Stanislaus Regional Water Authority

Surface Water Supply Project

Draft Environmental Impact Report

Horizon WATER and ENVIRONMENT

January 2018

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(top to bottom, left to right)

Stanislaus Regional Water Authority
156 S. Broadway, Suite 270
Turlock, CA 95380
P: (209) 668-5490
www.stanrwa.org

NOTICE OF AVAILABILITY OF AN ENVIRONMENTAL IMPACT REPORT

NOTICE IS HEREBY GIVEN that the Draft Environmental Impact Report (DEIR) for the Surface Water Supply Project has been completed and is available for public review. The public may review the DEIR and all documents referenced in the DEIR during normal operating hours at the Stanislaus Regional Water Authority (SRWA) office, 156 South Broadway, Suite 270, Turlock, CA 95380. The DEIR is also available on the SRWA website at:

http://stanrwa.org/documents

The DEIR is also available for review at the following public libraries:

Ceres Public Library	2250 Magnolia Street, Ceres, CA 95307
Turlock Public Library	550 N. Minaret Avenue, Turlock, CA 95380
Hughson Public Library	2412 Third Street, Suite A, Hughson, CA 95326

Members of the public may request a CD of the DEIR by contacting Allison Martin at (209) 668-5590, ext. 4490, or by email at amartin@turlock.ca.us.

The DEIR has been prepared in accordance with the California Environmental Quality Act (CEQA; Public Resources Code Section 21000 et seq.) and the State CEQA Guidelines (Title 14, California Code of Resources, Section 15000 et seq.).

Project Name: Surface Water Supply Project

Project Sponsor and CEQA Lead Agency: Stanislaus Regional Water Authority, 156 South Broadway, Suite 270, Turlock, CA 95380; phone (209) 688-5490

Project Description: SRWA, a joint powers authority whose member agencies consist of the Cities of Ceres and Turlock, proposes to operate an existing infiltration gallery to withdraw up to 30,000 acre-feet per year (AFY) in Phase 1 (up to 50,400 AFY at buildout in 2040) of water from the Tuolumne River; convey it to a new water treatment plant; and convey the treated water through transmission mains to storage facilities in Ceres and Turlock. The surface water that would be provided as part of the proposed project would assist the Cities in achieving sustainable groundwater pumping levels. In addition, 2,000 AFY of offset water (recycled water or groundwater) provided to TID would assist TID in implementing its water conservation and conjunctive water use programs.

Significant impacts have been identified in the DEIR in the following resource areas: aesthetics, agriculture, air quality, biological resources, cultural resources, greenhouse gas emissions, hazards and hazardous materials, hydrology and water quality, noise, population and housing, recreation, transportation and traffic, tribal cultural resources. The proposed project site is not included on any list of hazardous waste facilities, land designated as hazardous waste property, or hazardous waste disposal sites as enumerated under Section 65962.5 of the Government Code and the information in the Hazardous Waste and Substances Statement required under subdivision (f) of that Section.

Project Location: The proposed project is located in Stanislaus County, with portions located in or near the cities of Hughson, Ceres, and Turlock.

Public Review and Comment Period: In accordance with the time limits provided for by state law, the public review period will extend from **January 22, 2018, through March 8, 2018**. Comments must be received by 5:00 p.m. on **March 8, 2018**. Comments may be sent in hard copy to:

Michael Brinton, Interim General Manager
Stanislaus Regional Water Authority
156 South Broadway, Suite 270
Turlock, CA 95380

Alternatively, comments may be sent electronically (MS Word or PDF format) to:

SurfaceWaterSupply-DEIR-comments@horizonh2o.com

A public meeting will be held to summarize and accept public comments on the DEIR. The meeting will take place on February 22, 2018, at 10:00 a.m. at the following location:

SRWA Board Chambers
Yosemite Conference Room
156 South Broadway, Second Floor
Turlock, CA 95380

Stanislaus Regional Water Authority

Surface Water Supply Project

Draft Environmental Impact Report

(State Clearinghouse No. 2017022077)

Prepared for: **Stanislaus Regional Water Authority**
156 South Broadway, Suite 270
Turlock, CA 95380

Contact: Michael Brinton
(209) 538-5758

Prepared by: **Horizon Water and Environment, LLC**
266 Grand Avenue, Suite 210
Oakland, CA 94610

Contact: Michael Stevenson
(510) 986-1852

January 2018

Table of Contents

Appendices

Figures

Tables

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Acronyms and Abbreviations

A	
A	attainment
AB	Assembly Bill
ADT	average daily traffic
AFD	adjustable-frequency drive
AFY	acre-feet per year
AGR	agricultural supply (beneficial use designation)
ANSI	American National Standards Institute
APE	area of potential effect
AST	aboveground storage tank
ATCM	Airborne Toxic Control Measure
ATSF	Atchison Topeka and Santa Fe Railroad
B	
Basin Plan	Water Quality Control Plan
BAU	business as usual
bgs	below ground surface
BMP	best management practice
BNSF	Burlington Northern and Santa Fe Railroad
BPS	Best Performance Standards
C	
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
CalARP	California Accidental Release Prevention
Cal EMA	California Emergency Management Agency
CalEPA	California Environmental Protection Agency
CAL FIRE	California Department of Forestry and Fire Protection
Cal OES	California Governor's Office of Emergency Services
Cal/OSHA	California Department of Industrial Relations, Division of Occupational Safety and Health
CalRecycle	California Department of Resources Recycling and Recovery
Caltrans	California Department of Transportation
CAP	Climate action plan
CARB	California Air Resources Board
CASGEM	California Statewide Groundwater Elevation Monitoring
CASQA	California Stormwater Quality Association
CBC	California Building Standards Code
CCAA	California Clean Air Act
CCIC	Central California Information System
CCR	California Code of Regulations
CCTS	Central California Taxonomic System
CDFG	California Department of Fish and Game
CDFW	California Department of Fish and Wildlife
CDMG	California Department of Conservation, Division of Mines and Geology
CDPR	California Department of Parks and Recreation

CEAT	Contractor Environmental Awareness Training
CEQ	Council on Environmental Quality
CEQA	California Environmental Quality Act
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CESA	California Endangered Species Act
cfm	cubic feet per minute
CFR	Code of Federal Regulations
cfs	cubic feet per second
CGS	California Geological Survey
CH_4	methane
CHABA	Committee of Hearing, Bio Acoustics, and Bio Mechanics
CHRIS	California Historical Resources Information System
Cities	the City of Ceres and the City of Turlock, as members of the Stanislaus Regional Water Authority, a joint powers authority
CIWMA	California Integrated Waste Management Act of 1989
CIWMB	California Integrated Waste Management Board
CIWMP	Countywide Integrated Waste Management Plan
CMP	Congestion Management Process
CMU	concrete masonry unit
CNDDB	California Natural Diversity Database
CNEL	community noise equivalent level
CNPS	California Native Plant Society
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalent
COLD	cold freshwater habitat (beneficial use designation)
CRHR	California Register of Historical Resources
CRPR	California Rare Plant Rank
CSC	California species of concern
CUPA	Certified Unified Program Agency
CVFPB	Central Valley Flood Protection Board
CWA	Clean Water Act
cy	cubic yards

D

dB	decibel
dBA	A-weighted decibel
dbh	diameter at breast height
DBP	disinfection by-products
DEIR	draft environmental impact report
DOC	California Department of Conservation
DPM	diesel particulate matter
DPS	Distinct Population Segment
DSOD	California Department of Water Resources, Division of Safety of Dams
DTSC	California Department of Toxic Substances Control
DWR	California Department of Water Resources

E

EIR	environmental impact report
ESA	Endangered Species Act
ESU	Evolutionarily Significant Unit

F

F&G Code	California Fish and Game Code
FAR	Federal Aviation Regulations
FEIR	final environmental impact report
FEMA	Federal Emergency Management Agency
FERC	Federal Energy Regulatory Commission
FIRM	Flood Insurance Rate Maps
FMMP	California Department of Conservation, Farmland Mapping and Monitoring Program
fps	feet per second
FSA	FERC Settlement Agreement
FTA	Federal Transit Administration

G

g	a unit of acceleration due to Earth's gravity
GAC	granular activated carbon
GHG	greenhouse gas
GIS	geographic information systems
gpm	gallons per minute
GSA	Groundwater Sustainability Agency
Guidance	*Guidance for Valley Land-use Agencies in Addressing GHG Emission Impacts for New Projects under CEQA*

H

H_2S	hydrogen sulfide
HAZCOM	Hazardous Materials Communication
HCP	habitat conservation plan
HDPE	high-density polyethylene pipe
HMWMP	Hazardous Materials and Waste Management Plan
hp	horsepower
HUC	hydrologic unit code

I

IND	industrial service supply
I-5	Interstate 5
in/sec	inches per second
IPaC	Information, Planning, and Conservation System

K

km	kilometer
kV	kilovolt

L

LAFCO	Stanislaus County Local Agency Formation Commission
L_{dn}	day-night sound level
L_{eq}	equivalent sound level
LID	low impact development
L_{max}	maximum sound level
L_{min}	minimum sound level
L_n	sound level exceeded n percent of a specific period of time
LOS	level of service
LSI	Langelier Saturation Index

M

M	magnitude
MBTA	Migratory Bird Treaty Act
MEI	Maximally Exposed Individual
MG	million gallons
mgd	million gallons per day
M&I	municipal and industrial use
MLD	Most Likely Descendent
MRZ	Mineral Resources Zone
mm/sec	millimeters per second
MMT	million metric tons
MRWTP	Modesto Regional Water Treatment Plant
MS4	municipal separate storm sewer systems
msl	above mean sea level
MUN	municipal and domestic supply (beneficial use designation)

N

N	nonattainment
NAAQS	National Ambient Air Quality Standards
NAHC	Native American Heritage Commission
NAV	navigation (beneficial use designation)
NEHRP	National Earthquake Hazards Reduction Program
NFIP	National Flood Insurance Program
NHPA	National Historic Preservation Act
NHTSA	National Highway Traffic Safety Administration
NIST	National Institute of Standards and Technology
NMFS	National Marine Fisheries Service
NO_2	nitrogen dioxide
NOP	Notice of Preparation
NO_X	oxides of nitrogen
NPDES	National Pollutant Discharge Elimination System
NPPA	Native Plant Protection Act of 1977
NRCS	U.S. Department of Agriculture, Natural Resources Conservation Service
NRHP	National Register of Historic Places
NSF	National Science Foundation
NSR	New Source Review
NTU	nephelometric turbidity units

O

O&M HCP	San Joaquin Valley Operation & Maintenance Habitat Conservation Plan
O_3	ozone
OBD	on-board diagnostic
OD	outside diameter
OEHHA	California Office of Environmental Health Hazard Assessment
OPR	Governor's Office of Planning and Research
OSHA	Occupational Safety and Health Administration

P

Pb	lead
PERP	Portable Equipment Registration Program
PG&E	Pacific Gas and Electric Company
PGA	peak ground acceleration
PM	particulate matter
$PM_{2.5}$	particulate matter of aerodynamic radius of 2.5 micrometers or less
PM_{10}	particulate matter of aerodynamic radius of 10 micrometers or less
POD	point of diversion
POW	power (beneficial use designation)
ppm	parts per million
PPV	peak particle velocity
PROC	industrial process supply (beneficial use designation)
proposed project	Surface Water Supply Project
psi	pounds per square inch
psig	pounds per square inch gauge (i.e., relative to atmospheric pressure)
Pub. Res. Code	Public Resources Code
PVC	polyvinyl chloride

R

RCRA	Resource Conservation and Recovery Act of 1976
REC-1	water contact recreation (beneficial use designation)
REC-2	non-contact water recreation (beneficial use designation)
RM	river mile
RMP	risk management plan
RMS	root mean square
ROG	reactive organic gases
ROW	right-of-way
RPS	Renewable Portfolio Standard
RST	Regional Sustainability Toolbox
RWQCB	Regional Water Quality Control Board
RWQCF	Regional Water Quality Control Facility

S

SB	Senate Bill
SBCAPCD	Santa Barbara County Air Pollution Control District
SCADA	supervisory control and data acquisition system
SCAQMD	South Coast Air Quality Management District
SCFPD	Stanislaus Consolidated Fire Protection District
SCSD	Stanislaus County Sheriff's Department

SENL	single-event (impulsive) noise level
SGMA	Sustainable Groundwater Management Act
SHMA	Seismic Hazards Mapping Act of 1990
SIP	State Implementation Plan
SJR	San Joaquin River
SJVAB	San Joaquin Valley Air Basin
SJVAPCD	San Joaquin Valley Air Pollution Control District
SMARA	Surface Mining and Reclamation Act of 1975
SO_2	sulfur dioxide
SO_4	sulfate
SPCC	Spill Prevention, Control, and Countermeasure
SPWN	spawning, reproduction, and/or early development (beneficial use designation)
SR	Sacramento River
SR	State Route
SRP	special run pool
SRWA	Stanislaus Regional Water Authority
StanCOG	Stanislaus Council of Governments
SWMP	Storm Water Management Program
SWPPP	Stormwater Pollution Prevention Plan
SWRCB	State Water Resources Control Board

T

TAC	toxic air contaminants
TCP	traditional cultural property
TCR	tribal cultural resource
TGBA	Turlock Groundwater Basin Association
TID	Turlock Irrigation District
TMDL	total maximum daily load
TRRPMP	Tuolumne River Regional Park Master Plan
TSS	total suspended solids

U

U	unclassified
USACE	U.S. Army Corps of Engineers
USC	U.S. Code
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
UST	underground storage tank

V

VdB	vibration velocity in decibels
VELB	valley elderberry longhorn beetle
VOC	volatile organic compounds

W

W&AR	Water & Aquatic Resources
WARM	warm freshwater habitat (beneficial use designation)
WILD	wildlife habitat (beneficial use designation)

WPT	western pond turtle
WSA	Water Sales Agreement
WTP	water treatment plant
WWTP	wastewater treatment plant

°C	degrees Celsius
°F	degrees Fahrenheit
µg/m^3	micrograms per cubic meter
µin/sec	micro-inch per second

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EXECUTIVE SUMMARY

Introduction

The Stanislaus Regional Water Authority (SRWA) has prepared this Draft Environmental Impact Report (DEIR) to provide the public, responsible agencies, and trustee agencies with information about the potential environmental effects of constructing and operating the Surface Water Supply Project (proposed project). The proposed project is to design, construct, operate, and maintain facilities to divert and treat water from the Tuolumne River and deliver it for use by the SRWA member cities of Ceres and Turlock (Cities). The proposed project is being developed by SRWA, which was formed in 2011 as a joint powers authority comprising the Cities in partnership with the Turlock Irrigation District (TID).

In proposing to conduct the various activities identified in Chapter 2 of this DEIR, SRWA is proposing to carry out and approve a discretionary project subject to CEQA (State CEQA Guidelines Section 15378). This DEIR was prepared to disclose potential impacts of the proposed project on the environment. SRWA will use the analyses presented in this DEIR, the public and agency responses to the DEIR, and the whole of the administrative record to evaluate the proposed project's environmental impacts and to decide whether to modify, approve, or deny approval of the proposed project. This document was prepared pursuant to the requirements of CEQA (Public Resources Code [PRC] Section 21000 et seq., as amended) and the CEQA Guidelines (Title 14 California Code of Regulations [CCR] Section 15000 et seq.).

Proposed Project Purpose and Objectives

Municipalities in southern Stanislaus County (within the Turlock Irrigation District [TID] service area south of the Tuolumne River) meet their water supply needs entirely through use of groundwater. For more than 30 years, water supply providers in this area have been collaborating to develop a reliable, supplemental source of treated water supply from surface water to meet existing and future community demands and to offset use of local groundwater supplies, particularly during prolonged droughts. These collaboration efforts have resulted in the proposed project.

SRWA proposes to operate an existing infiltration gallery to withdraw water from the Tuolumne River; convey it to a new water treatment plant; and convey the treated water through transmission mains to storage facilities in Ceres and Turlock. The initial withdrawals would be up to 30,000 acre-feet per year (AFY), increasing over time to up to 50,400 AFY at buildout in 2040. The proposed project is intended to serve as a major in-lieu groundwater recharge project under the Sustainable Groundwater Management Act to ensure the long-term sustainability of the groundwater resources within the Turlock Subbasin. The surface water that would be provided as part of the proposed project would assist the Cities of Ceres and Turlock (Cities) in achieving sustainable groundwater pumping levels. In addition, the

2,000 AFY of offset water (defined below) provided to TID would assist TID in implementing its water conservation and conjunctive water use programs.

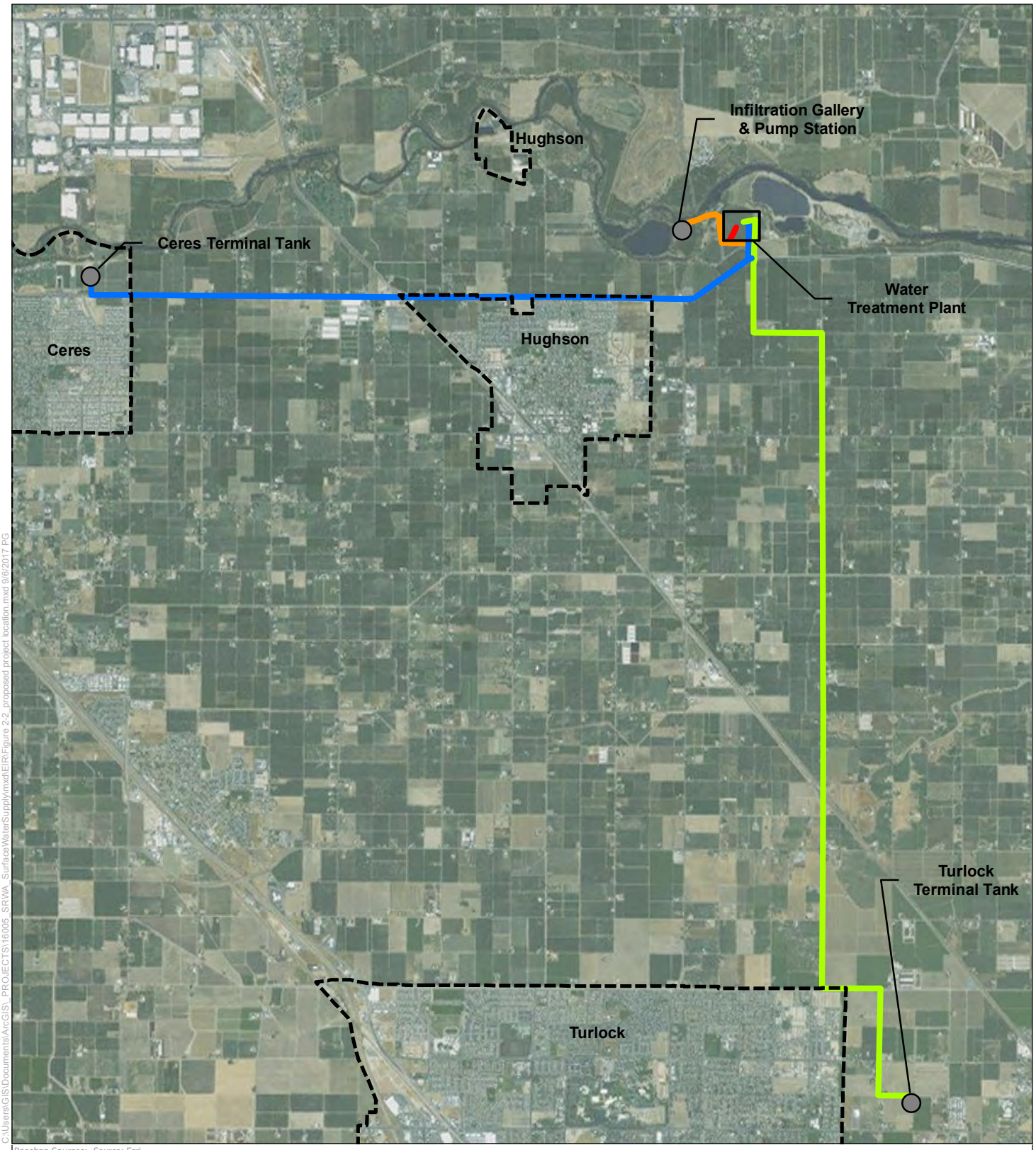
The proposed project is being developed by SRWA, which was formed in 2011 as a joint powers authority between the Cities, and in partnership with TID. On July 28, 2015, TID and SRWA approved a water sales agreement to provide a raw water supply for the proposed project (TID and SRWA 2015).

SRWA proposes to construct and operate the proposed project to meet the following objectives:

- Provide the Cities of Ceres and Turlock with a reliable and supplemental source of treated surface water;
- Meet existing and projected treated water demands of the Cities while reducing reliance on groundwater, thereby increasing overall water supply reliability;
- Improve the quality of drinking water in the Cities by blending high-quality, treated surface water with existing groundwater that has been gradually declining in quality;
- Allow for the conjunctive use of groundwater and surface water and for the in-lieu recharge of groundwater;
- Improve the quality of wastewater discharges from the Cities by reducing the concentration of total dissolved solids (salts) in the wastewater, through a reduction in the concentration of total dissolved solids in the treated water supply;
- Provide a benefit to Tuolumne River fish and other aquatic resources by increasing seasonal releases from La Grange Dam to accommodate proposed project diversions downstream at TID's infiltration gallery northeast of Hughson;
- Construct and operate the various elements of the proposed project in a cost-effective manner that minimizes impacts on the environment;
- Allow for the participating cities of Ceres and Turlock and TID to manage and use the area's surface water, groundwater, and recycled water supplies in an improved and coordinated manner;
- Better enable the participating cities of Ceres and Turlock (and the subbasin groundwater sustainability agency) to manage the area's groundwater subbasin in a sustainable manner in accordance with the requirements of the Sustainable Groundwater Management Act; and
- Assist TID in implementing its water conservation and conjunctive water use programs.

Proposed Project Location

The proposed project would be located in Stanislaus County, extending from Fox Grove Regional Park near Hughson on the north, to the Cities of Ceres and Turlock on the west and south, respectively. The raw water pump station would be located adjacent to the existing TID infiltration gallery on the south bank of the Tuolumne River west of Geer Road. A pipeline would convey water from the infiltration gallery and raw water pump station to a new water treatment plant (WTP) north of TID's Ceres Main Canal and west of Aldrich Road. Treated water would be conveyed from the WTP through pipelines to connect to Ceres' water system in the west and Turlock's water system in the south. **Figure ES-1** shows the locations of these facilities.



C:\Users\GIS\Documents\ArcGIS_PROJECTS\16005_SRWA_SurfaceWaterSupply\mxd\EIR\Figure 2-2_proposed project location.mxd 9/6/2017 PG

Basebap Sources: Source: Esri, DigitalGlobe, GeoEye, Earthstar

N

0 0.5 1
Miles

City Boundaries
Ceres Finished Water Transmission Main
Raw Water Transmission Main
Turlock Finished Water Transmission Main
WTP pipeline

FigureES-1
Proposed Project Location

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Surface Water
Supply Project

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Proposed Project

The proposed project consists of the design, construction, operation, maintenance, and management of the following facilities, depicted in Figure ES-1, that would deliver treated surface water to the Cities:

Infiltration Gallery and Wet Well: The infiltration gallery and wet well would divert surface water from the Tuolumne River to the raw water pump station.[1]

Raw Water Pump Station: The pump station facilities would draw surface water through the infiltration gallery and wet well, and pump it through a raw water transmission main to the WTP, and potentially to TID's Ceres Main Canal in the event of an emergency.

Raw Water Transmission Main: A 60-inchdiameter[2] transmission main would convey raw (untreated) water from the pump station to the WTP, and potentially to TID's Ceres Main Canal in the event of an emergency.

Water Treatment Plant: The WTP would treat surface water to meet state and federal drinking water standards for use by municipal and industrial (M&I) customers in Ceres and Turlock.

Treated Water Transmission Mains: Following treatment, 30- and 42-inch-diameter transmission mains would deliver "finished" (i.e., treated) water from the WTP to terminal facilities (i.e., tanks, pipelines, and pump stations) in Ceres and Turlock, respectively.

Terminal Facilities: Each city's terminal facilities would consist of one or more storage tanks, and a pump station. The Cities would construct pipelines and appurtenant facilities to facilitate distribution of the treated surface water (i.e., downstream of the terminal facilities) under separate contracts. In Ceres, the storage tank would have a capacity of 2 million gallons (MG) and would be located north of Hatch Road at the Ceres River Bluff Regional Park. In Turlock, two storage tanks, each with a capacity of 2.5 MG, would be located on a site east of North Quincy Road between East Zeering Road and East Monte Vista Avenue.

Offset Water Facilities: As part of the water sales agreement between SRWA and TID, SRWA would provide groundwater or recycled water (e.g., treated wastewater) to TID to offset a portion of the treated surface water being provided to SRWA municipal and industrial customers during certain dry years.

[1] The infiltration gallery is an existing facility owned by TID, which was constructed in 2001-2003. Construction of the adjacent wet well facility is proposed by SRWA to begin in early to mid-2018 to assist with testing of the infiltration gallery. Note that, as described in Chapter 1, the construction of the wet well and testing of the infiltration gallery is a separate, already approved project under CEQA; however, operation and maintenance of these facilities are considered to be part of the proposed project.

[2] All pipeline sizes in this project description are the current, planned sizes. The actual final pipeline sizes may vary somewhat as determined through final design.

Project Construction

Pipelines

For new pipelines that would be installed in the right-of-way of existing streets, the general process for pipeline installation involves digging a trench, installing the pipe, and backfilling the trench ("cut and cover"). Construction crews may close one lane of traffic temporarily during pipe installation. For new water transmission mains or distribution pipelines, typically 200-400 feet can be laid with one crew working. In the event that multiple crews are working on a particular pipeline project, more than 400 feet of new pipeline can be installed.

To the extent feasible, pipeline construction activities would occur within the limits of the City or County ROW boundaries, City utility easement, and/or construction easement. The width of the construction area varies both on the extent of applicable easements and pipeline diameter. The approximate widths of construction include the trench excavation and the approximate width needed for contractors' equipment. Pipeline construction within the public ROW for the Turlock and Ceres treated water transmission mains is estimated to have an approximate construction width of 40 feet. The construction width of the Turlock and Ceres treated water pipeline is expected to stay within the ROW limits and would not affect any nearby structures. Depending on the pipeline location, construction crews may close one lane of traffic temporarily, may implement rolling road closures, or may utilize total closures during work hours. The construction of the raw water pipeline in areas with elderberry shrubs is assumed to be approximately 50 feet; areas clear of elderberry shrubs would have an approximate construction width of 80 feet.

Pipelines may also be installed by a process such as the jack-and-bore method, typically when the open trench method is not practical and/or possible, such as when transmission mains or water distribution pipelines are required to cross under a railroad and/or irrigation canals. The jack-and-bore method requires the construction of insertion pits, pipe jacking (pipes pushed behind the small tunneling machine), and application of a lubricant to maintain pressure and prevent the shafts and the tunnel from collapsing. The tunneling machine is controlled by a computer and is typically accurate. Temporary dewatering may be needed at the pits.

Raw Water Pump Station

The construction of the raw water pump station would include trenching and backfilling for yard piping, shallow foundation improvements for the building(s), construction of the concrete masonry unit (CMU) building, installation of mechanical equipment and aboveground piping, paving, fencing, landscaping, and miscellaneous site work.

Water Treatment Plant

The WTP would be constructed in two or more phases. The treatment plant would have an initial capacity of 15 mgd (approximately 24 cfs) to meet near-term demands for the Cities and an ultimate capacity of 45 mgd (approximately 70 cfs) to meet long-term M&I demands for the Cities. As described in previous sections, the WTP would be located on an approximately 48-acre site, of which approximately half or more would likely be allocated for the initial WTP site. The initial site plan is likely to accommodate a portion of future

expansion (e.g., by providing adequate space to construct one or more additional filters); however, additional facilities required for the buildout to 45-mgd capacity are likely to require expansion beyond the initial footprint of the WTP within the 48-acre site.

SRWA would contract design and construction of the WTP to an engineering or construction firm following approval of the proposed project. As a result, the analysis of the WTP in this DEIR is based on SRWA's preliminary design (**Figure ES-2**).

Construction Schedule

Construction of the proposed project facilities is anticipated to begin in 2019 and be completed in 2022. Construction is planned to ordinarily take place Mondays through Fridays, normally between 7:00 a.m. and 7:00 p.m. Construction is not planned on weekends, nights, or holidays; if necessary, possible work activities during those times would require prior approval by the County (for work within the unincorporated area) or a city (for work within that city).

Project Operations

Under the proposed project, the pumps at the raw water pump station would be designed to discharge raw water from the Tuolumne River to two locations: the proposed WTP and the existing Ceres Main Canal. The WTP would be initially operated and staffed 24 hours per day, 7 days a week. Planned maintenance on portions of the treatment plant (e.g., inspection of one clearwell tank, maintenance on flocculation equipment) would be conducted during periods of low water demand so that service is not interrupted. While the treatment plant production is out of service, water would be delivered to the member communities from the storage in the clearwell(s). If this is inadequate to meet the member communities' needs, the Cities would use their distribution system storage and wells to maintain water service to their customers.

At the terminal facility locations in Ceres and Turlock. SRWA would monitor connection flow rates, control valve position, SRWA pipeline pressure, retail water suppliers' pressure, and residual chlorine remotely using a wireless SCADA system or locally using a touch screen inside the connection's control cabinet.

Responsible and Trustee Agencies

Under CEQA (Pub. Res. Code Section 21069-21070), trustee agencies are state agencies that have jurisdiction by law over natural resources affecting a project, that are held in trust for the people of the State of California; responsible agencies are public agencies other than the lead agency that have responsibility for carrying out or approving a project.

For the proposed project, the California Department of Fish and Wildlife is a trustee agency with jurisdiction over fish and wildlife resources held in trust for the people of the State of California.

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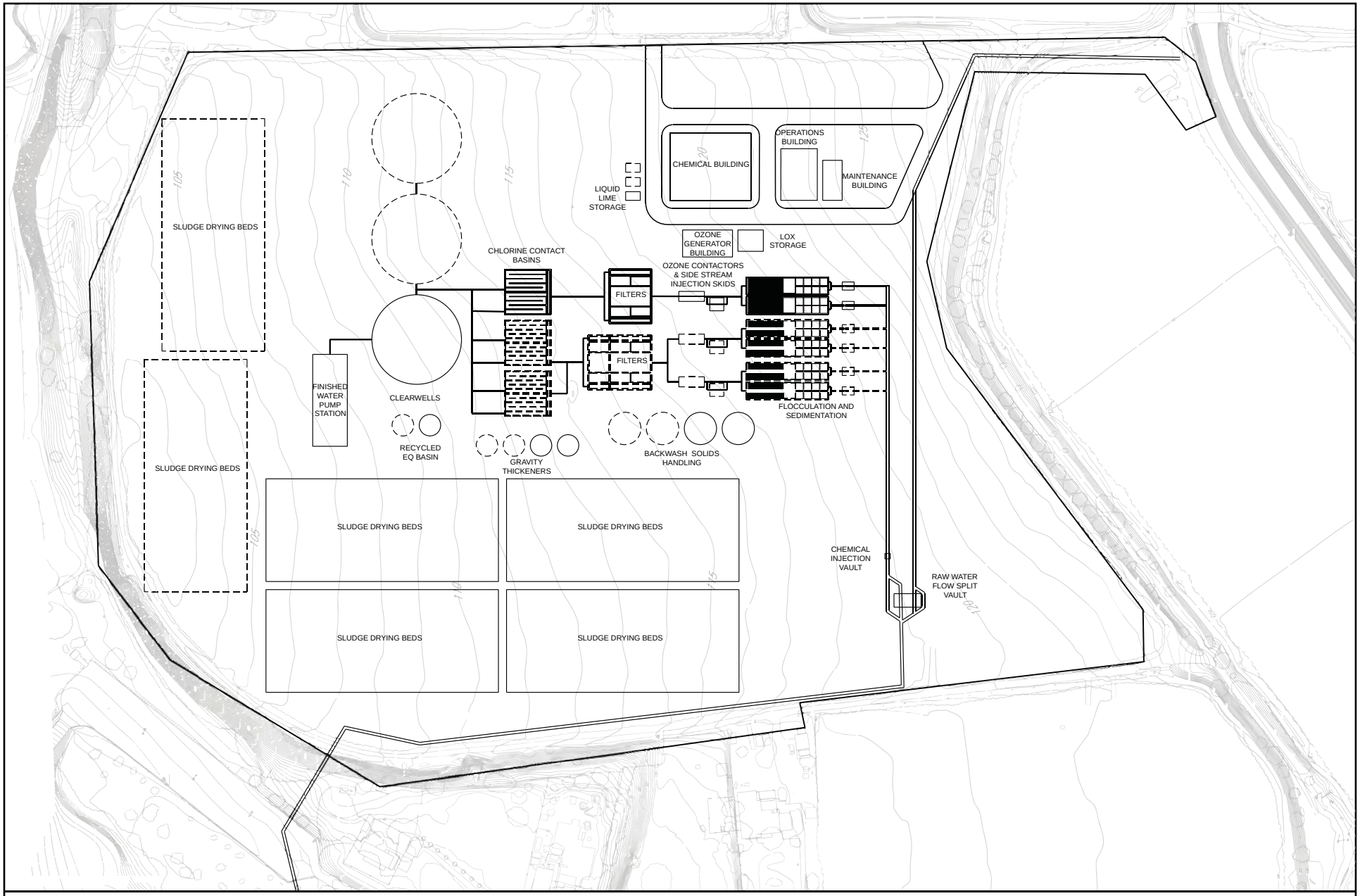

Source: Trussell Technologies 2017

N

125 0 125 250

FEET

Prepared by:

Horizon WATER and ENVIRONMENT

Figure ES-1. Water Treatment Plant Preliminary Site Plan

Surface Water Supply Project

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The following responsible agencies have been identified for the proposed project under CEQA:

- City of Ceres
- City of Turlock
- Modesto Irrigation District
- Turlock Irrigation District

In addition, **Table ES-1** identifies all agencies expected to use the EIR in their decision-making process for permits or entitlements required for implementation of the proposed project.

Intended Uses of the EIR and Required Permits and Approvals

The information contained in this EIR and the administrative record will be reviewed and considered by the SRWA Board of Directors prior to making a decision to approve, disapprove, or modify the proposed project. Table ES-1 identifies other agencies and persons expected to use this EIR in their decision making for permits or entitlements required for implementation of the proposed project.

Table ES-1. Anticipated Regulatory Agencies and Permits or Approvals for the Proposed Project

Agency	Permit or Approval
U.S. Fish and Wildlife Service	Endangered Species Act compliance
State Water Resources Control Board	Division of Drinking Water permit to operate and compliance with CCR Title 22 regulations for public drinking water Division of Water Rights approval of TID change petition authorizing the long-term transfer of water to SRWA, use of the infiltration gallery as a point of rediversion, and the diversion and use of water for M&I purposes
Central Valley Regional Water Quality Control Board	Possible waste discharge permit relating to the delivery of offset water
California Department of Occupational Safety and Health – Mining and Tunneling	Underground classification for borings over 30 inches in diameter
California Department of Fish and Wildlife	California Fish and Game Code Section 1602 Streambed Alteration Agreement California Endangered Species Act compliance (possible)
San Joaquin Valley Air Pollution Control District	Authority to Construct and compliance with air quality regulations

Agency	Permit or Approval
California Wildlife Conservation Board, Stanislaus County Parks Department	Access permit for work in Fox Grove Regional Park
Stanislaus County	Encroachment permit or easement for construction of Ceres and Turlock treated water transmission mains, road restoration agreement
City of Ceres	Encroachment permit or easement for construction of Ceres treated water transmission main and terminal facilities
City of Turlock	Encroachment permit or easement for construction of Turlock treated water transmission main and terminal facilities
City of Hughson	Encroachment permit or easement for construction of Ceres treated water transmission main
Private property owners	Pipeline easements and property acquisition
Burlington Northern and Santa Fe Railroad	Pipeline easement for crossing at Hatch Road
Turlock Irrigation District	Long-term easement for infiltration gallery property; access easement and O&M agreement to operate infiltration gallery and raw water pump station Pipeline easements for crossings of TID Lateral Canals 2, 2½, and 3

Public Involvement Process

Scoping Comment Period

Scoping refers to the process to determine the scope, focus, content, and extent of an EIR. The scoping comment period offers an important opportunity for the public and agencies to review and comment during the early phases of the environmental compliance process. Scoping is initiated when the lead agency issues a Notice of Preparation of an EIR (NOP) announcing the beginning of the EIR process.

A Notice of Preparation (NOP) for the proposed project was prepared in accordance with State CEQA Guidelines Section 15082 and circulated to the State Clearinghouse on March 1, 2017. The scoping period continued for 30 days and concluded on March 30, 2017. The NOP presented general background information on the proposed project, the scoping process, and the environmental issues to be addressed in the EIR. The NOP or a notification of its availability was mailed to a broad range of stakeholders including state, federal, and local regulatory agencies and jurisdictions, nonprofit organizations, and adjacent property owners. The NOP is included in this DEIR in Appendix A, *CEQA Scoping Summary*.

SRWA accepted written comments during the 30-day scoping period, March 1-30, 2017. During the scoping period, 10 comment letters were received. These comments were considered in the environmental impact evaluation contained in this DEIR. Copies of comment letters received during the scoping period are included in Appendix A.

Draft EIR Public Comment Period

SRWA, acting as the lead agency under CEQA, has prepared this DEIR to disclose potentially significant environmental impacts associated with the proposed project. Where any such impacts are significant, feasible mitigation measures and potentially feasible alternatives are identified and discussed that would substantially lessen or avoid such effects. During the public review period, the public has an opportunity to provide input to the lead agency on the DEIR.

