emissions of greenhouse gases.	No. The No Solids Dewatering Facilities Alternative would require more than triple the number of truck trips for solids removal than the Project because the volume and moisture content of the solids from the SOWTP would be significantly greater.
	Maximize energy efficiency during operations.	No. The No Solids Dewatering Facilities Alternative would require more than triple the number of truck trips for solids removal than the Project because the volume and moisture content of the solids from the SOWTP would be significantly greater.
Construction Objectives	Minimize environmental impacts on the community during construction.	Yes. The No Solids Dewatering Facilities Alternative would reduce construction-related environmental impacts when compared to the Project because fewer facilities would be constructed. Also, water service and emergency flow would be maintained during construction.
	Reuse or recycle building materials on site to the extent feasible, including concrete demolition materials and excavated earth.	
	Maintain water service and emergency flows during construction.	
	Protect the local community from construction hazards.	
	Provide safe travel routes for motorists and pedestrians.	
	Provide safe construction site conditions.	

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Cultural resources and tribal cultural resources impacts would be expected to be similar to those of the Project, but with less grading, a slightly reduced potential would exist to encounter previously unidentified cultural resources within the SOWTP site.

Energy use for operation of the solids dewatering facilities under the No Solids Dewatering Facilities Alternative would be substantially greater than the Project because of heightened transportation energy requirements (i.e., more haul trucks would be required to remove the higher volume of wet solids).

With less grading and earthwork required for the No Solids Dewatering Facilities Alternative, potential impacts associated with geology and soils, including dewatering during excavation of the solids dewatering facilities, geotechnical design considerations at the solids dewatering facilities, and potential to disturb significant paleontological resources would be reduced as compared to the Project. The potential for water quality impacts during construction also would be reduced because less grading would result in a lower potential for erosion leading to transport of sediments off-site.

Noise impacts associated with construction of the No Solids Dewatering Facilities Alternative would be less than for the Project because less construction would occur during Phase 2 of the Project. Construction noise impacts on residences on Amend Road (Impact NOI-1) would be reduced because the Phase 2 solids dewatering facilities would not be constructed; however, the solids dewatering facilities are set back from Amend Road and construction of the facilities does not create a significant noise impact at any receptor. The significant and unavoidable noise impacts associated with pile driving and large concrete pours starting before 7 a.m. for the Project still would occur, and the No Solids Dewatering Facilities Alternative would not reduce any significant noise impacts associated with construction of the Central North Aqueduct pipeline.

Construction traffic would be slightly less for the No Solids Dewatering Facilities Alternative compared to the Project, because construction worker and haul truck trips associated with import of construction materials and removal of excavated soils for the solids dewatering facilities would not be required during Phase 2. However, operational traffic would be substantially increased because more haul trucks would be needed to remove the higher volume of wet solids. The truck trips to remove solids would increase from an average of nine trucks per day for the Project to 32 trucks per day, equivalent to four trucks per hour for the No Solids Dewatering Facilities Alternative. Increasing truck trips from one truck per hour to four trucks per hour would not have a significant impact on level of service, and although the traffic impact would increase, it would not be significant for the alternative.

Impacts on hazards and hazardous materials would be slightly reduced during construction for the No Solids Dewatering Facilities Alternative because slightly less equipment containing hazardous materials would be used during Phase 2 construction from the reduced construction footprint. The existing structures that may have asbestos and lead-based paint still would need to be demolished under the No Solids Dewatering Facilities Alternative.

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Wildfire impacts would be similar to the Project, because Project facilities still would be constructed in proximity to a very high-fire hazard severity zone. Although the alternative would reduce the extent of construction in non-native grassland areas by avoiding construction of the solids dewatering facilities, the alternative would not avoid construction in grassland areas during Phase 1.

Land use impacts of the No Solids Dewatering Facilities Alternative would be the same as for the Project because new facilities still would be constructed within the same land use and zoning designations as the Project.

All impacts associated with the No Solids Dewatering Facilities Alternative, except for noise, would remain less than significant, or less than significant with mitigation incorporated. A need for pile driving and large concrete pours, requiring extended hours would remain in Phase 1, and although fewer days with extended concrete pours may occur in Phase 2, the No Solids Dewatering Facilities Alternative would not eliminate the significant and unavoidable noise impacts of the Project.

4.9 Comparison of Alternatives

Table 4-3 shows a comparison of the Project, No Project Alternative, and No Solids Dewatering Facilities Alternative. The No Project Alternative would avoid all of the impacts associated with Project implementation. However, as shown in Table 4-1, the No Project Alternative would not achieve any of the Project specific objectives and would only achieve most of the secondary objectives. As shown in Table 4-2, the No Solids Dewatering Facilities Alternative would meet most of the Project specific objectives but would not meet the Project specific objective of minimizing life-cycle costs or the secondary objectives of minimizing operational emissions of GHGs and maximizing energy efficiency during operations.

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Table 4-3 Comparison of Alternatives

Impact Statement	Project	No Project	No Solids Dewatering Facilities	Analysis
Aesthetics				
AES-1: Have a substantial adverse effect on a scenic vista.	LTS	NI	LTS	No Project: Because nothing would be constructed under the No Project Alternative, no impact would occur on scenic vistas. No Solids Dewatering Facilities Alternative: Eliminating the solids dewatering facilities would have negligible change in the impact on scenic vistas because the solids dewatering facilities would be behind existing SOWTP infrastructure and would have little to no visibility from a scenic vista.
AES-2: Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway.	LTS	NI	LTS	No Project: Because nothing would be constructed under the No Project Alternative, no impact would occur on scenic highways. No Solids Dewatering Facilities Alternative: Eliminating the solids dewatering facilities would not change the Project impact on scenic highways or roadways because the solids dewatering facilities would not be visible from San Pablo Dam Road and the remaining Phase 2 structures would be constructed.
AES-3: In non-urbanized areas, 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) or conflict with applicable zoning and other regulations governing scenic quality.	LSM	NI	LSM-	No Project: Because nothing would be constructed under the No Project Alternative, no impact would occur on visual character or quality. No Solids Dewatering Facilities Alternative: Eliminating the solids dewatering facilities would cause a minor reduction in the visibility of the Project structures during Phase 2 as viewed from the entry way and Amend Road. The solids dewatering facilities would be screened by landscaping by the time the solids dewatering facilities are constructed.
AES-4: Create a new source of substantial light or glare that would adversely affect day or nighttime views in the area.	LTS	NI	LTS-	No Project: Because no new lighting would be installed under the No Project Alternative, no new sources of light or glare would be created. No Solids Dewatering Facilities Alternative: Because lighting is proposed for the solids dewatering facilities, eliminating the solids dewatering facilities would reduce operational lighting impacts. The impact would remain less than significant.
Air Quality				
AQ-1: Conflict with or obstruct implementation of the applicable air quality plan.	LTS	NI	LTS+	No Project: Because no construction or change in SOWTP operations would occur under the No Project Alternative, no impact would occur related to construction emissions conflicting with or obstructing implementation of an air quality plan. No Solids Dewatering Facilities Alternative: The extent of construction would be decreased, thereby reducing construction emissions. An increase in operational emissions would occur, associated with haul trucks transporting solids to landfills. However, operational mobile source emissions for the Project would be minimal (see Table 3.2-7 and Table 3.2-8 in Section 3.2) and increased operational emissions associated with 23 additional trucks per day that would be needed to transport solids would not exceed significance criteria. Project construction and operation would be consistent with all three criteria identified by the BAAQMD to evaluate consistency with the 2017 Clean Air Plan; the impacts with respect to conflicting with or obstructing implementation of the 2017 Clean Air Plan would remain less than significant.
AQ-2: 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.	LTS	NI	LTS+	No Project: Because no construction or operational changes would occur at the SOWTP under the No Project Alternative, no increase in the cumulative contribution to criteria air pollutant emissions would occur. No Solids Dewatering Facilities Alternative: The duration and general construction activities would be reduced as compared with the Project; consequently, daily construction emissions during Phase 2 would be less than the Project's, and thus would be below significance thresholds. Although operational mobile source emissions from haul trucks would be greater than with the Project, emissions from these activities still would be minimal and well below the BAAQMD's operational significance thresholds (see Table 3.2-7 and Table 3.2-8 in Section 3.2). The impact would remain less than significant.

Notes:

^a NI = no impact; LTS = less than significant impact; LSM = less than significant with mitigation incorporated; SU = significant and unavoidable

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Impact Statement	Project	No Project		Analysis
AQ-3: Expose sensitive receptors to substantial pollutant concentrations.	LTS	NI	LTS+	<p>No Project: Because no construction would occur under the No Project Alternative and no change would occur in SOWTP operations, no impact would occur on sensitive receptors associated with emissions.</p> <p>No Solids Dewatering Facilities Alternative: The extent of construction would be decreased, thereby reducing the exposure of sensitive receptors to emissions during construction. Haul truck emissions would increase during operations but would not be expected to expose sensitive receptors to substantial pollutant concentrations because mobile source emissions would be limited. The impact would remain less than significant.</p>
Biological Resources				
BIO-1: 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 the California Department of Fish and Game or U.S. Fish and Wildlife Service?	LSM	NI	LSM	<p>No Project: Because no construction or change in operations would occur at the SOWTP under the No Project Alternative, no impact would occur related to substantial adverse effects on any candidate, sensitive, or special-status species.</p> <p>No Solids Dewatering Facilities Alternative: The extent of construction in habitats for candidate, sensitive, or special-status species would be the same as the Project. The alternative would avoid construction of the solids dewatering facilities, which would be in non-native grassland areas that would not contain habitat for special-status species. The impact would remain less than significant with mitigation incorporated.</p>
BIO-2: Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service?	LSM	NI	LSM	<p>No Project: Because no construction or change in operations would occur at the SOWTP under the No Project Alternative, no impact would occur on riparian habitat or sensitive natural communities.</p> <p>No Solids Dewatering Facilities Alternative: The extent of construction in riparian areas and sensitive natural communities would be the same as the Project. The proposed solids dewatering facilities would not be in riparian areas or sensitive natural communities. The impact would remain less than significant with mitigation incorporated.</p>
BIO-3: 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.	LSM	NI	LSM	<p>No Project: Because no construction or change in operations would occur at the SOWTP under the No Project Alternative, no impact would occur on wetlands.</p> <p>No Solids Dewatering Facilities Alternative: The extent of construction in wetlands would be the same as the Project. The proposed solids dewatering facilities would not be in wetlands. The impact would remain less than significant with mitigation incorporated.</p>
BIO-4: Interfere substantially with the movement of any resident or migratory fish or wildlife species or with established resident or migratory wildlife corridors, or impede the use of wildlife nursery sites.	LTS	NI	LTS	<p>No Project: Because no construction or change in operations would occur at the SOWTP under the No Project Alternative, no impact would occur on migratory wildlife species.</p> <p>No Solids Dewatering Facilities Alternative: The extent of construction in habitat for migratory birds would be the same as the Project. No trees or habitat for migratory birds would be at the solids dewatering facilities. The impact would remain less than significant.</p>
BIO-5: Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.	LSM	NI	LSM	<p>No Project: Because no construction or change in operations would occur at the SOWTP under the No Project Alternative, no impact would occur on local policies or ordinances protecting biological resources.</p> <p>No Solids Dewatering Facilities Alternative: The extent of tree removal and associated potential conflict with the local tree protection ordinance would be the same as the Project. No tree removal would occur at the location of the proposed solids dewatering facilities. The impact would remain less than significant with mitigation incorporated.</p>
Cultural Resources				
CUL-1: Cause a substantial adverse change in the significance of a historical resource pursuant to § 15064.5.	NI	NI	NI	<p>No Project: Because no construction or demolition would occur under the No Project Alternative, no impact would occur related to having a substantial adverse change in the significance of a historical resource.</p>

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Impact Statement	Project	No Project	No Solids Dewatering Facilities	Analysis
				No Solids Dewatering Facilities Alternative: The SOWTP is not considered a historical resource under CEQA, and this alternative would not cause a substantial change in the significance of a historical resource pursuant to CEQA Guidelines Section 15064.5.
CUL-2: Cause a substantial adverse change in the significance of an archaeological resource, pursuant to CEQA Guidelines Section 15064.5.	LSM	NI	LSM-	No Project: Because no construction or demolition would occur under the No Project Alternative, no impact would occur related to causing a substantial adverse change in the significance of an archaeological resource. No Solids Dewatering Facilities Alternative: Because the extent of grading would be reduced, the potential for inadvertent exposure of buried prehistoric or historical archaeological materials would be less with this alternative, as compared to the Project; however, the alternative would not modify construction of the Central North Aqueduct and associated excavation in areas of high sensitivity for archaeological resources. The impact would remain less than significant with mitigation incorporated.
CUL-3: Disturb any human remains, including those interred outside of dedicated cemeteries.	LTS	NI	LTS-	No Project: Because no construction or demolition would occur under the No Project Alternative, no ground disturbance would occur. Thus, no impact would occur related to disturbing any human remains. No Solids Dewatering Facilities Alternative: Because the extent of grading would be reduced, the potential for inadvertent disturbance of human remains would be less with this alternative, as compared to the Project. The impact would remain less than significant.
Energy				
EN-1: Result in wasteful, inefficient, or unnecessary consumption of energy resources during Project construction, operation, or maintenance.	LTS	NI	LTS+	No Project: Because no construction or operational changes would occur at the SOWTP under the No Project Alternative, no change in energy use would occur. No Solids Dewatering Facilities Alternative: Because the extent of construction would be reduced, energy use for construction would be less than for the Project. Elimination of the solids dewatering facilities would reduce the operational energy requirements associated with dewatering but would increase the transportation energy use because of the increased hauling needed to remove wet solids and transporting them to a landfill. The impact would remain less than significant.
EN-2: Conflict with or obstruct a state or local plan for renewable energy or energy efficiency.	LTS	NI	LTS	No Project: Because no construction or operational changes would occur at the SOWTP under the No Project Alternative, no conflict would occur with a plan for energy efficiency. No Solids Dewatering Facilities Alternative: Elimination of the solids dewatering facilities would reduce the operational energy requirements associated with dewatering but would increase the transportation energy use because of the increased hauling needed to remove wet solids and transport them to a landfill; however, the hauling of solids would not conflict with plans for energy efficiency. The impact would remain less than significant.
Geology, Soils, and Seismicity				
GEO-1: Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving strong seismic groundshaking; seismic-related ground failure (liquefaction, lateral spreading); or landslides.	LTS	NI	LTS	No Project: Because no construction or change in operations would occur under the No Project Alternative, no impact would occur related to the risk of loss, injury, or death involving strong seismic ground-shaking, seismic-related ground failure, or landslides. No Solids Dewatering Facilities Alternative: The solids dewatering facilities would not be in an area of liquefaction, lateral spreading, or landslide risk. The impact of the alternative would be the same as that of the Project. The impact would remain less than significant.
GEO-2: Result in substantial soil erosion or the loss of topsoil.	LTS	NI	LTS-	No Project: Because no construction or change would occur under the No Project Alternative, no impact would occur related to loss of topsoil. No Solids Dewatering Facilities Alternative: The alternative would avoid earthwork and ground disturbance from construction of the solids dewatering facilities. The reduced construction area would result in less impact from loss of topsoil. The impact would remain less than significant.