The DEIR is currently undergoing public review for a 45-day period as specified in the Notice of Availability of the DEIR. During this period, SRWA will hold a public meeting. The date, time, and exact location of the public meeting are included in the Notice of Availability of this DEIR.

Written comments received in response to the DEIR will be addressed in a response-to-comments document that, together with the DEIR and any related changes to the substantive discussion in the DEIR, will constitute the Final Environmental Impact Report (FEIR). The FEIR, in turn, will inform SRWA's exercise of its discretion as a lead agency under CEQA in deciding whether or how to approve the proposed project. Pending the outcome of the CEQA process, the proposed project will be submitted to the SRWA Board of Directors for review and approval.

Submittal of Written Comments

SRWA is circulating this DEIR for public review and comment for the period specified in the Notice of Availability. As discussed above, SRWA will host a public meeting during this period. The purpose of public circulation is to provide agencies and interested individuals with opportunities to comment on or express concerns regarding the contents of this DEIR. The specific date, time, and location for the meeting are provided in the Notice of Availability.

Written comments concerning this DEIR can be submitted at the public meeting described above or at any time during the DEIR public review period. All comments must be received by 5:00 p.m. on the final date of public review as identified in the Notice of Availability, and should be directed to the name and address listed below:

Michael F. Brinton, SRWA Interim General Manager
c/o City of Turlock Administrative Services
156 South Broadway, Suite 230
Turlock, CA 95380
Email: SurfaceWaterSupply-DEIR-comments@horizonh2o.com

Submittal of written comments via e-mail (Microsoft Word or Adobe PDF format) is preferred. Written comments received in response to this DEIR during the public review period will be addressed in the "Response to Comments" section of the FEIR.

Areas of Known Controversy and Issues to Be Resolved

State CEQA Guidelines Section 15123(b) requires that an Executive Summary identify "areas of controversy known to a lead agency including issues raised by agencies and the public." To date, no issues have been raised regarding the proposed project that may be considered controversial.

Significant Impacts

A number of impacts have been identified as significant, but would be mitigated to a level of less-than-significant through implementation of mitigation measures. These impacts are listed in **Table ES-2**, provided at the end of this chapter. Environmental resource topics with the potential for significant environmental impacts (i.e., those that require mitigation) and that are evaluated in detail in this DEIR are as follows:

- Aesthetics
- Air Quality
- Biological Resources
- Cultural Resources
- Greenhouse Gas Emissions
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Land Use and Planning
- Noise
- Population and Housing
- Recreation
- Transportation and Traffic
- Tribal Cultural Resources

Chapter 3, Sections 3.1 through 3.17 of this DEIR address each of these environmental resource topics and the impacts of the proposed project in more detail.

Significant and Unavoidable Impacts

The following impacts have been identified as significant and unavoidable:

- Impact AG-1: Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to Nonagricultural Use
- Impact AQ-1: Potential to Conflict with or Obstruct Implementation of an Applicable Air Quality Plan
- Impact AQ-2: Potential to Violate Any Air Quality Standard or Contribute Substantially to an Existing or Projected Air Quality Violation

- Impact AQ-3: Potential to Result in a Cumulatively Considerable Net Increase of Any Criteria Pollutant for Which the Project Region is in Non-Attainment Under an Applicable Federal or State Ambient Air Quality Standard
- Impact GHG-1: Generate a Substantial Amount of GHG Emissions
- Impact GHG-2: Conflict with an Applicable Plan, Policy, or Regulation Adopted for the Purpose of Reducing Emissions of GHGs
- Impact NOI-2: Potential to Expose Persons to Excessive Groundborne Vibration or Groundborne Noise Levels
- Impact NOI-4: Substantial Temporary or Periodic Increase in Ambient Noise Levels in the Project Vicinity Above Levels Existing Without the Proposed Project
- Impact PH-3: Long-term Inducement of Substantial Population Growth, Both Directly and Indirectly
- Impact CUM-2: Cumulative Impact on Agriculture and Forestry Resources

Alternatives Considered

The purpose of the alternatives analysis in an EIR is to describe a range of reasonable alternatives to the proposed project that could attain most of the objectives of the proposed project while reducing or eliminating one or more of the proposed project's significant effects. CEQA requires analysis of the No Project Alternative. The alternatives considered must be feasible, meaning that they could be accomplished in a successful manner considering economic, environmental, social, technological, and legal factors.

The following alternatives were considered for the proposed project:

- No Project Alternative
- Alternative 1 – Ceres WTP Site Alternative
- Alternative 2 – Stanislaus River Supply Alternative

In addition, other alternatives were considered but ultimately dismissed from further analysis for one or more of the following reasons: (1) they would not sufficiently meet the Proposed Project objectives; (2) they were determined to be infeasible; or (3) they would not avoid or substantially reduce one or more significant impacts of the Proposed Project. Refer to Section 5.4, *Alternatives Considered and Eliminated,* in Chapter 5, *Alternatives*, for a description of these alternatives.

No Project Alternative

The proposed project would not be constructed, and SRWA would not provide additional treated surface water (15 mgd during Phase 1, up to 45 mgd in Phase 2) to the Cities. No change in seasonal flows in the Tuolumne River downstream of Don Pedro Reservoir would result. The Cities would continue to rely on groundwater to serve water demand. As growth continues in these areas and in the unincorporated area of Stanislaus County, groundwater withdrawals would likely increase.

Alternative 1 – Ceres WTP Site Alternative

Under this alternative, first considered in TID's 1992 DEIR, SRWA would construct the WTP at a site in Ceres rather than the site near Hughson identified for the proposed project. The previously identified site has since been developed by the City of Ceres as Ceres River Bluff Regional Park; however, sufficient land remains at or adjacent to the 76-acre park to serve as a WTP site. Under this alternative, the pipeline alignments between Ceres and Turlock would remain as identified for the proposed project, but the WTP would be located adjacent to the Ceres terminal tank site. Raw water would be conveyed from the infiltration gallery to Ceres in a transmission main and treated water would be conveyed to Turlock in a second, treated water transmission main that could essentially follow the same alignment as the proposed project pipelines.

Alternative 2 – Stanislaus River Supply Alternative

In its 2015 alternatives evaluation to SRWA, Carollo Engineers identified an alternative supply option under which SRWA would partner with the Oakdale Irrigation District (OID) and San Francisco Public Utilities Commission (SFPUC) on a proposed water supply project. OID would construct a new surface water treatment plant near Riverbank on the Stanislaus River; OID would sell treated water to SFPUC for 2-4 months each winter over a period of 10-12 years. By partnering in the project, SRWA could obtain treated water for 8-10 months each year.

Environmentally Superior Alternative

Of the alternatives evaluated in detail above, the No Project Alternative is considered environmentally superior as, with one exception, it would reduce or avoid all impacts of the proposed project.

Under CEQA, if the "no project" alternative is identified as environmentally superior, the EIR shall also identify an environmentally superior alternative among the other alternatives. Of the other alternatives considered, the Ceres WTP Site Alternative is environmentally superior. This alternative would avoid impacts related to conversion of Prime Farmland and reduce impacts of construction in a flood hazard area; however, it would conflict with recreational zoning at the location where the WTP would be built under this alternative and would result in similar or greater extent of impacts in most other categories because of the greater amount of construction required for the additional pipeline. This alternative would meet the project objectives as stated in Section 5.3.1.

In contrast, the Stanislaus River Supply Alternative would not meet project objectives related to increased flows in the Tuolumne River. In addition, the Stanislaus River Supply Alternative would only make treated water available for 8-10 months per year for the first 10-12 years, and the project would conflict with residential zoning at the site of the WTP under this alternative.

Note that the proposed project is considered environmentally superior to either of the action alternatives.

Summary of Impacts and Levels of Significance

The impacts of the proposed project, proposed mitigation, and significance conclusions before and after mitigation are discussed in detail in Chapter 3, Sections 3.1 through 3.17 of this DEIR. Table ES-2 summarizes the impacts, mitigation measures, and levels of significance identified in this document.

Table ES-2. Summary of Potential Impacts and Mitigation Measures

Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
Aesthetics			
Impact AES-1: Adverse Effects on Scenic Vistas	No Impact	None required	No Impact
Impact AES-2: Damage to Scenic Resources, Including Trees, Rock Outcroppings, and Historical Buildings Along a State Scenic Highway	Less than Significant	None required	Less than Significant
Impact AES-3: Substantially Degrade the Visual Character or Quality of the Site and its Surroundings	Significant	▪ Mitigation Measure AES-1: Implement Maintenance Practices for Construction Staging Areas and Construction Sites ▪ Mitigation Measure AES-2: Use Design Elements to Provide Visual Screening of Wells, Storage Tanks, Pump Stations, and Other Facilities ▪ Mitigation Measure AES-3: Develop and Implement a Landscape Plan for the Water Treatment Plant	Less than Significant with Mitigation
Impact AES-4: Create a New Source of Substantial Light or Glare that Would Adversely Affect Day or Nighttime Views in the Area	Significant	▪ Mitigation Measure AES-4: Use Shielded Lighting if Nighttime Construction Is Necessary	Less than Significant with Mitigation
Agriculture and Forestry Resources			
Impact AG-1: Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to Nonagricultural Use	Significant	▪ Mitigation Measure AG-1: Stockpile Soils and Other Excavated Earth Material During Construction ▪ Mitigation Measure AG-2: Replant Undeveloped Areas of Prime Farmland following Construction Where Feasible	Significant and Unavoidable
Impact AG-2: Conflict with Existing Agricultural Zoning or Williamson Act Contract	Less than Significant	None required	Less than Significant
Impact AG-3: Conflict with Existing Zoning for, or Cause Rezoning of, Forest Land, Timberland, or Timberland Zoned Timberland Production	No Impact	None required	No Impact

Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
Impact AG-4: Loss of Forest Land or Conversion of Forest Land to Non-forest Use in a Manner that Will Significantly Affect Timber, Aesthetics, Fish and Wildlife, Biodiversity, Water Quality, Recreation, or Other Public Benefits	Less than Significant	None required	Less than Significant
Impact AG-5: Other Changes in the Existing Environment that, Because of Their Location or Nature, Could Result in a Conversion of Farmland to a Nonagricultural Use	Less than Significant	None required	Less than Significant
Air Quality			
Impact AQ-1: Potential for the Proposed Project to Conflict with or Obstruct Implementation of an Applicable Air Quality Plan	Significant	None available	Significant and Unavoidable
Impact AQ-2: Potential for the Proposed Project to Violate Any Air Quality Standard or Contribute Substantially to an Existing or Projected Air Quality Violation	Significant	▪ Mitigation Measure AQ-1: Prepare Quantitative Analysis of Construction-related Air Quality and Greenhouse Gas Emissions, and Implement Measures to Cap Emissions ▪ Mitigation Measure AQ-2: Prepare Quantitative Analysis of Operation-related Air Quality and Greenhouse Gas Emissions, and Implement Measures to Cap Emissions	Significant and Unavoidable

Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
Impact AQ-3: Potential to Result in a Cumulatively Considerable Net Increase of Any Criteria Pollutant for Which the Project Region Is in Non-Attainment Under an Applicable Federal or State Ambient Air Quality Standard	Significant	▪ Mitigation Measure AQ-1: Prepare Quantitative Analysis of Construction-related Air Quality and Greenhouse Gas Emissions, and Implement Measures to Cap Emissions ▪ Mitigation Measure AQ-2: Prepare Quantitative Analysis of Operation-related Air Quality and Greenhouse Gas Emissions, and Implement Measures to Cap Emissions	Significant and Unavoidable
Impact AQ-4: Potential to Expose Sensitive Receptors to Substantial Pollutant Concentration	Significant	▪ Mitigation Measure AQ-1: Prepare Quantitative Analysis of Construction-related Air Quality and Greenhouse Gas Emissions, and Implement Measures to Cap Emissions ▪ Mitigation Measure AQ-2: Prepare Quantitative Analysis of Operation-related Air Quality and Greenhouse Gas Emissions, and Implement Measures to Cap Emissions	Less than Significant with Mitigation
Impact AQ-5: Potential for the Proposed Project to Create Objectionable Odors Affecting a Substantial Number of People	Less than Significant	None required	Less than Significant
Biological Resources			
Impact BIO-1: Impacts on Special-status Plants	No impact	None required	No impact

Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
Impact BIO-2: Impacts on Special-status Invertebrates	Significant	▪ Mitigation Measure BIO-1: Avoid Impacts on Valley Elderberry Beetle Where Feasible ▪ Mitigation Measure BIO-2: Implement VELB Compensatory Mitigation, If Necessary ▪ Mitigation Measure BIO-3: Where Avoidance Is Not Feasible, Transplant Elderberry Shrubs	Less than Significant with Mitigation
Impact BIO-3: Impacts on Special-status Fish	Significant	▪ Mitigation Measure BIO-4: Schedule Air Purging to Avoid or Minimize Increased Total Suspended Solids or Sediment Deposition	Less than Significant with Mitigation
Impact BIO-4: Impacts on Nesting Birds	Significant	▪ Mitigation Measure BIO-5: Minimize Impacts on Nesting Birds with Site Assessments, Surveys, and Avoidance Measures	Less than Significant with Mitigation
Impact BIO-5: Impacts on Nesting Raptors, Including Swainson's Hawk and White-tailed Kite	Significant	▪ Mitigation Measure BIO-6: Conduct Nesting Raptor Surveys and Establish Buffers to Avoid or Minimize Impacts on Swainson's Hawk and White-tailed Kite	Less than Significant with Mitigation
Impact BIO-6: Impacts on Burrowing Owls	Significant	▪ Mitigation Measure BIO-7: Conduct Preconstruction Surveys for Burrowing Owls, and Avoid or Minimize Impacts	Less than Significant
Impact BIO-7: Impacts on Special-status Amphibians and Reptiles	Significant	▪ Mitigation Measure BIO-8: Conduct Preconstruction Surveys, Establish Buffers around Nests, and Implement Measures to Avoid or Minimize Impacts on Western Pond Turtle	Less than Significant with Mitigation

Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
Impact BIO-8: Impacts on Special-status Mammals	Significant	▪ Mitigation Measure BIO-9: Conduct Preconstruction Surveys and Implement Measures to Avoid or Minimize Impacts on Special-status Bats	Less than Significant with Mitigation
Impact BIO-9: Impacts on Riparian Habitat or Other Sensitive Natural Communities	Significant	▪ Mitigation Measure BIO-10: Implement Revegetation in Riparian Habitat and Sensitive Natural Communities Disturbed during Construction	Less than Significant with Mitigation
Impact BIO-10: Impact on Federally Protected Wetlands or Waters of the U.S.	No Impact	None required	No Impact
Impact BIO-11: Impact on the Movement of Any Native Resident or Migratory Fish or Wildlife Species	Significant	▪ Mitigation Measure NOI-1 ▪ Mitigation Measure NOI-2 ▪ Mitigation Measure NOI-5 ▪ Mitigation Measure BIO-4 ▪ Mitigation Measure BIO-5 ▪ Mitigation Measure BIO-6 ▪ Mitigation Measure BIO-7 ▪ Mitigation Measure BIO-10	Less than Significant with Mitigation
Impact BIO-12: Conflict with Any Local Policies or Ordinances Protecting Biological Resources	Less than Significant	None required	Less than Significant
Impact BIO-13: Conflict with Provisions of an Adopted HCP or Other Approved Local, Regional, or State HCP	No Impact	None required	No Impact
Cultural Resources			
Impact CUL-1: Potential for a Substantial Adverse Impact on Historical Resources	No Impact	None required	No Impact

Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
Impact CUL-2: Potential for a Substantial Adverse Impact on Archaeological Resources from Construction	Significant	▪ Mitigation Measure CUL-1: Conduct Archaeological Survey of the Proposed Water Treatment Plant and Offset Water Facility Locations ▪ Mitigation Measure CUL-2: Suspend Construction Immediately if Cultural Resources Are Discovered, Evaluate All Identified Cultural Resources for CRHR Eligibility, and Implement Appropriate Mitigation Measures for Eligible Resources	Less than Significant with Mitigation
Impact CUL-3: Potential to Directly or Indirectly Destroy a Unique Paleontological Resource or Site, or Unique Geological Feature	Significant	▪ Mitigation Measure CUL-3: Suspend Construction Immediately if Paleontological Resources Are Discovered, Evaluate the Significance of the Resources, and Implement Appropriate Mitigation Measures as Necessary	Less than Significant with Mitigation
Impact CUL-4: Potential for Disturbance of Human Remains, including Those Interred Outside of Dedicated Cemeteries	Significant	▪ Mitigation Measure CUL-4: Halt Construction Immediately if Human Remains Are Discovered and Implement Applicable Provisions of the California Health and Safety Code	Less than Significant with Mitigation
Geology, Soils, Seismicity, and Mineral Resources			
Impact GEO-1: Expose People or Structures to Potential Substantial Adverse Effects Involving Seismic-related Rupture of a Known Earthquake Fault	No Impact	None required	No Impact
Impact GEO-2: Expose People or Structures to Potential Substantial Adverse Effects Involving Strong Seismic Ground Shaking	Less than Significant	None required	Less than Significant

Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
Impact GEO-3: Expose People or Structures to Potential Substantial Adverse Effects Involving Seismic-related Ground Failure, Including Liquefaction and Landslides	Less than Significant	None required	Less than Significant
Impact GEO-4: Expose People or Structures to Potential Substantial Adverse Effects Involving Substantial Soil Erosion or Loss of Topsoil	Less than Significant	None required	Less than Significant
Impact GEO-5: Location on a Geologic Unit or Soil that Is Unstable or That Would Become Unstable as a Result of the Proposed Project and Potentially Result in an On-site or Off-site Landslide, Lateral Spreading, Subsidence, Liquefaction, or Collapse	Less than Significant	None required	Less than Significant
Impact GEO-6: Location Expansive Soil, Creating Substantial Risks to Life or Property	Less than Significant	None required	Less than Significant
Impact GEO-7: Have Soils Incapable of Adequately Supporting the Use of Septic Tanks or Alternative Wastewater Disposal Systems in Areas Where Sewers Are Not Available for the Disposal of Wastewater	Less than Significant	None required	Less than Significant
Impact GEO-8: Result in the Loss of Availability of a Known Mineral Resource or a Locally Important Mineral Resource Recovery Site	No Impact	None required	No Impact

Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
Greenhouse Gas Emissions and Energy Use			
Impact GHG-1: Generate a Substantial Amount of GHG Emissions	Significant	▪ Mitigation Measure AQ-1: Prepare Quantitative Analysis of Construction-related Air Quality and Greenhouse Gas Emissions, and Implement Measures to Cap Emissions ▪ Mitigation Measure AQ-2: Prepare Quantitative Analysis of Operation-related Air Quality and Greenhouse Gas Emissions, and Implement Measures to Cap Emissions	Significant and Unavoidable
Impact GHG-2: Conflict with an Applicable Plan, Policy, or Regulation Adopted for the Purpose of Reducing Emissions of GHGs	Significant	▪ Mitigation Measure AQ-1: Prepare Quantitative Analysis of Construction-related Air Quality and Greenhouse Gas Emissions, and Implement Measures to Cap Emissions ▪ Mitigation Measure AQ-2: Prepare Quantitative Analysis of Operation-related Air Quality and Greenhouse Gas Emissions, and Implement Measures to Cap Emissions	Significant and Unavoidable
Impact GHG-3: Cause Wasteful, Inefficient, and Unnecessary Consumption of Energy During Construction, Operation, and/or Maintenance	Significant	▪ Mitigation Measure AQ-1: Prepare Quantitative Analysis of Construction-related Air Quality and Greenhouse Gas Emissions, and Implement Measures to Cap Emissions ▪ Mitigation Measure AQ-2: Prepare Quantitative Analysis of Operation-related Air Quality and Greenhouse Gas Emissions, and Implement Measures to Cap Emissions	Less than Significant with Mitigation

Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
Impact GHG-4: Cause a Substantial Increase in Energy Demand and the Need for Additional Energy Resources	Less than Significant	None required	Less than Significant
Hazards and Hazardous Materials			
Impact HAZ-1: Create a Significant Hazard to the Public or the Environment Through the Routine Transport, Use, or Disposal of Hazardous Materials	Significant	▪ Mitigation Measure HAZ-1: Prepare and Implement a Hazardous Materials and Waste Management Plan for Construction and Operation ▪ Mitigation Measure HYD-1: Construct Structures Outside of the FEMA 100-Year Flood Hazard Area or Conduct Flood Flow Study and Provide Mitigation to Reduce the Project's Effects on Flood Flows	Less than Significant with Mitigation
Impact HAZ-2: 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	Significant	▪ Mitigation Measure HAZ-1: Prepare and Implement a Hazardous Materials and Waste Management Plan for Construction and Operation ▪ Mitigation Measure HYD/WQ-1: Construct Structures Outside of the FEMA 100-Year Flood Hazard Area or Conduct Flood Flow Study and Provide Mitigation to Reduce the Project's Effects on Flood Flows	Less than Significant with Mitigation
Impact HAZ-3: Emit Hazardous Emissions or Involve Handling of Hazardous or Acutely Hazardous Materials, Substances, or Waste Within One-Quarter Mile of an Existing or Proposed School	Less than Significant	None required	Less than Significant

Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
Impact HAZ-4: 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, Create a Significant Hazard to the Public or the Environment	Less than Significant	None required	Less than Significant
Impact HAZ-5: Located Within an Airport Land Use Plan Area or, Where Such a Plan Has Not Been Adopted, Within 2 Miles of a Private or Public Airport and Result in a Safety Hazard for People Residing or Working in the Project Area	Less than Significant	None required	Less than Significant
Impact HAZ-6: Impair Implementation of or Physically Interfere with an Adopted Emergency Response Plan or Emergency Evacuation Plan	Significant	▪ Mitigation Measure TRANS-1: Prepare and Implement a Construction Traffic Management Plan	Less than Significant with Mitigation
Impact HAZ-7: Expose People or Structures to a Significant Risk of Loss, Injury, or Death Involving Wildland Fires	Less than Significant	None required	Less than Significant
Hydrology and Water Quality			
Impact HYD/WQ-1: Violate Water Quality Standards or Waste Discharge Requirements, or Otherwise Substantially Degrade Water Quality	Less than Significant	None required	Less than Significant
Impact HYD/WQ-2: Substantially Deplete Groundwater Supplies or Interfere Substantially with Groundwater Recharge	Beneficial	None required	Beneficial
Impact HYD/WQ-3: Substantially Alter the Existing Drainage Pattern of the Site or Area, Resulting in Erosion, Siltation, or Flooding On or Off Site	Less than Significant	None required	Less than Significant
Impact HYD/WQ-4: Create or Contribute Runoff Water Such as to Exceed the Capacity of Existing or Planned Stormwater Drainage Systems or Provide Substantial Additional Sources of Polluted Runoff	Less than Significant	None required	Less than Significant

Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
Impact HYD/WQ-5: Place Within a 100-year Flood Hazard Area Structures That Would Impede or Redirect Flood Flows	Significant	Mitigation Measure HYD/WQ-1: Construct Structures Outside of the FEMA 100-Year Flood Hazard Area or Conduct Floodflow Study and Implement Measures to Reduce the Project's Effects on Flood Flows	Less than Significant with Mitigation
Impact HYD/WQ-6: Expose People or Structures to a Significant Risk of Loss, Injury, or Death Involving Flooding, Including Flooding as a Result of the Failure of a Levee or Dam	Less than Significant	None required	Less than Significant
Land Use and Planning			
Impact LU-1: Physically Divide an Established Community	Less than Significant	None required	Less than Significant
Impact LU-2: Conflict with Land Use Plans, Policies, or Regulations	Less than Significant	None required	Less than Significant
Impact LU-3: Conflict with Any Habitat Conservation Plan or Natural Community Conservation Plans	No Impact	None required	No Impact
Noise			
Impact NOI-1: Potential to Expose Persons to Noise Levels in Excess of Standards Established in a Local General Plan or Noise Ordinance or in the Applicable Standards of Other Agencies	Significant	▪ Mitigation Measure NOI-1: Limit Nighttime Construction Noise ▪ Mitigation Measure NOI-2: Prepare Detailed Noise Analysis for Proposed Project Operations	Less than Significant with Mitigation
Impact NOI-2: Potential to Expose Persons to Excessive Groundborne Vibration or Groundborne Noise Levels	Significant	▪ Mitigation Measure NOI-3: Implement Vibration Reduction Measures	Significant and Unavoidable
Impact NOI-3: Potential for Project Operations to Permanently Increase Ambient Noise Levels Above Levels Existing Without the Project	Significant	▪ Mitigation Measure NOI-2: Prepare Detailed Noise Analysis for Proposed Project Operations	Less than Significant with Mitigation

Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
Impact NOI-4: Substantial Temporary or Periodic Increase in Ambient Noise Levels in the Project Vicinity Above Levels Existing Without the Proposed Project	Significant	▪ Mitigation Measure NOI-4: Employ Noise-reducing Construction and Maintenance Practices	Significant and Unavoidable
Impact NOI-5: Expose People Residing or Working in the Project Area to Excessive Noise Levels Associated with a Public Airport	No Impact	None required	No Impact
Population and Housing			
Impact PH-1: Induce Substantial Population Growth in an Area, Either Directly or Indirectly	Less than Significant	None required	Less than Significant
Impact PH-2: Displace Substantial Numbers of Existing Housing or People, Necessitating the Construction of Replacement Housing Elsewhere	Significant	▪ Mitigation Measure TRANS-1: Prepare and Implement a Construction Traffic Management Plan	Less than Significant with Mitigation
Impact PH-3: Long-term Inducement of Substantial Population Growth, Both Directly and Indirectly	Significant	None available	Significant and Unavoidable
Public Services			
Impact PS-1: Result in Substantial Adverse Physical Impacts Associated with the Provision of, or Need for New or Physically Altered Fire Protection Facilities	Less than Significant	None required	Less than Significant
Impact PS-2: Result in Substantial Adverse Physical Impacts Associated with the Provision of, or Need for New or Physically Altered Police Protection Facilities	Less than Significant	None required	Less than Significant
Impact PS-3: Result in Substantial Adverse Physical Impacts Associated with the Provision of, or Need for New or Physically Altered School Facilities	Less than Significant	None required	Less than Significant

Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
Impact PS-4: Result in Substantial Adverse Physical Impacts Associated with the Provision of, or Need for New or Physically Altered Park Facilities	Less than Significant	None required	Less than Significant
Impact PS-5: Result in Substantial Adverse Physical Impacts Associated with the Provision of, or Need for New or Physically Altered Other Public Facilities	No Impact	None required	No Impact
Recreation			
Impact REC-1: Increase Use of Existing Parks or Recreational Facilities, Resulting in Substantial Deterioration of Those Facilities	Significant	▪ Mitigation Measure TRANS-1: Prepare and Implement a Construction Traffic Management Plan ▪ Mitigation Measure REC-1: Coordinate Construction Activities with Stanislaus County Parks and Recreation Department	Less than Significant with Mitigation
Impact REC-2: Require Creation of New or Altered Recreational Facilities	Less than Significant	None required	Less than Significant
Transportation and Traffic			
Impact TRANS-1: Conflict with Applicable Circulation Plans, Ordinances, Policies, or Congestion Management Programs During Construction	Significant	▪ Mitigation Measure TRANS-1: Prepare and Implement a Construction Traffic Management Plan	Less than Significant with Mitigation
Impact TRANS-2: Conflict with Applicable Circulation Plans, Ordinances, Policies, or Congestion Management Programs During Operations	Less than Significant	None required	Less than Significant
Impact TRANS-3: Change in Air Traffic Patterns	No Impact	None required	No Impact
Impact TRANS-4: Increase Hazards Due to Design Features	Significant	▪ Mitigation Measure TRANS-1 Prepare and Implement a Construction Traffic Management Plan	Less than Significant with Mitigation

Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
Impact TRANS-5: Result in Inadequate Emergency Access	Significant	▪ Mitigation Measure TRANS-1 Prepare and Implement a Construction Traffic Management Plan	Less than Significant with Mitigation
Impact TRANS-6: Conflict with Alternative Transportation Policies, Plans, or Programs	Less than Significant	None required	Less than Significant
Tribal Cultural Resources			
Impact TCR-1: Potential for a Substantial Adverse Impact on Tribal Cultural Resources from Project Construction	Significant	▪ Mitigation Measure CUL-2: Suspend Construction Immediately if Cultural Resources Are Discovered, Evaluate All Identified Cultural Resources for CRHR Eligibility, and Implement Appropriate Mitigation Measures for Eligible Resources ▪ Mitigation Measure CUL-4: Halt Construction Immediately if Human Remains Are Discovered and Implement Applicable Provisions of the California Health and Safety Code	Less than Significant with Mitigation
Utilities and Service Systems			
Impact UTL-1: Exceed Wastewater Treatment Requirements of the Applicable Regional Water Quality Control Board or Result in a Determination by the Wastewater Treatment Provider That It Has Inadequate Capacity to Serve the Project's Projected Demand	Less than Significant	None required	Less than Significant
Impact UTL-2: Require or Result in the Construction of New Water or Wastewater Treatment Facilities or Expansion of Existing Facilities	No Impact	None required	No Impact

Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
Impact UTL-3: Have Insufficient Water Supplies Available to Serve the Project from Existing Entitlements and Resources, or Require New or Expanded Entitlements	No Impact	None required	No Impact
Impact UTL-4: Be Served by a Landfill with Insufficient Permitted Capacity to Accommodate the Project's Solid Waste Disposal Needs	Less than Significant	None required	Less than Significant
Impact UTL-5: Fail to Comply with Federal, State, and Local Statutes and Regulations Related to Solid Waste	Less than Significant	None required	Less than Significant
Cumulative Impacts			
Impact CUM-1: Cumulative Impacts on Aesthetics		▪ Mitigation Measure AES-1 through AES-4	Not Cumulatively Considerable
Impact CUM-2: Cumulative Impact on Agriculture and Forestry Resources		▪ Mitigation Measure AG-1 and AG-2	Cumulatively Considerable
Impact CUM-3: Cumulative Impacts on Biological Resources		▪ Mitigation Measures BIO-1 through BIO-10	Not Cumulatively Considerable
Impact CUM-4: Cumulative Impacts on Cultural and Paleontological Resources		▪ Mitigation Measures CUL-1 through CUL-4	Not Cumulatively Considerable
Impact CUM-5: Cumulative Impacts on Hydrology and Water Quality		▪ Mitigation Measure HYD/WQ-1	Not Cumulatively Considerable
Impact CUM-6: Cumulative Impacts Related to Noise and Vibration		▪ Mitigation Measures NOI-1 through NOI-4	Not Cumulatively Considerable
Impact CUM-7: Cumulative Impacts Related to Transportation and Traffic		▪ Mitigation Measure TRANS-1	Not Cumulatively Considerable
Impact CUM-8: Cumulative Impacts on Utilities and Service Systems		None required	Not Cumulatively Considerable

Chapter 1
INTRODUCTION

The Stanislaus Regional Water Authority (SRWA) has prepared this Draft Environmental Impact Report (DEIR) to provide the public, responsible agencies, and trustee agencies with information about the potential environmental effects of constructing and operating the Surface Water Supply Project (proposed project). The proposed project is to design, construct, operate, and maintain facilities to divert and treat water from the Tuolumne River and deliver it for use by the SRWA member cities of Ceres and Turlock (Cities).

The following discussion provides an overview of the environmental requirements under the California Environmental Quality Act (CEQA), organization of the DEIR, impact terminology used, and process for submitting comments on this DEIR.

1.1 Overview of CEQA Requirements

CEQA's basic purposes are to:

1. Inform governmental decision-makers and the public about the potential, significant environmental effects of the proposed project activities;
2. Identify the ways that environmental damage can be avoided or significantly reduced;
3. Prevent significant, avoidable damage to the environment by requiring implementation of feasible mitigation measures or project alternatives that would substantially lessen any significant effects that the proposed project would have on the environment; and
4. Disclose to the public the reasons why a governmental agency approved the proposed project in the manner the agency chose if significant environmental effects are involved.

With certain limited exceptions, CEQA requires all state and local government agencies to consider the environmental consequences of projects over which they have discretionary authority before approving or carrying out projects. CEQA establishes both procedural and substantive requirements that agencies must satisfy to meet CEQA's objectives. For example, the agency with principal responsibility for approving or carrying out a project (the lead agency) must first assess whether a proposed project would result in significant environmental impacts. If there is substantial evidence that the project would result in significant environmental impacts, CEQA requires that the agency prepare an EIR, analyzing both the proposed project and a reasonable range of potentially feasible alternatives.

As described in the State CEQA Guidelines (California Code of Regulations [CCR], Title 14) Section 15121(a), an EIR is an informational document that assesses potential environmental effects of a proposed project, and identifies mitigation measures and alternatives to the

project that could reduce or avoid potentially significant environmental impacts. Other key CEQA requirements include developing a plan for implementing and monitoring the success of the identified mitigation measures and carrying out specific public notice and distribution steps to facilitate public involvement in the environmental review process. As an informational document used in the planning and decision-making process, an EIR's purpose is not to recommend either approval or denial of a project. Note that an EIR does not expand or otherwise provide independent authority of the lead agency to impose mitigation measures or avoid project-related significant environmental impacts beyond the authority already within the lead agency's jurisdiction.

1.1.1 Intent and Scope of this Document

In proposing to conduct the various activities identified in Chapter 2 of this DEIR, SRWA is proposing to carry out and approve a discretionary project subject to CEQA (State CEQA Guidelines Section 15378). This DEIR was prepared to disclose potential impacts of the proposed project on the environment. SRWA will use the analyses presented in this DEIR, the public and agency responses to the DEIR, and the whole of the administrative record to evaluate the proposed project's environmental impacts and to decide whether to modify, approve, or deny approval of the proposed project. The DEIR does not presume that the proposed project would be approved; in fact, it could not be approved until the environmental and planning process has been completed.

Portions of the project have been addressed in three previous CEQA compliance documents:

- *Initial Study/Mitigated Negative Declaration – Infiltration Gallery Project in Special Run Pool 9* (EDAW 2001);
- *Final EIR for the Turlock Irrigation District Regional Surface Water Supply Project* (EIP 2006a, 2006b); and
- *Water System Engineer's Report Final* EIR (City of Modesto Public Works Department 2010).

Various elements of the proposed project have changed since those evaluations were completed. As a result, this DEIR provides a new and complete environmental analysis for the proposed project in its entirety.

In addition, SRWA has evaluated the environmental impacts of a portion of the proposed project, specifically testing of the existing infiltration gallery and construction of the wet well, in an initial study/mitigated negative declaration published in August 2017 (Horizon Water and Environment 2017). These project components were needed to inform the overall project design, which is why this aspect of the CEQA review proceeded in advance of the environmental review of the rest of the proposed project. The DEIR considers the impacts of these project components in combination with those of the remainder of the proposed project in the cumulative impact analysis, such that the whole of the action has been completely evaluated, without improperly segmenting the proposed project for the purposes of CEQA.

1.2 CEQA Process

1.2.1 Notice of Preparation

A Notice of Preparation (NOP) for the proposed project was prepared in accordance with State CEQA Guidelines Section 15082 and circulated to the State Clearinghouse on March 1, 2017. The scoping period continued for 30 days and concluded on March 30, 2017. The NOP presented general background information on the proposed project, the scoping process, and the environmental issues to be addressed in the EIR. The NOP or a notification of its availability was mailed to a broad range of stakeholders including state, federal, and local regulatory agencies and jurisdictions, nonprofit organizations, and adjacent property owners. The NOP is included in this DEIR in Appendix A, *CEQA Scoping Summary*.

1.2.2 Scoping Comments

SRWA accepted written comments during the 30-day scoping period, March 1-30, 2017. During the scoping period, 10 comment letters were received. These comments were considered in the environmental impact evaluation contained in this DEIR. Copies of comment letters received during the scoping period are included in Appendix A.

1.2.3 Draft Environmental Impact Report

SRWA, acting as the lead agency under CEQA, has prepared this DEIR to disclose potentially significant environmental impacts associated with the proposed project. Where any such impacts are significant, feasible mitigation measures and potentially feasible alternatives are identified and discussed that would substantially lessen or avoid such effects. During the public review period, the public has an opportunity to provide input to the lead agency on the DEIR.

1.2.4 Public Review and Meetings

The DEIR is currently undergoing public review for a 45-day period as specified in the Notice of Availability of the DEIR. During this period, SRWA will hold a public meeting. The date, time, and exact location of the public meeting are included in the Notice of Availability of this DEIR.

1.2.5 Final Environmental Impact Report

Written and oral comments received in response to the DEIR will be addressed in a response-to-comments document that, together with the DEIR and any related changes to the substantive discussion in the DEIR, will constitute the Final Environmental Impact Report (FEIR). The FEIR, in turn, will inform SRWA's exercise of its discretion as a lead agency under CEQA in deciding whether or how to approve the proposed project. Pending the outcome of the CEQA process, the proposed project will be submitted to the SRWA Board of Directors for review and approval.

1.3 Organization of this DEIR

This DEIR contains the following components:

Executive Summary provides a summary of the proposed project, a description of the issues of concern, an overview of alternatives, and a summary of environmental impacts and mitigation measures.

Chapter 1, *Introduction,* describes the purpose and organization of the EIR and its preparation, review, and certification process.

Chapter 2, *Project Description,* describes the elements of the proposed project, including a description of its purpose and objectives, the project area, and proposed actions that would be taken under the proposed project.