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Impact Statement	Project	No Project	No Solids Dewatering Facilities	Analysis
GEO-3: Be located on strata or soil that is unstable or that would become unstable as a result of the Project, and potentially could result in on-site or off-site landslides, lateral spreading, subsidence (i.e., settlement), liquefaction, or collapse.	LTS	NI	LTS-	<p>No Project: Because no construction would occur under the No Project Alternative, no impact would occur related to being on a geologic unit or soil that was unstable or that would become unstable because of the Project.</p> <p>No Solids Dewatering Facilities Alternative: The alternative would avoid construction of the solids dewatering facilities. The solids dewatering facilities would not be in an area of landslide, lateral spreading, or liquefaction risk. The impact of the alternative would be the same as that of the Project. The impact would remain less than significant.</p>
GEO-4: Be located on expansive soil creating substantial direct or indirect risks to life or property.	LTS	NI	LTS-	<p>No Project: Because no construction would occur under the No Project Alternative, no impact would occur related to being located on expansive soil.</p> <p>No Solids Dewatering Facilities Alternative: The alternative would avoid construction and operation of the solids dewatering facilities, which would be in an area that could contain expansive soils. The alternative still would require construction of other Project structures within areas of potentially expansive soils. The impact would remain less than significant.</p>
GEO-5: Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.	LSM	NI	LSM-	<p>No Project: Because no construction would occur under the No Project Alternative, no impact would occur related to impacts on paleontological resources.</p> <p>No Solids Dewatering Facilities Alternative: The alternative would avoid earthwork and ground disturbance from construction of the solids dewatering facilities. The reduced construction area would result in less potential to destroy a unique paleontological resource. Other Project structures would continue to be in areas of high paleontological sensitivity. The impact would remain less than significant with mitigation incorporated.</p>
Greenhouse Gases				
GHG-1: Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment.	LTS	NI	LTS+	<p>No Project: Because no construction or change in operation would occur under the No Project Alternative, no impact would occur related to generating GHG emissions.</p> <p>No Solids Dewatering Facilities Alternative: The duration and general construction activities would be reduced as compared with the Project; consequently, construction GHG emissions likely would be less than the Project's, and thus would be below significance thresholds. Operational energy use would be reduced with elimination of the solids dewatering facilities, thereby reducing GHG emissions associated with generation of power. Although mobile source GHG emissions from haul trucks would be greater than with the Project, emissions from these activities still would be minimal and well below the BAAQMD's operational significance thresholds. The impact would remain less than significant.</p>
GHG-2: Conflict with a plan, policy, or regulation adopted for the purpose of reducing greenhouse gas emissions.	LTS	NI	LTS	<p>No Project: Because no construction or change in operations would occur under the No Project Alternative, no impact would occur related to conflicting with an applicable plan, policy, or regulation pertaining to GHG emissions.</p> <p>No Solids Dewatering Facilities Alternative: Energy efficiency measures would continue to be implemented in accordance with the 2014 Climate Change Monitoring and Response Plan and 2021 Climate Action Plan, and thus operational GHG emissions would not conflict with Scoping Plan actions, the 2017 Clean Air Plan, or the BAAQMD-recommended CEQA significance thresholds. The impact would remain less than significant.</p>
Hazards and Hazardous Materials				
HAZ-1 and HAZ-2: Create a significant hazard to the public or the environment through the routine transport, use, disposal, of hazardous materials. Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the likely release of hazardous materials into the environment.	LTS	NI	LTS-	<p>No Project: Because no construction or change would occur in operations at the SOWTP under the No Project Alternative, no impact would occur related to creating a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials or through reasonably foreseeable upset and accident conditions involving the likely release of hazardous materials into the environment.</p> <p>No Solids Dewatering Facilities Alternative: Construction activities would be slightly less and operations activities for this alternative would be similar to those of the Project. The same types of hazardous materials would still need to be used in construction and operation even if quantities are slightly reduced. Impacts related to creating a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials or through reasonably foreseeable</p>