Chapter 3, *Environmental Analysis,* contains an introduction to the impact analysis conducted in this DEIR (Section 3.0). Sections 3.1 through 3.17 describe the environmental resources and potential environmental impacts of the proposed project. Each section describes the regulatory and environmental setting for the resource topic area under consideration to aid the reader in understanding the conditions that could be affected by the proposed project. In addition, each section identifies the criteria used in determining the significance levels of environmental impacts; evaluates those impacts; and provides mitigation measures to reduce, where possible, the adverse effects of potentially significant impacts.

Chapter 4, *Other Statutory Considerations*, addresses the proposed project's potential to contribute to cumulative impacts, outlines the proposed project's potential to induce growth, and identifies significant and irreversible environmental changes resulting from the proposed project.

Chapter 5, *Alternatives,* describes the process by which alternatives to the proposed project were developed and screened, evaluates their likely environmental impacts, and identifies the environmentally superior alternative.

Chapter 6, *Report Preparation*, lists the individuals involved in preparing this DEIR.

Chapter 7, *References*, provides a bibliography of printed references, websites, and personal communications consulted in preparing this DEIR.

Appendices

Appendix A, *CEQA Scoping Summary,* contains the NOP issued by SRWA, summarizes comments received during the scoping period, and provides copies of all comments submitted.

Appendix B, *Biological Resources Information,* contains supporting documentation for the biological resource impact evaluation.

Appendix C, *Cultural Resources Technical Report (Confidential),* contains supporting documentation for the cultural resource and tribal cultural resources impact evaluations. Portions of this report are confidential and will not be provided to the public.

Appendix D, *Noise Calculations,* contains supporting documentation for the noise and vibration impact evaluation.

Appendix E, *Mitigation Monitoring and Reporting Program,* contains a summary of the mitigation measures and the monitoring procedures for ensuring compliance.

1.4 Submittal of Comments

SRWA is circulating this DEIR for public review and comment for the period specified in the Notice of Availability. As discussed above, SRWA will host a public meeting during this period. The purpose of public circulation is to provide agencies and interested individuals with opportunities to comment on or express concerns regarding the contents of this DEIR. The specific date, time, and location for the meeting are provided in the Notice of Availability.

Written comments concerning this DEIR can be submitted at the public meeting described above or at any time during the DEIR public review period. All comments must be received by 5:00 p.m. on the final date of public review as identified in the Notice of Availability, and should be directed to the name and address listed below:

Michael F. Brinton, SRWA Interim General Manager
c/o City of Turlock Administrative Services
156 South Broadway, Suite 230
Turlock, CA 95380
Email: SurfaceWaterSupply-DEIR-comments@horizonh2o.com

Submittal of written comments via e-mail (Microsoft Word or Adobe PDF format) is preferred. Written comments received in response to this DEIR during the public review period will be addressed in the "Response to Comments" section of the FEIR.

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Chapter 2
PROJECT DESCRIPTION

This description of the proposed Surface Water Supply Project (proposed project) describes its background, objectives, location, proposed elements, construction, operation, and required permits and approvals.

2.1 Overview and Background

Municipalities in southern Stanislaus County (within the Turlock Irrigation District [TID] service area south of the Tuolumne River) meet their water supply needs entirely through use of groundwater. For more than 30 years, water supply providers in this area have been collaborating to develop a reliable, supplemental source of treated water supply from surface water to meet existing and future community demands and to offset use of local groundwater supplies, particularly during prolonged droughts. These collaboration efforts have resulted in the proposed project.

SRWA proposes to operate an existing infiltration gallery to withdraw of water from the Tuolumne River; convey it to a new water treatment plant; and convey the treated water through transmission mains to storage facilities in Ceres and Turlock. The initial withdrawals would be up to 30,000 acre-feet per year (AFY), increasing over time to up to 50,400 AFY at buildout in 2040. The proposed project is intended to serve as a major in-lieu groundwater recharge project under the Sustainable Groundwater Management Act to ensure the long-term sustainability of the groundwater resources within the Turlock Subbasin. The surface water that would be provided as part of the proposed project would assist the Cities of Ceres and Turlock (Cities) in achieving sustainable groundwater pumping levels. In addition, the 2,000 AFY of offset water (defined below) provided to TID would assist TID in implementing its water conservation and conjunctive water use programs.

The proposed project is being developed by SRWA, which was formed in 2011 as a joint powers authority between the Cities, and in partnership with TID. On July 28, 2015, TID and SRWA approved a water sales agreement to provide a raw water supply for the proposed project (TID and SRWA 2015).

2.2 Proposed Project Objectives

SRWA proposes to construct and operate the proposed project to meet the following objectives:

- Provide the Cities of Ceres and Turlock with a reliable and supplementalsource of treated surface water;
- Meet existing and projected treated water demands of the Cities while reducing reliance on groundwater, thereby increasing overall water supply reliability;

- Improve the quality of drinking water in the Cities by blending high-quality, treated surface water with existing groundwater that has been gradually declining in quality;
- Allow for the conjunctive use of groundwater and surface water and for the in-lieu recharge of groundwater;
- Improve the quality of wastewater discharges from the Cities by reducing the concentration of total dissolved solids (salts) in the wastewater, through a reduction in the concentration of total dissolved solids in the treated water supply;
- Provide a benefit to Tuolumne River fish and other aquatic resources by increasing seasonal releases from La Grange Dam to accommodate proposed project diversions downstream at TID's infiltration gallery northeast of Hughson;
- Construct and operate the various elements of the proposed project in a cost-effective manner that minimizes impacts on the environment;
- Allow for the participating cities of Ceres and Turlock and TID to manage and use the area's surface water, groundwater, and recycled water supplies in an improved and coordinated manner;
- Better enable the participating cities of Ceres and Turlock (and the subbasin groundwater sustainability agency) to manage the area's groundwater subbasin in a sustainable manner in accordance with the requirements of the Sustainable Groundwater Management Act; and
- Assist TID in implementing its water conservation and conjunctive water use programs.

2.3 Proposed Project Location and Setting

The proposed project would be located in Stanislaus County, extending from Fox Grove Regional Park near Hughson on the north, to the Cities of Ceres and Turlock on the west and south, respectively (**Figure 2-1**). The raw water pump station would be located adjacent to the existing TID infiltration gallery on the south bank of the Tuolumne River west of Geer Road. A pipeline would convey water from the infiltration gallery and raw water pump station to a new water treatment plant (WTP) north of TID's Ceres Main Canal and west of Aldrich Road. Treated water would be conveyed from the WTP through pipelines to connect to Ceres' water system in the west and Turlock's water system in the south. **Figure 2-2** shows the locations of these facilities.

2.4 Characteristics of the Proposed Project

The proposed project consists of the design, construction, operation, maintenance, and management of the following facilities, depicted in Figure 2-2, that would deliver treated surface water to the Cities:

Infiltration Gallery and Wet Well: The infiltration gallery and wet well would divert surface water from the Tuolumne River to the raw water pump station.[1]

Raw Water Pump Station: The pump station facilities would draw surface water through the infiltration gallery and wet well, and pump it through a raw water transmission main to the WTP, and potentially to TID's Ceres Main Canal in the event of an emergency.

Raw Water Transmission Main: A 60-inchdiameter[2] transmission main would convey raw (untreated) water from the pump station to the WTP, and potentially to TID's Ceres Main Canal in the event of an emergency.

Water Treatment Plant: The WTP would treat surface water to meet state and federal drinking water standards for use by municipal and industrial (M&I) customers in Ceres and Turlock.

Treated Water Transmission Mains: Following treatment, 30- and 42-inch-diameter[2] transmission mains would deliver "finished" (i.e., treated) water from the WTP to terminal facilities (i.e., tanks, pipelines, and pump stations) in Ceres and Turlock, respectively.

Terminal Facilities: Each city's terminal facilities would consist of one or more storage tanks, and a pump station. The Cities would construct pipelines and appurtenant facilities to facilitate distribution of the treated surface water (i.e., downstream of the terminal facilities) under separate contracts. In Ceres, the storage tank would have a capacity of 2 million gallons (MG) and would be located north of Hatch Road at the Ceres River Bluff Regional Park. In Turlock, two storage tanks, each with a capacity of 2.5 MG, would be located on a site east of North Quincy Road between East Zeering Road and East Monte Vista Avenue.

Offset Water Facilities: As part of the water sales agreement between SRWA and TID, SRWA would provide groundwater or recycled water (e.g., treated wastewater) to TID to offset a portion of the treated surface water being provided to SRWA M&I customers during certain dry years.

2.4.1 Existing Infiltration Gallery and Wet Well

The existing infiltration gallery was constructed by TID in 2001-2003 as part of TID's Tuolumne River Channel Restoration Project. The gallery consists of sixteen 24-inch-diameter perforated pipes embedded in granular fill within the bed of the Special Run Pool 9 section of the Tuolumne River. The perforated pipes manifold into four 36-inch-diameter pipes that terminate under the south bank of the river (**Figure 2-3**). Located alongside and within the 24-inch pipes are 2-inch perforated pipes intended to deliver pressurized air to the gallery for the purpose of periodically loosening and removing accumulated sediment. The in-river portion of the gallery extends approximately 65 feet into the river, with a total upstream-downstream width of approximately 192 feet. Pipes are covered by 5-6 feet of

[1] The infiltration gallery is an existing facility owned by TID, which was constructed in 2001-2003. Construction of the adjacent wet well facility is proposed by SRWA to begin in early to mid-2018 to assist with testing of the infiltration gallery. Note that, as described in Chapter 1, the construction of the wet well and testing of the infiltration gallery is a separate, already approved project under CEQA; however, operation and maintenance of these facilities are considered to be part of the proposed project.

[2] All pipeline sizes in this project description are the current, planned sizes. The actual final pipeline sizes may vary somewhat as determined through final design.

imported native cobble and gravel. The infiltration gallery was designed to yield up to 100 cubic feet per second (cfs), or 65 million gallons per day (mgd), of screened water. The infiltration gallery is owned by TID. Although TID would remain the owner of the infiltration gallery, wet well, proposed raw water pump station, and raw water pipeline between the raw water pump station and Ceres Main Canal, the facilities may be operated and maintained by either TID or SRWA. TID and SRWA plan to enter into a lease and operation/maintenance agreement concerning SRWA's right to use a portion of the infiltration gallery, wet well, raw water pump station, and raw water pipeline.

The wet well would connect to the infiltration gallery and be approximately 64 feet long by 36 feet wide (at the base of the structure) by 46 feet deep, as measured from the top of the concrete structure to the floor (**Figure 2-4**). At grade (i.e., the visible portion), the structure would be 59 feet long by 33 feet wide. The top slab of the structure would be placed just above the finished grade elevation (83.5 feet) and would later become the lower portion of the proposed raw water pump station. The wet well area would cover approximately 2,000 square feet at grade.

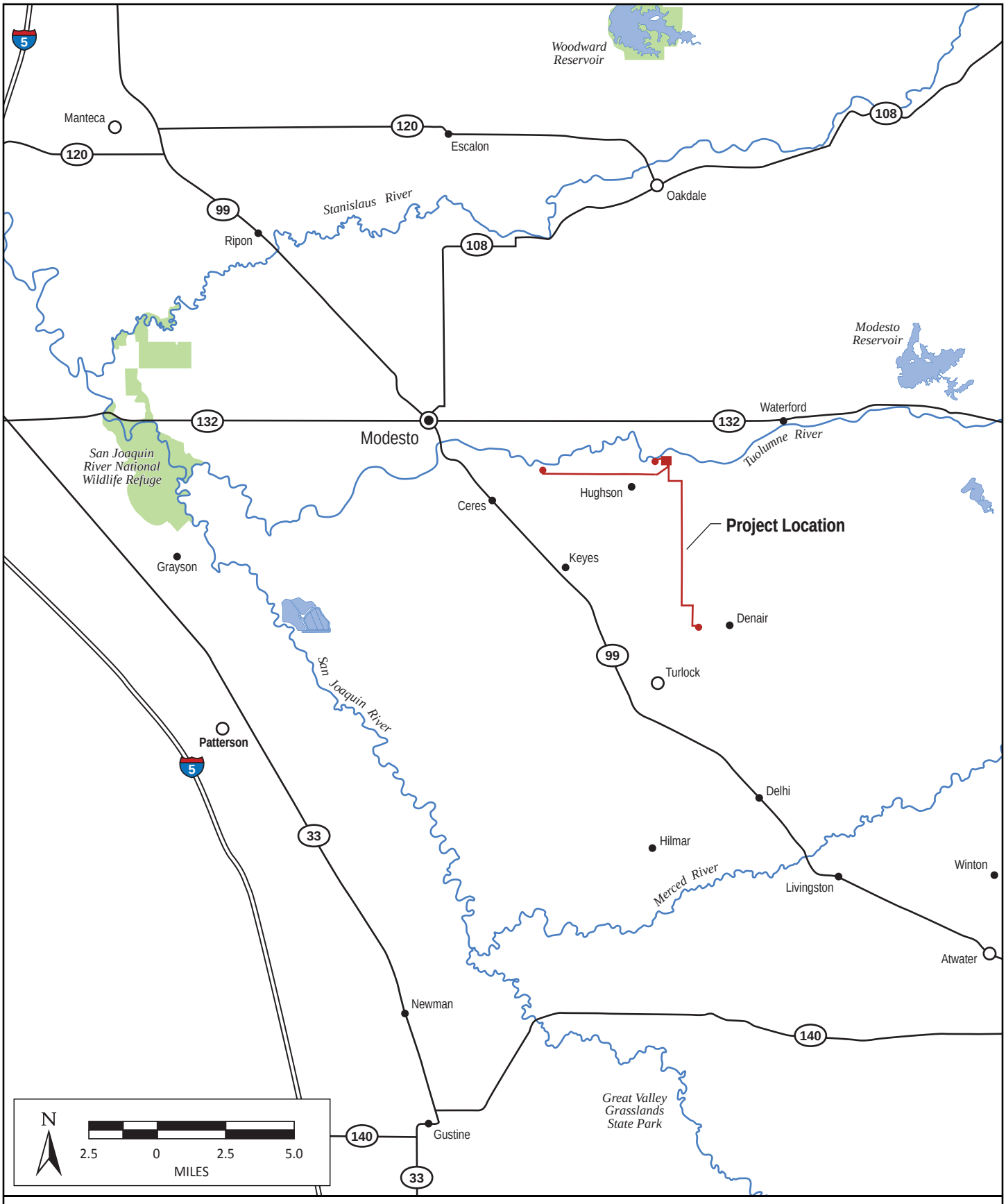

Figure 2-1.
Regional Project Location

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Surface Water Supply Project

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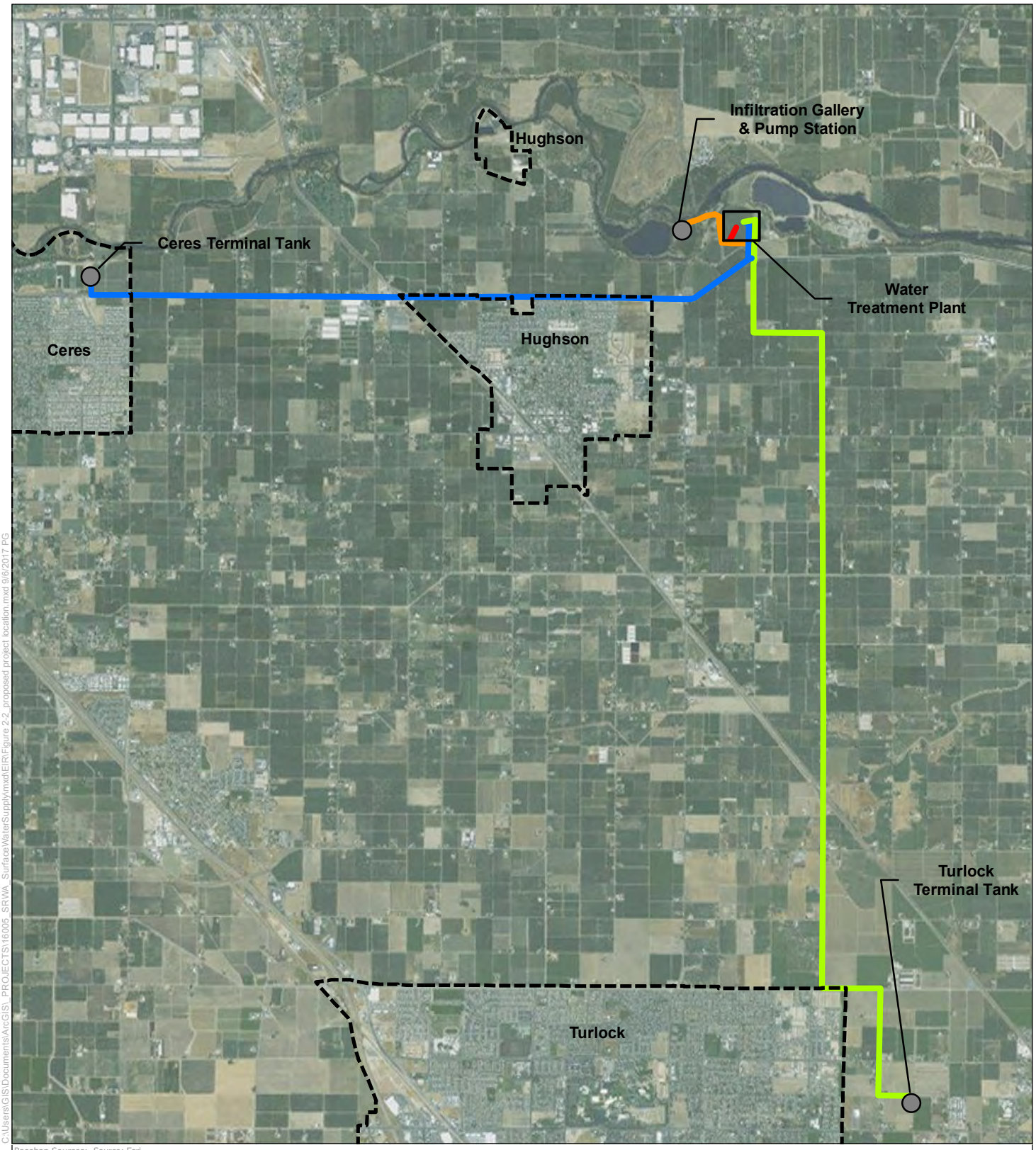

C:\Users\GIS\Documents\ArcGIS_PROJECTS\16005_SRWA_SurfaceWaterSupply\mxd\EIR\Figure 2-2_proposed project location.mxd 9/6/2017 PG

Basebap Sources: Source: Esri, DigitalGlobe, GeoEye, Earthstar

N

0 0.5 1
Miles

City Boundaries
Ceres Finished Water Transmission Main
Raw Water Transmission Main
Turlock Finished Water Transmission Main
WTP pipeline

Figure 2-2
Proposed Project Location

Horizon WATER and ENVIRONMENT

Surface Water
Supply Project

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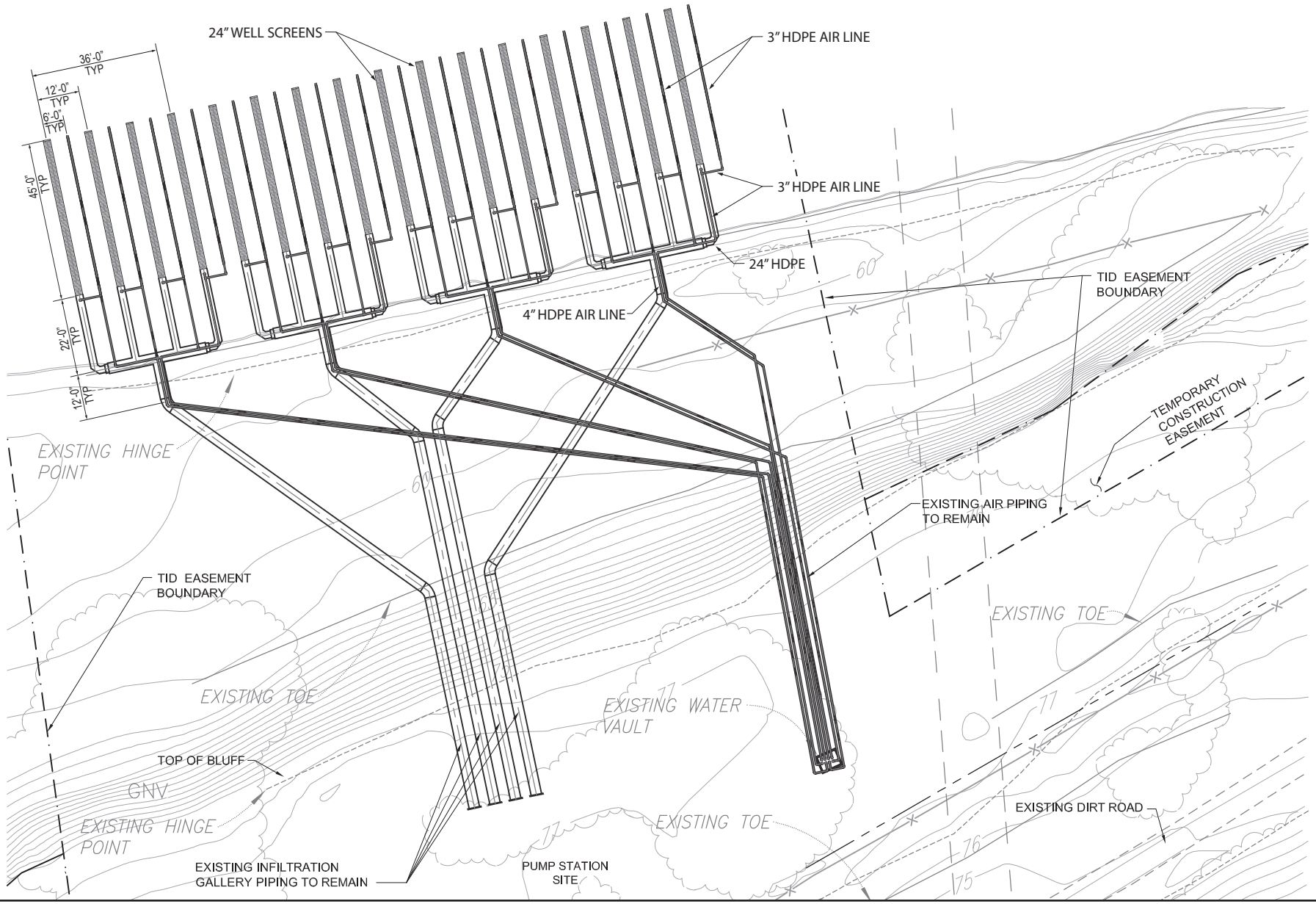

Source: Brown and Caldwell 2009

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Horizon WATER and ENVIRONMENT

Figure 2-3.
Infiltration Gallery

Infiltration Gallery Testing Project

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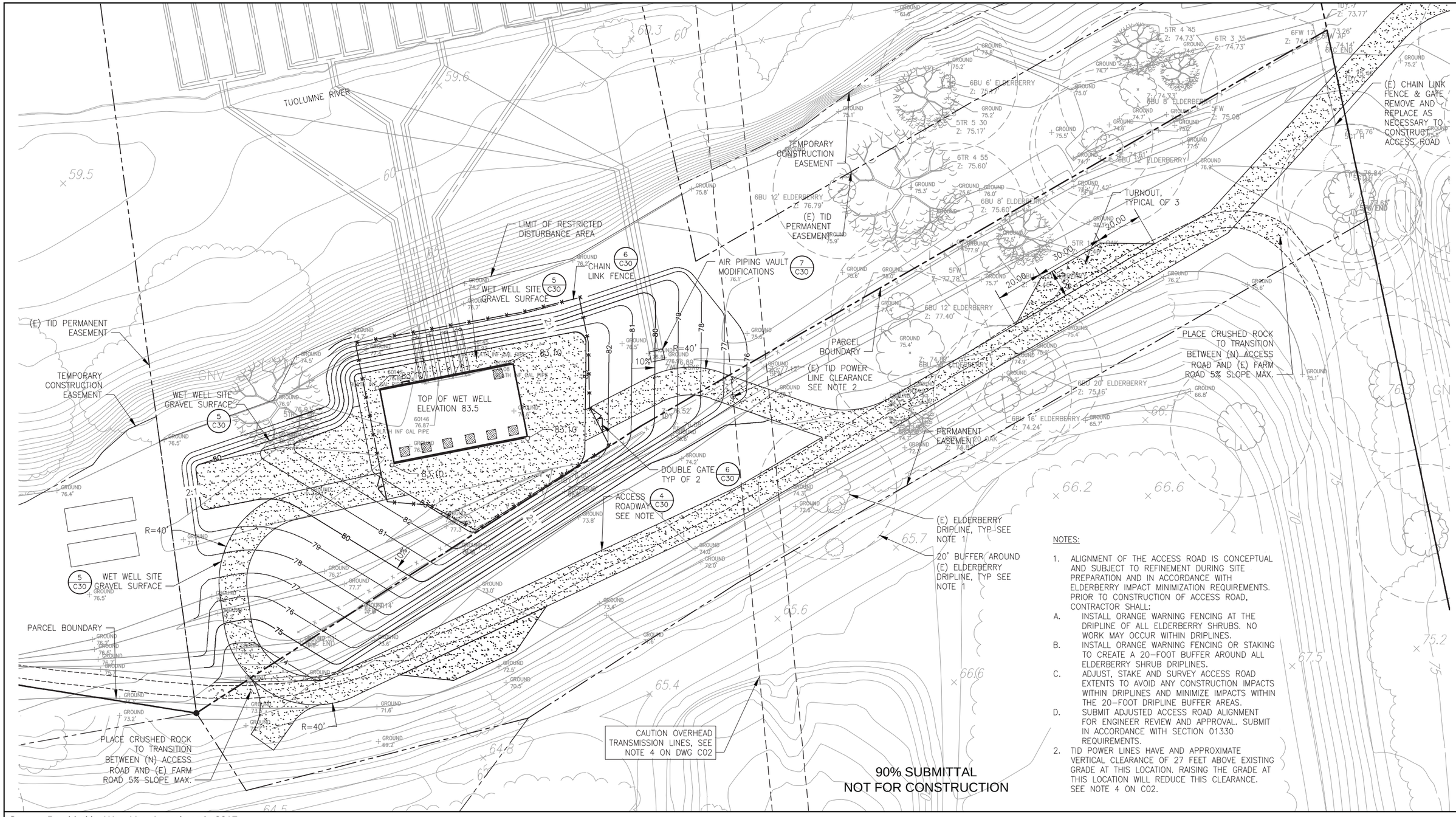

Source: Provided by West Yost Associates in 2017

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Figure 2-4.
Proposed Raw Water Pump Station

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Surface Water Supply Project

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2. Project Description

2.4.2 Raw Water Pump Station

A raw water pump station would be constructed at the site of the existing infiltration gallery and future wet well and would be designed to be capable of delivering raw surface water to both TID's Ceres Main Canal and SRWA's WTP.[3] The pump station would include pumps, a pump station building, air compressors and compressed air storage tanks, electrical and instrumentation equipment, and site improvements.

With up to six variable-speed pumps, the raw water pump station is planned to have a design capacity of up to 100 cfs (65 mgd or 45,000 gallons per minute [gpm]) and would be designed to deliver raw water through a raw water transmission main to two locations: the proposed SRWA WTP and TID's existing Ceres Main Canal. A flow split structure located on the WTP site would house two motorized valves, one on each reach of the raw water pipeline. The valves would be modulated as necessary to control flows.

The control of the rate of flow to the WTP and the Ceres Main Canal would be accomplished using magnetic flow meters at the pump station and WTP and adjustable-frequency drives for the pump motors. A control signal would be sent to the adjustable frequency drives to automatically adjust the pump motor speed to match the required flow rates to the WTP and the Ceres Main Canal. **Table 2-1** indicates the proposed maximum diversions from the Tuolumne River at the infiltration gallery and raw water pump station.

Table 2-1. Maximum Diversions from the Tuolumne River

Phasing	Maximum Diversion		
	(cfs)	(AFY)	(mgd)
Phase 1 (to 2025)	41.4	30,000	26.8
Buildout (by 2040)	69.6	50,400	45

Notes: AFY = acre-feet per year; cfs = cubic feet per second; mgd = million gallons per day; ND = not determined
Source: Information provided by West Yost Associates in 2017

Under the Phase 1 condition, the maximum diversion may exceed the nominal WTP capacity of 15 mgd (23.2 cfs). This distinction reflects the following:

- After an initial period of operation of the Phase 1 WTP (e.g., 12 months), SRWA may petition the Division of Drinking Water to permit an increase in the allowable filter loading rate (e.g., gpm per square foot) to something greater than the typical allowable rate of 6 gpm per square foot. If permitted, the higher loading rate would effectively increase the WTP capacity without requiring additional infrastructure or otherwise expanding the WTP.

[3] Note that water deliveries to TID's Ceres Main Canal are not planned at this time, although the infiltration gallery, wet well, and raw water pump station are all designed to accommodate such deliveries, should TID decide to implement such deliveries in the future. Therefore, while the infrastructure necessary to facilitate the canal deliveries from the raw water pump station is part of the proposed project, the proposed project does not include the delivery of raw water through the proposed project to the TID canal at this time. Note that in an emergency, TID may discharge water to the TID canal; again, this would not be part of the proposed project.

- SRWA has not yet determined the timing or increment of intermediate WTP expansions between the initial Phase 1 construction and buildout. It is possible that SRWA would decide to expand the WTP prior to 2025.

Under the buildout condition, the pumps at the raw water pump station would be designed to provide up to the following flow quantities:

- Up to 45 mgd to the WTP and no flow to the Ceres Main Canal or
- Up to 65 mgd (100 cfs) to the Ceres Main Canal and no flow to the WTP or
- Combined simultaneous flows of up to 45 mgd to the WTP and up to 20 mgd to Ceres Main Canal.

The pump station would have a firm capacity at buildout of 100 cfs (65 mgd) and would be constructed with a six-pump configuration to provide flexibility to operate pumps to meet demand. Up to five pumps would ordinarily operate to meet system demands, with one or more pumps on standby. The pumps would be vertical turbine-type pumps, which are best suited for deep sump intake conditions. Each pump is envisioned to require up to a 400-horsepower motor; however, the pump specifications have yet to be finalized. The motors would be equipped with adjustable-frequency drives to provide additional flexibility of pump discharge rates that match the WTP and Ceres Main Canal needs.

During operation, sediment may migrate through and among the granular material surrounding the infiltration gallery piping, thereby reducing the water intake capacity of the infiltration gallery pipes. Accordingly, a periodic air purge and water backwash procedure would be implemented as a preventive and/or corrective measure.

The raw water pump station would include one or more electrical and/or control rooms, which would be climate controlled for equipment protection. The air conditioning unit would be sized to remove the heat produced by the electrical equipment. The unit would be located and designed to minimize the noise and visual impact to the neighbors.

Structures

The raw water pump station would consist of the wet well, pump station building, and exposed outdoor piping (i.e., "yard" piping). The wet well is the proposed underground structure described above, which would be connected to the four existing 36-inch-diameter high-density polyethylene (HDPE) header pipes from the infiltration gallery. The wet well would distribute water to vertical turbine pumps. The aboveground pump station building would house the pumps and motors in a pump room and the electrical control equipment in an electrical room. The control room would contain a computer work station. Aboveground piping, a flow meter, and compressed air equipment would be located immediately adjacent to the pump station building. Electrical transformers and standby power generators, the latter of which would be available for use in emergency backup and maintenance shutdown circumstances, would be located outside of the building.

The following major structures are proposed:

- Pump station building—a rectangular structure approximately 70 feet by 60 feet with an approximate height of 25 feet, designed to accommodate pumps, compressed air equipment, piping, valves, ventilation and air conditioning systems, and electrical and SCADA equipment

- Yard piping area—located adjacent to the pump station building on the east, designed to accommodate the pump station discharge manifold piping, flow meter, and compressed air equipment

Noise Suppression

A noise suppression system would be designed for the raw water pump station building that is in compliance with requirements of the *Stanislaus County General Plan* Noise Element and California Department of Industrial Relations, Division of Occupational Safety and Health (Cal/OSHA) regulations. The Noise Element requires that no new industrial or commercial development may generate noise levels exceeding 60 A-weighted decibels (dBA) as a day-night average noise level (L_{dn}) in noise-sensitive areas, such as near schools, hospitals, and sensitive wildlife habitat. Cal-OSHA regulatory requirements limit noise to a maximum of 90 dBA for a maximum of 8 hours per day within any working area. (More information about these requirements is provided in Section 3.11, *Noise and Vibration.*) Likely noise suppression techniques would include sound-attenuated generator enclosures and enclosing the pump motors and air compressors within a building; however, the pump station is still at a conceptual level of design and no specific measures have been identified.

Security

The pump station building would be equipped with entry detection systems and/or video surveillance capabilities for security. Limit switches installed on external doors would electronically alert operators at the control facility to any door opening.

2.4.3 Raw Water Transmission Main

A raw water transmission main would convey raw water from the pump station to the WTP and the Ceres Main Canal. The transmission main would be 60 inches in diameter and approximately 3,900 feet long. A flow split vault on the WTP property would split flows between the treatment plant and TID's Ceres Main Canal. A branch pipe up to 60 inches in diameter would connect the flow split vault to the WTP. After passing through the flow split vault, the transmission main would continue south to the Ceres Main Canal.

The transmission main would be installed along a proposed route on property currently owned or to be acquired by TID, from the raw water pump station on the east side of Geer Road Bridge; then in a 50- to 80-foot-wide easement across a portion of Fox Grove Regional Park, which is owned by the California Wildlife Conservation Board, to the site of the proposed WTP owned by TID, with plans to be acquired by SRWA, which is currently being leased and farmed as an orchard. At the WTP, the pipeline route turns south and runs parallel to and southeast of the WTP parcel line, then turns east across the southern portion of the WTP site. At the flow split vault (designed to control the flow of water to the WTP and the Ceres Main Canal), one pipeline would turn north into the WTP and one would continue east, then south adjacent to and west of Aldrich Road, ending at an outlet structure west of Aldrich Road adjacent to the Ceres Main Canal. The entirety of the main 60-inch raw water pipeline, including the flow split vault at the WTP site, would be owned by TID. The branch pipe from the flow split vault to the WTP would be owned by SRWA. Some right-of-way (ROW) acquisition would be required, and easements would be needed from the State of California (California Wildlife Conservation Board) and one private property owner (**Table 2-2**).

Table 2-2. Right-of-Way Access Requirements

Assessor's Parcel Number	Owner	Description	Acres
018-004-013	Gary Nazareno	Fee Purchase	0.97
018-006-011	State of California	Easement	0.76

Source: Information provided by West Yost Associates in 2017

The transmission main would be constructed of welded steel. Pipe would be installed with at least 5 feet of cover wherever possible. Blowoff stations would be provided to facilitate drainage of pipeline segments for maintenance and repairs. Blowoffs would generally be installed at low points in the pipeline profile and on the uphill sides of mainline valves. Air and vacuum valves would be installed at high points in the pipeline profile to release accumulated air during filling (or at other times as necessary) and to allow air to enter the pipe during draining.

2.4.4 Water Treatment Plant

The proposed WTP would be located on an approximately 48-acre site west of Aldrich Road, east of Fox Grove Park, and north of the Ceres Main Canal (**Figure 2-5**). This parcel is owned by TID; it has historically been leased to farmers and is currently planted with almond orchards. The Water Sales Agreement between TID and SRWA stipulates that SRWA would purchase this parcel from TID. The proposed WTP facilities would occupy approximately half, and possibly more, of this site. Following the completion of construction, portions of the site would be landscaped and could potentially be replanted with orchards; however, this decision has not yet been made.

The WTP would be constructed in two or more phases. The nominal Phase 1 plant capacity would be 15 mgd. As noted above, under the Phase 1 condition, the maximum diversion may exceed the nominal WTP capacity of 15 mgd (23.2 cfs) under certain circumstances. The buildout capacity of the WTP would be 45 mgd (**Table 2-3**). It is anticipated that the Phase 1 capacity would be sufficient for the Cities through approximately 2025, and that the buildout capacity would suffice through 2040, when the Cities expect to be built out.