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Impact Statement	Project	No Project	No Solids Dewatering Facilities	Analysis
				upset and accident conditions involving the likely release of hazardous materials into the environment would remain less than significant.
HAZ-3: Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school.	LTS	NI	LTS	No Project: Because no construction or change in operations would occur at the SOWTP under the No Project Alternative, no impact would occur related to emitting hazardous emissions or handling hazardous substances within 0.25 mile of a school. No Solids Dewatering Facilities Alternative: No schools are within 0.25 mile of the SOWTP site and the handling of hazardous materials within 0.25 mile of a school would be similar to the Project. The impact would remain less than significant.
HAZ-4: Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.	LTS	NI	LTS	No Project: Because no construction or change in operations would occur at the SOWTP under the No Project Alternative, no impact would occur related to impairing implementation of an emergency response plan or emergency evacuation plan. No Solids Dewatering Facilities Alternative: Construction activities for the solids dewatering facilities would not block any roadways or affect emergency evacuation or emergency response. The No Solids Dewatering Facilities Alternative would not change the Project potential to require temporary closure of roads because the alternative still would require construction of the Central North Aqueduct pipeline. The impact would remain less than significant.
HAZ-5: Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires	LTS	NI	LTS	No Project: Because no construction or change in operations would occur at the SOWTP under the No Project Alternative, no impact would occur related to exposing people or structures to a significant risk of loss, injury, or death involving wildland fires. No Solids Dewatering Facilities Alternative: Although the alternative would avoid construction of the solids dewatering facilities in areas of non-native grasslands, the Project facilities still would be constructed in areas of non-native grassland in proximity to a Very-High Fire Severity Zone. The impact related to exposing people or structures to a significant risk of loss, injury, or death involving wildland fires would remain less than significant.
Hydrology and Water Quality				
HYD-1: Violate water quality standards or waste discharge requirements, or otherwise substantially degrade water quality.	LTS	NI	LTS	No Project: Because no construction or change in operations would occur at the SOWTP under the No Project Alternative, no impact would occur related to violation of water quality standards. No Solids Dewatering Facilities Alternative: The extent of construction activities would be slightly reduced as less grading would occur with elimination of the solids dewatering facilities. Construction activities would not violate water quality standards or waste discharge requirements, or otherwise substantially degrade water quality, and the construction impact would remain less than significant. Although operations would be slightly different without solids dewatering facilities, this change would not be expected to increase the risk of operational activities triggering a violation of water quality standards or waste discharge requirements, or otherwise substantially degrading water quality. The impact would remain less than significant.
HYD-2: Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the Project may impede sustainable groundwater management of the basin.	LTS	NI	LTS-	No Project: Because no construction or change in operations would occur at the SOWTP under the No Project Alternative, no impact would occur related to groundwater resources. No Solids Dewatering Facility Alternative: With a slight reduction in impervious surface area, less potential would exist for interference with groundwater recharge. The impact would remain less than significant.
HYD-3: 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	LTS	NI	LTS-	No Project: Because no construction or change in operations would occur at the SOWTP under the No Project Alternative, no impact would occur related to altering drainage patterns. No Solids Dewatering Facilities Alternative: Because slightly less grading would occur under this alternative, alteration of drainage patterns would be less than with the Project. With elimination of the solids dewatering facilities and associated

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Impact Statement	Project	No Project	No Solids Dewatering Facilities	Analysis
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 off-site, or 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.				reduction in the footprint of the gravity thickeners, surface runoff potentially would be slightly reduced and discharge into the stormwater drainage system would be less. The impact would remain less than significant.
HYD-4: Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.	LTS	NI	LTS-	No Project: Because no construction or change in operations would occur at the SOWTP under the No Project Alternative, no impact would occur related to conflicting with or obstructing implementation of a water quality control plan or sustainable groundwater management plan. No Solids Dewatering Facilities Alternative: Construction would be reduced under this alternative, and thus less potential would exist for water quality impacts during construction. With a slight reduction in impervious surface area, less potential would exist for interference with groundwater recharge, and operation of this alternative would not impede sustainable groundwater management. The impact would remain less than significant.
Land Use				
Impact LU-1: 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.	LTS	NI	LTS	No Project: Because no construction or change in operations would occur at the SOWTP under the No Project Alternative, no land use impact would occur related to a conflict with land use plans or policies. No Solids Dewatering Facilities Alternative: The alternative would not include construction and operation of the Solids dewatering facilities in Contra Costa County, all other Project facilities would be constructed in the city of Richmond and Contra Costa County. The impact would remain less than significant.
Noise and Vibration				
NOI-1: Result in the 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.	SU	NI	SU	No Project: Because no construction or change on operation would occur at the SOWTP under the No Project Alternative, no change would occur in noise, and thus no impact would occur related to an increase in ambient noise levels. No Solids Dewatering Facilities Alternative: Eliminating the solids dewatering facilities would reduce the extent of construction that would occur in the vicinity of sensitive receptors on Amend Road during Phase 2. The Project’s significant noise impacts during early morning concrete pours and pile driving during Phase 1 would remain significant and unavoidable. The alternative would not change the need for the Central North Aqueduct pipeline and associated significant construction noise impacts during Phase 2. The impact would remain significant and unavoidable.
NOI-2: Result in the generation of excessive groundborne vibration or groundborne noise levels.	LTS	NI	LTS	No Project: Because no construction or change in operations would occur at the SOWTP under the No Project Alternative, no impact would occur related to groundborne vibration or groundborne noise levels. No Solids Dewatering Facilities Alternative: As with the Project, vibration levels at the nearest sensitive receptors would be well below significance thresholds, and operations would not introduce any new sources of perceivable groundborne vibration. The impact would remain less than significant.
Transportation				
TRA-1: Conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities.	LSM	NI	LSM	No Project: Because no construction or change in operation would occur at the SOWTP under the No Project Alternative, no impact would occur related to conflicting with a program, plan, ordinance, or policy related to the circulation system. No Solids Dewatering Facilities Alternative: Construction truck traffic would be reduced because the solids dewatering facilities would not be constructed; however, operational traffic would be increased because additional hauling would be necessary to remove wet solids and take them to a landfill (32 trucks per day as compared to nine trucks per day with the Project). Both construction and operational impacts would remain less than significant. However, the No Solids Dewatering Facilities Alternative would not eliminate the need for trucks to access the SOWTP and potential temporary closures of bike

Notes:

^a NI = no impact; LTS = less than significant impact; LSM = less than significant with mitigation incorporated; SU = significant and unavoidable

^b (-) or (+) = lower or higher end of impact range, respectively

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Impact Statement	Project	No Project	No Solids Dewatering Facilities	Analysis
				lanes and bus stops during construction of the Central North Aqueduct pipeline. The impact would remain less than significant with mitigation.
TRA-2: Conflict or be inconsistent with CEQA Guidelines Section 15064.3, Subdivision (b).	LTS	NI	LTS	<p>No Project: Because no construction or change in operation would occur at the SOWTP under the No Project Alternative, no construction-period impact would occur related to conflicting with or being inconsistent with Section 15064.3(b) of the CEQA Guidelines.</p> <p>No Solids Dewatering Facilities Alternative: Although operational haul truck trips for solids removal would be triple those expected with the Project, the No Solids Dewatering Facilities Alternative would generate relatively few additional vehicle trips (average of 32 daily truck trips and a peak of 53 truck trips per day). Truck traffic is not considered in vehicle miles traveled, as discussed in Section 3.11 under Impact TRA-2. Operational travel at the SOWTP would be greater than the Project but the impact would remain less than significant.</p>
TRA-3: Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).	LSM	NI	LSM	<p>No Project: No Project construction and no change to roadway features would occur under the No Project Alternative, and therefore no impact would occur related to increasing hazards because of a geometric design feature or incompatible uses.</p> <p>No Solids Dewatering Facilities Alternative: Construction truck traffic during Phase 2 would be reduced with elimination of the solids dewatering facilities. The Project still would involve construction within roads along the Central North Aqueduct pipeline, which would require mitigation. The impact of the alternative would be similar to the Project and would remain less than significant with mitigation incorporated.</p>
TRA-4: Result in inadequate emergency access.	LTS	NI	LTS	<p>No Project: Because no construction or change in access would be associated with operations at the SOWTP under the No Project Alternative, no impact would occur on emergency access.</p> <p>No Solids Dewatering Facilities Alternative: Construction truck traffic would be reduced, and operational traffic would be increased, but neither would impair emergency access because the access points to the SOWTP would be unchanged. The impact from temporary closures of narrow roads during construction of the Central North Aqueduct pipeline would remain. The impact would remain less than significant.</p>
Tribal Cultural Resources				
Impact TC-1: 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.	LSM	NI	LSM	<p>No Project: Because no construction or change in operations would occur at the SOWTP under the No Project Alternative, no impact would occur related to having a substantial adverse change in the significance of a tribal cultural resource.</p> <p>No Solids Dewatering Facilities Alternative: The solids dewatering facilities would be in the SOWTP in an area that is not known to contain tribal cultural resources and of low sensitivity for cultural resources. Construction in proximity to known cultural resources that potentially could be tribal cultural resources and in areas of high sensitivity for cultural resources would remain the same as the Project. The impact would remain less than significant with mitigation incorporated.</p>
Wildfire				
WF-1: Substantially impair an adopted emergency response plan or emergency evacuation plan.	LTS	NI	LTS	Refer to the analysis for HAZ-4, above.
WF-2: Expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire due to slope, prevailing winds, and other factors, and exacerbate wildfire risks.	LTS	NI	LTS-	<p>No Project: Because no construction or change in operations would occur at the SOWTP under the No Project Alternative, no impact would occur related to exacerbating wildfire risks.</p> <p>No Solids Dewatering Facilities Alternative: The alternative would reduce the amount of construction in grassland areas in proximity to a Very-High Fire Severity Zone. The alternative still would involve construction in the grassland area during Phase 1 of the Project, which would still exacerbate wildfire risks. The impact would remain less than significant.</p>

Notes:

^a NI = no impact; LTS = less than significant impact; LSM = less than significant with mitigation incorporated; SU = significant and unavoidable

^b (-) or (+) = lower or higher end of impact range, respectively

4 ALTERNATIVES

Impact Statement	Project	No Project	No Solids Dewatering Facilities	Analysis
WF-3: 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.	LTS	NI	LTS	<p>No Project: Because no construction or change in operations would occur at the SOWTP under the No Project Alternative, no impact would occur related to exposing people or structures to significant risks, including downslope or downstream flooding or landslides, because of run-off, post-fire slope instability, or drainage changes.</p> <p>No Solids Dewatering Facilities Alternative: The alternative would reduce the amount of construction in grassland areas in proximity to a Very-High Fire Severity Zone. The alternative still would involve construction in the grassland area during Phase 1 of the Project, which could expose structures to risk from post-fire instability if the construction resulted in a wildfire. The impact would remain less than significant.</p>

Notes:

^a NI = no impact; LTS = less than significant impact; LSM = less than significant with mitigation incorporated; SU = significant and unavoidable

^b (-) or (+) = lower or higher end of impact range, respectively

4.10 Environmental Superior Alternatives

If the Project is not implemented, none of the impacts identified in Chapter 3 would occur. However, the No Project Alternative would require more long-term, operational truck trips for solids removal than the Project because without the solids dewatering facilities, the volume and moisture content of the solids removed from the SOWTP site would be greater than with the Project. Both the Project and the No Solids Dewatering Facilities Alternative would result in a short-term significant and unavoidable construction noise impact related to pile driving of I-beams to support the excavations adjacent to Amend Road, and to extended work hours for concrete pours as early as 6:00 a.m. Both the Project and the No Solids Dewatering Facilities Alternative would result in few potentially significant environmental impacts, mainly because implementation of the EBMUD Standard Construction Specifications, practices and procedures would reduce most of the potentially significant impacts to a less-than--significant level.

The Project has been developed to be environmentally sensitive, and its facilities have been designed to have the smallest feasible footprint while still accomplishing all the Project objectives. The No Solids Dewatering Facilities Alternative would reduce the severity of the Phase 2 construction potentially significant but mitigable noise impacts and potentially significant but mitigable construction traffic impacts. In addition, the severity of less-than-significant impacts related to aesthetics, cultural resources, geology and soils, hydrology, and tribal cultural resources would be less because the number of new facilities is reduced. However, the larger volume of wetter solids would generate more operational truck traffic and the associated air quality, GHG emissions, and energy use would be incrementally greater under the No Solids Dewatering Facilities Alternative as compared to the Project. Because ongoing operational traffic impacts would be permanent, these permanent impacts are considered to outweigh reductions in construction impacts and the minor improvements in less-than-significant visual impacts. Because operational traffic impacts of the No Solids Dewatering Facilities Alternative would be greater, the Project, as proposed, is considered to be environmentally superior to the No Solids Dewatering Facilities Alternative. EBMUD has developed a Project that would provide long-term water supply reliability without any significant long-term operation and maintenance impacts.

4.11 References

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EBMUD. (2022). *Central North Aqueduct Alignment Study sb22_036*.

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5 Other CEQA Considerations

5.1 Significant and Unavoidable Impacts

EBMUD is required to adopt Findings and prepare a Statement of Overriding Considerations for unavoidable, adverse impacts as part of its approval of the Project. The Project would not entail any significant operation and maintenance impacts, and as described in the EIR analysis, most impacts during construction could be reduced to a less-than-significant level. The only significant and unavoidable impact identified for the Project was from noise during the temporary construction periods. The following impact was determined to be significant and unavoidable:

Impact NOI-1: Result in the 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. (*Criterion 1*)

Most noise from construction activities on the SOWTP site or along the Central North Aqueduct pipeline would be less than significant at nearby sensitive receptors or could be reduced to a less-than-significant level through implementation of EBMUD's standard practices and procedures for noise and Mitigation Measure NOI-1, NOI-2, NOI-3, and NOI-4, which would include installation of temporary noise barriers to reduce exposure of nearby residents to noise, limiting excavation and grading activities within Contra Costa County to weekdays from 7:30 a.m. to 5:30 p.m., and offering temporary relocation to occupants of residences that could be affected by nighttime construction noise. Noise levels during specific activities could not be reduced to a less-than-significant level at the following locations for the full duration of construction as described.

City of Richmond. The City of Richmond has a mobile construction noise limit of 75 dB, L_{max} and a stationary construction noise limit of 60 dB, L_{max} from 7 a.m. to 7 p.m. on weekdays. The following construction activities would exceed this threshold at the nearest residential property line:

- Phase 1 at the SOWTP: site preparation; I-beam for lagging of mass excavation; mass excavation for SFBW basins, equalization basin, and gravity thickeners; drill and pour piers for SFBW basins and equalization basin; pour foundation for SFBW basins and equalization basin; drill and pour piers for power and polymer building; and jack and bore at the chlorine contact basin would generate noise levels that exceed the noise threshold.