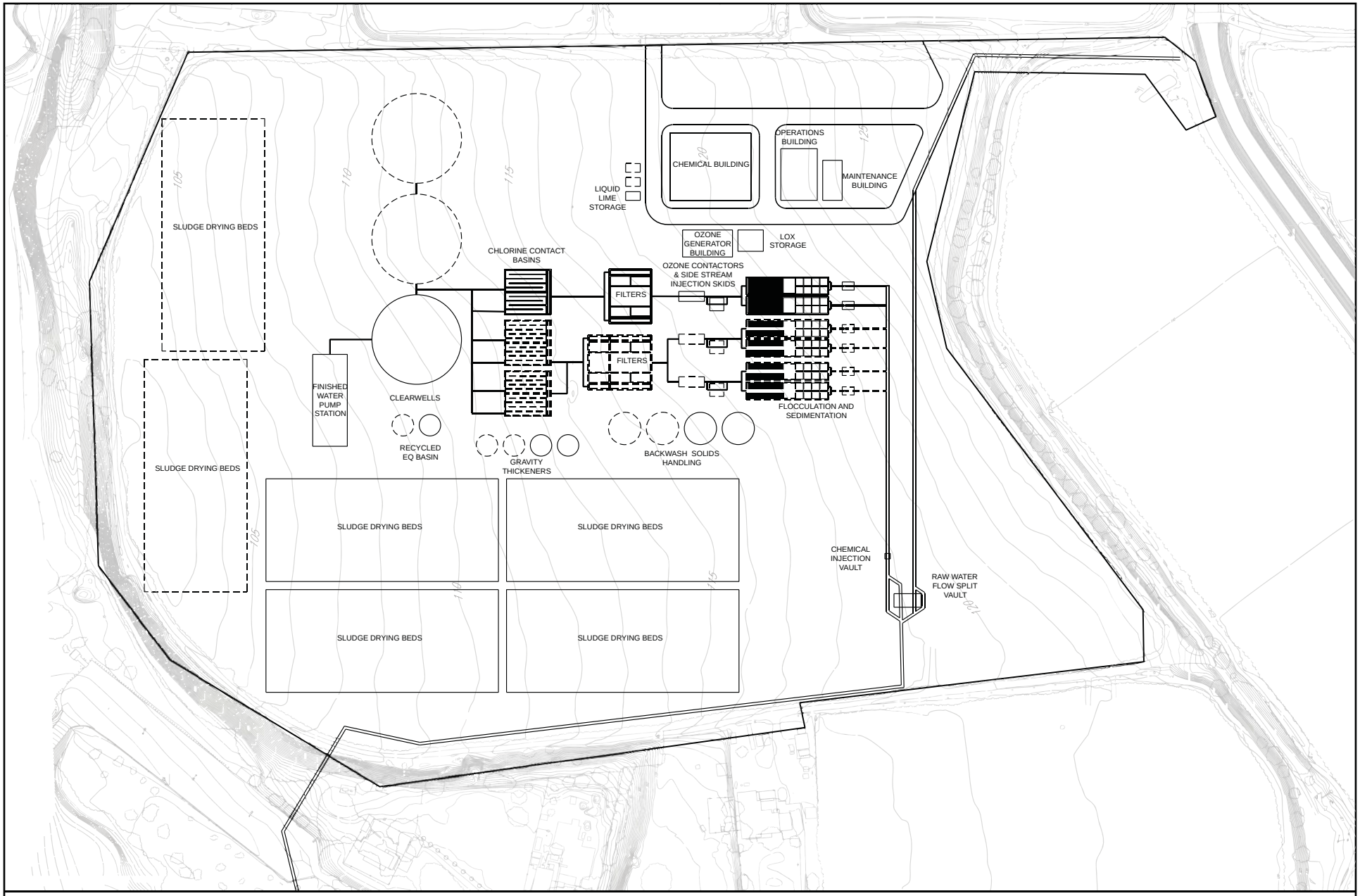
Table 2-3. Water Treatment Plant Capacity and Phasing

Phasing	Nominal (Design) Capacity	Deliveries to Ceres	Deliveries to Turlock
Phase 1 (to 2025)	15 mgd (23.2 cfs)	5 mgd	10 mgd
Buildout (by 2040)	45 mgd (69.6 cfs)	15 mgd	30 mgd

Notes: AFY = acre-feet per year; cfs = cubic feet per second; mgd = million gallons per day; ND = not determined

Clearwell Storage

The planned clearwell water storage at the treatment plant is anticipated to hold approximately 4-6 MG; typically, water treatment plants have clearwell storage of approximately 10 percent of the daily plant capacity. This water storage is planned for the following uses:



Source: Trussell Technologies 2017

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Figure 2-5. Water Treatment Plant Preliminary Site Plan

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- Operational storage for water deliveries,
- Operational storage for treatment plant use,
- Emergency disinfection (i.e., chlorination) volume, and
- Emergency storage use.

The preferred location for operational storage is usually in the member communities' distribution systems. Only limited operational storage is planned to be located at the WTP.

Treatment Processes

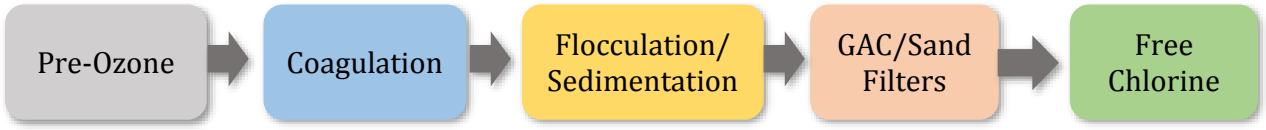
Various combinations of water treatment processes, or process trains, have been evaluated by SRWA. Following an initial evaluation, two variations of conventional treatment, which includes sedimentation, were recommended for further consideration pending results of infiltration gallery testing.

Each of the two process variations still under consideration would use ozone for primary disinfection; conventional coagulation, flocculation and sedimentation for turbidity and disinfection by-product (DBP) precursor removal; granular media filtration with granular activated carbon (GAC) and sand as the media; and free chlorine for final disinfection and distribution system residual maintenance. In addition to providing primary disinfection, ozone in conjunction with biofiltration can effectively treat low concentrations of pesticides, synthetic organic compounds, and taste and odor compounds and can reduce total organic carbon concentrations without risking formation of typical disinfection byproducts. The main difference between the two variations is the location of ozonation; ozonation may occur either just prior to coagulation, flocculation, and sedimentation (i.e., pre-ozonation) or just after coagulation, flocculation, and sedimentation (i.e., intermediate ozonation).

Determination of the final process would be based primarily on treatment effectiveness for DBP control, aesthetics such as manganese control, disinfection, and capital and operating costs through the design-build project procurement. The final selection of a treatment train would affect the number, footprint, and depth of process basins in the plant, as well as the types and quantities of chemicals used. The two treatment trains being considered at this time are shown in Figure 2-6. For more information about treatment processes and structures, see Section 2.6.2, "Water Treatment Plant – Conceptual Site Plan" below.

Figure 2-6. Treatment Alternatives Under Consideration

Train 1 – Conventional Treatment with Pre-Ozone and Biofiltration



Train 2 – Conventional Treatment with Intermediate Ozonation and Biofiltration

Source: West Yost Associates 2017

Of the 15 mgd of Phase 1 capacity, 5 mgd would be allocated to Ceres and 10 mgd would be allocated to Turlock. Of the 45 mgd of buildout capacity (which could be reached in the course of multiple expansions), 15 mgd would be allocated to Ceres and 30 mgd would be allocated to Turlock. SRWA currently is contracted with TID for purchase of up to 30,000 AFY of water based on a 2015 Water Sales Agreement. To fully meet buildout demands, approximately 43,000 AFY of water would be needed, requiring SRWA and TID to amend the 2015 Water Sales Agreement and SRWA to purchase (through a long-term lease) additional surface water from TID.

Conceptual Site Plan

A conceptual site plan for the WTP is shown in Figure 2-5. The treatment plant facilities are assumed to be positioned in the center of the proposed 48-acre site; however, this conceptual plan is expected to evolve during detailed design. Following construction, some portion of the site may be replanted with orchards; however, landscaping and planting decisions have yet to be made. Major structures at the WTP would include the following:

- Operations Building—This is the main staff work center where the plant is operated, visitors are received, laboratory work is conducted, and the computerized plant control system is located. This building contains the plant control room, offices, water quality laboratory, training room, restrooms, locker rooms, computer room, and utility rooms.
- Maintenance Building—contains maintenance spaces, spare parts rooms, and maintenance offices.
- Chemical Building—contains chemical metering and storage equipment.
- Ozone Generator Building—contains ozone generation and ozone destruct equipment.
- Ozone Contactor Structures—two or more sealed basins for diffusing ozone into the water for primary disinfection.

- Flocculation and Sedimentation Basins—In these basins, a coagulant chemical is added and water is mixed to create conditions where particulate and organic matter binds together and settles to the bottom.
- Granular Media Filters—The filters would include gravity media in a concrete structure along with a filter gallery for piping, valves, instrumentation, equipment, and electrical components. Dual-media filters would be employed, utilizing GAC media over sand.
- Chlorine Contact Basins—One or more concrete basins with a serpentine flow path wherein chlorine is added to filtered water for final disinfection.
- Clearwell Tanks—The clearwell consists of one or more tanks for the storage of treated water. The tanks may be baffled to minimize short-circuiting, in the event that final disinfection with free chlorine is achieved in the clearwell tanks. Two tanks may be provided for reliability and to allow maintenance on one tank while the WTP remains in service. In such a scenario, both tanks would normally operate in parallel. Alternatively, a single, common-wall clearwell could be constructed.
- Treated Water Pump Station—The pump station contains multiple vertical turbine pumps drawing suction from the clearwell tank(s). Pumps discharge into aboveground piping headers. The two separate water transmission pipelines would exit this pump station to serve the member communities at their selected (and possibly different) service pressures.
- Washwater Equalization Basin—A concrete tank may store some combination of filter backwash water, filter-to-waste water, supernatant or filtrate from solids dewatering facilities, and other miscellaneous water flows generated by the plant. Clarified water from this basin would be collected and pumped into the raw water supply pipe near the head of the plant. Settled solids collected from the bottom of this basin would be pumped to a clarification facility.
- Washwater Clarification Facility—One or more flocculation and sedimentation tanks (i.e., clarifiers) may be included to remove particulate matter from filter backwash water. Plate settlers may also be used in this facility. Clarified washwater would be collected and pumped into the raw water supply pipe near the head of the plant.
- Treated Water Pump Station—Each City would have separate treated water pumps within the treated water pump station, and each City shall have the ability to tailor the treated water quality leaving the WTP with respect to free chlorine residual, pH and/or Langelier Saturation Index (LSI), and corrosion inhibitor choice and dose.
- Sludge Facilities—Sludge facilities may include a combination of sludge equalization basins, gravity thickeners, mechanical dewatering equipment, sludge drying beds, dried sludge storage areas, and a sludge filtrate or decant pump station. Sludge from the sedimentation basins and the washwater clarification facility may be sent to a sludge equalization basin. From there, solids would be pumped to one or more solids dewatering facilities (e.g., mechanical dewatering equipment, drying beds). Water would be separated from the sludge and recycled. Dewatered sludge would be stored in an adjoining area.
- Overflow Lagoon—A lined overflow lagoon may receive overflow water from process units. It could also be used as a temporary water storage basin during plant

startup to recirculate treated water until it is confirmed that all processes are functional.

- Stormwater Retention Basin—A stormwater retention basin would be excavated into the native sandy soils and would receive stormwater runoff. Water collected in the basin could percolate into groundwater and/or evaporate. Alternatively, a small pump station on one end of the basin could provide the ability to send stormwater into the Ceres Main Canal after water quality testing.

The above descriptions represent a benchmark process configuration; however, variations may be proposed for treatment optimization and/or to reduce project construction and operating costs. The plant would have a circulation roadway system for operations and maintenance access, chemical deliveries, sludge removal, emergency vehicle access, and future improvements. Visitors generally would be restricted to the Operations Building; perimeter fencing and vehicle gates would restrict access to the main treatment plant area. Closed-circuit video cameras would provide security monitoring of the entire plant site. Landscaping would be planted to screen views of the treatment plant from view for neighboring properties.

Site Access and Parking

Access to the site would be on Aldrich Road and across a bridge over the Ceres Main Canal. A primary entrance for normal traffic would be provided, along with a separate emergency access road to the plant facilities. The emergency access road would be designed to support fire department apparatus and graded to allow farm equipment cross traffic. Access to the treatment plant site would also be available along a wide gravel service road on the north side of the Ceres Main Canal. Access along Aldrich Road would be shared with existing agricultural and residential users.

The existing bridge across the Ceres Main Canal is narrow but does not have posted weight limitations to vehicle traffic. At this time, no bridge restrictions have been identified regarding the types of vehicles needed for treatment plant operation, although this will be confirmed through a structural review, which would make recommendations for structural improvements to the bridge, if necessary.

Uncovered parking spaces would be provided throughout the treatment plant site. Parking for visitors (SRWA Member Agency staff and public) would be provided at the operations building, and parking for treatment plant staff and vehicles would be located near the operations and maintenance buildings. In general, parking for the staff vehicles would be located next to the Control Building, within the interior security fencing, and away from plant process areas.

Landscaping

A portion of the treatment plant property may be replanted as an orchard, but this decision would not be made until the final design and layout of the WTP site has been determined. The existing mature orchard may be completely removed prior to the treatment plant construction as it has reached the end of its productive life and topography changes would be made as part of the site's cut-and-fill earthwork. Orchards or other landscaping may be replanted following construction, however, to provide visual screening of the plant for surrounding neighbors.

If replanted, the orchard areas adjoining the treatment plant facilities must be restricted on practices such as insecticide and herbicide sprays that could conceivably enter open water basins (such as flocculation and sedimentation tanks, unless covers are provided) or into clearwell tanks or treated water piping vents and hatches.

An irrigation system would be reestablished so that water from wells or the Ceres Main Canal can be used to irrigate orchards and/or landscaped areas at the site.

2.4.5 Treated Water Transmission Mains

Treated water from the WTP would be delivered to terminal storage tanks owned and operated by the Cities through separate treated water transmission mains. Road ROW and/or pipeline alignments on TID property would be required; easements would also be needed from TID and private property owners to construct and maintain the transmission mains. Easement requirements for each of the treated water transmission mains are described below.

Ceres Alignment

Ceres' treated water transmission main would connect the WTP to a city-owned terminal storage tank to be located at the Ceres River Bluff Regional Park, north of Hatch Road at the east edge of Ceres. This transmission main would be 30 inches in diameter and approximately 5 miles long and would convey up to 15 mgd of surface water to Ceres upon buildout of the WTP. The transmission main would be constructed primarily along Hatch Road. Two 35-foot-wide permanent easements would be required for the Ceres transmission mains:

- Between Aldrich Road and Geer Road north of and parallel to the Ceres Main Canal —This easement may affect one private property or one private property and one parcel owned by TID, depending on the results of topographic survey.
- Between Hatch Road and the terminal tank in Ceres River Bluff Regional Park—This easement would affect property owned by the City of Ceres.

Because no roads provide access between Aldrich Road and Geer Road, the pipeline would be located in the access road north of the Ceres Main Canal. It is anticipated that the pipeline would be approximately 10 feet north of the canal. Although the north side of the canal is outside of city boundaries, it is possible that some portion of the alignment between Seventh Street and Santa Fe Avenue may require construction easements from the City of Hughson.

Several alternative alignments were evaluated for the initial (approximately 3,000 feet) segment of pipeline between the treatment plant and the intersection of Hatch Road and Geer Road (**Figure 2-7**). The preferred option for the pipeline route is south along Aldrich Road, then turning southwest and proceeding along the north edge of the Ceres Main Canal. This route is evaluated in this DEIR as part of the proposed project.

The remaining alignment to Ceres would be within the County road ROW along the south side of Hatch Road north of the Ceres Main Canal. The pipeline is anticipated to be located approximately 20-40 feet north of the canal.

Turlock Alignment

Turlock's treated water transmission main would connect the WTP to city-owned terminal storage tanks located east of North Quincy Road between East Zeering Road and East Monte Vista Avenue, in the northeast area of Turlock. This transmission main would be 42 inches in diameter and approximately 7.25 miles long and would ultimately convey up to 30 mgd of water to Turlock. The pipeline alignment would run south along Aldrich Road, east along John Fox Road, south along Berkeley Road, east along Taylor Road, and then south along North Quincy Avenue. The transmission main would be constructed primarily in existing road ROW. One property acquisition and one permanent easement would be required for the transmission mains:

- Between the TID canal and Burlington Northern and Santa Fe Railroad (BNSF) near the intersection of Santa Fe Avenue and Berkeley Avenue— This area would be used for the trenchless crossing under the railroad and would require the acquisition of one private property.
- Between North Quincy Road and the terminal tank—This easement would affect property which is currently being purchased by the City of Turlock.

Operations and Maintenance

The treated water pump station at the WTP would be equipped with surge protection to protect the treated water transmission mains. Although a surge analysis has not been completed, it is envisioned that one or more hydropneumatic tanks would be installed at the WTP treated water pump station to protect the pipelines from transient pressure surges.

Pipeline dewatering stations would be equipped with manual drain valves and fittings designed to drain the pipeline within 24 hours and accommodate dechlorination equipment. Blowoffs would be designed such that a sump pump could be inserted into the blowoff piping and the remainder of the pipeline could be drained through this pump.

2.4.6 Terminal Facilities

The Ceres and Turlock terminal facilities would consist primarily of one or more water storage tanks, a flow meter, a control valve to control flow into the tank, a booster pump station to pump water out of the tank into the local distribution system, and a supervisory control and data acquisition system (SCADA) for system monitoring. Below-grade facilities would consist of isolation valves, meter, and control valves with actuators. Above-grade facilities would consist of an all-weather electric service pedestal, SCADA and control panel, analyzer panels for residual chlorine and other treated water parameters, terminal strip cabinet, and retail water supplier SCADA panel.

Connection equipment at water storage tank locations may be joint use facilities between SRWA and the Cities, and the connection equipment would be located within the property boundaries of the tank/booster station facilities.

The Ceres site would be constructed on a 1.3-acre site adjacent to the parking area for the Ceres River Bluff Regional Park north of East Hatch Road (**Figure 2-8**), a joint use easement along the access road would allow for SRWA pipeline access. The Turlock site would be constructed on a 6.24-acre site on North Quincy Road. This property is currently owned by a church. The City of Turlock would purchase the entire flag lot, and a 1.8-acre joint-use

easement would allow for SRWA pipeline access (**Figure 2-9**). The following description addresses the local facilities required for buildout of the proposed project (i.e., by 2040). Facilities would be phased in, as needed and as determined by the Cities.

Ceres

In Ceres, the following improvements would be needed by buildout of the proposed project:

- 2-MG storage tank, located north of Hatch Road at the Ceres River Bluff Regional Park. The tank dimensions have not yet been established, but the tank height is anticipated to be 25-30 feet, with a corresponding diameter ranging from 107 feet (at a 30-foot height) to 117 feet (at a 25-foot height).
- Booster pump station with 19 mgd firm capacity, 160 feet total dynamic head
- Installation of approximately 29,900 feet (approximately 5 miles) of new water distribution pipeline improvements would also be required within the Ceres service area, connecting the storage tank to the city distribution system:
  - 24,100 feet of 16-inch-diameter pipeline along the following route:
    - 8,200 feet along East Hatch Road, from Mitchell Road to Richland Avenue
    - 5,200 feet along Faith Home Road, from East Hatch Road to East Whitmore Avenue
    - 1,800 feet along East Whitmore Avenue from Faith Home Road to Eastgate Road
    - 2,700 feet along Eastgate Road from East Whitmore Avenue to Roeding Road
    - 800 feet along Roeding Road from Eastgate Road to Esmar Road
    - 2,600 feet along Esmar Road from Roeding Road to East Service Road
    - 2,800 feet along East Service Road from Esmar Road to the existing 24-inch diameter pipeline just west of Mitchell Road
  - 5,800 feet of 24-inch-diameter pipeline along the following route:
    - 500 feet of 24-inch-diameter pipeline from the storage tank to East Hatch Road.
    - 5,300 feet of 24-inch-diameter pipeline along East Hatch Road, from Faith Home Road to Mitchell Road

This infrastructure would serve future growth and allow Ceres to integrate and conjunctively use surface water and groundwater supplies.

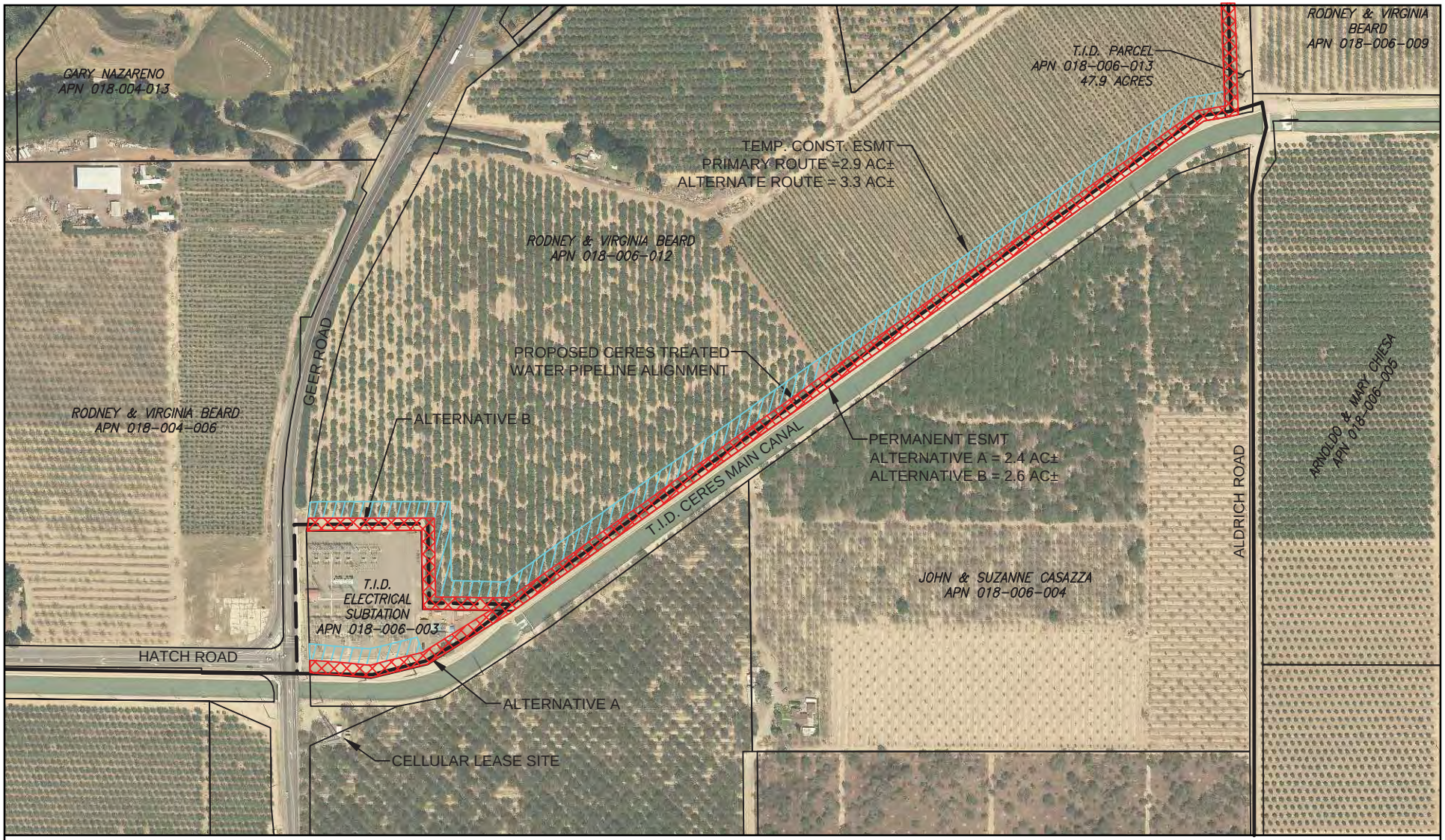
Turlock

In Turlock, the following improvements would be needed on the 6.24-acre site by buildout of the proposed project:

- Two 2.5-MG tanks, located east of north Quincy Road between East Zeering Road and East Monte Vista Avenue. The tank dimensions have not yet been established, but the tank height for each tank is anticipated to be 25-30 feet, with a corresponding diameter ranging from 119 feet (at a 30-foot height) to 130 feet (at a 25-foot height).

- Booster pump station with 37 mgd firm capacity, 185 feet total dynamic head
- Installation of approximately 45,500 feet (approximately 7.25 miles) of new water distribution pipeline improvements would also be required within the Turlock service area, connecting the storage tanks to the city's distribution system:
  - 8,100 feet of 16-inch-diameter pipeline:
    - 3,800 feet along East Taylor Road from Colorado Avenue to North Geer Road
    - 4,300 feet along East Avenue, from North Quincy Road to 200 feet east of Oak Street
  - 19,200 feet of 24-inch-diameter pipeline:
    - 4,000 feet along East Taylor Road from North Quincy Road to Colorado Avenue
    - 2,900 feet along North Quincy Road from East Canal Drive to East Avenue
    - 6,800 feet along West Canal Drive, from North Geer Road to North Tully Road, and along North Tully Road to Chakkar Estates Drive
    - 700 feet along North Geer Road from East Taylor Road to Memory Lane
    - 700 feet along Colorado Avenue, from East Taylor Road to Dancer Way
    - 4,100 feet along North Quincy Road from the terminal tank site tie-in on North Quincy Road to East Taylor Road
  - 8,000 feet of 30-inch-diameter pipeline along East Canal Drive, from North Quincy Road to North Geer Road
  - 5,100 feet of 36-inch-diameter pipeline along North Quincy Road from East Tuolumne Road to East Canal Drive
  - 5,100 feet of 42-inch-diameter pipeline:
    - 1,200 feet from the terminal tank site to North Quincy Road
    - 3,900 feet along North Quincy Road from Terminal Tank tie-in on North Quincy Road to East Tuolumne Road
- Turnout and valve connections at various locations along the transmission pipeline to allow operation of the pipeline at higher pressure than system pressure. Valves would be motor-operated butterfly valves or plug valves.

This infrastructure would serve future growth and allow Turlock to integrate and conjunctively use surface water and groundwater supplies.



Source: Provided by West Yost Associates in 2017

LEGEND

- Permanent Easement
- Temporary Construction Easement
- Existing parcel line
- Existing easement
- Proposed Pipeline Alignment

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NOTE: Easements shown are preliminary. Easement locations and areas, as well as final selection of pipeline alignment alternatives (where shown) are subject to change pending evaluation of environmental and physical constraints.

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Figure 2-7.
Alignment Alternatives

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Source: Provided by West Yost Associates in 2017

Figure 2-8.
Ceres Tank Site

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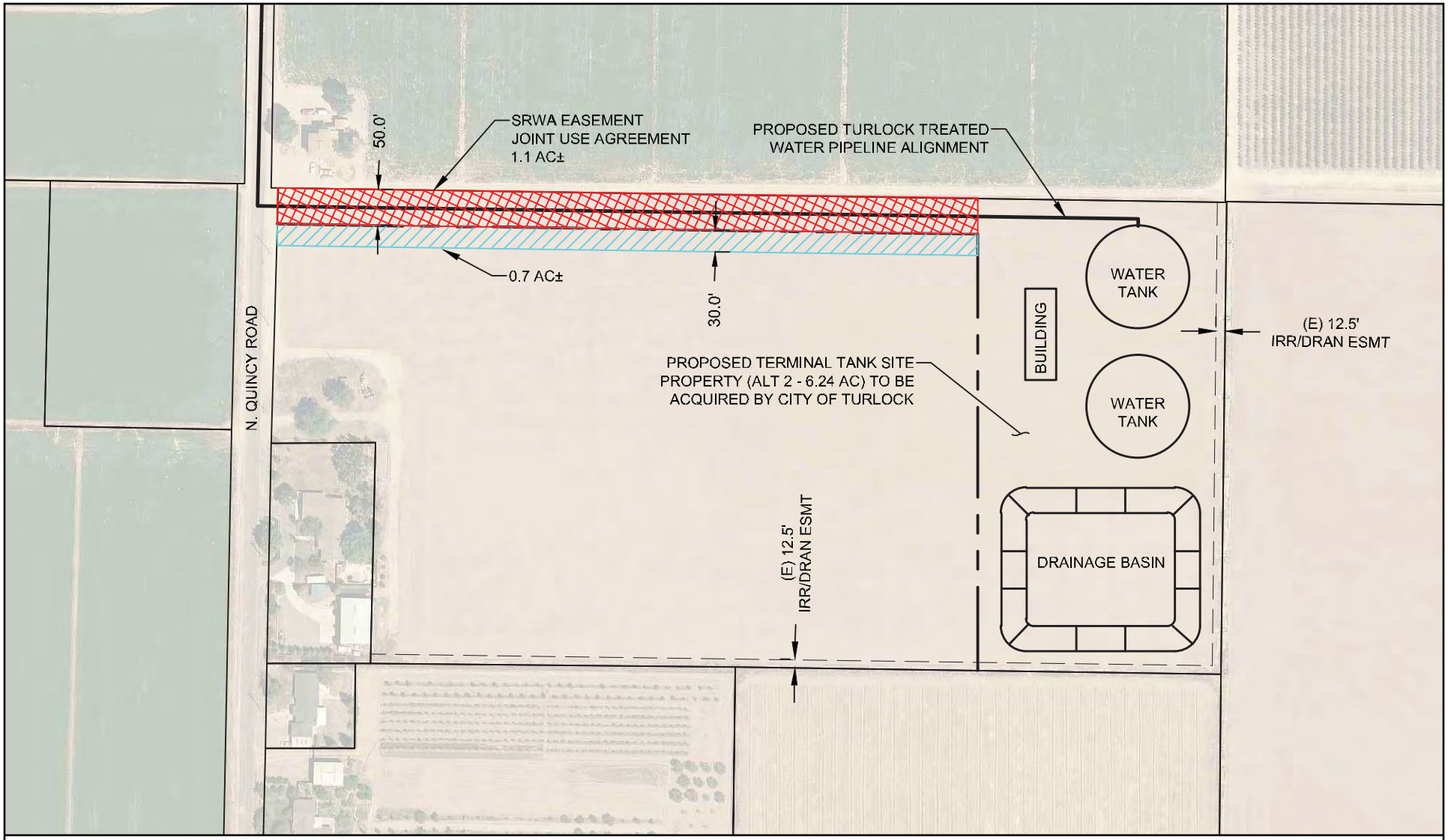

Source: Provided by West Yost Associates in 2017

LEGEND

- Permanent Easement
- Temporary Construction Easement
- Existing parcel line
- Existing easement
- Proposed Pipeline Alignment

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NOTE: Easements shown are preliminary. Easement locations and areas, as well as final selection of pipeline alignment alternatives (where shown) are subject to change pending evaluation of environmental and physical constraints.

Figure 2-9.
Turlock Tank Site

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2.4.7 Water Supply and Offset Water Facilities

The 2015 Water Sales Agreement (WSA) between TID and SRWA provides for TID to deliver Tuolumne River raw water to Turlock and Ceres for treatment and delivery for domestic use in the Cities. The agreement has a term of 50 years. As explained in Section 2.4.2, the river water would be diverted and delivered through an existing infiltration gallery and a future wet well/raw water pump station to the proposed WTP. The water price would be based on TID's then-current published Tier 4 Irrigation Water rate (currently $20 per acre-foot) for both normal and dry years. The WSA would be limited to a maximum of 30,000 AFY of water that TID would provide to SRWA. TID would file a petition with the SWRCB to request approval of a long-term water transfer, the use of the infiltration gallery as a point of rediversion, and the addition of M&I water uses that would authorize the delivery and use of water by SRWA as provided in the WSA. In drought situations, the delivery of water to SRWA would be subject to curtailment in the same manner as provided for TID agricultural customers

In return for the TID river water, the City of Turlock would provide TID with 2,000 AFY of recycled water (e.g., treated wastewater) during the irrigation season and SRWA would provide TID with "offset water" in any year when there is a curtailment in the TID water allocation. The offset water would be either recycled water or groundwater. The amount of the offset water would vary based on the quantity of surface water supplied by TID, according to a formula identified in the WSA, up to a maximum of 15,000 acre-feet in any given year. The City of Turlock recycled water deliveries would count toward the offset water requirement. The offset water would be delivered into TID's laterals at the western end of its system. SRWA, in coordination with the Cities, is evaluating the options to provide the offset water to TID. The proposed project includes the design, construction, operation, and maintenance of the offset water facilities. Potential locations of existing or new infrastructure that could be used to deliver offset water include the following (as shown in **Figure 2-10**):

- Ceres Connections:
  - Well 23 – north side of Hatch Road west of Moffett Road; pipeline connecting to Ceres Main Canal is proposed for construction in 2019
  - Well 25 – south side of Hatch Road at Boothe Road; includes infrastructure to deliver groundwater to Ceres Main Canal
- Turlock Connections (multiple options):
  - Pump existing wells into the Turlock storm drainage system, which drains to Donnelly Lake and then discharges into TID Lateral 4 via an existing 24-inch line from Donnelly Lake to Lateral 4, at North Soderquist Road (existing City wells that could be used include any or all of the following: Well 3, 24, 28, 31, 32, 38, or others)
  - Utilize discharge water from two existing nonpotable wells located at Donnelly Park into Donnelly Lake
  - Construct a nonpotable well at Dianne Pond (stormwater basin) and pump previously recharged stormwater into Lateral 4 during the summer months
  - Connect Well 38 (offline arsenic) and a nonpotable well at the Turlock Regional Sports Complex through a new pipeline along Mountain View Road into Lateral 3

  - Reopen the existing, closed pipeline connection between two dewatering wells located at the Turlock Regional Water Quality Control Facility and the discharge line from these wells, which discharges into the Casey Ditch
  - Connect Well 14 (offline nitrates) to Lateral 4

Other options to provide offset water to TID could include the following:

- Purchase excess water from TID (SRWA has rights under the WSA to 30,000 AFY but only needs 15,000 AFY in Phase 1) and return it to TID as offset water
- Build a nonpotable groundwater well for TID somewhere within its service area to address supply deficiency

2.5 Project Construction

2.5.1 General Construction Practices

Geotechnical Investigations

Several geotechnical investigations have been conducted previously (Kleinfelder 2007; Crawford and Associates 2017), and the proposed project facilities would be designed and constructed to address site-specific seismic-related or soil stability issues and minimize the potential risk of structural failure. In addition, SRWA would commission a more detailed geotechnical investigation of the project sites to address code changes since the 2007 study and to facilitate final design of the facilities.

Site Preparation

Site preparation would include clearing and grubbing at each site. Clearing and grubbing would be conducted using standard excavators, bulldozers, and hand labor. Other site preparation work may involve excavation, import and placement of fill, and compaction.

To the extent feasible, excavated soil would be reused on-site. If required, fill would be delivered to the project sites by conventional haul trucks with a capacity of up to 20 cubic yards [cy] per load. Fill material would be placed with an excavator and compacted with a compactor/roller.

Water Storage Tanks

Water storage tanks at the terminal facility sites would involve construction of the following:

- Concrete pads and foundations for the tank, booster pump station, and generator for back-up power would consist of concrete or asphalt paving.
- Masonry block building to house booster pumps, process piping, and electrical equipment.
- Above- and below-ground process piping.
- Electrical and control systems housed in secure enclosures.