Mitigation Measure NOI-1 would require EBMUD to erect a 16-foot-tall temporary noise barrier between the residential area along Amend Road and the

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construction area during Phase 1 construction to effectively reduce noise at residential receptors. A 16-foot-tall noise barrier is the tallest noise barrier that is feasible and commercially available.

The installation of the noise barrier would reduce noise levels to below the threshold for all Phase 1 construction activities except I-beam for lagging of mass excavation. Even after installation of the noise barrier, the noise level from pile driving would exceed the daytime stationary equipment noise limit of 60 dB, L_{max}, for approximately 20 days. The impact would remain significant and unavoidable.

- Phase 2 Central North Aqueduct pipeline, open trench construction would generate noise levels that exceed the mobile noise at three locations in the city of Richmond where noise levels from pavement cutting, excavation, and repaving activities would exceed the mobile source threshold of 75 dB, L_{max} for approximately 5 days at each individual residential receptor.

Due to the location and nature of open trench construction and lack of space between the work area and residential receptors, it is infeasible to install a temporary sound barrier to attenuate noise levels from open trench construction. Therefore, noise levels from excavation and grading activities during open trench construction would exceed the mobile source threshold. The impact would remain significant and unavoidable.

The City of Richmond Noise Ordinance establishes a noise limit of 50dB, L_{max} not to be exceeded for more than 5 minutes of any hour during the nighttime (10 p.m. to 7 a.m.) at the property line of a residential use. The following construction activities would exceed this threshold at the nearest residential property line:

- Phase 1 and Phase 2 concrete pours at the SOWTP require a 6 a.m. start time. Disruptions in the concrete pours could affect the quality of the concrete work and service life of the structure. According to the City of Richmond's Municipal Code, 6 a.m. would be considered a nighttime hour. The noise level generated during early morning concrete pours would exceed the nighttime noise standard for approximately 36 days during Phase 1 and 33 days during Phase 2.

Mitigation Measure NOI-1 would require EBMUD to erect a 16-foot-tall temporary noise barrier between the residential area along Amend Road and the Phase 1 construction area to effectively reduce noise levels at residential receptors.

Mitigation Measure NOI-2 would require EBMUD to erect a 12-foot-tall temporary noise barrier between the residential area along Amend Road and the Phase 2 gravity thickeners to effectively reduce noise levels at residential receptors. Even after installation of the Phase 1 and Phase 2 noise barriers, noise levels during concrete pours before 7 a.m. for the Phase 1 SFBW equalization basins, FTW equalization basin, SFBW flocculation basin, gravity thickeners, and power and polymer building and Phase 2 gravity thickeners and solids dewatering facilities would exceed 50 dB at residential receptors along Amend Road. The impact would remain significant and unavoidable.

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Contra Costa County. Contra Costa County does not set noise thresholds for construction activities occurring during daytime hours between 7:30 a.m. and 5:30 p.m. A general speech interference threshold of 75 dBA was applied to jack and bore activities in Contra Costa County because of the long duration of the activity (8.4 weeks at one location). For pipeline construction activities, the intolerable speech interference threshold of 85 dBA was used because of the short duration of exposure at each receptor. The Contra Costa County Noise Ordinance does not have any specific thresholds for construction during nighttime hours; therefore, a general sleep disturbance threshold of 60 dBA Leq was used as the criteria for evaluating significant nighttime noise construction impacts. The following construction activities would exceed the speech interference and sleep disturbance thresholds at the nearest residential property line:

- Phase 2 Central North Aqueduct pipeline, jack and bore construction at the D'Avila Woods apartment complex would be limited to the hours of 7:30 a.m. to 5:30 p.m. but would exceed the speech interference threshold, and the impact would remain potentially significant. **Mitigation Measure NOI-2** would require installation of a 12-foot-tall temporary noise barrier between the jack and bore pits and the adjacent apartment buildings to reduce noise levels during jack and bore construction activities. Even with implementation of **Mitigation Measure NOI-2**, noise levels would exceed 75 dBA at the nearest receptor for 8.4 weeks. The impact would remain significant and unavoidable.
- Phase 2 Central North Aqueduct pipeline, open trench construction would typically occur between 7 a.m. and 7 p.m. **Mitigation Measure NOI-3** would limit excavation and grading activities within 500 feet of residential and commercial occupancies within Contra Costa County from 7:30 a.m. to 5:30 p.m. But noise levels during these activities would exceed the 85 dBA intolerable speech interference threshold at the nearest receptors. While the Phase 2 Central North Aqueduct pipeline construction could take up to 14 months total in Contra Costa County, each individual residential receptor would be exposed to noise levels of 85 dBA or greater intermittently for about 5 days when excavation and grading activities would be at their nearest point to a residence. Due to the location and nature of open trench construction and lack of space between the work area and residential receptors, it is infeasible to install a temporary sound barrier to attenuate noise levels from open trench construction. Therefore, noise levels from excavation and grading activities during open trench construction would exceed the intolerable speech interference threshold. The impact would remain significant and unavoidable.
- Phase 2 Central North Aqueduct pipeline, open trench construction at busy intersections could require nighttime construction, if required for approval of the encroachment permit. In addition, extended work hours would be required at tie-in locations as the work would need to be completed within approximately one day and would continue until the activity is completed. Noise levels from construction would exceed the nighttime sleep disturbance threshold for residences within approximately 660 feet of the nighttime construction location.

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Implementation of **Mitigation Measure NOI-4** would require that EBMUD offer residents within 660 feet of the pipeline construction site alternative lodging during the period of nighttime construction work. Even with mitigation, the noise impact from nighttime construction still would conflict with the Contra Costa County code that limits excavation and grading activities within 500 feet of residences and commercial occupancies to weekdays between 7:30 a.m. and 5:30 p.m. Noise levels from nighttime construction at busy intersection or tie-in locations could disturb sleep for residences within 660 feet of the nighttime construction area for approximately 5 to 10 days at each location. The impact would remain significant and unavoidable.

City of San Pablo. The City of San Pablo does not set noise thresholds for construction activities occurring during daytime hours between 7:00 a.m. and 10:00 p.m. For pipeline construction activities, the intolerable speech interference threshold of 85 dBA was used because of the short duration of exposure at each receptor. The following construction activities would exceed the speech interference threshold at the nearest residential property line:

- Phase 2 Central North Aqueduct pipeline, open trench construction would typically occur between 7 a.m. and 7 p.m. But noise levels during these activities would exceed the 85 dBA intolerable speech interference threshold at the nearest receptors. While the Phase 2 Central North Aqueduct pipeline construction could take up to 4 months total in the city of San Pablo, each individual residential receptor would be exposed to noise levels of 85 dBA or greater intermittently for about 5 days when excavation and grading activities would be at their nearest point to a residence. Due to the location and nature of open trench construction and lack of space between the work area and residential receptors, it is infeasible to install a temporary sound barrier to attenuate noise levels from open trench construction. Therefore, noise levels from excavation and grading activities during open trench construction would exceed the intolerable speech interference threshold. The impact would remain significant and unavoidable.