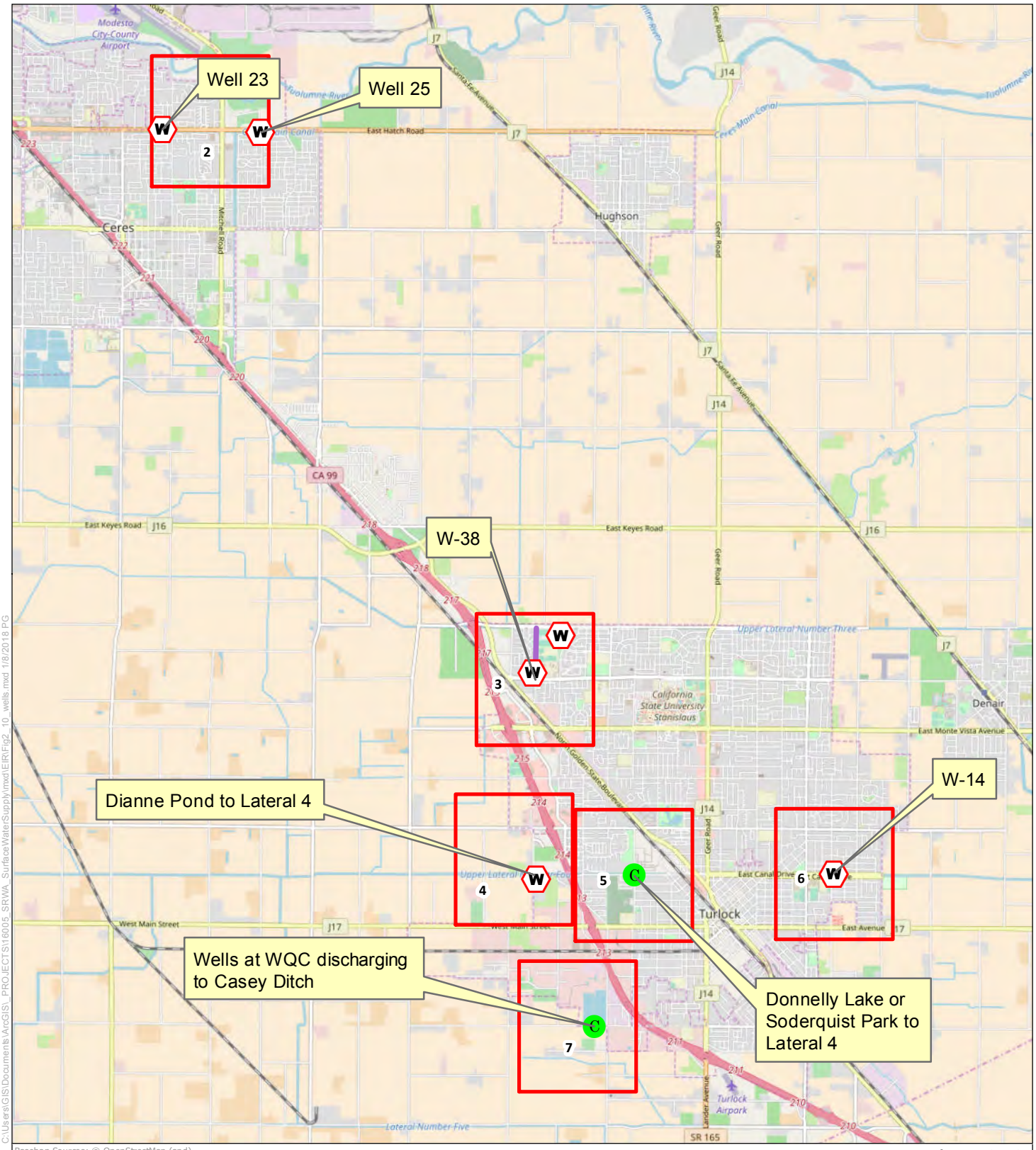

Figure 2-10

Offset Water Connection Points and Lines Overview

Surface Water Supply Project

Basebap Sources: Esri, HERE, DeLorme, MapmyIndia, © OpenStreetMap contributors

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C Connection Point

W Well

Offset Water Lines

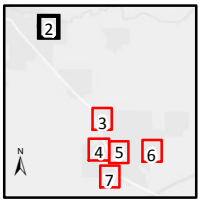
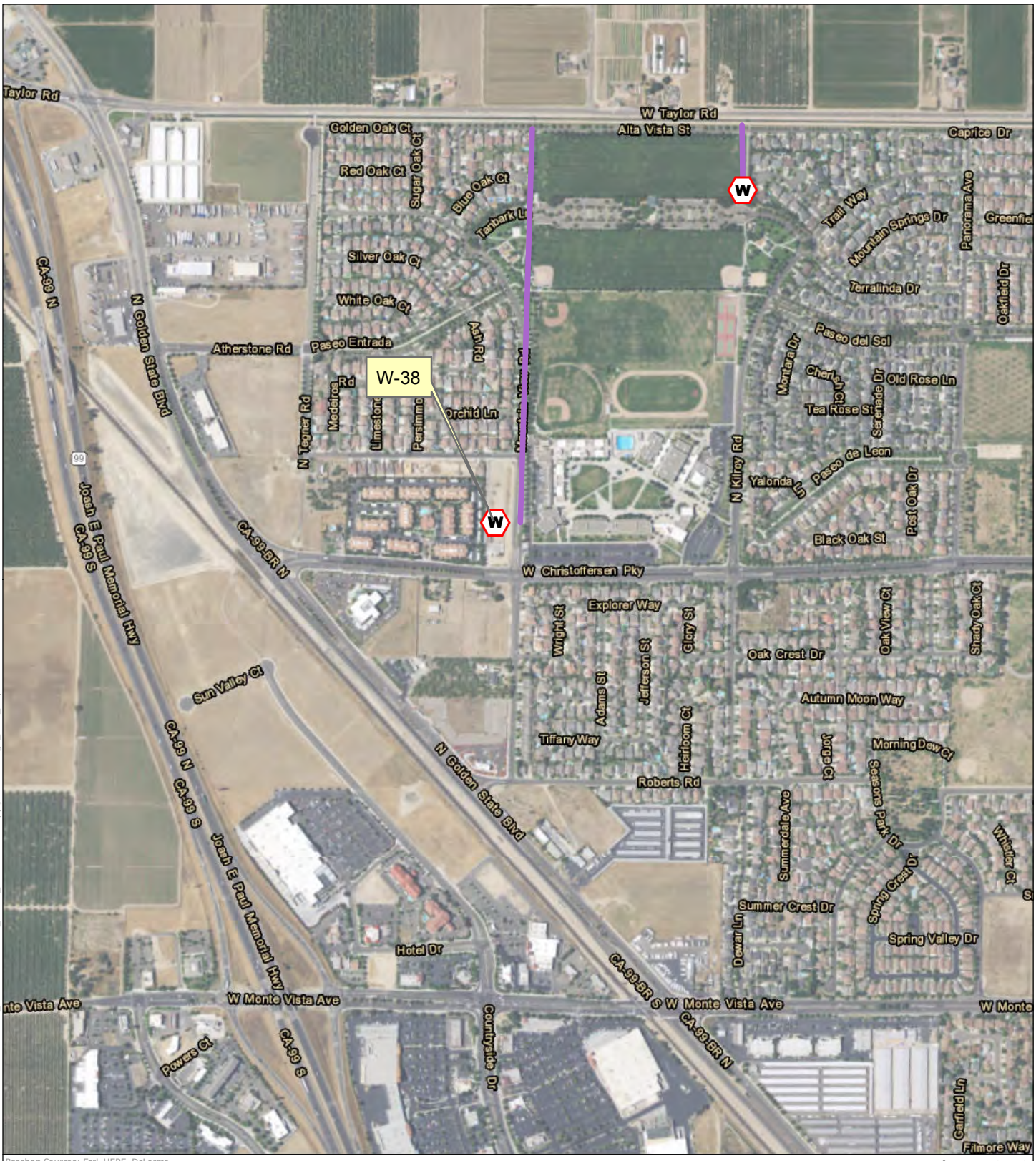


Figure 2-10

Offset Water Connection Points and Lines

Horizon WATER and ENVIRONMENT

Surface Water Supply Project



Basebap Sources: Esri, HERE, DeLorme, MapmyIndia, © OpenStreetMap contributors

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0 0.25 Miles

Connection Point

Well

Offset Water Lines

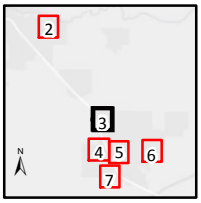

Figure 2-10

Offset Water Connection Points and Lines

Horizon WATER and ENVIRONMENT

Surface Water Supply Project

Basebap Sources: Esri, HERE, DeLorme, MapmyIndia, © OpenStreetMap contributors

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C Connection Point

W Well

Offset Water Lines

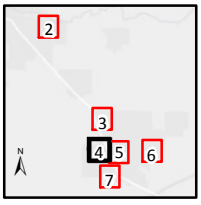


Figure 2-10

Offset Water Connection Points and Lines

Horizon WATER and ENVIRONMENT

Surface Water Supply Project

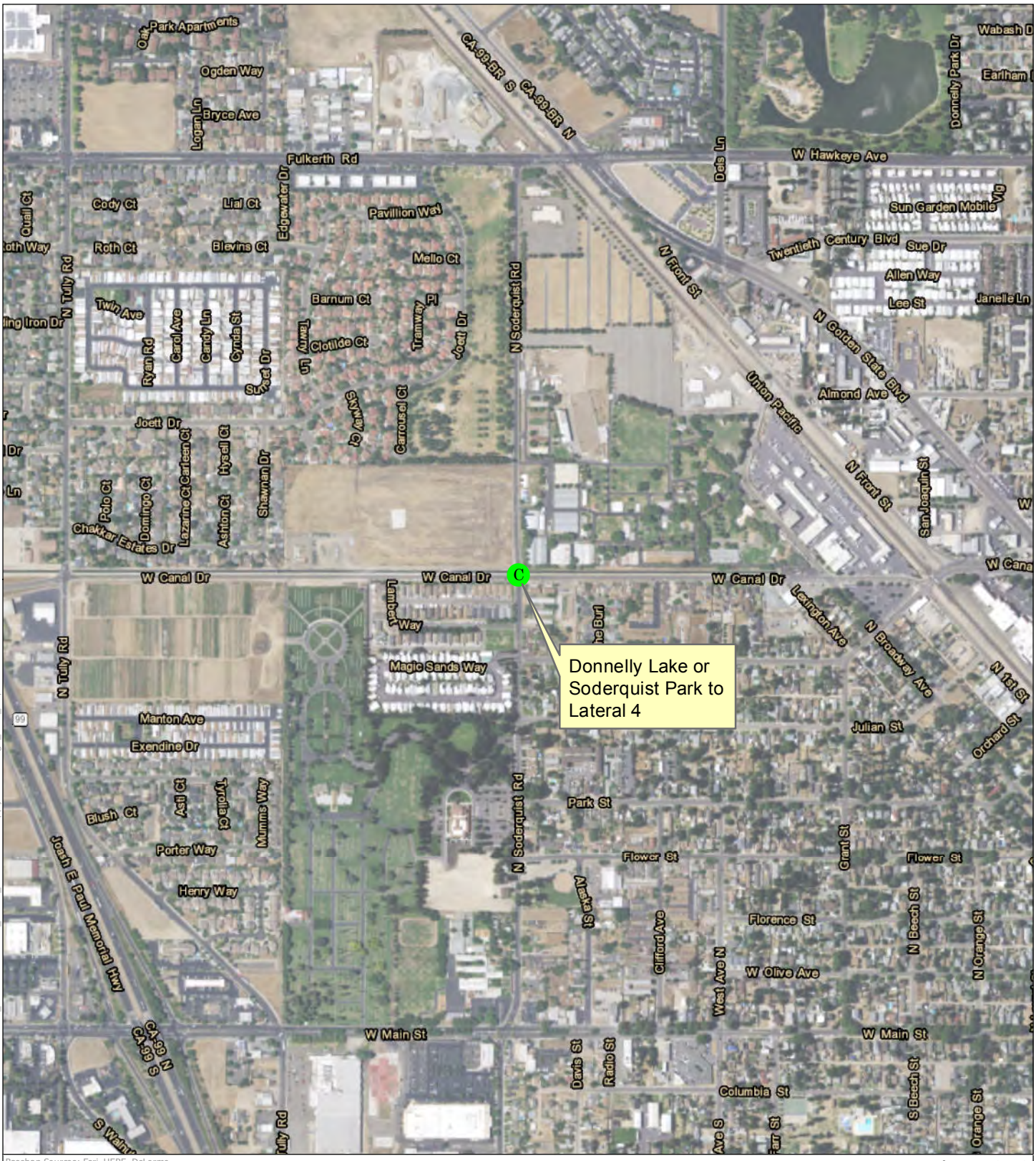
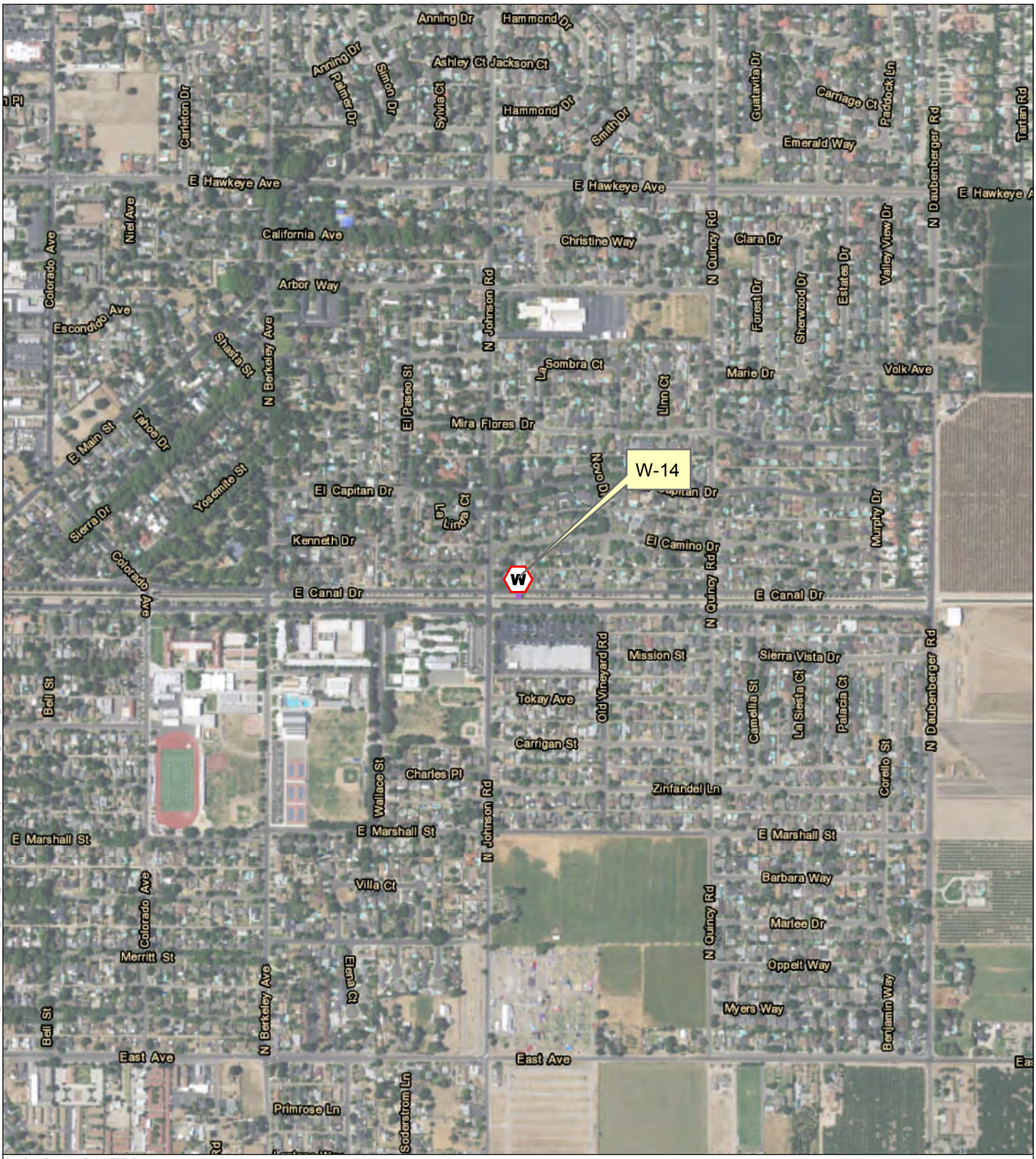


Figure 2-10

Offset Water Connection Points and Lines



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0 0.25 Miles

Connection Point

Well

Offset Water Lines

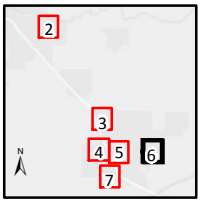

Figure 2-10

Offset Water Connection Points and Lines

Horizon WATER and ENVIRONMENT

Surface Water Supply Project

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Figure 2-10
Offset Water Connection Points and Lines

Horizon WATER and ENVIRONMENT

Surface Water Supply Project

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- The entire site would be fenced, gated, and locked for security purposes. The facilities would be architecturally designed to blend in with other existing buildings in the area.
- Storm drainage facilities would be installed to allow all-weather maintenance and vehicle access to the site. Proposed storm drainage systems may include an on-site retention basin to capture any overflow from the storage tank or booster pumps.
- All lighting would be internally directed to reduce light or glare.
- As a backup power supply during a power outage, standby diesel generators would be installed inside the booster pump station or in an acoustically designed and insulated structure outside the booster pump station.

Groundwater Wells

Where necessary to provide offset water for TID, construction of new groundwater wells up to 600 feet deep would involve construction of the following:

- Drilling of the well.
- Pumping of the well during initial capacity and production testing.
- Concrete pads and foundations for the well's motor and pump and standby generator.
- Masonry block building to house the well (if required), related equipment, process piping, and electrical equipment.
- Subsurface or inline sand removal equipment, if required.
- Above- and below-ground process piping and valving.
- Electrical and control systems housed in secure enclosures.
- SCADA equipment may include an antenna.
- Standby emergency generator for a backup power supply during a power outage, if required.
- The entire pump station site would be fenced (or perimeter masonry block enclosure), gated, and locked for security purposes. The well house building (if required) would be designed architecturally to blend in with other existing buildings in the area.
- Storm drainage facilities would be installed to allow all-weather maintenance and vehicle access to the site.
- All lighting would be internally directed to reduce light or glare, if required.
- Standby diesel generators would be installed in acoustically designed and insulated structures, if required.

Pipelines

For new pipelines that would be installed in the ROW of existing streets, the general process for pipeline installation involves digging a trench, installing the pipe, and backfilling the trench ("cut and cover"). In existing streets, the cut-and-cover method involves removing the asphalt, roadway base, and underlying soil; materials would generally be replaced at the

completion of the program, but some excess materials may be disposed off-site. The depth and width of the trenches would vary depending upon the size of the pipe and in consideration of other existing utility lines. Construction crews may close one lane of traffic temporarily during pipe installation. In general, the maximum length of an open trench would be the distance necessary to accommodate the amount of pipe that can be laid in one day, typically 200-400 feet. For new water transmission mains or distribution pipelines, typically 200-400 feet can be laid with one crew working. A typical crew size includes 5 workers. In the event that multiple crews are working on a particular pipeline project, more than 400 feet of new pipeline can be installed. If a pipeline is required to be installed over an existing line, typically the cut-and-cover method would be used and the existing pipe would be cut, capped or hot tapped (using a valve) and removed, the replacement pipe would then be installed as described above and the surface improvements restored. It is anticipated that most canal crossings would be built by open-cut construction with concrete slurry backfill.

To the extent feasible, pipeline construction activities would occur within the limits of the City or County ROW boundaries, City utility easement, and/or construction easement. The width of the construction area varies both on the extent of applicable easements and pipeline diameter. The approximate widths of construction include the trench excavation and the approximate width needed for contractors' equipment. Pipeline construction within the public ROW for the Turlock and Ceres treated water transmission mains is estimated to have an approximate construction width of 40 feet. The construction width of the Turlock and Ceres treated water pipeline is expected to stay within the ROW limits and would not affect any nearby structures. Depending on the pipeline location, construction crews may close one lane of traffic temporarily, may implement rolling road closures, or may utilize total closures during work hours. The construction of the raw water pipeline in areas with elderberry shrubs is assumed to be approximately 50 feet; areas clear of elderberry shrubs would have an approximate construction width of 80 feet.

Pipelines may also be installed by a process such as the jack-and-bore method, typically when the open trench method is not practical and/or possible, such as when transmission mains or water distribution pipelines are required to cross under a railroad and/or irrigation canals. The jack-and-bore method requires the construction of insertion pits, pipe jacking (pipes pushed behind the small tunneling machine), and application of a lubricant to maintain pressure and prevent the shafts and the tunnel from collapsing. The tunneling machine is controlled by a computer and is typically accurate. The construction crews first establish the launch pit and a receiving pit on either side of the waterway or utility crossing. Temporary dewatering may be needed at the pits.

Raw Water Pump Station

The construction of the raw water pump station would include trenching and backfilling for yard piping, shallow foundation improvements for the building(s), construction of the concrete masonry unit (CMU) building, installation of mechanical equipment and aboveground piping, paving, fencing, landscaping, and miscellaneous site work.

Raw Water Transmission Main

Construction of the raw water pipeline would involve trenching, backfilling, shoring, dewatering, easement acquisition, and crossing under the existing Geer Road Bridge.

The trench must be wide enough to accommodate mechanical equipment that compacts the backfill materials and provides soil side support to the pipeline. The minimum trench width at the bottom and top of the pipe would be the outside diameter plus 2 feet. The raw water pipeline would be installed under the existing Geer Road Bridge, between the south bridge abutment and the first concrete pier.

Water Treatment Plant

The WTP would be constructed in two or more phases. The treatment plant would have an initial capacity of 15 mgd (approximately 24 cfs) to meet near-term demands for the Cities and an ultimate capacity of 45 mgd (approximately 70 cfs) to meet long-term M&I demands for the Cities. As described in previous sections, the WTP would be located on an approximately 48-acre site, of which approximately half or more would likely be allocated for the initial WTP site. The initial site plan is likely to accommodate a portion of future expansion (e.g., by providing adequate space to construct one or more additional filters); however, additional facilities required for the buildout to 45-mgd capacity are likely to require expansion beyond the initial footprint of the WTP within the 48-acre site.

SRWA would contract design and construction of the WTP to an engineering or construction firm following approval of the proposed project. As a result, information available at this time regarding the WTP is based on SRWA's preliminary design (shown in Figure 2-5). Following more detailed design of the facility, SRWA would determine whether additional environmental review of the facility could be required. Information to be reviewed at that time includes a detailed construction schedule, estimated construction truck trips, and construction emissions.

Treated Water Transmission Mains

Treated water transmission mains would generally be constructed using the construction methods described above. Primary pipeline alignment crossings associated with construction activities include locations where trenchless construction methods, multiple agency coordination, or construction by special permit are required. Trenchless construction methods would be used at locations where typical open-cut installation methods are not feasible or where special construction methods are required by the permitting agency. Trenchless construction methods may be necessary at railroad crossings, and selected intersections and TID irrigation canal crossings.

Portions of both treated water pipelines run parallel to or cross under high voltage power transmission mains which may require special safety precautions.

ROW acquisition requirements for the proposed project would be minimized by constructing the pipeline within public road ROW or TID property wherever possible. Property acquisition, permanent easements, and temporary construction easements would be required for various portions of the pipelines. These locations include an area north of the Ceres Main Canal between Aldrich Road and Geer Road on the Ceres pipeline, and at the BNSF track crossing at Berkeley Road on the Turlock pipeline. Both pipelines would require easements at the entrance to the terminal tanks over City property.

Contractor staging areas would be spaced along the pipeline alignment as required for material storage and construction efficiency.

Table 2-4 indicates major pipeline crossings that have been identified. The railroad crossings would be trenchless, the other crossings may be trenchless or open cut depending on permitting requirements.

Table 2-4. Major Pipeline Crossings

Pipeline	Location	Approximate Length (feet)	Agency Coordination
Ceres terminal tank pipeline	Geer Road crossing at Hatch Road	130	Stanislaus County, Turlock Irrigation District
	BNSF railroad crossing at Hatch Road	210	Stanislaus County, BNSF Railroad
	Ceres Main Canal crossing at Faith Home Road	90	City of Ceres, Turlock Irrigation District
Turlock terminal tank pipeline	Ceres Main Canal crossing at Aldrich Road	90	Stanislaus County, Turlock Irrigation District
	Geer Road crossing at Fox Road intersection	110	Stanislaus County
	BNSF Railroad crossing at Berkeley Road*	210	Stanislaus County, BNSF Railroad
	TID Lateral 2 Canal crossing at Berkeley Road*	60	Stanislaus County, Turlock Irrigation District
	TID Lateral 2½ Canal crossing at Berkeley Road	100	Stanislaus County, Turlock Irrigation District
	TID Lateral 3 Canal crossing at North Quincy Road	60	Stanislaus County, Turlock Irrigation District

*The BNSF Railroad and TID Lateral #2 Canal crossings may be crossed in the same boring, depending on final project design.

In addition, a number of minor crossings would take place on both the Ceres and Turlock pipeline segments. The exact number of crossings has not yet been determined. These minor crossings primarily involve TID private irrigation service laterals to adjacent agricultural businesses. Pipeline installation through minor crossings would be completed through open-cut construction methods, which could temporarily interrupt seasonal irrigation service to these agricultural businesses. Interruption of service would be coordinated in advance and scheduled during periods when no irrigation water is required. If scheduling of irrigation services cannot be coordinated, the contractor would provide bypass pumping as required to meet TID irrigation water supply contractual obligations and individual business requirements.

2.5.2 Construction Equipment

The main pieces of equipment that may be used for project construction are the following:

- track-mounted excavator
- small crane
- end dump truck
- dump truck
- flat-bed delivery truck
- concrete truck
- grader
- bulldozer
- telescopic forklift
- pickup truck
- compactor
- front-end loader
- water truck
- diesel generators
- water hoses
- pumps for dewatering
- cement and mortar mixers
- mowing equipment (e.g., weed eaters, commercial lawnmowers)
- concrete pumper

The contractor(s) would confirm or expand this list of equipment during the final design process.

2.5.3 Construction Schedule

Construction of the proposed project facilities is anticipated to begin in 2019 and be completed in 2022. Construction is planned to ordinarily take place Mondays through Fridays, normally between 7:00 a.m. and 7:00 p.m. Construction is not planned on weekends, nights, or holidays; if necessary, possible work activities during those times would require prior approval by the County (for work within the unincorporated area) or City (for work within a city).

2.6 Project Operations

2.6.1 Infiltration Gallery and Raw Water Pump Station

With up to six variable-speed vertical turbine pumps, the proposed raw water pump station has a buildout design capacity of up to 100 cfs (65 mgd or 45,000 gpm) and would be designed to discharge raw water to two locations: the proposed WTP and the existing Ceres Main Canal. A flow split structure located on the WTP site would house two motor-operated control valves, one on each reach of the raw water pipeline. The valves would be modulated as necessary.

Flows

Five pumps would operate while a sixth pump is on standby. Under the proposed project, the pumps at the raw water pump station would be designed to satisfy the following buildout flow conditions:

- Up to 65 mgd (100 cfs) to the Ceres Main Canal and no flow to the WTP
- Up to 45 mgd to the WTP and no flow to the Ceres Main Canal or

- Combined simultaneous flows of up to 45 mgd to the WTP and up to 20 mgd to Ceres Main Canal.

Air Purge and Backwash System

Without an air purge and/or a water backwash system, the hydraulic losses through the infiltration gallery system may increase over time, potentially causing a reduction in the pump station water intake rate to below the design capacity. The air purge system is intended to loosen and remove the fines from around the well screens.

Air purging can be accomplished by sequentially opening one air valves to allow the release of pressurized air to portions of one or more gallery bays at a time. The number and capacity of pressurized air vessels, as well as the design air flow rate and discharge pressure, have yet to be designed.

The water backwash can be accomplished by opening a pressure relief valve to allow water stored in the approximately 3,000 feet of 60-inch-diameter pipe (approximate water volume of 0.44 million gallons) to purge each gallery bay. The maximum water volume in the raw water pipeline is sufficient to backwash all four bays. The design water flow rate per backwash is yet to be determined.

The air purge system, which is likely to incorporate pressurized air receiver tanks, could be designed to operate manually during the day and automatically at night. Because people use the Fox Grove access area during the day, purging at night would be preferred to minimize noise impacts to the public.

Raw Water Transmission Main Pigging System

The raw water transmission main would be equipped with facilities to allow the launch and retrieval of a pipeline "pig." Pigging of the pipeline would be performed periodically to remove sediment or other material that may accumulate along the bottom and/or walls of the pipe. The pig would be inserted at the raw water pump station and would travel toward the WTP by virtue of the increased pressure behind the pig. As the pig travels, sediment or other material would be scoured and resuspended in the raw water. The pig would be retrieved within the limits of the WTP property, either by removing the pig from the pipeline at a dedicated pig retrieval station or by allowing the pig to discharge into an open basin for subsequent retrieval.

2.6.2 Water Treatment Plant

It is assumed that the normal operation of the WTP would be to operate in a relatively steady-state condition over a 24-hour period. Relatively constant treatment flow rates typically produce the best water quality. The plant's design concept is not intended to meet diurnal demand swings that would characterize a typical municipal water supply from predominantly residential communities. The operational storage to meet the daily diurnal swings would be from the member communities' water storage in their distribution systems, and from their well capacity.

The WTP would be initially operated and staffed 24 hours per day, 7 days a week. However, after a period of time, if permitted by the SWRCB Division of Drinking Water, the possibility of transitioning to an unmanned operation of the WTP during the overnight hours would be contemplated. After being placed into service, it is expected that the WTP, or portions of the

WTP, would be taken out of service only for infrequent scheduled maintenance outages and emergency outages. While the treatment plant production is out of service, water would be delivered to the member communities from the storage in the clearwell(s). If this is inadequate to meet the member communities' needs, the Cities would use their distribution system storage and wells to maintain water service to their customers.

Staffing is anticipated to be approximately 11-17 positions. Estimated staff positions are as follows:

Chief operator – 1
Operations and maintenance supervisor – 1
Operators – 3 to 6
Laboratory technician – 1
Field clerk – 1 (part time)
Senior mechanic – 1 to 2
Maintenance worker – 1 to 2
Instrumentation and electrical technician – 1 to 2
Administrative staff – 1
Janitorial staff – TBD
Gardener – TBD

Staff would primarily work out of the Operations and Maintenance Buildings. During shift changes, meetings, training sessions, and maintenance activities, there could be 2-17 staff members present in the Operations and/or Maintenance Buildings.

Treatment Processes

Major components of the treatment processes are as follows:

- Raw water ozonation (either pre-ozonation or intermediate ozonation) would break down and potentially reduce total organic carbon; reduce taste and odor; oxidize iron and manganese for removal; achieve approximately 1.0 log of *Giardia* (parasite) inactivation[4] and up to 2.0 log of virus inactivation, and oxidation of potential micropollutants; and potentially improve the conventional filtration process.
- Coagulant chemicals would be added to destabilize particles and organic matter in the water, leading to their agglomeration for removal in the next process.
- Sedimentation in basins would remove particulate and organic matter.
- Conventional dual-media filtration would use granular activated carbon over sand filter media. This is a proven and reliable system used in numerous water treatment plants in California and the United States. Conventional filtration with granular activated carbon can:
  - Provide very low and reliable turbidity levels in the filtered water;
  - Provide up to 3.0 log removal of *Cryptosporidium* (a parasite);
  - Reduce objectionable tastes and odors from the water;

[4] Log inactivation of viruses relates to the percentage inactivation of the virus. For example, 1-log inactivation = 9 out of 10 or 90 percent inactivation and 2-log inactivation = 99 out of 100 or 99 percent inactivation.

  - Reduce assimilable organic carbon concentrations; and
  - Adsorb and remove other chemical contaminants from the water.
- Free chlorine, likely in the form of sodium hypochlorite, would be added to the water to provide additional virus and *Giardia* inactivation and help maintain water quality within the water transmission and distribution systems.
- Chemical conditioning of the treated water would involve the addition of one or more of the following chemicals: free chlorine (to adjust the chlorine residual), caustic soda or lime (to adjust alkalinity and LSI and/or adjust pH), and a corrosion inhibitor (to reduce the likelihood of corrosion within the distribution system).
- Treated water pump station with multiple pumps would send water through the two separate transmission pipelines to Ceres and Turlock. Each City would have the ability to tailor the treated water quality for its City with respect to chlorine residual, pH or LSI, and corrosion control.
- Sludge handling processes would be used to separate and dry solids and recycle decanted and/or filtered water back to the head of the treatment process.

Operations and Maintenance

As explained above, the WTP would initially be operated and staffed 24 hours per day, 7 days a week. When the plant is out of service, the clearwell and City storage and groundwater would be used to maintain water service to their customers.

Planned maintenance on portions of the treatment plant (e.g., inspection of one clearwell tank, maintenance on flocculation equipment) would be conducted during periods of low water demand so that service is not interrupted.

Reasons for planned maintenance outages could include:

- Inspection and maintenance of water transmission and key treatment plant pipelines, channels, processes, and conduits;
- Inspection and servicing of raw water pump station wet well, pipeline, and infiltration gallery;
- Control system upgrades;
- Electrical equipment and conductor testing and replacement;
- Servicing of equipment and subsystems within pipelines, channels, or process units; and
- Process upgrades.

Emergency outages may be due to:

- Damage and repairs to non-redundant pipelines, facilities, and electrical equipment and feeders;
- Malfunction of control system, instrumentation, or chemical diffuser;
- Chemical leaks and spills;

- Security issues; or
- Natural disasters (e.g., flooding, earthquakes).

Vehicle Traffic and Parking

The perimeter gate at the main treatment plant would normally be closed, and would be operated remotely by identification cards to allow vehicle traffic into the fenced interior area. After being screened, vehicles may be allowed to enter and leave the main treatment plant area (providing access to other process structures and areas).

The following types of vehicles are expected to access and use the treatment plant roadways:

- Chemical delivery trucks
- Delivery service trucks
- Maintenance trucks (two and three axles)
- SRWA Member Agency and TID automobiles and trucks
- Privately owned cars and light trucks of staff
- Visitor cars and light trucks
- Tour buses
- Trucks transporting dried sludge to landfill
- Trucks removing waste and spilled hazardous materials
- Propane delivery truck
- Future construction vehicles (e.g., materials and equipment deliveries, cranes, concrete, earth and aggregate transportation)
- Emergency response vehicles (e.g., fire, medical emergency, police)

2.6.3 Treated Water Transmission Pipelines

Occasionally, the pipeline would need to be drained for repair or maintenance. Discharge points would be identified once the final alignment has been identified. The discharge points would be designed to drain to the nearest storm drain or irrigation canal. Water would be dechlorinated before discharge. In some cases, portable pumping units may be required to completely drain the pipeline. An NPDES permit may be required before the pipeline could be drained.

2.6.4 Terminal Facilities

At the terminal facility locations in Ceres and Turlock, the control valve connection to each City's water storage tank would be operated to maintain a constant flow with flow setting changes made either remotely using a wireless SCADA system or locally using a touch screen inside the connection's control cabinet. SRWA would be able to monitor connection flow rates, control valve position, SRWA pipeline pressure, retail water suppliers' pressure, and residual chlorine. Each connection would include a separate control cabinet for the member City to install its SCADA equipment to remotely monitor the connection's flow.

2.7 Responsible and Trustee Agencies

Under CEQA (Pub. Res. Code Sections 21069-21070), trustee agencies are state agencies that have jurisdiction by law over natural resources affecting a project, that are held in trust for the people of the State of California; responsible agencies are public agencies other than the lead agency that have responsibility for carrying out or approving a project.

For the proposed project, the California Department of Fish and Wildlife is a trustee agency with jurisdiction over fish and wildlife resources held in trust for the people of the State of California.

The following responsible agencies have been identified for the proposed project under CEQA:

- City of Ceres
- City of Turlock
- Modesto Irrigation District
- Turlock Irrigation District

In addition, **Table 2-5** identifies all agencies expected to use the EIR in their decision-making process for permits or entitlements required for implementation of the proposed project.

2.8 Intended Uses of the EIR and Required Permits and Approvals

The information contained in this EIR and the administrative record will be reviewed and considered by the SRWA Board of Directors prior to making a decision to approve, disapprove, or modify the proposed project. Table 2-5 identifies other agencies and persons expected to use this EIR in their decision making for permits or entitlements required for implementation of the proposed project.

Table 2-5. Anticipated Regulatory Agencies and Permits or Approvals for the Proposed Project

Agency	Permit or Approval
U.S. Fish and Wildlife Service	Endangered Species Act compliance
State Water Resources Control Board	Division of Drinking Water permit to operate and compliance with CCR Title 22 regulations for public drinking water Division of Water Rights approval of TID change petition authorizing the long-term transfer of water to SRWA, use of the infiltration gallery as a point of rediversion, and the diversion and use of water for M&I purposes
Central Valley Regional Water Quality Control Board	Possible waste discharge permit relating to the delivery of offset water

Agency	Permit or Approval
California Department of Occupational Safety and Health – Mining and Tunneling	Underground classification for borings over 30 inches in diameter
California Department of Fish and Wildlife	California Fish and Game Code Section 1602 Streambed Alteration Agreement California Endangered Species Act compliance (possible)
San Joaquin Valley Air Pollution Control District	Authority to Construct and compliance with air quality regulations
California Wildlife Conservation Board, Stanislaus County Parks Department	Access permit for work in Fox Grove Regional Park
Stanislaus County	Encroachment permit or easement for construction of Ceres and Turlock treated water transmission mains, road restoration agreement
City of Ceres	Encroachment permit or easement for construction of Ceres treated water transmission main and terminal facilities
City of Turlock	Encroachment permit or easement for construction of Turlock treated water transmission main and terminal facilities
City of Hughson	Encroachment permit or easement for construction of Ceres treated water transmission main
Private property owners	Pipeline easements and property acquisition
Burlington Northern and Santa Fe Railroad	Pipeline easement for crossing at Hatch Road
Turlock Irrigation District	Long-term easement for infiltration gallery property; access easement and O&M agreement to operate infiltration gallery and raw water pump station Pipeline easements for crossings of TID Lateral Canals 2, 2½, and 3

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Chapter 3
Environmental Analysis

3.0 Introduction to the Environmental Analysis

Chapter 3, *Environmental Analysis,* contains the evaluation of environmental impacts associated with the proposed project. Each resource topic section (Sections 3.1 through 3.17) describes the environmental resources and potential environmental impacts of the proposed project, including the regulatory and environmental setting for the resource topic area under consideration; the criteria used to determine the significance levels of environmental impacts; and mitigation measures to reduce, where possible, the adverse effects of potentially significant impacts.

This introductory section describes how the significance of environmental impacts is evaluated and key impact terminology as defined in CEQA. It also discusses resource topics eliminated from detailed analysis in the DEIR.

3.0.1 Significance of Environmental Impacts

According to CEQA, an EIR should define the threshold of significance and explain the criteria used to determine whether an impact is above or below that threshold. Significance criteria are identified for each environmental resource topic to determine whether implementation of the project would result in a significant environmental impact when evaluated against the baseline conditions as described in the environmental setting. The significance criteria vary depending on the environmental resource topic. Effects can be either significant (above threshold) or less than significant (below threshold). A significant impact will be identified as significant and unavoidable if no feasible mitigation is available to reduce the impact to a less-than-significant level. If a project is subsequently adopted despite identified significant impacts that would result from the project, CEQA requires the lead agency to prepare and adopt a statement of overriding considerations describing the social, economic, and other reasons for moving forward with the project despite its significant impact(s).

3.0.2 Mitigation Measures

As lead agency, SRWA would be responsible for ensuring that mitigation measures identified in this DEIR and adopted by SRWA are fully implemented; however, some mitigation measures could be implemented by contractors on behalf of SRWA. Contract documents would identify the obligations of the contractors, including adopted relevant mitigation measures. SRWA would require documentation that contractors have adequately implemented their contractual obligations, including all applicable mitigation measures.

3.0.3 Impact Terminology and Use of Language in CEQA

This DEIR uses the following terminology to describe environmental effects of the proposed project:

- A finding of *no impact* is made when the analysis concludes that the proposed project would not affect the particular environmental resource or issue.

- An impact is considered *less than significant* if the analysis concludes that there would be no substantial adverse change in the environment and that no mitigation is needed.

- An impact is considered *significant* or *potentially significant* if the analysis concludes that there could be a substantial adverse effect on the environment.

- An impact is considered *less than significant with mitigation* if the analysis concludes that there would be no substantial adverse change in the environment with the inclusion of the mitigation measures described.

- An impact is considered *significant and unavoidable* if the analysis concludes that there could be a substantial adverse effect on the environment and no feasible mitigation measures are available to reduce the impact to a less than significant level.

- *Mitigation* refers to specific measures or activities adopted to avoid, minimize, rectify, reduce, eliminate, or compensate for an impact.

- A *cumulative impact* can result when a change in the environment results from the incremental impact of a project when added to other related past, present, or reasonably foreseeable future projects. Significant cumulative impacts may result from individually minor but collectively significant projects. The cumulative impacts analysis in this DEIR focuses on whether the proposed project's incremental contribution to other significant cumulative impacts caused by past, present, or probable future projects is cumulatively considerable (i.e., significant).

- Because the term "significant" has a specific usage in evaluating impacts under CEQA, it is used only to describe the significance of impacts and is not used in other contexts within this document. Synonyms such as "substantial" have been used when not discussing the significance of an environmental impact.

3.1 Aesthetics

3.1.1 Introduction

This section evaluates the potential aesthetic impacts associated with implementation of the proposed project. Aesthetic resources are defined as the visible natural and built landscape features that surround a project site. For the purpose of this analysis, the study area includes aesthetic resources in the vicinity of proposed project facilities that could be viewed by the public. The following discussion introduces terms used throughout this section. Section 3.1.2 provides the regulatory setting, Section 3.1.3 describes existing visual conditions of the project area, and Section 3.1.4 evaluates the proposed project's potential effects on aesthetics and includes mitigation measures that would reduce significant impacts.

Definitions

Visual character, visual quality, and visual sensitivity are three concepts used throughout this section. *Visual character* is the unique set of landscape features that combines to make a view, including native landforms, water, and vegetation patterns, as well as built features such as buildings, roads, and other structures. *Visual quality* is the intrinsic appeal of a landscape or scene due to the combination of natural and built features in the landscape. Natural and built features combine to form unique perspectives with varying degrees of visual quality, which is rated in this analysis as high, moderate, or low. *Visual sensitivity* reflects the level of interest or concern that viewers and responsible land management agencies have for a particular visual resource with visual quality taken into account. Visual sensitivity is a measure of how noticeable the proposed changes might be in a particular setting and is determined based on the distance from a viewer, the contrast of the proposed changes, and the duration that a particular view would be available to viewers. For example, areas such as scenic vistas, parks, trails, and scenic roadways typically have high visual quality and visual sensitivity because these locales are publicly protected, appear natural, typically have long view durations, and have close-up views that are commonly available.

3.1.2 Regulatory Setting

Federal Laws, Regulations, and Policies

There are no federal laws, regulations, or policies relevant to aesthetics and the proposed project.

State Laws, Regulations, and Policies

In 1963, the California State Legislature established the California Scenic Highway Program, a provision of the Streets and Highways Code, to preserve and enhance the natural beauty of California (California Department of Transportation [Caltrans] 2017a). The state highway system includes designated scenic highways and those that are eligible for designation as scenic highways. In Stanislaus County, Interstate 5 (I-5) is the only state-designated scenic highway (Caltrans 2017b).

Local Laws, Regulations, and Policies

Stanislaus County

The *Stanislaus County General Plan* Conservation/Open Space Element encourages the protection and preservation of natural and scenic areas throughout the county (Stanislaus County 2016). Although the Conservation/Open Space Element does not identify specific policies concerning the preservation of scenic views of aesthetic resources, the following goal and policy apply to the proposed project:

Goal One. Encourage the protection and preservation of natural and scenic areas throughout the County.

> **Policy One.** Maintain the natural environment in areas dedicated as parks and open space.

City of Ceres

The *City of Ceres General Plan Policy Document* (1997) contains the following policies related to aesthetics:

> **Policy 1.A.2.** The City shall strive to maintain and enhance a unique community identity. To this end, where possible, the City shall maintain physical separation from nearby communities, and provide visual distinction where Ceres abuts Modesto.

> **Policy 1.A.5.** The City shall seek to provide visual distinction between Ceres and Modesto where the two cities abut. To this end, the City shall use signs and landscaping at entrances along major corridors where the two communities meet.

> **Policy 1.A.7.** The City shall seek to enhance the appearance of its major corridors as important structural elements in Ceres' physical identity, and as a feature to improve Ceres' image in attracting economic development.

City of Turlock

The *Turlock General Plan* (2012) notes the scenic value of the city's historic characteristics, but does not identify specific policies or regulations concerning the preservation of scenic views of aesthetic resources pertaining to this proposed project. However, the City of Turlock has adopted the *Beautification Master Plan* (2010) to foster the city's identity and improve aesthetics through targeted planting and street designs.

City of Hughson

The Open Space Element of the *Hughson General Plan* (2005) acknowledges that open space areas such as agricultural lands are also visual amenities, and also notes that orchard trees are important visual features in Hughson's visual character. The Land Use Element and Public Services and Facilities Element contain the following policies that pertain visual resources and the proposed project.

Policy LU-3.2. New development should provide a visually interesting appearance through variations of site and building design and building placement and orientation.

Policy LU-3.7. The edges of new developments should not be visually or physically separated from the rest of the community. For example, sound walls should be avoided whenever possible.

Policy PSF-10.1. The City shall ensure that utilities, including electricity, natural gas, telecommunications and cable television are available or can be provided to serve the projected population within the City in a manner which is fiscally and environmentally responsible, aesthetically acceptable and safe. However, the ultimate responsibility for ensuring that the utilities are available to support new development rests on the sponsor of the proposed project.

3.1.3 Environmental Setting

Regional Setting

The terrain of the proposed project area is generally flat, with the Diablo Range rising to the southwest and the foothills of the Sierra Nevada rising to the east. The Coastal Ranges are visible in the distance from the valley floor; however, long-range visibility in the area is frequently limited by haze and particulate air quality contamination. The Sierra Nevada mountains to the east are typically obscured or are only partially visible. The valley floor is comprised of row crops, orchards, irrigated pasture, and canal systems. The Tuolumne River is the primary body of water in the project area and is the dominant natural feature north of the project area. Riparian trees and shrubs line the meandering river. The expansive drainage and irrigation canal system of the surrounding agricultural fields contributes to the agricultural character of the region.

Project Vicinity

The proposed project area is located in the central portion of Stanislaus County and encompasses portions of Ceres, Hughson, and Turlock and unincorporated areas of the county. The visual study area encompasses four general areas with somewhat varied visual character: (1) the raw water pump station site along the south bank of the Tuolumne River, WTP pipeline and raw water transmission main alignment, and WTP site; (2) Ceres treated water transmission line, terminal tank site, and downstream facilities; (3) Turlock treated water transmission main, terminal tank site, and downstream facilities; and (4) offset water facilities, including one option that may involve construction and operation of a nonpotable well in Dianne Pond, which currently operates as a stormwater detention basin, and another option that may involve transferring water from Well 38 in Turlock to TID Upper Lateral 3 through a newly constructed pipeline in Mountain View Road. All other potential offset water facilities include use of and minor upgrades to existing facilities. Therefore, no substantial visual change would occur at those locations and the following discussion does not describe the visual setting of existing water infrastructure that may be used for SRWA's offset water facilities.

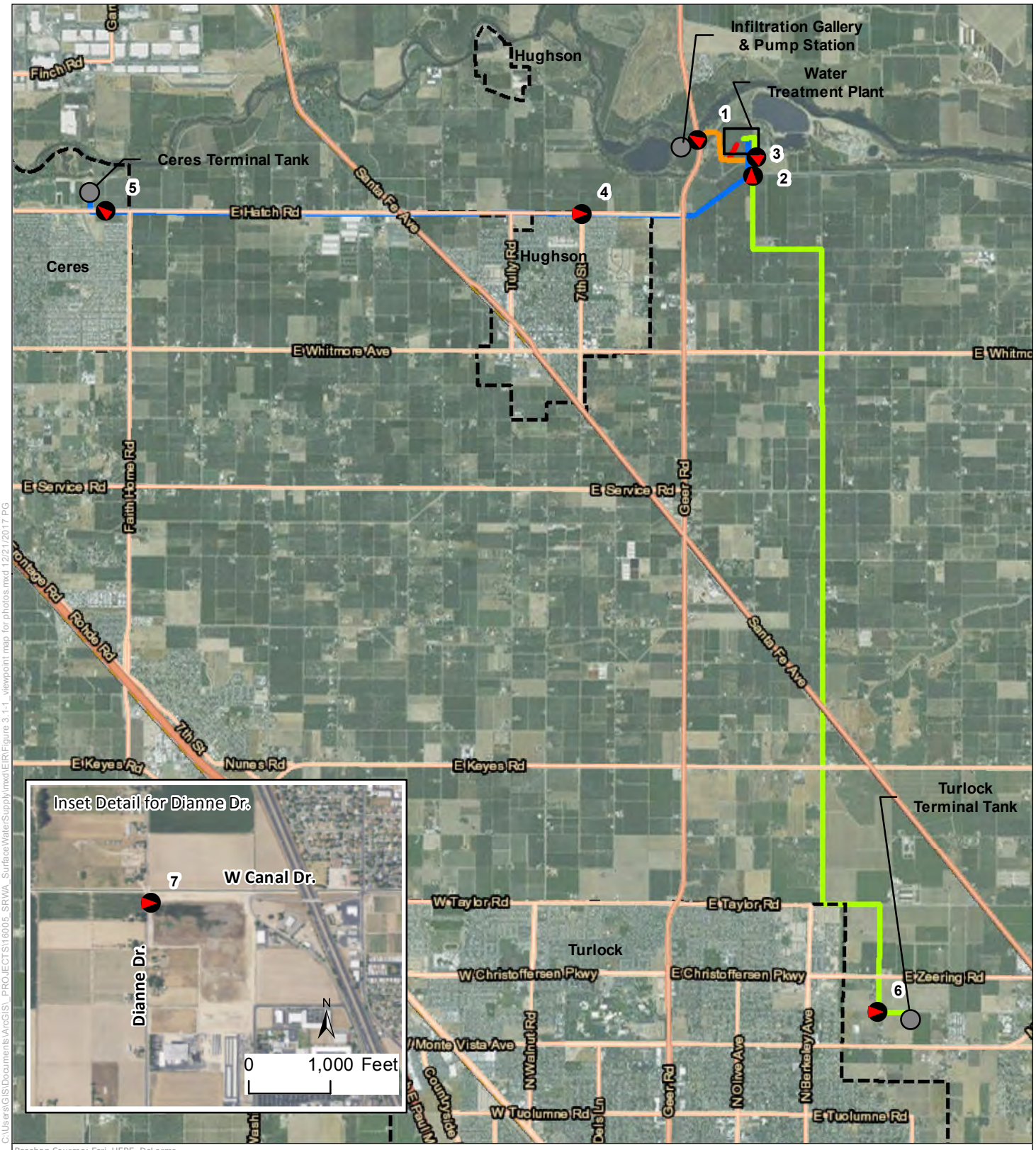
Figure 3.1-1 provides a key to photographs of the visual study area from the vantage points described in the following sections. The overall visual sensitivity of each area is described in terms of its visual quality, potentially affected viewers, and exposure conditions.

Raw Water Pump Station, Raw Water Transmission Main, and WTP Site

The raw water pump station site is located on the Tuolumne River, west of Geer Road and Fox Grove Regional Park. The raw water transmission main extends from the pump station east under Geer Road, continues through the park, and then extends south and parallel to and southeast of the WTP parcel line, and turns east across the southern portion of the WTP site. At the proposed flow split vault, one segment of pipeline turns north into the WTP, and one continues east and then turns south adjacent to and west of Aldrich Road, ending at an outlet structure west of Aldrich Road adjacent to the Ceres Main Canal. The proposed WTP site is located on a 48-acre parcel west of Aldrich Road and north of the Ceres Main Canal; the site is currently occupied by orchards.

Visual Character. The visual setting of the pump station site, raw water main, WTP, and WTP pipeline alignment is characterized by agricultural fields and orchards, the Geer Road Bridge, the Tuolumne River, and scattered agricultural buildings and residences. Past mining activities resulted in removal of riparian vegetation and altered the natural landforms into various pits, ponds, and piles that included engineered berms; however, most of these areas have since been restored to a more natural configuration (EDAW 2001). Electric utility poles and electric transmission lines traverse and parallel Geer Road at various points. The orchards, levee, and river are the dominant landscape features in this portion of the project area. **Figure 3.1-2**, Photo 1 shows a representative view of the Tuolumne River, orchards in the background, and portion of the WTP pipeline alignment from Geer Road. The visual character of the proposed project area is rural due to the presence of both agricultural and rural residential uses. Resources that may be considered scenic near the WTP site and raw water pump station site include mature trees lining Geer Road, orchards, vineyards, and trees within Fox Grove Regional Park. The Tuolumne River itself is also considered a scenic resource.

Visibility, Visual Quality, and Visual Sensitivity. The raw water pipeline alignment is partially visible from the Geer Road Bridge. Motorists traveling on this road have brief views of the pump station site (to the west) and surrounding rural landscape. Close-up views of the pump station site are also available from the Tuolumne River; water-based recreational users (e.g., anglers, boaters, and kayakers) may have views of this site from the river. Partial views of the WTP site may be available from the Fox Grove Regional Park parking lot and Stanislaus Wildlife Care Center, though views are mostly screened due to an elevated levee with trees and vegetation. A few residences immediately east of the WTP site (on Aldrich Road) have close-up views of the WTP site. Figure 3.1-2, Photo 2 shows a typical view of the orchard and proposed WTP site from the residence on Aldrich Road, and Figure 3.1-2, Photo 3 shows a more distant view of the WTP site from the Aldrich Road crossing over the Ceres Main Canal. Given the presence of mature orchard trees and the largely undeveloped nature of the WTP site, the visual quality of the WTP site and surrounding area is considered moderate. Since visibility of the WTP site is limited to a few residents with long-duration views and because motorists traveling on Geer Road have fleeting and partial views of the pump station and pipeline alignment, the visual sensitivity of the area is moderate.


Infiltration Gallery & Pump Station
Water Treatment Plant
Hughson
Ceres Terminal Tank
Ceres
Hughson
E Hatch Rd
Santa Fe Ave
Tully Rd
7th St
E Whitmore Ave
E Service Rd
Faith Home Rd
Geer Rd
Tonlago Rd
Rohde Rd
7th St
E Keyes Rd
Nunes Rd
Turlock Terminal Tank
W Taylor Rd
E Taylor Rd
Turlock
W Christoffersen Pkwy
E Christoffersen Pkwy
E Zeering Rd
W Monte Vista Ave
N Walnut Rd
N Olive Ave
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Inset Detail for Dianne Dr.
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Ceres Treated Water Transmission
Raw Water Transmission
Turlock Treated Water Transmission
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Figure 3.1-1
Viewpoint Map for Photos
Surface Water Supply Project
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Photo 1. Northwest facing view from Geer Road bridge over the Tuolumne River looking towards the proposed raw transmission main alignment (December 2017)

Photo 2. West-facing view of the proposed WTP from the corner of Aldrich Road. (December 2017)

Figure 3.1-2 Representative Views

Horizon WATER and ENVIRONMENT

Surface Water Supply Project

Photo 3. North facing view of the Aldrich Road crossing over the Ceres Main Canal. (June 2017)

Photo 4. Typical view of project area from East Hatch Road and 7th Street. TID's Ceres Main Canal shown to the far right parallel to East Hatch Road. (February 2017)

Figure 3.1-2 Representative Views

Photo 5. Existing northwest facing view of the proposed Ceres terminal tank site from East Hatch Road. (June 2017)

Photo 6. East-facing view of the Turlock terminal tank site from North Quincy Road. (December 2017)

Figure 3.1-2 Representative Views

Photo 7. East-facing view of Dianne Pond site. (December 2017)

Ceres Treated Water Transmission Pipeline Alignment and Tank Site

The Ceres treated water transmission pipeline alignment begins at the WTP site, continues south on Aldrich Road, southwest and then west along the Ceres Main Canal and East Hatch Road, and ends at the Ceres terminal tank site, which is located immediately east of the Ceres River Bluff Regional Park. The park encompasses 38 acres of sports fields, restroom facilities, concession stands, and a large parking lot. The Ceres terminal tank is currently vacant and bordered by chain-link fencing.

Visual Character. The visual setting of the Ceres treated water transmission main alignment consists of varied row crops, orchards, and residences and the Ceres Main Canal to the south. Views of residential development become more common entering the cities of Hughson and Ceres. Electric utility poles and electric transmission lines also parallel and traverse East Hatch Road. The visual setting of the Ceres terminal tank site is characterized by a vacant parcel to the east and the Ceres River Bluff Regional Park to the west, which consists of a parking lot, low-lying landscaping, and mature trees along East Hatch Road. The tank site is currently undeveloped with the exception of some electric utility poles and overhead electric transmission lines. The tank site is surrounded by approximately 6-foot-tall chain-link fencing.

Visibility, Visual Quality, and Visual Sensitivity. The Ceres treated water transmission pipeline alignment and tank site are primarily visible to motorists traveling on East Hatch Road. Figure 3.1-2, Photo 4 shows a typical view of the canal and pipeline alignment from East Hatch Road. As shown in this photo, typical views include orchard trees, residential development, and electric utility poles and lines. Figure 3.1-2, Photo 5 shows a west-facing view looking toward the Ceres terminal tank site from East Hatch Road with low-lying ruderal vegetation in the foreground and the tank site fenced off in the background. Other viewers of the pipeline alignment include residents along East Hatch Road. Recreationists at the Ceres River Bluff Regional Park also have views of the tank site. Considering the presence of orchard trees and the canal, which offer pleasing views, as well as electric utility lines and residential development along East Hatch Road, the visual quality is considered moderate. Because close-up views are available to recreationists and residents (who tend to have longer duration views) and motorists on East Hatch Road (who have short-duration views), the viewer sensitivity is considered moderate.

Turlock Treated Water Transmission Main Alignment and Tank Site

The Turlock treated water transmission pipeline alignment begins at the WTP site, continues south on Aldrich Road, east on John Fox Road, south on Berkeley Avenue, east on Taylor Road, south on North Quincy Road, and east across a parcel located north of East Monte Vista Avenue. Land uses adjacent to the proposed project site and alignment primarily consist of agriculture and scattered residential development.

Visual Character. The visual setting of the Turlock treated water transmission main alignment and tank site consists of agricultural fields, orchards, scattered residences and agricultural buildings, and overhead utility poles and electric transmission lines. The Turlock terminal tank site is currently used for growing agricultural crops. Figure 3.1-2, Photo 6 shows an existing view of the tank site from North Quincy Road. A few single-family residences are located to the north, south, east, and west of the tank site; the closest residence is approximately 720 feet away. Similar to other project elements, the transmission main and tank site are characterized by the agricultural landscape.

Visibility, Visual Quality, and Visual Sensitivity. The Turlock treated water transmission main alignment is primarily visible to motorists traveling on Aldrich Road, John Fox Road, Berkeley Avenue, Taylor Road, and North Quincy Road. Figure 3.1-1, Photo 4 shows a view of the alignment at the Aldrich Road crossing at Ceres Main Canal.

The Turlock terminal tank site may be partially visible from the backyards of nearby residences on East Zeering Road, East Monte Vista Avenue, North Waring Road, and North Quincy Road. Motorists traveling on these roads have fleeting views of the site; due to distance, however (the site is approximately 0.25 mile away), the site may not be very noticeable. Considering the combination of agricultural and residential development in the area, the visual quality is moderate and the visual sensitivity is also moderate.

Offset Water Facilities – Nonpotable Well at Dianne Pond

As noted above, SRWA is evaluating options to provide offset water to TID. Most options involve use and/or minor upgrades to existing water infrastructure. One option includes construction of a new nonpotable well at Dianne Pond, which is located east of the Dianne Drive and West Canal Drive intersection in Turlock. Dianne Pond is currently used as a stormwater detention basin. Land uses adjacent to Dianne Pond include scattered residential, agriculture, and industrial business park to the east.

Visual Character. The visual setting of Dianne Pond site consists of some open water and aboveground water infrastructure including piping, valves, and utility boxes that are enclosed by metal fencing. The surrounding setting includes agricultural fields, scattered residences, the Upper Lateral Number Four Canal, industrial business park buildings, and overhead electric lines. Six residences are located west of the pond, and a few industrial park buildings are to the east on North Walnut Road. Land uses to the southeast include commercial and industrial park development, and a school.

Visibility, Visual Quality, and Visual Sensitivity. Dianne Pond is visible to motorists traveling on Dianne Drive, North Walnut Road, and Maryann Drive. Figure 3.1-2, Photo 7 shows a typical east-facing view of Dianne Pond and existing water infrastructure from Dianne Drive. More distant and fleeting views of the pond are accessible from Highway 99 to the east.

Close-up and longer duration views of Dianne Pond are available from the residences immediately west of the facility. Due to the presence of water infrastructure, scattered industrial business park development, and agricultural uses, the overall visual quality of the site is considered moderate. The visual sensitivity is also moderate.

Offset Water Facilities – Pipeline from Well 38 to TID Upper Lateral 3

Offset water facilities include possible use of Well 38 and installation of a new pipeline from Well 38 in Turlock to TID Upper Lateral 3, which would involve trenching of Mountain View Road between Christoffersen Parkway and the canal. Land uses along the route include residences along Mountain View Road, John H. Pitman High School, Brad Bates Park, and the Turlock Regional Sports Complex.

Visual Character. The visual setting of Well 38 consists of a mostly vacant utility lot in a residential neighborhood. Mountain View Road is a residential street with school, park, and recreational facilities.

Visibility, Visual Quality, and Visual Sensitivity. Well 38 is a minimally visible pump structure at the corner of Mountain View Road and West Christoffersen Parkway. Due to the presence of residences, residential utility structures, and institutional buildings, the overall visual quality of the site is considered moderate. The visual sensitivity is also moderate.

Nighttime Light and Daytime Glare

Nighttime lighting is sometimes necessary to provide and maintain safe, secure, and attractive environments. Light that falls beyond the intended area of illumination is referred to as "light trespass." The most common cause of light trespass is spillover light, which occurs when a lighting source illuminates surfaces beyond the intended area, such as when building security lighting or parking lot lights shine onto neighboring properties. During nighttime hours, spillover light can adversely affect light-sensitive uses such as residences. Both light intensity and lighting fixtures can affect the amount of any light spillover. Modern, energy-efficient fixtures that face downward, such as shielded light fixtures, are typically less obtrusive than older, upward-facing light fixtures.

Glare is caused by light reflections from pavement, vehicles, and building materials such as reflective glass, polished surfaces, or metallic architectural features. During daylight hours, the amount of glare depends on the intensity and direction of sunlight.

There is no existing lighting on the WTP site, pump station site, water storage tank sites, or Dianne Pond site. The parking lot at Ceres River Bluff Regional Park, located just west of the Ceres tank site, has outdoor lighting. Other notable lighting sources near project areas are the subdivisions south of the Ceres tank site and the few residences located near the WTP, Turlock tank, and Dianne Pond sites.

3.1.4 Environmental Impacts and Mitigation

This section evaluates the potential environmental impacts of the proposed project related to aesthetic resources, taking into consideration existing visual conditions and regulatory framework described in Sections 3.1.2 and 3.1.3 above. The methodology used for the aesthetic analysis and significance criteria applied are described below, followed by the impact analysis.

Methodology

This section evaluates whether construction and operation of the facilities associated with the proposed project would result in significant impacts related to aesthetic resources. This analysis is based on site visits, evaluation of aerial and ground-based photographs of the project sites, and conceptual design information.

Visual effects were assessed based on the proposed project's potential to substantially alter scenic resources or to degrade the visual character of the sites. The evaluation of temporary or short-term visual impacts considers whether construction activities could substantially degrade the existing visual character or quality of the site or surrounding area, as well as the duration over which any such changes would occur.

Various potential locations are identified in Chapter 2, *Project Description,* for discharge of offset water by SRWA into TID distribution facilities to replace water withdrawn from the Tuolumne River at the infiltration gallery. With the exception of a possible well that could be

constructed at Dianne Pond in Turlock and a nonpotable well that could be constructed at an unspecified location for TID, these potential locations are the sites of existing wells. This analysis assumes that use or reuse of any of these existing facilities for their intended purpose would constitute a less-than-significant aesthetic impact.

Proposed activities with long-term visual effects, such as construction of new or altered structures, road grading, tree removal, and introduction of new sources of light and glare, can permanently alter the landscape in a manner that could affect the existing visual character or quality of the area, depending on the perspective of the viewer. In determining impact potential, the assessment considers the visual sensitivity of the project area. Because damage to scenic resources such as trees, rock outcroppings, and other features of the built or natural environment would typically constitute a long-term effect, the potential for project implementation to damage scenic resources is evaluated solely as a long-term effect and is not included in the analysis of construction-related impacts.

CEQA does not consider impacts on private views to be significant. However, because residential uses are located near several proposed project elements, the following impact analysis discusses effects on private residential views. However, for the purposes of describing significant impacts on aesthetic resources, the analysis focuses on adverse effects on publicly accessible views.

Significance Criteria

Based on the State CEQA Guidelines Appendix G environmental checklist, the proposed project would have a significant impact with regard to aesthetics if it would:

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

Impact Analysis

Impact AES-1: Adverse Effects on Scenic Vistas (No Impact)

There are no designated scenic vista points in the proposed project area. No project features would be visible from any vista points. Therefore, **no impact** on such views would occur during construction or operation of the proposed project.

Impact AES-2: Damage to Scenic Resources, Including Trees, Rock Outcroppings, and Historical Buildings Along a State Scenic Highway (Less than Significant)

As noted in Section 3.1.2, there are no state-designated scenic highways in the proposed project vicinity. Therefore, no impacts on views from a scenic highway would occur.

Construction of the proposed WTP would require removal of orchard trees currently on the TID property. Construction of other project elements, including the treated water transmission mains and water storage tanks, may require trimming of trees and shrubs lining roadways. Because most trees requiring removal are used for agricultural purposes and are not protected under any tree ordinances, temporary impacts on scenic resources would not be substantial. This impact would be **less than significant**.

Impact AES-3: Substantially Degrade the Visual Character or Quality of the Site and its Surroundings (Less than Significant with Mitigation)

Construction Impacts

The proposed project could result in temporary construction-related impacts that could temporarily degrade the visual character or quality of the project area and immediate surroundings.

Pipelines. Pipeline construction activities would include vegetation removal; grading and excavation; open-trench pipeline installation for most of the alignments; trenchless pipeline construction at the BNSF railroad crossings, TID Lateral Canal crossings, Ceres Main Canal, and potentially Geer Road and Santa Fe Avenue; and backfilling. Pipeline construction would progress at a rate of 200-400 feet per day. Pipeline construction activities would be most visible from public roads, including Geer Road, Aldrich Road, East Hatch Road, John Fox Road, Berkeley Avenue, Taylor Road, and North Quincy Road, as well as from other roads intersecting the pipeline alignments. Aside from motorists, residents located along the pipeline alignments would also have close-up views of construction vehicles, equipment, and construction activities throughout the construction duration. Due to the short duration of construction in any location, the impacts would be considered less than significant.

Raw Water Pump Station. Construction of the raw water pump station would be visible from Geer Road and on-water recreationist using Tuolumne River. More distant views may be accessible from residences north of the Tuolumne River. Construction activities that would be visible include operation of equipment, excavation, trenching, backfilling, and installation of the pump station itself. Since the construction duration for the pump station has not been confirmed, temporary adverse effects on the site's visual character and quality could be significant. Implementation of **Mitigation Measure AES-1 (Implement Maintenance Practices for Construction Staging Areas and Construction Sites)** would require that staging areas be sited as far away from public areas and that work areas are kept clean and neat throughout the duration of construction. Implementation of this mitigation measure would reduce this impact to a less-than-significant level.

Water Treatment Plant. Construction of the WTP would be visible from adjacent properties, including the Stanislaus Wildlife Care Center, Fox Grove Regional Park, and a few residences to the west and east. More distant views may be accessible from residences north of the Tuolumne River. Visible construction activities may include views of heavy equipment operation; stockpile and staging areas; and earth movement, including excavation, trenching, and backfilling. While construction activities would be temporary and the visual disturbance associated with construction would cease after activities are complete, the WTP construction duration is expected to be approximately 2 years and locations of proposed construction staging areas have not yet been determined. Since WTP construction extends for more than 1 year, construction-related visual disturbance to public viewer groups associated with WTP

construction would be considered significant. Implementation of Mitigation Measure AES-1 would reduce this impact to a less-than-significant level.

Ceres and Turlock Terminal Tanks. Construction of the Ceres Terminal Tank would be visible from East Hatch Road and the eastern end of Ceres River Bluff Regional Park, including the parking lot area. Motorists on East Hatch Road would have brief views of tank construction activities, and recreationists at the adjacent park would have longer duration views of construction activities. Construction of the Turlock terminal tank would be visible from East Monte Vista Avenue. Motorists traveling on East Monte Vista Avenue would have fleeting views of tank construction activities due to the speed of travel. A few existing residences situated southwest and southeast of the tank site would have longer duration views of construction activities. Because the construction durations of the two tanks and the location of staging areas have not yet been confirmed, temporary adverse effects on the site's visual character and quality could be significant. Implementation of Mitigation Measure AES-1 would reduce this impact to a less-than-significant level.

Offset Water Facilities. Construction of the Dianne Pond location for possible construction of a new well would primarily be visible from adjacent residences along Dianne Drive. Motorists on Dianne Drive, North Walnut Road, and Maryann Drive would also have short duration views of well construction activities. Workers and business patrons at the nearby industrial business park development may also have more distant views of construction activities. Typical views of well construction activities would include operating construction equipment, trenching, excavation, and staging and stockpiling areas. Due to the uncertainty of the possible well's construction duration and because construction activities would be visible to sensitive viewers (e.g., residents), temporary visual disturbances associated with well construction could be significant. Implementation of Mitigation Measure AES-1 would reduce this impact to a less-than-significant level.

Possible installation of a new pipeline from Well 38 in Turlock to TID Upper Lateral 3 would involve trenching of Mountain View Road between Christoffersen Parkway and the canal. Construction could affect views for residents along the road as well as people traveling to and from John H. Pitman High School, Brad Bates Park, and the Turlock Regional Sports Complex. Typical views of construction activities would include operating construction equipment, trenching, excavation, and staging and stockpiling areas. Due to the uncertainty of the possible pipeline's construction duration and because construction activities would be visible to sensitive viewers (e.g., residents), temporary visual disturbances associated with pipeline construction could be significant. Implementation of Mitigation Measure AES-1 would reduce this impact to a less-than-significant level.

Operational Impacts

Pipelines. Once constructed, all proposed pipelines (raw water transmission main, WTP pipeline, Ceres and Turlock treated water transmission mains) would be buried. These underground components would not be visible and, once vegetation reestablished in these roadside areas, would have no impact on the proposed project area's visual character or visual quality.

Raw Water Pump Station. The new pump station at the existing infiltration gallery would be approximately 70 feet long by 60 feet wide and sit on the south bank levee of the Tuolumne River. The building would be composed of a concrete masonry wall structure with a sloped

metal roof and would be approximately 25 feet above ground level. The lower portion of the exterior walls would be either glazed concrete masonry units or covered with large tiles that provide durability and can be easily cleaned. The exterior walls would have an earth-tone finish, and the roof would have a light color to reduce heat gain and reduce cooling loads. Both the pump station and WTP facility (described further below) would be designed in an integral manner such that the building forms, materials and colors would be similar and consistent with one another. Chain-link fencing would be installed around the perimeter of the site. The pump station may be partially visible from a residence south of the site. Brief views of the pump station would also be available from the Geer Road Bridge but, due to the speed of travel and intervening vegetation along the road, views would be mostly screened. Implementation of **Mitigation Measure AES-2 (Use Design Elements to Provide Visual Screening of Wells, Storage Tanks, Pump Stations, and Other Facilities)**, which requires landscaping around the perimeter of the site where feasible, would reduce this impact to a less-than-significant level.

Water Treatment Plant. The WTP would be positioned in the central area of the 48-acre site, occupying approximately half or more of the site. The plant would be comprised of various facilities and structures, as described in Section 2.6.2, "Water Treatment Plant – Site Plan."

The WTP is in the preliminary design phase. The basic form and structure of the non-water bearing structures (i.e., buildings) would be similar in character to other agricultural buildings commonly seen throughout the county and would be up to 20 feet tall. The operations, control building, and membrane facility would be the most prominent buildings on the site and would have similar architectural features, thus tying the facilities together as one campus. The clearwells would be the largest facility on-site and would rise approximately 30 feet above ground level. A new access road connecting to Aldrich Road, an internal roadway system, and small parking lot would be established on site. Once construction is completed, orchard trees that were removed may be replaced with landscaping features on the west, east, and possibly south sides of the new facilities. The site would be enclosed with security gates.

Potential views of the WTP would be limited to a few residences, the Stanislaus Wildlife Care Center, and the Fox Grove fishing access area to the northwest. Two residences west of the site would have close-up views of the plant. The southern property is at about the same elevation as the WTP property and would likely have views looking toward the plant, though views may be partially buffered by landscaping features. The top portions of the new buildings may still be visible above the orchard trees, but those facilities would be more than 500 feet away from the residence. The wildlife care center and northern residence west of the site are approximately 10-14 below the elevation of the WTP site and could also have views of the WTP. Similarly, the Fox Grove fishing access area is at a lower elevation (14-25 feet below the WTP site's elevation). Views of the site from this recreational area would be limited to the plant's perimeter, although landscaping would help screen views of the WTP facilities. Additionally, distant views of the plant may be available from residences north of Tuolumne River, but orchard trees to the north of the river would partially screen views of the facilities.

Converting orchards to new water treatment facilities would substantially alter the visual character from an agricultural setting to water infrastructure. While views of the WTP would be limited primarily to a few residents, the introduction of utilitarian infrastructure would

degrade the site's surrounding visual character and because a landscaping plan has not been formally developed, the WTP would result in a significant impact. Implementation of a landscape plan described in **Mitigation Measure AES-3 (Develop and Implement a Landscape Plan for the Water Treatment Plant)** would reduce this impact to a less-than-significant level.

Ceres and Turlock Terminal Tanks. The Ceres terminal water storage tank would be up to 25 to 30 feet tall and approximately 107 to 117 feet in diameter, and the Turlock terminal tank would be up to 25 to 30 feet tall and approximately 119 to 130 feet in diameter. The exterior of the tanks have not yet been determined but would either be concrete or steel. The tanks would appear similar to the water storage tanks presented in **Figure 3.1-3.** Ancillary structures that would be installed at each tank site include security fencing, lighting, security cameras, and exterior landscaping. Recreationists using the eastern end of the Ceres River Bluff Regional Park would have partial views of the Ceres terminal tank. Motorists traveling on East Hatch Road would also have fleeting views of the tank.

Similarly, residents located along Zeering Road, North Quincy Road, East Monte Vista Avenue, and North Waring Road would have views of the Turlock terminal tank, although such views would be partially blocked by fencing around these facilities. Motorists traveling on East Monte Vista Avenue may have views of the tank but, due to the speed of travel and distance from the road (0.25 mile away), the Turlock terminal tank would not be substantially visible. Nonetheless, introduction of new water storage tanks would constitute a substantial visual change as these structures would occupy lands currently used for agricultural crops. Implementation of design elements described in Mitigation Measure AES-2, which includes installation of native plants to screen views of the tanks, would reduce this impact to a less-than-significant level.

Offset Water Facilities. At the Dianne Pond site, SRWA may construct a new well. Although the specifics of this potential facility have not been developed, associated infrastructure that would likely be installed include associated pumps, building for the well and pump, and either a wall or security fencing surrounding the facility. Similar to other well facilities found throughout the City of Turlock, the facility would likely be enclosed by 6- to 8-foot-high security fencing. Depending on where the well is installed at Dianne Pond, residents on Dianne Drive may have close-up views of the facility. Patrons and workers at the industrial business park buildings may also have views of the facility. Motorists would have short duration views from Dianne Road and other nearby roads including Walnut Road and Maryann Drive. Because the location of the well has not been determined and no aboveground structures exist at the pond, the facility could substantially alter the visual character and quality of the site. This impact is considered significant. Implementation of Mitigation Measure AES-2 would reduce this impact to a less-than-significant level.

At the Well 38 site, SRWA may install a pipeline to connect the existing well to TID's Upper Lateral 3. Because the well is an existing facility, operation at the site would not change the visual character of the surrounding area; this would be a less-than-significant impact.

Photo 1. Water storage tank with booster pump stations.

Photo 2. Water storage tank in the distance.

Figure 3.1-3. Typical Water Storage Tanks in Stanislaus County

Horizon WATER and ENVIRONMENT

Surface Water Supply Project

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Conclusion

Construction-related impacts on visual character at the raw water pump station, WTP, storage tanks, and offset water facilities would be potentially significant, but would be reduced to a less-than-significant level with implementation of Mitigation Measure AES-1, which would require maintenance practices at construction staging areas and sites. Visual character impacts from operation of the raw water pump station, storage tanks, and offset water facilities would also be potentially significant, but would be reduced to a less-than-significant level with implementation of Mitigation Measure AES-2, using design elements to provide visual screening. Finally, operational impacts of the WTP on visual character would also be potentially significant but would be mitigated to a less-than-significant level with development and implementation of a landscaping plan under Mitigation Measure AES-3.

Mitigation Measure AES-1: Implement Maintenance Practices for Construction Staging Areas and Construction Sites.

SRWA and the Cities shall require that the contractor(s) keep construction work areas clean and neat by storing construction materials and equipment at proposed construction staging areas or in areas that are generally shielded from public view (to the extent feasible), and by removing construction debris promptly and at regular intervals.

Mitigation Measure AES-2: Use Design Elements to Provide Visual Screening of Wells, Storage Tanks, Pump Stations, and Other Facilities.

SRWA and the Cities shall require that the contractor(s) use design elements to provide visual screening of proposed facilities and to integrate them with the existing visual setting. Such design elements may include, but are not limited to, the following:

- Paint proposed storage tank facilities and water treatment plant or include appropriate concrete admixtures to achieve low-glare, earth-tone colors that blend with the surrounding terrain and visual setting.
- Wherever feasible, avoid the use of unpainted metallic surfaces and other reflective sources that may cause increased levels of reflectivity.
- Wherever feasible, install native landscaping and/or fencing to provide screening for views of the pump station, water storage tanks, and wells from public roads and adjacent residences.
- Use downward-facing, shielded lighting fixtures to avoid spillover light from affecting adjacent properties.