5.1.1 Significance Determination before Mitigation

Potentially significant.

Mitigation Measures

Mitigation Measure NOI-1. Phase 1 Temporary Noise Barriers

EBMUD shall erect a 16-foot-tall temporary noise barrier on EBMUD property between the active Phase 1 construction area and residential receptors on Amend Road throughout the duration of Phase 1 construction. The noise barrier will be Sound Transmission Class (STC) rated 25 or higher and specific to sound attenuation applications. During some periods of construction, the noise barrier may be moved or dismantled temporarily to accommodate the Project construction area, and EBMUD shall schedule only mobile equipment activities to occur during periods when the noise barrier is being moved. EBMUD shall also erect a 12-foot-tall noise barrier with an STC

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rating of 25 or higher between the Phase 1 demolition area and adjacent residents north of the demolition area.

Mitigation Measure NOI-2. Phase 2 Temporary Noise Barriers

EBMUD shall erect a 12-foot-tall temporary noise barrier between the Phase 2 gravity thickeners and sensitive receptors on Amend Road and a separate 12-foot-tall temporary noise barrier between the Central North Aqueduct pipeline jack and bore locations and the D'Avila Woods Apartment buildings. The temporary noise barrier will be STC rated 25 or higher and specific to sound attenuation applications. To be effective, the noise barriers will be installed to block the line of sight between the construction activity and residential receptors.

Mitigation Measure NOI-3. Limit Construction Hours in Contra Costa County

Where feasible, EBMUD shall limit excavation and grading activities within 500 feet of residential and commercial occupancies within Contra Costa County to weekdays within the County approved construction hours of 7:30 a.m. to 5:30 p.m.

Mitigation Measure NOI-4. Off-site Accommodation for Affected Nighttime Receptors

EBMUD shall notify residents who could be affected by nighttime (10 p.m. to 7 a.m.) construction of the Central North Aqueduct pipeline at busy intersection and tie-in locations, at least 10 days in advance. Residences within 660 feet of these nighttime construction work areas may request alternative lodging for the night(s) of the potential nighttime construction from EBMUD; alternative lodging to be provided will consist of a standard room at a hotel within 5 miles of the affected residence or as close as feasible. Alternative lodging will be provided and approved by EBMUD the day before the known nighttime pipeline construction is planned, or earlier, based on the types of construction activities that may occur during the nighttime hours (10 p.m. to 7 a.m.). This measure will be implemented only if nighttime construction at busy intersections or tie-in locations is to occur for the Central North Aqueduct pipeline.

5.1.2 Significant Determination after Mitigation

The noise impact described above would be significant and unavoidable for approximately:

- 20 days during Phase 1 pile driving at the SOWTP in the city of Richmond
- 5 days during open trench construction of the Central North Aqueduct pipeline at each location in city of Richmond (3 locations)
- 36 days during Phase 1 concrete pours at SOWTP in the city of Richmond and 33 days during Phase 2 concrete pours at SOWTP in the city of Richmond
- 8.4 weeks during jack and bore construction of the Central North Aqueduct pipeline adjacent to the D'Avila Woods apartment complex in Contra Costa County
- 5 days during open trench construction of the Central North Aqueduct pipeline at each adjacent receptor in Contra Costa County and the city of San Pablo
- 5 to 10 days during nighttime construction of the Central North Aqueduct pipeline at busy intersections and tie-in locations in Contra Costa County.

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Implementation of Mitigation Measures NOI-1 through NOI-4 would reduce noise impacts from construction activities. Constructing noise barriers that would reduce noise below the threshold would not be feasible for pile driving at the SOWTP or the jack and bore construction of the Central North Aqueduct pipeline. Also, due to the location and nature of open trench construction and lack of space between the work area and residential receptors, it is infeasible to install a temporary sound barrier to attenuate noise levels from open trench construction of the Central North Aqueduct pipeline. Furthermore, it is not feasible to eliminate the need for trucks to deliver concrete between 6 a.m. and 7 a.m. during extended concrete pours and or to eliminate extended work hours at busy intersections and tie-in locations. Consequently, the impact would remain significant and unavoidable.

5.2 Irreversible and Irretrievable Commitment of Resources

Section 15126(c) of the CEQA Guidelines requires that an EIR include a discussion of the significant irreversible environmental changes that would be caused by a project's implementation. Irreversible commitment of resources would occur if the use or destruction of a specific resource (e.g., minerals extraction, destruction of cultural resources) could not be replaced or, at a minimum, restored over a long period. Irretrievable commitment of resources refers to actions resulting in the loss of production or use of natural resources and represents the effects that the use of nonrenewable resources could have on future generations (e.g., land conversion to new uses; construction of levees preventing the natural flooding of floodplains).

The Project would result in the irreversible and irretrievable commitment of the following resources during construction, operation, and maintenance:

- Construction materials, such as asphalt, concrete, and steel.
- Energy resources, such as electricity, fuel, oil, and natural gas for construction equipment; and for operation and maintenance of new facilities.
- Nonrenewable materials, such as gravel and petroleum products.

Similar to any infrastructure project of its type and size, the Project would require the commitment of materials such as steel and concrete for the construction of new facilities. However, such materials likely would be recycled off-site at the end of the Project life. No other irreversible permanent changes would result from the development of the Project. Construction of the facilities would occur within the property of the existing SOWTP which is planned for use as water infrastructure and would not result in the irreversible or irretrievable commitment of the Project area as a land resource. The area is currently mostly non-native annual grassland with minor areas of seasonal wetlands and willow riparian areas. Areas temporarily used during construction would be restored at the end of Project construction.

As noted in Section 3.5, Energy, Project operation and maintenance would require an increase in electrical power at the SOWTP of approximately 1,420 MWh each year for Phase 1 and an additional 3,360 MWh each year for Phase 2 for a total increase of an estimated 4,780 MWh of energy compared with current use which would be an irreversible use of energy resources;

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however, as noted in EBMUD's Climate Action Plan (EBMUD, 2021) EBMUD is investing in alternative fuel vehicles and setting aggressive goals for GHG reductions throughout its operations. The increase in energy to be used by the Project would not be wasteful, inefficient, or unnecessary.

5.3 Growth-Inducing Impacts

CEQA requires the lead agency to evaluate whether a project would directly or indirectly induce growth of population, economic development, or housing construction. Specifically, Section 15126.2(d) of the CEQA Guidelines states the need to evaluate the potential for a project to "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)." Directly induced growth is associated with residential or commercial development projects that would result in a population increase or in an increase in the number of employees. Indirectly induced growth is associated with reducing or removing barriers to growth, or creating a condition that encourages additional population or economic activity. Ultimately, both types of growth induction would result in a population increase, which "may tax existing community service facilities, requiring construction of new facilities that could cause significant environmental effects" (CEQA Guidelines Section 15126.2[d]). Other potential environmental impacts related to growth would include increased traffic, air emissions, and noise; degradation of water quality; loss of sensitive biological and cultural resources; increased demand on public services and infrastructure; and changes in land use and conversion of agricultural or open space to accommodate development.