Mitigation Measures AES-3: Develop and Implement a Landscape Plan for the Water Treatment Plant.

The WTP facilities would be visible from adjacent residences and potentially from Fox Grove Regional Park and would need to be adequately screened with landscaping and/or topographical features (e.g., berms) to reduce adverse aesthetic impacts. SRWA or its contractor(s) shall develop a landscaping plan that provides adequate screening along the perimeter of the WTP site in effort to screen views and improve the overall aesthetics of the site. The landscaping plan shall be developed and implemented as part of the construction contract to provide immediate screening of the WTP for sensitive viewers. To the extent feasible, SRWA shall retain

(during construction) or plant (following completion of construction) mature trees around the perimeter of the WTP site to buffer views from adjacent residences and Fox Grove Regional Park. Due to the height of the WTP facilities, landscape berms may also be appropriate to screen views from nearby receptors. Landscaping shall rely mostly on native trees, shrubs, and grassland vegetation to minimize water consumption. SRWA shall monitor landscape plantings annually for at least 5 years after project completion to ensure that sufficient ground coverage has developed, and will implement additional measures, such as replanting or modifying irrigation systems, as determined necessary.

Impact AES-3: Create a New Source of Substantial Light or Glare that Would Adversely Affect Day or Nighttime Views in the Area (Less than Significant with Mitigation)

Construction Impacts

Throughout the construction duration, construction activities would primarily occur on weekdays from 7 a.m. to 6 p.m. on weekdays. While construction activities would mostly occur during daytime hours at most work areas, the contractor(s) may need to conduct limited nighttime construction work, particularly if construction delays occur, which would require approval from the County or the City with jurisdiction. Temporary views of nighttime construction lighting could be a nuisance to adjacent residences and to motorists traveling on the affected roadway. To minimize any temporary adverse effects on residential views during the duration of nighttime construction, implementation of **Mitigation Measure AES-4 (Use Shielded Lighting if Nighttime Construction Is Necessary)** would ensure that nighttime construction lighting is shielded and oriented downward and would reduce the impact to a less-than-significant level.

Operational Impacts

Outdoor security lighting would be installed at the WTP site and the two terminal storage tanks. Lighting at the three sites would be motion controlled and directed downward. The closest residence to the WTP site is approximately 500 feet away. The closest residence to the Turlock tank site would be approximately 740 feet, and the nearest residence to the Ceres tank would be about 920 feet. Due to their close proximity, the introduction of outdoor lighting, water treatment plant facilities, and water tanks could represent substantial sources of glare. Thus, the impact of new lighting and glare from plant facilities and water storage tanks would be significant. Implementation of Mitigation Measures AES-2 and AES-3 would ensure that the WTP and water storage tanks are designed in a manner that takes into consideration the surrounding area's rural visual character and uses exterior coatings and shielded lighting that minimize light and glare effects. Implementation of Mitigation Measures AES-2 and AES-3 would reduce this impact to a less-than-significant level.

Conclusion

Construction-related impacts related to light and glare at all project facilities would be potentially significant, but would be reduced to a less-than-significant level with implementation of Mitigation Measure AES-4, which would require the use of shielded lighting during nighttime construction. Light and glare impacts from operation of the WTP and storage tanks would also be potentially significant, but would be reduced to a less-than-significant level with implementation of Mitigation Measures AES-2, using design elements

to provide visual screening, and Mitigation Measure AES-3, development and implementation of a landscaping plan.

Mitigation Measure AES-4: Use Shielded Lighting if Nighttime Construction Is Necessary.

If nighttime construction is performed, SRWA and the Cities shall require the contractor(s) to use lighting that is shielded and oriented downward to minimize effects on any nearby receptors. Lighting shall be directed toward active construction areas only, and shall have the minimum brightness necessary to ensure worker safety.

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3.2 Agriculture and Forestry Resources

3.2.1 Introduction

Agricultural lands provide public benefits while producing food and fiber and making a substantial contribution to California's economy. Agricultural uses also preserve open space, which is both the backdrop and source of recreational opportunities. Forest lands are one of California's most important natural and economic resources. Forest lands provide essential timber, support a vast array of ecosystem services, and are an important economic, aesthetic, and recreational resource. This section addresses agriculture and forestry resources that could be affected by implementation of the proposed project. Agricultural resources are lands defined as Important Farmland by the Farmland Mapping and Monitoring Program (FMMP) of the California Department of Conservation (DOC), as well as lands under contract of the California Land Conservation Act of 1965 (Williamson Act). Forestry resources are lands defined as forestland, timberland, or timber. This section evaluates the conversion of farmland, potential conflicts with a Williamson Act contract, potential conflicts with nearby agricultural uses, and potential conflicts with local policies adopted to protect agricultural resources.

3.2.2 Regulatory Setting

This section describes the federal and state laws, regulations, and policies that apply to agricultural and forest resources within the proposed project. The proposed project, including the WTP and the majority of the pipeline routes, are located in rural, unincorporated Stanislaus County, but the routes and terminal facilities also enter or skirt the city limits of Ceres, Hughson, and Turlock. Relevant regulations for Stanislaus County and the three cities are also described.

Federal Laws, Regulations, and Policies

U.S. Department of Agriculture – Code of Federal Regulations 2016

Title 7 of the Code of Federal Regulations (CFR), Chapter VI, Subchapter B, "Conservation Operations," establishes policies and procedures set forth by the Natural Resource Conservation Service (NRCS). This agency is designed to improve all agricultural lands (cropland, forestland, grazing lands, pastureland, rangeland, and grazed forestland) to achieve long-term sustainability. Soil erosion measures, water supply forecasts, and plant material policies are analyzed and established through this program.

State Laws, Regulations, and Policies

California Department of Conservation – Farmland Mapping and Monitoring Program

Developed by DOC, the FMMP provides consistent, timely, and accurate data for use in assessing agricultural land resource status in California. The program utilizes a combination of geographic information systems (GIS), aerial imagery, local agency comments, and other relevant information to combine soil quality data and current land use information to produce Important Farmland maps.

The FMMP maps out five different farmland categories as well as urban and other land (DOC 2004):

Prime Farmland – lands with the best combination of physical and chemical features able to sustain long-term production of crops. The land must be cropped and supported by a developed irrigation water supply that is dependable and of adequate quality during the grow season. It must also have been used for production during the previous 4 years.

Farmland of Statewide Importance – lands similar to Prime Farmland but with minor shortcomings such as greater slope or less ability to store moisture.

Unique Farmland – soils of lower quality that are used for producing California's leading agricultural crops. These lands are usually irrigated but may include non-irrigated orchards or vineyards.

Farmland of Local Importance – lands such as dryland grains and irrigated pastures that are not considered Prime Farmland, Farmland of Statewide Importance, or Unique Farmland.

Grazing Land – land on which the existing vegetation is suited to the grazing of livestock.

California Land Conservation Act (Williamson Act)

The California Land Conservation Act, more commonly referred to as the Williamson Act, was passed in 1965 as a means to preserve agricultural and open space lands by discouraging "premature and unnecessary conversion to urban uses" (California Government Code Section 51220[c]). Through this act, local governments and landowners may choose to forgo the possibility of developing their lands, or converting their property to nonagricultural or non–open space use for a set amount of time determined in the contract. In return, they receive lower property taxes. Contracts have an initial term of 10 years with renewal occurring automatically each year after this term. Local governments are permitted to establish initial contract terms for a longer period of time (DOC 2014).

Timberland and Forestland

The following definitions of timberland, timber, and forestland are provided in the Public Resources Code and Government Code as provided in Appendix G of the State CEQA Guidelines:

Timberland – defined as land, other than land owned by the federal government and land designated as experimental forest land (privately owned land as well), which is available for, and capable of, growing a crop of trees of a commercial species used to produce lumber and other forest products, including Christmas trees. Commercial species shall be determined by the board on a district basis (Pub. Res. Code Section 4526).

Timber – defined as trees of any species maintained for eventual harvest for forest products purposes, whether planted or of natural growth, standing or down, on privately or publicly owned land, including Christmas trees, but does not mean nursery stock (California Government Code Section 51104[e]).

Forestland – land that can support 10-percent native tree cover of any species, including hardwoods, under natural conditions, and that allows for management of one or more forest resources, including timber, aesthetics, fish and wildlife, biodiversity, water quality, recreation, and other public benefits (Pub. Res. Code Section 12220[g]).

Local Laws, Regulations, and Policies

Stanislaus County

Stanislaus County Local Agency Formation Commission

The Stanislaus County Local Agency Formation Commission's (LAFCO's) mission is to "discourage urban sprawl, preserve open space and prime agricultural lands, promote the efficient provision of government services and encourage the orderly formation of local agencies" (LAFCO 2012). California Government Code Section 56668(e) requires LAFCO to consider the effect of a proposal on the maintenance of the physical and economic integrity of agricultural lands. To meet its mission and fulfill the requirements of Section 56668(e), LAFCO adopted the Agricultural Preservation Policy on September 26, 2012. The amended policy, adopted in 2015, contains the following goals (LAFCO 2015):

- Guide development away from agricultural lands where possible and encourage efficient development of existing vacant lands and infill properties within an agency's boundaries prior to conversion of additional lands;
- Fully consider the impacts a proposal will have on existing agricultural lands;
- Minimize the conversion of agricultural land to other uses; and
- Promote preservation of agricultural lands for continued agricultural uses while balancing the need for planned, orderly development and the efficient provision of services.

On March 25, 2015, LAFCO amended the policy to include specific regulations regarding the use of in-lieu fees for acquiring and managing agricultural conservation easements (LAFCO 2015). LAFCO considers this policy, in addition to its previously established goals and policies, as an evaluation standard for review of any proposals that could reasonably be expected to induce, facilitate, or lead to the conversion of agricultural land (LAFCO 2015). As required by the policy, a plan for agricultural preservation must be provided with any application for a sphere of influence expansion or annexation to a city or special district ("agency") providing one or more urban services (e.g., potable water, sewer services) that includes agricultural lands. Once the plan is provided, LAFCO then evaluates it based on specific criteria that must be met (LAFCO 2015).

Stanislaus County General Plan

The *Stanislaus County General Plan* Agricultural Element includes goals and policies that are intended to promote and protect local agricultural resources (Stanislaus County 2015). The main goals of the Agricultural Element are to strengthen the agricultural sector of the local economy, conserve the county's agricultural lands for agricultural uses and protect the natural resources that sustain agriculture in Stanislaus County.

The following policies related to agricultural resources are relevant to the proposed project:

Land Use Element

Goal 1. Provide for diverse land use needs by designating patterns which are responsive to the physical characteristics of the land as well as to environmental, economic, and social concerns of the residents of Stanislaus County

> **Policy 2.** Land designated Agriculture shall be restricted to uses that are compatible with agricultural practices, including natural resources management, open space, outdoor recreation, and enjoyment of scenic beauty.

Goal 2. Ensure compatibility between land uses.

> **Policy 14.** Uses shall not be permitted to intrude into or be located adjacent to an agricultural area if they are detrimental to continued agricultural usage of the surrounding area.

Goal 3. Foster stable economic growth through appropriate land use policies.

> **Policy 16.** Agriculture, as the primary industry of the County, shall be promoted and protected.

Open Space Element

Goal 3. Provide for the long-term conservation and use of agricultural lands.

> **Policy 11.** In areas designated "Agriculture" on the Land Use Element, discourage land uses which are incompatible with agriculture.

Agricultural Element

Goal 2. Conserve agricultural lands for agricultural uses.

> **Policy 2.5.** To the greatest extent possible, development shall be directed away from the County's most productive agricultural areas.

Buffer and Setback Guidelines

Appendix A of the *Stanislaus County General Plan* includes buffer and setback guidelines. These guidelines are intended to establish standards for the development and maintenance of buffers and setbacks that are designed to physically avoid conflicts between agricultural and nonagricultural uses (Stanislaus County 2015). Specific guidelines that relate to this proposed project are listed below:

- All projects shall incorporate a minimum 150-foot wide buffer. All buffers shall incorporate a solid wall and vegetative screen consistent with the following standards:
  - *Fencing:* A 6-foot high wall of uniform construction shall be installed along any portion of a buffer where the project site and the adjoining agricultural operation share a common parcel line.

- *Vegetative Screen:* (minimum standards)

  - Permitted uses within a buffer area shall include: public roadways, utilities, drainage facilities, landscaping, parking lots and similar low human intensity uses. Walking and bike trails shall be allowed within buffers provided they are designed without rest areas.
  - Landscaping within a buffer setback shall be designed to exclude turf areas which could induce activities and add to overall maintenance costs and water usage.
  - A landowners association or other appropriate entity shall be required to maintain buffers to control litter, fire hazards, pests, and other maintenance problems when a project consists of multiple parcels which may be held, or have the potential to be held, under separate ownership.
  - The Board of Supervisors may authorize the abandonment and reuse of buffer areas if agricultural uses on all adjacent parcels within a 150-foot radius of the project site have permanently ceased.

Farmland Mitigation Program

Stanislaus County has established a Farmland Mitigation Program (FMP) as Appendix B of its general plan (Stanislaus County 2015). The purpose of the FMP is to aid in mitigating the loss of farmland resulting from residential development in the unincorporated areas of Stanislaus County by requiring the permanent protection of farmland based on a 1:1 ratio to the amount of farmland converted. The FMP is designed to utilize agricultural conservation easements granted in perpetuity as a means of minimizing the loss of farmland. These guidelines apply to any development project requiring a General Plan or Community Plan amendment from Agriculture to a residential land use designation of the Stanislaus County General Plan. As such, the proposed project would not be subject to the FMP.

City of Ceres

The *City of Ceres General Plan* (City of Ceres 1997) seeks to balance the need for growth while encouraging the conservation and enhancement of the area's agricultural and natural resources. Most of Ceres was developed on prime agricultural farmland and the goals and policies of the plan strive to maintain agricultural uses as long as possible. It contains policies for vegetation but no specific policies related to forestry.

Goal 6.A. To promote the productivity of agricultural lands surrounding Ceres and the continued viability of Stanislaus County agriculture.

Policy 6.A.3. The City shall ensure that new development and public works projects do not encourage expansion of urban uses outside the Planning Area into areas designated for Agriculture on the Land Use Diagram.

Policy 6.A.4. The City shall require development adjacent to designated agricultural areas to minimize conflicts with adjacent agricultural uses.

Policy 6.A.6. The City shall encourage and support Stanislaus County in the implementation of its agricultural preserve program.

Goal 6.E. To preserve and enhance open space lands to maintain the natural resources of the Ceres area.

Policy 6.E.6. The City shall manage, enhance, and improve the City's tree cover as a valuable community resource.

City of Turlock

The *Turlock General Plan* (City of Turlock 2012) includes several goals and policies that are intended to promote and protect local agricultural resources and to minimize conflict with urban uses. Goals and policies relevant to agriculture and forestry are found within the major areas of Land Use, Parks and Open Space, and Agriculture and Hydrology.

Land Use

Policy 2.9-a. Agriculture belongs in unincorporated areas. Support Stanislaus and Merced County policies that promote continued agricultural activity on lands surrounding the urban areas designated on the General Plan Diagram.

Policy 2.9-c. Encourage infill and more compact development to protect farmland. Relieve pressures to convert valuable agricultural lands to urban uses by encouraging infill development.

Parks and Open Space

Policy 6.1-d. Minimize conflict. Minimize conflict between urban and agricultural uses.

Agriculture and Hydrology

Policy 7.2-a. Preserve Farmland. Promote the preservation and economic viability of agricultural land adjacent to the City of Turlock.

Policy 7.2-b. Limit Urban Expansion. Retain Turlock's agricultural setting by limiting urban expansion to designated areas and minimizing conflicts between agriculture and urban activities.

Policy 7.2-g. Participation in county-wide agricultural mitigation program. Continue to work collaboratively with Stanislaus County and jurisdictions within the county on the development of a countywide agricultural mitigation program, which would mitigate the loss of Important Farmland to urban development through the required purchase of agricultural easements or other similar measures.

City of Hughson

The *Hughson General Plan* Conservation Element is concerned with the protection of natural resources, including agricultural land, plants and animal wildlife, water bodies and watersheds, soils, minerals and energy conservation (City of Hughson 2005).

Goal COS-1. Preserve and protect agricultural lands in and around Hughson.

Policy COS-1.1. Property owners within the Sphere of Influence will be encouraged to maintain their land in agricultural production until the land is converted to urban uses.

Policy COS-1.2. The City should endeavor to direct new growth away from areas established as Prime Farmland and/or under Williamson Act contracts, and discourage the premature conversion of agricultural land to urban uses.

Policy COS-1.3. The City will support Stanislaus County in its efforts to maintain agricultural lands in viable farming units for those areas not currently designated for urban uses.

Policy COS-1.4. Any County proposals within the Hughson Planning Area that involve the development of urban uses on land designated as Agriculture outside of the City's Sphere of Influence will be discouraged by the City.

Policy COS-1.5. The City will support the application and renewal of Williamson Act contracts or other conservation easements for areas outside of the City's Sphere of Influence.

Policy COS-1.7. The City will minimize conflicts between agriculture and urban uses.

3.2.3 Environmental Setting

The majority of the proposed project area is located in rural, unincorporated Stanislaus County, which is generally flat and dominated by agricultural uses. The proposed pipeline routes and terminal facilities also enter or skirt the city limits of Ceres, Hughson, and Turlock. Agriculture is the dominant economic sector in each of the cities.

Agriculture

In 2016, 425,378 acres of the Stanislaus County's inventoried 970,174 acres were classified as Important Farmland, including the categories of Prime, Statewide Importance, Unique, or Local Importance (FMMP 2017). An additional 404,405 acres were in Grazing Land.

The site of the proposed pump station is a former aggregate mine and is classified as Vacant or Disturbed on FMMP maps **(Figure 3.2-1).** Fox Grove Regional Park is also classified as Vacant or Disturbed with the surrounding lands adjacent to the Tuolumne River considered Nonagricultural and Natural Vegetation Land. The former Geer Road Landfill site is on the north side of the Tuolumne River along with Prime Farmland. Most of the land south of the proposed pump station site is also Prime Farmland.

The site of the proposed WTP is owned by TID; the property has historically been leased to farmers and is currently planted in almond orchards. All 48 acres of the site are classified as Prime Farmland.

The proposed alignments of the treated water transmission mains leading from the WTP to Ceres and Turlock would be located within existing road and canal ROWs, which border and traverse various land uses (e.g., residential, agricultural, light industrial, and commercial). Two segments of the alignment would require easements that may affect farmland. The Ceres

treated water transmission main between Aldrich Road and Geer Road would primarily be in or adjacent to TID canal ROW. The proposed construction corridor is narrow, and construction could affect some of the existing orchard. In addition, due to constructability, a portion of the pipeline may need to run along the east and north sides of the existing substation in new easements that would also affect the orchard. The Turlock treated water transmission main near the intersection of Santa Fe Avenue and Berkeley Road would require a trenchless crossing under the railroad tracks. An easement would be required through a field that may support seasonal crops. Most of the agricultural lands adjacent to these ROWs are Prime Farmland.

In Ceres, the terminal facilities would be located in Urban and Built-Up land north of Hatch Road in the city-owned Ceres River Bluff Regional Park, which includes ball fields, two parking lots, and a recreation complex.

In Turlock, the terminal facilities would be located in an agricultural field on the east side of town classified as Prime Farmland. The general plan indicates that this area is planted in grain, hay, and field crops.

Potential locations for offset water facilities are, with two exceptions, the locations of existing wells owned by the Cities of Ceres and Turlock. The exceptions are a possible new well located at Dianne Pond in Turlock, use of existing Well 38 in Turlock that would require construction of a new pipeline in Mountain View Road between Christoffersen Parkway and TID Upper Lateral 3, and a potential future well to be located anywhere within TID's service area that has an existing supply deficiency.

Williamson Act

According to the *2015 Stanislaus County Agricultural Report,* 575,549 acres in the county are registered as being under Williamson Act contract. This accounts for approximately 60 percent of the total agricultural acreage in the county (Stanislaus County Agricultural Commissioner 2015). The proposed WTP site and the terminal facilities in Turlock and Ceres are not under Williamson Act contracts. The pipeline routes are located in road and canal ROWs and would border contracted lands throughout the county; however, the pipeline would not traverse any contracted parcels, so individual contracts are not listed.

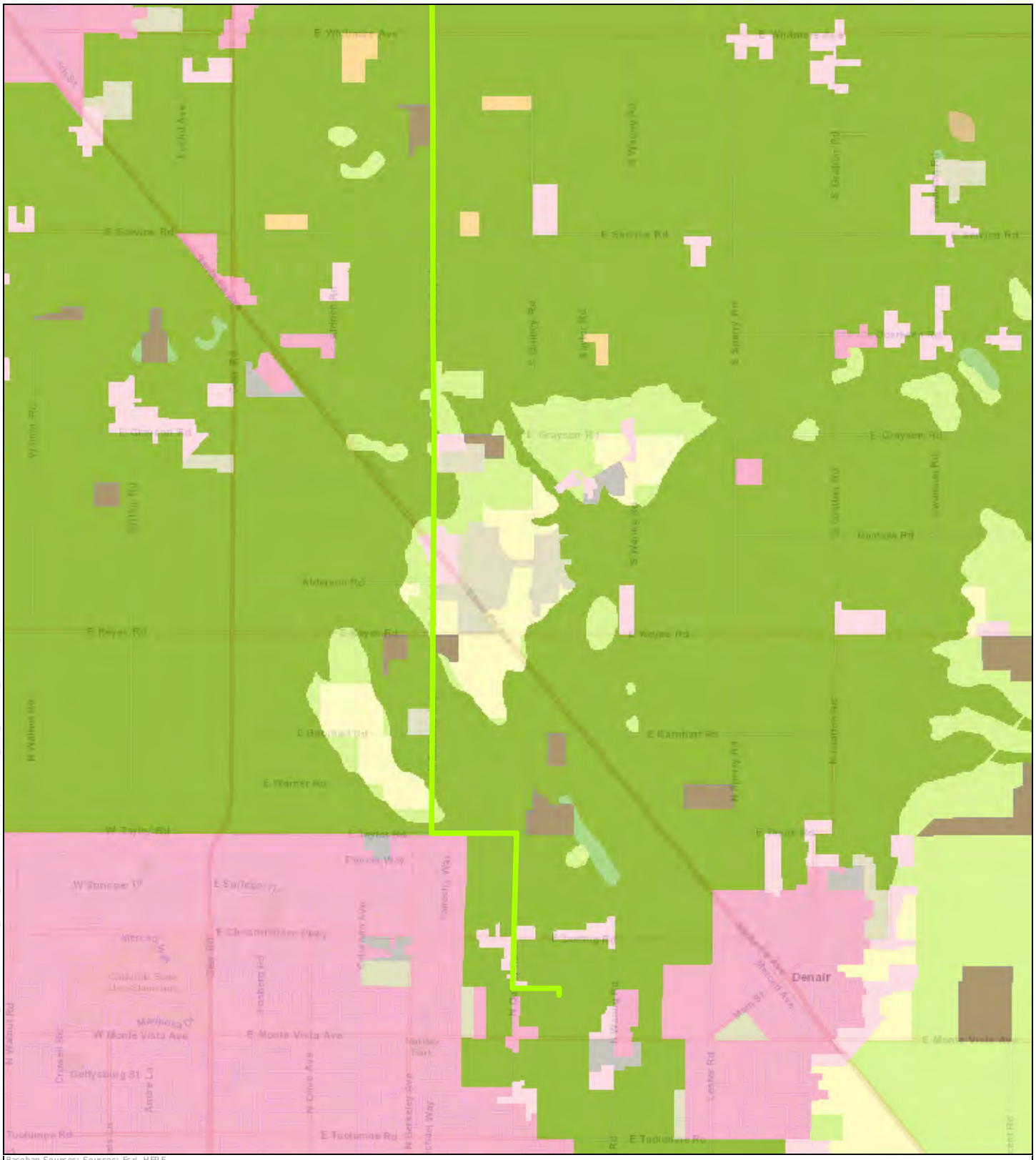

Figure 3.2-1
Important Farmland
Turlock Alignment

Surface Water Supply Project

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Forestry Resource

Within the FMMP system, forest resources are included within the classification of Nonagricultural and Natural Vegetation Land. The only lands within the project area with this designation are near the pump station site adjacent to the Tuolumne River and occupy approximately 0.5 acre (FMMP 2017). While the riparian woodland in that area meets the definition of forestland because it supports at least 10 percent native tree cover of any species, it primarily supports fish and wildlife habitat and is therefore addressed in more detail in Section 3.4, *Biological Resources*. No land meets the definition of land containing timber or timberland resources in the project area.

3.2.4 Environmental Impacts and Mitigation

Methodology

Potential impacts on agriculture and forestry resources from the proposed project were assessed by reviewing the *2015 Stanislaus County Agricultural Report,* the general plan policies of Stanislaus County and the three cities, and relevant federal and state regulations. An inventory of existing agricultural uses within the proposed project area was compiled through a GIS assessment of the FMMP and site visits to the proposed facilities and pipeline alignments. The potential effects of construction, operation, and maintenance of the proposed facilities on existing agricultural resources were evaluated according to the significance criteria identified below.

Significance Criteria

Based on the criteria in Appendix G of the State CEQA Guidelines, impacts on agriculture and forestry resources would be considered significant if the proposed project would:

- Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (collectively, Farmland), as shown on FMMP maps, to nonagricultural use;
- Conflict with existing agricultural zoning or Williamson Act contract;
- Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Pub. Res. Code Section 12220[g]), timberland (as defined by Pub. Res. Code Section 4526), or timberland zoned Timberland Production (as defined by California Government Code Section 51104(g);
- Result in the loss of forest land or conversion of forest land to non-forest use in a manner that will significantly affect timber, aesthetics, fish and wildlife, biodiversity, water quality, recreation, or other public benefits; or
- Involve other changes in the existing environment that, because of their location or nature, could result in a conversion of Farmland to a nonagricultural use.

Impact Analysis

Impact AG-1: Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to Nonagricultural Use (Significant and Unavoidable)

The proposed site of the pump station and the raw water pipeline to the WTP are located on nonagricultural lands and would have no impact on Farmland. The potential locations of offset water facilities are existing well sites that would involve no change in land use; the well site at Dianne Pond is not Important Farmland and would have no impact.

The proposed site of the WTP is an approximately 48-acre parcel classified as Prime Farmland and is currently planted with almond orchards. Approximately half, and possibly more, of the WTP site would be permanently removed from production for the construction of the necessary treatment facilities and access roads, and an unknown amount of additional acreage would be temporarily cleared to provide access during construction. Some portion of the site could be reconverted to agricultural use following construction; however, no decision about replanting has been made. As a result, construction of the WTP would result in the conversion of up to 48 acres of Prime Farmland in unincorporated Stanislaus County to nonagricultural uses. This would be a significant impact.

Considering LAFCO's Agricultural Preservation Policy (2015) and pursuant to Policy 2.15 in the *Stanislaus County General Plan,* the County policy requires that agricultural land converted to residential use be replaced at a 1:1 ratio with agricultural land of equal quality in Stanislaus County. The County policy is not intended to apply to projects other than residential development, and therefore does not apply to SRWA and the proposed project. Implementation of **Mitigation Measure AG-1 (Stockpile Soils and Other Excavated Earth Material During Construction in Areas of Prime Farmland)** would require that SRWA or its contractor(s) preserve and stockpile soils and excavated material from areas of Prime Farmland and reuse them during any replanting. Implementation of **Mitigation Measure AG-2 (Replant Undeveloped Areas of Prime Farmland following Construction Where Feasible)** would reduce the amount of permanent loss of Prime Farmland through reestablishment of agricultural uses in these areas following construction. Nonetheless, these mitigation measures would not fully avoid or compensate for the loss of Prime Farmland.

The proposed treated water transmission main alignments would traverse Prime Farmland at various locations between the WTP and the Ceres and Turlock terminal facilities. For the most part, the pipelines would be located within road and canal ROWs; however, limited portions of the Ceres and Turlock alignments would require easements that could affect farmland during construction. Because construction activities at these locations would disturb but would not permanently remove this land from agricultural production, the impact would be less than significant.

The proposed site for the terminal facility in Ceres is located on built-up or urban land and construction of the facilities at this location would have no impact on farmland.

The proposed site for the terminal facility in Turlock is located on Prime Farmland. The Turlock terminal facilities would occupy up to approximately 6.14 acres and consist of a storage tank, pump station, and other facilities for water distribution. Therefore, construction of the terminal facilities at this location in Turlock would result in the permanent conversion of up to approximately 6.14 acres of Prime Farmland. The City of Turlock requires mitigation

only for conversion to residential zoning. Considering LAFCO's Agricultural Preservation Policy (2015) and pursuant to Policy 2.15 in the *Stanislaus County General Plan,* the County policy requires that agricultural land converted to residential use be replaced at a 1:1 ratio with agricultural land of equal quality in Stanislaus County. Neither the City of Turlock policy nor the County policy is intended to apply to projects other than residential development, and therefore neither requirement applies to SRWA and the proposed project. However, under CEQA, conversion of Prime Farmland to non-agricultural uses would result in a significant impact. Implementation of Mitigation Measures AG-1 and AG-2 would reduce this impact but would not fully avoid or compensate for the loss of Prime Farmland.

The total amount of Prime Farmland that would be converted as a direct result of the proposed project is conservatively estimated to be approximately 55 acres (up to 48 acres at the WTP site and up to 6.14 acres at the Turlock terminal facility site). Mitigation Measures AG-1 and AG-2 would reduce the loss of Prime Farmland but would not ultimately avoid the net conversion of some Prime Farmland out of agricultural use, and as such, this impact would remain significant, and no additional feasible mitigation has been identified that could reduce the impact to a level of insignificance. In particular, although the Stanislaus County Farmland Mitigation Program provides a mechanism for establishing agricultural conservation easements, SRWA has determined that this program is infeasible for the proposed project because: (1) Stanislaus County policy is to mitigate the loss of and preserve Prime Farmland through the County Farmland Mitigation Program, which is designed to address loss of farmland resulting from the impacts of residential development, and County policy is not to burden and increase the cost of new and improved public infrastructure that is needed by the community; (2) the cost of the conservation easement would substantially increase the cost of the project and the burden and economic impact on the ratepayers would be significant and unacceptable (i.e., a conservation easement would cost approximately $10,400 per acre, or up to $572,000 for the loss of 55 acres); and (3) purchase of an agricultural conservation easement over other off-site agricultural land would not ultimately avoid or reduce the impact of converting Prime Farmland to non-agricultural uses caused by the proposed project because there still would be a net reduction in the total amount of Prime Farmland and therefore the easement over other land would not reduce the impact to a level of insignificance. No other feasible mitigation measures, such as restoration of Prime Farmland that has been previously converted or participation in another agricultural conservation easement program, have been identified to further reduce this impact. Therefore, the impact on Prime Farmland is considered **significant and unavoidable.**

Mitigation Measure AG-1: Stockpile Soils and Other Excavated Earth Material During Construction.

SRWA or its contractor(s) shall implement the following measures. Topsoil and other earth material removed from Prime Farmland during construction of the WTP and Turlock terminal tank site shall be stockpiled for later reuse after excavation. Soil shall be stored in a designated area for the entirety of these areas' construction. The stockpiles shall be located in an area where construction activities would not affect agricultural or biological resources. All stockpiled soil shall be covered with tarps at all times to prevent the generation of fugitive dust. Excavated soil will then be backfilled at the sites and restored to an appropriate level of compaction following construction.

Mitigation Measure AG-2: Replant Undeveloped Areas of Prime Farmland following Construction Where Feasible.

SRWA and the Cities shall implement the following measure. Where feasible, following construction in areas of Prime Farmland, SRWA shall distribute stockpiled topsoil and replant agricultural products that are determined to be compatible with the operational and maintenance requirements of the adjacent proposed project facilities.

Impact AG-2: Conflict with Existing Agricultural Zoning or Williamson Act Contract (Less than Significant)

The parcel for the proposed WTP is owned by TID and is not restricted by a Williamson Act contract. The parcels at the site of the proposed terminal facilities in Turlock and Ceres are also not under contract. The potential locations of offset water facilities are in existing use as well sites, including the Dianne Pond location and the pipeline between Well 38 and TID Upper Lateral 3, and would not require any change in land use. Contracted lands are located along some portions of the proposed pipeline routes, but construction of the proposed pipelines would not conflict with or result in premature cancellation of Williamson Act contracts because the pipelines would be located within road and canal ROWs and would not substantially disturb existing agricultural operations on adjacent contracted lands or cause them to be removed from production. No zoning changes are proposed and the proposed project would not conflict with existing agricultural zoning. Therefore, the impact of the proposed project on existing agricultural zoning and Williamson Act contracts would be **less than significant.**

Impact AG-3: Conflict with Existing Zoning for, or Cause Rezoning of, Forest Land, Timberland, or Timberland Zoned Timberland Production (No Impact)

As described above, 0.5 acre of riparian woodland is present near the pump station site adjacent to the Tuolumne River (FMMP 2017). No land meets the definition of land containing timber or timberland resources in the project area. No zoning changes are proposed and the proposed project does not conflict with existing zoning for forest resources defined above. Therefore, the proposed project has **no impact**.

Impact AG-4: Loss of Forest Land or Conversion of Forest Land to Non-forest Use in a Manner that Will Significantly Affect Timber, Aesthetics, Fish and Wildlife, Biodiversity, Water Quality, Recreation, or Other Public Benefits (Less than Significant)

As described above, 0.5 acre of riparian woodland is present near the pump station site adjacent to the Tuolumne River (FMMP 2017). No land meets the definition of land containing timber or timberland resources in the project area. The riparian woodland near the pump station meets the definition of forestland because it supports at least 10 percent native tree cover of any species. As described in more detail in Section 3.4, *Biological Resources,* construction of the pump station would not remove substantial amount of native tree cover in this area, and the riparian woodland would continue to provide fish and wildlife habitat. No loss of riparian woodland would occur as a result of the proposed project. Therefore, the impact of the proposed project would be **less than significant.**

Impact AG-5: Other Changes in the Existing Environment that, Because of Their Location or Nature, Could Result in a Conversion of Farmland to a Nonagricultural Use (Less than Significant)

Implementation of Phase 1 of the proposed project would involve the release of an average of 15 mgd of TID water from Don Pedro Reservoir; withdrawal of an average of 15 mgd of TID water from the Tuolumne River 26 miles downstream at the infiltration gallery/raw water pump station site; conveyance of that water to the WTP for treatment; and delivery of that treated water to the Cities for use as municipal and industrial (M&I) water supply. In return, in some years, SRWA would provide TID with offset water from groundwater wells or other sources located within its service area, which would be delivered to TID's system of canals, although the long-term net amount of offset water to be provided would be less than the amount of water provided by TID to SRWA. At buildout of the proposed project, the amount of water could be increased to a maximum of 45 mgd; however, the existing WSA between TID and SRWA for up to 30,000 afy would require modification before that maximum supply could be provided.

The use of TID water for M&I would eliminate the availability of that water for use by TID agricultural customers. This could indirectly lead to the conversion of agricultural land to nonagricultural uses. However, SRWA's provision of offset water would reduce this effect, and it is unknown whether any agricultural land would actually go out of production as a result of the proposed project. Therefore, this potential impact is considered speculative and, with provision of offset water, would be **less than significant.**

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3.3 Air Quality

3.3.1 Introduction

This section describes the existing setting for air quality emissions in the project area, which is located in the San Joaquin Valley Air Basin (SJVAB). This section also describes federal, state, and local laws, regulations, and policies relevant to protection of air quality as they relate to the proposed project. The impacts on air quality as a result of construction and operation of the proposed project are evaluated, and mitigation measures are identified to reduce significant impacts to a less-than-significant level, where available.

3.3.2 Regulatory Setting

Federal Plans, Policies, and Regulations

Clean Air Act

At the federal level, the Clean Air Act (CAA) governs air quality in the United States and is implemented by the U.S. Environmental Protection Agency (USEPA). USEPA is responsible for setting and enforcing the National Ambient Air Quality Standards (NAAQS) for atmospheric pollutants. It regulates emission sources that are under the exclusive authority of the federal government, such as aircraft, ships, non-road engines, and certain types of locomotives. USEPA also has jurisdiction over emission sources outside state waters (outer continental shelf) and establishes various emission standards for vehicles sold in states other than California; California has received a waiver to establish emission standards lower than the federal standards. As part of its enforcement responsibilities, USEPA requires each state with "nonattainment"[1] areas to prepare and submit a state implementation plan (SIP) that demonstrates the means to attain the NAAQS before the deadline mandated by USEPA. The SIP must integrate federal, state, and local plan components and regulations and identify specific measures to reduce pollution, using a combination of performance standards and market-based programs, within the timeframe identified in the SIP. A maintenance plan must be prepared for each former nonattainment area that subsequently demonstrates compliance with the standards.

The CAA also contains regulations dealing with operating permits for large industrial and commercial sources that release pollutants into the air. Operating permits contain information on which pollutants are being released, the quantity that may be released, and what steps the owner or operator of the emission source must take to reduce pollution.

Non-road Emission Regulations

USEPA has adopted emission standards for different types of non-road engines, equipment, and vehicles. For non-road diesel engines, USEPA has adopted multiple tiers of emission standards.

[1] Nonattainment areas are air basins, counties, or regional areas that have been designated as exceeding federal or state ambient air quality standards.