Under CEQA, growth inducement is not considered necessarily detrimental, beneficial, or of little significance to the environment. Projects are considered to have growth-inducing implications when economic, housing, or population growth would be stimulated, either directly or indirectly.

The Project would involve restoring the treatment capacity of the SOWTP to 60 million gallons per day (MGD) in the near term (Phase 1) and increasing to 80 MGD in the long term (Phase 2). The Project would also construct a new transmission pipeline that would be required to convey the additional treated water from the SOWTP to the distribution system under Phase 2 construction. Increasing the capacity would allow the SOWTP to serve planned land use changes and redevelopment projects disclosed and incorporated into relevant land use agency general plans, and it would not directly foster population growth or to result in the construction of additional housing in the service area for the SOWTP beyond the growth included in the relevant land use plans.

Project operation and maintenance would require three additional permanent employees for long-term operations and nine additional maintenance staff. The new staff would not be

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expected to generate a demand for new housing because of the small number of additional permanent employees and the potential nearby workforce. Project construction would contribute to local economic growth from construction expenditures for labor and materials, but because of the existing population of construction workers, it is expected that all Project construction labor needs would be readily met by those currently residing in the region. Thus, the Project would have no potential to directly induce growth.

Local land use plans provide for land use development patterns and growth policies that allow for the orderly expansion of urban development, supported by adequate urban public services, such as water supply, roadway infrastructure, sewer service, and solid waste service. Typically, the growth-inducing potential of a project or program would be considered significant if it would encourage growth or a concentration of population in excess of what is projected in the adopted general plan of the community in which the project is located, or significantly exceeds the population and employment projections made by regional planning agencies.

Land use agencies in the EBMUD service area, including cities and counties, develop and adopt long-term planning documents such as general plans for physical development within their jurisdictions. Long-term planning documents determine the nature and intensity of land uses to be served by EBMUD, and EBMUD uses these in its planning. Demand associated with land use and planned growth, as set forth in the approved planning documents, was accounted in EBMUD's 2050 Demand Study (EBMUD, 2020), which was used to determine Project sizing and design. Because the Project would serve planned land use changes and redevelopment projects disclosed and incorporated into the land use general plans and subsequent amendments thereto, implementation of the Project would not support growth beyond planned levels or in areas not planned for development by land use agencies. Therefore, any potential growth-inducing Project impacts would be less than significant.

5.4 Cumulative Impacts

The cumulative impact analysis for each individual resource topic is included in each resource section.

5.5 References

EBMUD. (2020a). *East Bay Municipal Utility District 2050 Demand Study*. Hazen.

EBMUD. (2021). *Climate Action Plan: Sustainability and Resilience*.

6 Report Preparers

This section lists the individuals who either prepared or participated in the preparation of this EIR.

6.1 Lead Agency-East Bay Municipal Utility District (EBMUD)

6.1.1 EBMUD Project Direction

Jae Park, Project Manager

Stella Tan, Associate Civil Engineer (former Project Manager)

Timothy McGowan, Senior Civil Engineer

David Rehnstrom, Manager of Water Distribution Planning

6.1.2 EBMUD Support Work Units

Karen Donovan, Attorney

Sarah Plummer, Associate Civil Engineer Design

Ali Sheikholeslami, Associate Civil Engineer Design (former)

Michael Hartlaub, Senior Civil Engineer Design

Derek Pham, Associate Civil Engineer Design

Serge Terentieff, Manager of Design

Samuel Gambino, Associate Civil Engineer Geotechnical Engineering

Sean Todaro, Senior Civil Engineer Geotechnical Engineering

Bryan Miller, Water Treatment Supervisor

Jafar Mohsin, Electrical Supervisor (former)

Jesse Silva, Mechanical Supervisor

Martin Costello, Instrument Supervisor

Lisa Toth, Maintenance Superintendent (former)

David Carlson, Maintenance Superintendent

Ed Bettencourt, Facility Supervisor

Tony Montano, Manager of Facilities Maintenance and Construction

6 REPORT PREPARERS

Drew Lerer, Senior Environmental Health & Safety Specialist

Joeseeph Voelker, Community Affairs Representative

Rolando Gonzalez, Community Affairs Representative

Sharla Sullivan, Community Affairs Representative (former)

Javier Prospero, Senior Civil Engineer Construction

Brett Margosian, Senior Civil Engineer Construction (former)

6.2 Prime Consultant, Panorama Environmental, Inc.

Susanne Heim, Principal, Project Manager, Quality Assurance/Quality Control

Emily Capello, Director, Deputy Project Deputy Manager, Energy, Hazards and Hazardous Materials

Rachel Durben, Senior Biologist, Biological Resources, Hydrology

Corey Fong, GIS Manager, GIS and Figures

Charlotte Hummer, Environmental Planner II, Air Quality, Geology, Soils, and Seismicity, Greenhouse Gases

Jennifer Kidson, Senior Planner, Land Use

Aaron Lui, Senior Manager, Aesthetics

Garett Peterson, Environmental Planner II, Noise, Hazards and Hazardous Materials, Transportation, Wildfire

Carol Rice, Wildfire Specialist, Wildfire

Sara Sloan, Environmental Planner I, Aesthetics, Cultural Resources, Tribal Cultural Resources

6.3 Subconsultants

6.3.1 Fehr & Peers – Transportation Analysis

Ryan Liu, PE, Senior Transportation Engineer

Ashlee Takushi, RSP1, Transportation Engineer

6.3.2 Merrill Morris Partners – Landscape Design and Visualizations

Jamie Beckman, Director

Liz Giron, Landscape Designer

Monty Hill, Landscape Architect

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6.3.3 MWA Architects Inc. – Architectural Design and Visualizations

Greg Robley, Principal

Trevor Gotfredson, Designer

Sophia Alberts-Willis, Designer

6.3.4 Northgate Environmental Management, Inc. – Phase I Environmental Site Assessment

Kevin Torres, Senior Scientist

Dennis Laduzinsky, Associate

6.3.5 PaleoWest, LLC – Cultural Resource Assessment

John Eddy, Team Lead/Senior Archaeologist

Evan Tudor Elliot, Senior Archaeologist

Heather Clifford, Senior Paleontologist

6.3.6 The RCH Group – Air Quality, Greenhouse Gases, and Noise Analysis

Luis Rosas, Noise Specialist

Paul Miller, Senior Noise Specialist

Mike Ratte, Senior Air Quality Scientist

6.3.7 Sequoia Ecological Consulting, Inc. – Biological Resources

Tashi MacMillen, Principal/Biological Services Manager

Amber Anderson, Biologist/Project Manager

Keala Cummings, Biologist

6.3.8 Terra Engineers, Inc. – Geotechnical Report

Robert Kirby, PE, GE, Principal

John Lim, PE, Project Engineer

Kyle Peterson, PE, Project Engineer

6 REPORT PREPARERS

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