USEPA signed a final rule on May 11, 2004, introducing the Tier 4 emission standards, to be phased in between 2008 and 2015 (69 CFR 38957–39273, June 29, 2004). The Tier 4 standards require that emissions of particulate matter (PM) and oxides of nitrogen (NO_X) be further reduced by about 90 percent. Such emission reductions can be achieved through the use of control technologies, including advanced exhaust gas after-treatment. To enable sulfur-sensitive control technologies in Tier 4 engines, USEPA also mandated reductions in sulfur content in non-road diesel fuels. In most cases, federal non-road regulations also apply in California, which has only limited authority to set emission standards for new non-road engines. The CAA preempts California's authority to control emissions from new farm and construction equipment less than 175 horsepower (hp) (CAA Section 209[e][1][A]) and requires California to receive authorization from USEPA for controls over other off-road sources (CAA Section 209[e][2][A]).

State Plans, Policies, and Regulations

California Clean Air Act

Responsibility for attaining and maintaining air quality standards in California is divided between the California Air Resources Board (CARB) and regional air quality districts. Areas of control for the regional districts are set by CARB, which divides the state into air basins. The California Clean Air Act (CCAA) requires nonattainment areas to achieve and maintain the health-based California Ambient Air Quality Standards (CAAQS) by the earliest practicable date. The act is administered by CARB at the state level and by local air quality management districts at the regional level; the air districts are required to develop plans and control programs for attaining the state standards. Unlike the federal CAA, the CCAA does not set precise attainment deadlines. Instead, the CCAA establishes increasingly stringent requirements for areas that will require more time to achieve the standards.

CARB is responsible for ensuring implementation of the CCAA, meeting state requirements of the federal CAA, and establishing the CAAQS. The state standards are generally more stringent than the federal standards and incorporate additional standards for sulfate (SO_4), hydrogen sulfide (H_2S), vinyl chloride, and visibility-reducing particles. CARB sets emission standards for vehicles sold in California and for other emission sources, such as consumer products and certain off-road equipment. CARB also establishes passenger vehicle fuel specifications.

Statewide Truck and Bus Regulations

On December 12, 2008, CARB approved a new regulation to substantially reduce emissions of diesel particulate matter (DPM), NO_X, and other pollutants from existing on-road diesel vehicles operating in California. The regulation requires affected trucks and buses to meet performance standards and requirements between 2011 and 2023. Affected vehicles included on-road, heavy-duty, diesel-fueled vehicles with a gross vehicle weight rating greater than 14,000 pounds. The regulation was updated in 2011 and 2014 with revisions that provide more compliance flexibility and reflect the impact of the economic recession on vehicle activity and emissions. Heavy-duty trucks used in proposed project activities would be required to comply with this regulation.

In-use, Off-road Diesel Vehicle Regulation

In 2007, CARB adopted a regulation to reduce DPM and NO_X emissions from in-use, off-road, heavy-duty diesel vehicles in California. The regulation imposes limits on vehicle idling and requires fleets to reduce emissions by retiring, replacing, repowering, or installing exhaust retrofits to older engines. In 2011, major amendments were made to the regulation, including modifications to the compliance dates for performance standards and establishing requirements for compliance with verified diesel emission control strategy technologies that reduce PM and/or NO_X emissions.

Heavy-duty Vehicle Inspection Program

The heavy-duty vehicle inspection program requires that heavy-duty trucks and buses be inspected for excessive smoke and tampering and for compliance with engine certification labels. Any heavy-duty vehicle (i.e., a vehicle with a gross vehicle weight rating greater than 6,000 pounds) traveling in California, including vehicles registered in other states and foreign countries, may be tested. Tests are performed by CARB inspection teams at border crossings, California Highway Patrol weigh stations, fleet facilities, and randomly selected roadside locations. Owners of trucks and buses found to be in violation are subject to penalties starting at $300 per violation. Heavy-duty trucks used for proposed project activities would be subject to the inspection program.

Heavy-duty On-board Diagnostic System Regulations

In 2004, CARB adopted regulations requiring on-board diagnostic (OBD) systems on all 2007 and later model year heavy-duty engines and vehicles (i.e., vehicles with a gross vehicle weight rating greater than 14,000 pounds) in California. CARB subsequently adopted a comprehensive OBD regulation for heavy-duty vehicles model years 2010 and beyond. The heavy-duty OBD regulations were updated in 2010, 2013, and 2016 with revisions to enforcement requirements, testing requirements, and implementation schedules. Heavy-duty trucks used for proposed project activities would be required to comply with the heavy-duty OBD regulatory requirements.

California Standards for Diesel Fuel Regulations

State regulations require diesel fuel with sulfur content of 15 parts per million (ppm) or less (by weight) to be used for all diesel-fueled vehicles that are operated in California. The standard also applies to non-vehicular diesel fuel, except for diesel fuel used solely in locomotives or marine vessels. The regulations also contain standards for the aromatic hydrocarbon content and lubricity of diesel fuels.

Airborne Toxic Control Measures

CARB regulates toxic air contaminants (TACs) by requiring implementation of various airborne toxic control measures (ATCMs), which are intended to reduce emissions associated with toxic substances.

ATCM to Limit Diesel-fueled Commercial Motor Vehicle Idling

On October 20, 2005, CARB approved an ATCM to limit idling of diesel-fueled commercial motor vehicles. This regulation, which followed previous idling ATCMs, consists of new engine and in-use truck requirements, as well as idling emission performance standards. The

regulation requires 2008 and newer model year heavy-duty diesel engines to be equipped with a nonprogrammable engine shutdown system that automatically shuts down the engine after 5 minutes of idling or, optionally, meets a stringent NO_X idling emission standard (30 grams per hour). The regulation also is applicable to the operation of in-use trucks, requiring operators of sleeper berth–equipped trucks with both in-state and out-of-state registrations to shut down their engines manually when idling more than 5 minutes at any location within California, beginning in 2008. Vehicles subject to this regulation are diesel-fueled commercial vehicles with a gross vehicle weight rating greater than 10,000 pounds. There are exceptions to this regulation; for example, ready-mix concrete trucks, which require the engine to be on in order to operate, are not required to comply with this regulation. Trucks used for vendor delivery of materials for proposed project activities would be required to comply with the commercial vehicle idling regulatory requirements.

Portable Engine ATCM

The California Portable Engine ATCM is designed to reduce the PM emissions from portable diesel-fueled engines rated at 50 brake hp or larger. This regulation requires that an owner's fleet of portable engines meet emission standards that reduce the amount of PM emissions over time.

Portable Equipment Registration Program

The statewide Portable Equipment Registration Program (PERP) establishes a system to uniformly regulate portable engines and portable engine–driven equipment units. After being registered in this program, engines and equipment units may operate throughout the state without the need to obtain permits from individual air districts. Owners or operators of portable engines and certain types of equipment can voluntarily register their units under this program. Operation of registered portable engines may still be subject to certain district requirements for reporting and notification. Engines with less than 50 brake hp are exempt from this program. Some of the engines used for the proposed project may operate under PERP.

TAC Regulations

In addition to ATCMs, TACs are controlled under several different regulations in California, including the Tanner Air Toxics Act, Air Toxics Hot Spots Information Act, and AB 2588: Air Toxics "Hot Spots" Information and Assessment Act. In addition, Proposition 65 (the Safe Water and Toxic Enforcement Act of 1996) requires the state to publish a list of chemicals known to cause cancer or birth defects or other reproductive harm. Proposition 65 requires businesses to notify Californians about substantial amounts of chemicals in the products they purchase or that are released into the environment.

Local Plans, Policies, and Regulations

At the local level, responsibilities of air quality districts include overseeing stationary-source emissions, approving permits, maintaining emissions inventories, maintaining air quality monitoring stations, overseeing agricultural burning permits, and reviewing air quality–related sections of environmental documents under CEQA. The air quality districts are also responsible for establishing and enforcing local air quality rules and regulations that address the requirements of federal and state air quality laws, as well as for ensuring that the NAAQS and CAAQS are met.

Local governments are essential partners in the effort to reduce air pollutant emissions. The local governments have influence through their planning and permitting processes, local ordinances, outreach and education efforts, and municipal operations.

San Joaquin Valley Air Pollution Control District

SJVAPCD has local air quality jurisdiction over the proposed project and in other counties under its jurisdiction. SJVAPCD's recommended CEQA thresholds are outlined in its *Guidance for Assessing and Mitigating Air Quality Impacts* (SJVAPCD 2015a). SJVAPCD has adopted attainment plans to address ozone and PM.

1-Hour Ozone

Although USEPA revoked its 1979 1-hour ozone standard in June 2005, many planning requirements remain in place, and the SJVAB must still attain this standard before CAA Section 185 fees (which are required when attainment is not reached) can be rescinded. SJVAPCD's most recent 1-hour ozone plan, the *2013 Plan for the Revoked 1-hour Ozone Standard* (SJVAPCD 2013), demonstrated attainment of the 1-hour ozone standard by 2017. In July 2016, USEPA made a final determination that the SJVAB has attained the 1-hour ozone NAAQS based on the most recent 3-year data period (2012–2014) of sufficient, quality-assured, and certified data (SJVAPCD 2016). For the SJVAB to be officially designated as an attainment area, SJVAPCD must verify that attainment is due to permanent and enforceable emission reductions and prepare a maintenance plan.

8-Hour Ozone

SJVAPCD's far-reaching 2007 Ozone Plan demonstrates attainment of USEPA's 1997 8-hour ozone standard by 2023. USEPA approved the 2007 Ozone Plan effective April 30, 2012. The district has prepared a 2016 Ozone Plan to address USEPA's 2008 8-hour ozone standard, which the SJVAB must attain by 2032 (SJVAPCD 2017b). This extremely stringent standard is nearing the SJVAB's naturally occurring background concentrations of ozone. The 2016 plan identifies that, without mobile sources transitioning to near-zero emission levels through the implementation of transformative measures such as ultra-low tailpipe emissions standards (which SJVAPCD does not have the authority to implement), attainment of the federal standards is not possible (SJVAPCD 2017b).

PM_{10}

PM is a complex mixture of extremely small particles and liquid droplets, made up of multiple components, including acids, organic chemicals, metals, and soil or dust particles. Particles that are smaller than 10 micrometers in diameter (PM_{10}) are typically found near roadways and around dusty industrial sites. Based on PM_{10} measurements from 2003-2006, USEPA found that the SJVAB has reached attainment of federal PM_{10} standards. On September 21, 2007, the SJVAPCD Governing Board adopted the 2007 *PM10 Maintenance Plan and Request for Redesignation*, which demonstrates that the SJVAB will continue to meet the PM_{10} standard. USEPA approved the document and, on September 25, 2008, the SJVAB was redesignated to attainment/maintenance (SJVAPCD 2017c). SJVAPCD is in the process of developing the 2017 PM_{10} Maintenance Plan to demonstrate the maintenance of the standard for an additional ten-year period of 2020 through 2029 (SJVAPCD 2017a, 2017b).

$PM_{2.5}$

Fine particles ($PM_{2.5}$) are less than 2.5 micrometers in diameter and are found in smoke and haze. Changes in the federal $PM_{2.5}$ air quality standard (in 1997, 2006, and 2012) and recent drought conditions in California have resulted in the development of multiple $PM_{2.5}$ air quality plans by SJVAPCD. The 2008 and 2015 $PM_{2.5}$ plans have been prepared to achieve attainment of USEPA's first $PM_{2.5}$ standard, set in 1997. The attainment deadline for the 1997 standard has been delayed to 2020 (SJVAPCD 2015b).

USEPA lowered the $PM_{2.5}$ standard in 2006. Although SJVAPCD's 2012 $PM_{2.5}$ plan showed attainment of this standard by 2019, USEPA reclassified SJVAPCD to serious nonattainment for the 2006 $PM_{2.5}$ standard in January 2015, and SJVAPCD must prepare a revised plan to address this nonattainment.

On September 15, 2016, SJVAPCD adopted the *2016 Moderate Area Plan for the 2012 PM2.5 Standard* to address another $PM_{2.5}$ standard issued by USEPA in 2012 and USEPA's determination that the SJVAB is a moderate nonattainment area for the 2012 federal $PM_{2.5}$ standard. SJVAPCD continues to work with USEPA on issues surrounding these plans, including USEPA implementation updates, and is in the process of developing an attainment strategy to address the multiple $PM_{2.5}$ standards (1997, 2006, and 2012) (SJVAPCD 2017a, 2017b).

SJVAPCD Rules

The proposed project may be subject to the following district rules. These rules have been adopted by SJVAPCD to reduce emissions throughout the SJVAB:

- **Rule 2010 – Permits Required** requires an applicant to obtain an Authority to Construct and Permit to Operate for certain types of stationary air pollution sources.
- **Rule 2201 – New and Modified Stationary-Source Review Rule** applies to all new stationary sources and all modifications to existing stationary sources subject to SJVAPCD permit requirements that, after construction, emit or may emit one or more pollutants regulated by the rule.
- **Rule 2280 – Portable Equipment Registration** applies to portable emissions units that may operate in participating districts throughout California. The rule requires applicable portable equipment to be registered.
- **Rule 3135 – Dust Control Plan Fees** requires the applicant to submit a fee in addition to a dust control plan. The purpose of this rule is to recover SJVAPCD's cost for reviewing these plans and conducting compliance inspections.
- **Rule 4001 – New Source Performance Standards** applies to new or modified sources of air pollution that must comply with standards, criteria, and requirements for the applicable sources. This incorporates by reference the federal New Source Performance Standards.
- **Rule 4101 – Visible Emissions** prohibits emissions of visible air contaminants into the atmosphere and applies to any source operation that emits or may emit air contaminants.
- **Rule 4102 – Nuisance** applies to any source operation that emits or may emit air contaminants or other materials. In the event that the project or construction of the

project creates a public nuisance, it could be in violation of this rule and subject to SJVAPCD enforcement action.

- **Rule 4201 – Particulate Matter Concentration** applies to any source operation that emits or may emit dust, fumes, or total suspended particulate matter.
- **Rule 4202 – Particulate Matter - Emissions Rate** limits particulate matter emissions by establishing allowable emission rates.
- **Rule 4601 – Architectural Coatings** limits volatile organic compound (VOC) emissions from architectural coatings.
- **Rule 4641 – Cutback, Slow-Cure, and Emulsified Asphalt, Paving, and Maintenance Operations** applies to the manufacture and use of cutback asphalt, slow-cure asphalt, and emulsified asphalt for paving and maintenance operations.
- **Rule 4701 – Internal Combustion Engines—Phase 1** limits the emissions of NO_X, carbon monoxide (CO), and VOCs from internal combustion engines. These limits are not applicable to standby engines as long as they are used fewer than 200 hours per year (e.g., for testing during non-emergencies).
- **Rule 4702 – Internal Combustion Engines—Phase 2** limits the emissions of NO_X, CO, and VOCs from spark-ignited internal combustion engines.
- **Regulation VIII – Fugitive PM_{10} Prohibitions** is a series of rules (Rules 8011–8081) designed to reduce PM_{10} emissions (predominantly dust/dirt) generated by human activity, including construction, road construction, bulk materials storage, landfill operations, and other activities.
- **Rule 9510 – Indirect Source Review** is intended to reduce a project's impact from indirect sources such as on-road and off-road vehicles on air quality through project design elements or mitigation by payments of applicable off-site mitigation fees. Compliance with Rule 9510 is designed to reduce construction exhaust NO_X and PM_{10} emissions by 20 percent and 45 percent, respectively. Compliance with Rule 9510 is designed to reduce operational emissions of NO_X and PM_{10} emissions by 33.3 percent and 50 percent, respectively.

Fugitive Dust Measures (Regulation VIII)

The proposed project would also be required to implement the mandatory control measures listed in Table 2 of the SJVAPCD's Mitigation Measures guidance document (SJVAPCD 2017d) to reduce fugitive dust emissions. These measures are not considered mitigation measures under CEQA because they are required by law.

The Regulation VIII requirements (some of which are not applicable to the proposed project) are listed below:

- All disturbed areas, including storage piles, which are not being actively used for construction purposes, will be effectively stabilized for dust emissions using water or a chemical stabilizer/suppressant, or covered with a tarp or other suitable cover or vegetative ground cover.
- All on-site unpaved roads and off-site unpaved access roads will be effectively stabilized for dust emissions using water or a chemical stabilizer/suppressant.

- All land clearing, grubbing, scraping, excavation, land leveling, grading, cut and fill, and demolition activities will be effectively controlled of fugitive dust emissions by utilizing an application of water or by presoaking.
- With the demolition of buildings up to six stories in height, all exterior surfaces of the building will be wetted during demolition.
- All materials transported off site will be covered or effectively wetted to limit visible dust emissions, and at least 6 inches of freeboard space from the top of the container will be maintained.
- All operations will limit or expeditiously remove the accumulation of mud or dirt from adjacent public streets at the end of each workday. The use of dry rotary brushes is expressly prohibited except where preceded or accompanied by sufficient wetting to limit the visible dust emissions. Use of blower devices is expressly forbidden.
- Following the addition of materials to, or the removal of materials from, the surface of outdoor storage piles, piles will be effectively stabilized to prevent fugitive dust emissions utilizing sufficient water or a chemical stabilizer/suppressant.
- Within urban areas, trackout will be immediately removed when it extends 50 or more feet from the site and at the end of each workday.
- Any site with 150 or more vehicle trips per day will prevent carryout and trackout.

Stanislaus County

The *Stanislaus County General Plan 2015* Conservation/Open Space Element (Stanislaus County 2016) identifies air quality–related goals and policies. These would contribute to reduced criteria pollutant emissions and improved regional air quality by requiring all development projects to include reasonable air quality mitigation measures, reducing motor vehicle emissions, and increasing public awareness of air quality problems and solutions.

The following goal, policies, and implementation measures also apply to the proposed project:

Goal Six. Improve air quality.

Policy Nineteen. The County will strive to accurately determine and fairly mitigate the local and regional air quality impacts of proposed projects.

Implementation Measure 1. Require all development proposals, where appropriate, to include reasonable air quality mitigation measures.

Implementation Measure 2. Minimize case-by-case analysis of air quality impacts through the use of standard criteria for determining significant environmental effects, a uniform method of calculating project emissions, and standard mitigation methods to reduce air quality impacts.

City of Ceres

The *City of Ceres General Plan* (City of Ceres 1997) contains goals, policies, and programs relating to air quality, a complete list of which is included in Appendix B of the General Plan. Policies applicable to the proposed project are included below:

Goal 6.F. To protect and improve air quality in the Ceres area.

> **Policy 6.F.5.** The City shall require project-level environmental review to include identification of potential air quality impacts and designation of design and other appropriate mitigation measures or offset fees to reduce impacts.
>
> **Policy 6.F.6.** The City shall encourage development to be located and designed to minimize direct and indirect air pollutants.
>
> **Policy 6.F.7.** In reviewing project applications, the City shall consider alternatives or amendments that reduce emissions of air pollutants.

Goal 6.G. To integrate air quality planning with the land use and transportation planning process

> **Policy 6.G.2.** The City shall encourage the use of alternative modes of transportation by incorporating public transit, bicycle, and pedestrian modes in City transportation planning and by requiring new development to provide adequate pedestrian and bikeway facilities.

City of Turlock

The *City of Turlock General Plan* (2012) contains the following policies that may be relevant to the proposed project:

> **Policy 8.1-a.** Prioritize Air Quality in Local Planning. Continue efforts to improve air quality in Turlock by integrating air quality analysis and mitigation in land use and transportation planning, environmental review, public facilities and operations, and special programs.
>
> **Policy 8.1-n.** Construction-Related Air Emissions Impacts. Continue to require mitigation measures as a condition of obtaining permits to minimize dust and air emissions impacts from construction. Require contractors to implement dust suppression measures during excavation, grading, and site preparation activities. Techniques may include, but are not limited to:
>
> - Site watering or application of dust suppressants;
> - Phasing or extension of grading operations;
> - Covering of stockpiles;
> - Suspension of grading activities during high wind periods (typically winds greater than 25 miles per hour); and
> - Revegetation of graded areas.

City of Hughson

The Conservation and Open Space Element of the *City of Hughson General Plan* (2005) contains the following policies that may be relevant to the proposed project:

Goal COS-7. Protect and improve air quality in the Hughson area.

3.3.3 Environmental Setting

Regional Setting

San Joaquin Valley Air Basin

The SJVAB encompasses the southern half of California's Central Valley; the area is approximately 250 miles long and averages 35 miles wide. The SJVAB is bounded by the Sierra Nevada to the east, the Coast Ranges to the west, and the Tehachapi Mountains to the south. The SJVAB contains all of San Joaquin, Stanislaus, Merced, Madera, Fresno, Kings, and Tulare Counties, as well as a portion of Kern County. The proposed project is located in the SJVAB within Stanislaus County.

Climate and Topography

The area has an inland Mediterranean climate that is characterized by warm, dry summers and cool, wet winters. Summer high temperatures often exceed 100 degrees Fahrenheit (°F), averaging in the low 90s in the northern valley and the high 90s in the southern portion.

Although marine air generally flows into the basin from the San Francisco Bay–Sacramento-San Joaquin River Delta region, the surrounding mountain ranges restrict air movement through and out of the valley. Wind speed and direction influence the dispersion and transportation of pollutants; the greater the wind flow, the lower the accumulation. The vertical dispersion of air pollutants in the SJVAB is limited by the presence of persistent temperature inversion, leading to higher concentrations of emitted pollutants (SJVAPCD 2015a).

Precipitation and fog tend to reduce pollutant concentrations. Ozone is formed when chemical compounds such as reactive organic gases (ROG) and NO_X (collectively known as ozone precursors) react with sunlight. Clouds and fog block the solar radiation, slowing or preventing the ozone-forming reaction. Annual precipitation in the San Joaquin Valley decreases from north to south, averaging approximately 20 inches in the north, 10 inches in the central portion, and less than 6 inches in the south (SJVAPCD 2002). In the Ceres/Turlock/Hughson/Modesto area of the SJVAB near the proposed project area, the average annual precipitation is approximately 12 inches (Western Regional Climate Center 2017).

Project Vicinity

The proposed project sites are located within the jurisdiction of SJVAPCD. Land uses immediately adjacent to the pump station, WTP, and the pipeline routes are primarily agricultural and residential.

Air Pollutants

Carbon Monoxide

CO is an odorless, colorless gas that is highly toxic. CO is formed by the incomplete combustion of fuels and is emitted directly into the air. Ambient CO concentrations normally are considered a localized effect and typically correspond closely to the spatial and temporal distributions of vehicular traffic, forming pollutant "hot spots." CO concentrations are also influenced by wind speed and atmospheric mixing. Under inversion conditions, CO concentrations may be distributed more uniformly over an area to some distance from vehicular sources. CO binds with hemoglobin, the oxygen-carrying protein in blood, and reduces the blood's capacity for carrying oxygen to the heart, brain, and other parts of the body. At high concentrations, CO can cause heart difficulties in people with chronic diseases, impair mental abilities, and cause death.

Nitrogen Oxides

NO_X is a family of gaseous nitrogen compounds and are precursors to the formation of ozone and PM. The major component of NO_X, nitrogen dioxide (NO_2), is a reddish-brown gas that is toxic at high concentrations. NO_X results primarily from the combustion of fossil fuels under high temperature and pressure. Fuel combustion, primarily from on-road and off-road motor vehicles and industrial sources, is the major source of this air pollutant (SJVAPCD 2015a).

Volatile Organic Compounds

VOCs are hydrocarbon compounds that exist in the ambient air. VOCs contribute to the formation of smog and/or may themselves be toxic. VOC emissions are a major precursor to the formation of ozone (SJVAPCD 2015a).

Ozone

Ozone is a reactive gas consisting of three oxygen atoms. In the troposphere (the lowest region of the atmosphere), it is produced by a photochemical process involving the sun's energy. It is a secondary pollutant that is formed when NO_X and VOC (known as ozone precursors) react in the presence of sunlight. Ozone at the earth's surface causes numerous adverse health effects and is a pollutant regulated by state and federal air quality agencies. It is a major component of smog. In the stratosphere, however, ozone exists naturally and shields the Earth from harmful incoming ultraviolet radiation. High concentrations of ground-level ozone can adversely affect the human respiratory system and aggravate cardiovascular disease and many respiratory ailments. Ozone also damages natural ecosystems such as forests and foothill communities, agricultural crops, and human-made materials such as rubber and plastics (SJVAPCD 2015a).

Particulate Matter

PM is a complex mixture of extremely small particles and liquid droplets. PM is made up of multiple components, including acids, organic chemicals, metals, and soil or dust particles. The size of particles in PM is directly linked to the particles' potential for causing health problems. PM_{10} is of concern because these particles pass through the throat and nose and are deposited in the thoracic region of the lungs. Once inhaled, these particles can affect the heart and lungs and cause serious health effects. $PM_{2.5}$ penetrates even more deeply into the thoracic and alveolar regions of the lungs (SJVAPCD 2015a).

Sulfur Dioxide

Sulfur dioxide (SO_2) is a colorless, irritating gas with a "rotten egg" smell formed primarily by the combustion of sulfur-containing fossil fuels. Suspended SO_2 particles contribute to the poor visibility that occurs in the SJVAB and are a component of PM_{10} (SJVAPCD 2015a).

Lead

Lead (Pb) is a metal found naturally in the environment as well as in manufactured products. The major sources of lead emissions have historically been mobile and industrial sources. The health effects of lead poisoning include loss of appetite, weakness, apathy, and miscarriage. Lead poisoning can also cause lesions of the neuromuscular system, circulatory system, brain, and gastrointestinal tract (SJVAPCD 2015a).

In the past, gasoline-powered automobile engines were a major source of airborne lead through the use of leaded fuels. Since the use of leaded fuel has been mostly phased out, ambient concentrations of lead have decreased dramatically.

Hydrogen Sulfide

Hydrogen sulfide (H_2S) is associated with geothermal activity, oil and gas production and refining, sewage treatment plants, and confined animal feeding operations. H_2S is extremely hazardous in high concentrations and can cause death (SJVAPCD 2015a).

Sulfates

Sulfates are the fully oxidized, ionic form of sulfur. Sulfates occur in combination with metal and/or hydrogen ions. In California, emissions of sulfur compounds result primarily from the combustion of petroleum-derived fuels (e.g., gasoline and diesel fuel) that contain sulfur. This sulfur is oxidized to SO_2 during the combustion process and subsequently converted to sulfate compounds in the atmosphere. The conversion of SO_2 to sulfates is comparatively rapid and complete in urban areas of California due to regional meteorological features (SJVAPCD 2015a).

CARB's sulfate standard is designed to prevent aggravation of respiratory symptoms. Effects of sulfate exposure at levels that exceed the standard include decreased ventilatory function, aggravation of asthmatic symptoms, and increased risk of cardiopulmonary disease. Sulfates are particularly effective in degrading visibility and, because they are usually acidic, can harm ecosystems and damage materials and property (SJVAPCD 2015a).

Vinyl Chloride

Vinyl chloride is a colorless gas that does not occur naturally; it is formed when substances such as trichloroethane, trichloroethylene, and tetrachloroethylene are broken down. Vinyl chloride is used to make PVC, which is used in plastic products such as pipes, wire and cable coatings, and packaging materials (SJVAPCD 2015a).

Toxic Air Contaminants

TACs are air pollutants that may lead to serious illness or increased mortality, even when present in relatively low concentrations. Hundreds of different types of TACs exist, with varying degrees of toxicity. Many TACs are confirmed or suspected carcinogens or are known

or suspected to cause birth defects or neurological damage. For some chemicals, such as carcinogens, no thresholds exist below which exposure can be considered risk free. Examples of TAC sources associated with the proposed project are fossil fuel combustion sources.

Sources of TACs include stationary sources, area-wide sources, and mobile sources. USEPA maintains a list of 187 TACs, also known as hazardous air pollutants. These hazardous air pollutants are included on CARB's list of TACs along with additional chemicals identified as TACs in California (CARB 2017a). According to the *California Almanac of Emissions and Air Quality* (CARB 2013), many researchers consider DPM to be a primary contributor to health risk from TACs because particles in the exhaust carry many harmful organics and metals, rather than being a single substance, as are other TACs. Unlike many TACs, outdoor DPM is not monitored by CARB because no routine measurement method exists. Using the CARB emission inventory's PM_{10} database, ambient PM_{10} monitoring data, and results from several studies, CARB has made preliminary estimates of DPM concentrations throughout the state (Office of Environmental Health Hazard Assessment [OEHHA] 2001).

Existing Air Quality Conditions

Air Monitoring Data

USEPA, CARB, and local air districts operate an extensive air monitoring network to measure progress toward attainment of the NAAQS and CAAQS. The closest air monitoring station to the project area is the Modesto 14th Street station. Data are also provided from the next closest station, the Turlock S. Minaret Street station, for pollutants that were not measured at the Modesto 14th Street station. **Table 3.3-1** shows the most recent 3 years (2014-2016) of available data.

Existing Sources of Air Pollution and Odors

Existing sources of air pollution and odor in the Modesto area include: heavy duty trucks, passenger vehicles, farm equipment, off-road equipment, food processing plants, industrial facilities, waste management facilities, the county airport, and agricultural operations. Air pollution transported from the San Francisco Bay and Sacramento areas may account for roughly a quarter of the pollution in the Modesto area (SJVAPCD 2017b).

Table 3.3-1. Air Monitoring Data for 2014-2016

Monitoring Station	Pollutant Standard		2014		2015		2016	
			No. Exceed*	Maximum Concentration	No. Exceed*	Maximum Concentration	No. Exceed*	Maximum Concentration
Modesto 14th	Ozone	1-hr	0/1	0.103 ppm	0/5	0.111 ppm	0/4	0.105 ppm
Turlock S. Minaret Street	Ozone	1-hr	0/4	0.102 ppm	0/5	0.113 ppm	0/6	0.102 ppm
Modesto 14th	Ozone	8-hr	24/24	0.090 ppm	23/24	0.093 ppm	21/22	0.091 ppm
Turlock S. Minaret Street	Ozone	8-hr	27/30	0.091 ppm	28/31	0.100 ppm	27/28	0.088 ppm
Turlock S. Minaret Street	NO_2	1-hr	0/0	55 ppb	0/0	42 ppb	–	–
Turlock S. Minaret Street	NO_2	Annual	–	NA	–	9	–	–
Modesto 14th	PM_{10}	24-hr	0/37.6	122.5 µg/m³	0/31.1	85.6 µg/m³	NA/NA	81.5 µg/m³
Modesto 14th	PM_{10}	Annual	NA	29.1 µg/m³	NA	27.0 µg/m³	NA	27.6 µg/m³
Turlock S. Minaret Street	PM_{10}	24-hr	0/NA	93.6 µg/m³	0/50.6	76.7 µg/m³	0/NA	62.3 µg/m³
Turlock S. Minaret Street	PM_{10}	Annual	NA	26.0 µg/m³	NA	32.4 µg/m³	NA	29.8 µg/m³
Modesto 14th	$PM_{2.5}$	24-hr	17.0/-	58.2 µg/m³	NA/-	44.0 µg/m³	9.0/-	53.3 µg/m³
Modesto 14th	$PM_{2.5}$	Annual	NA	11.3 µg/m³	NA	NA	NA	11.1 µg/m³
Turlock S. Minaret Street	$PM_{2.5}$	24-hr	23.9/-	61.0 µg/m³	16.8/-	60.9 µg/m³	13.8/-	53.6 µg/m³
Turlock S. Minaret Street	$PM_{2.5}$	Annual	NA	12.3 µg/m³	NA	14.2 µg/m³	NA	12.6 µg/m³

Notes: hr = hour; NA = not available (insufficient or no data available); ppb = parts per billion; ppm = parts per million; µg/m³ = micrograms per cubic meter

* Indicates the number of exceedance days recorded annually at this monitoring station for a particular constituent compared to that constituent's NAAQS and CAAQS. The first number is the state value and the second number is the federal value if they are different. National maximum used.

No data were available in Stanislaus County during 2014-2016 for carbon monoxide, sulfur dioxide, and hydrogen sulfide.

Source: CARB 2017b

TACs in the Project Vicinity

In the project vicinity, the primary source of TACs is combustion of fossil fuels, in particular gasoline and diesel fuel, from both on-road and off-road vehicles.

Attainment Status

CARB and USEPA have established the CAAQS and NAAQS, respectively, in an effort to protect human health and welfare. Geographic areas are deemed to be in attainment if these standards are met or in nonattainment if they are not met. "Unclassified" areas are areas that cannot be classified on the basis of available information as meeting or not meeting the primary or secondary NAAQS for the pollutant. Nonattainment status is classified by the severity of the nonattainment problem. For ozone, these classifications are marginal, moderate, serious, severe, and extreme nonattainment. Nonattainment classifications for PM range from marginal to serious. **Table 3.3-2** shows the current attainment status for the NAAQS and CAAQS. The area is designated as nonattainment for federal and state ozone and $PM_{2.5}$ standards and as nonattainment for the state PM_{10} standard.

Table 3.3-2. Attainment Status of the San Joaquin Valley Air Basin (within Stanislaus County) for the State and Federal Ambient Air Quality Standards

Contaminant	Averaging Time	Concentration	State Standards Attainment Status[1]	Federal Standards Attainment Status[2]
Ozone (O_3)	1-hour	0.09 ppm	N (Severe)	See footnote 3
	8-hour	0.070 ppm	N	
		0.075 ppm		N (Extreme)
Carbon Monoxide (CO)	1-hour	20 ppm	U/A	
		35 ppm		U/A
	8-hour	9.0 ppm	U/A	U/A
Nitrogen Dioxide (NO_2)	1-hour	0.18 ppm	A	
		0.100 ppm[5]		U/A
	Annual arithmetic mean	0.030 ppm	A	
		0.053 ppm		U/A
Sulfur Dioxide (SO_2)	1-hour	0.25 ppm	A	
		0.075 ppm		U/A
	24-hour	0.04 ppm	A	
		0.14 ppm		U/A
	Annual arithmetic mean	0.030 ppm		U/A
Particulate Matter (PM_{10})	24-hour	50 µg/m^3	N	
		150 µg/m^3		A
	Annual arithmetic mean	20 µg/m^3	N	
Fine Particulate Matter ($PM_{2.5}$)	24-hour	35 µg/m^3		N (Moderate)
	Annual arithmetic mean	12 µg/m^3	N	N (Moderate)
Sulfates	24-hour	25 µg/m^3	A	

Contaminant	Averaging Time	Concentration	State Standards Attainment Status[1]	Federal Standards Attainment Status[2]
Lead (Pb)[6]	30-day average	1.5 µg/m^3	A	
Hydrogen Sulfide (H_2S)	1-hour	0.03 ppm	U	
Vinyl Chloride[6] (chloroethene)	24-hour	0.010 ppm	A	
Visibility-Reducing Particles	8-hour (10:00 to 18:00 PST)	See footnote 4	U	

A – attainment
N – nonattainment
U – unclassified
ppm – parts per million
µg/m3 – micrograms per cubic meter
PST – Pacific Standard Time
km – kilometer
PM10 – particulate matter of aerodynamic radius of 10 microns or less
PM2.5 – particulate matter of aerodynamic radius of 2.5 microns or less

Notes:

[1] California standards for O_3, CO (except Lake Tahoe), SO_2 (1-hour and 24-hour averages), NO_2, PM_{10}, and visibility-reducing particles are values that are not to be exceeded. The standards for sulfates, Lake Tahoe CO, Pb, H_2S, and vinyl chloride are not to be equaled or exceeded. If the standard is for a 1-hour, 8-hour, or 24-hour average (i.e., all standards except for Pb and the $PM_{2.5}$ and PM_{10} annual standards), some measurements may be excluded. In particular, measurements are excluded that the California Air Resources Board (CARB) determines would occur an average of less than once per year.

[2] National standards shown are the "primary standards" designed to protect public health. National air quality standards are set by the U.S. Environmental Protection Agency (USEPA) at levels determined to be protective of public health with an adequate margin of safety. National standards other than for O_3, particulates, and those based on annual averages are not to be exceeded more than once per year. The 1-hour O_3 standard is attained if, during the most recent 3-year period, the average number of days per year with maximum hourly concentrations above the standard is less than or equal to one. The 8-hour O_3 standard is attained when the 3-year average of the fourth highest daily concentrations is 0.075 ppm (75 parts per billion) or less. The 24-hour PM_{10} standard is attained when the 3-year average of the ninety-ninth percentile of monitored concentrations is less than 150 µg/m^3. The 24-hour $PM_{2.5}$ standard is attained when the 3-year average of ninety-eighth percentiles is less than 35 µg/m^3. Except for the national particulate standards, annual standards are met if the annual average falls below the standard at every site. The national annual particulate standard for PM_{10} is met if the 3-year average falls below the standard at every site. The annual $PM_{2.5}$ standard is met by spatially averaging annual averages across officially designated clusters of sites and then determining whether the 3-year average of these annual averages falls below the standard.

[3] The national 1-hour O_3 standard was revoked by USEPA on June 15, 2005. On October 1, 2015, the national 8-hour ozone primary and secondary standards were lowered from 0.075 to 0.070 ppm. However, the attainment status has not yet been updated based on this revised 8-hour standard. It is likely that the region will remain in nonattainment.

[4] Statewide Visibility-Reducing Particle Standard (except Lake Tahoe Air Basin): Particles in sufficient amount to produce an extinction coefficient of 0.23 per km when the relative humidity is less than 70 percent. This standard is intended to limit the frequency and severity of visibility impairment resulting from regional haze and is equivalent to a 10-mile nominal visual range.

[5] To attain this standard, the 3-year average of the ninety-eighth percentile of the daily maximum 1-hour average at each monitoring station within an area must not exceed 0.100 ppm (effective January 22, 2010).

[6] CARB has identified Pb and vinyl chloride as toxic air contaminants with no threshold level of exposure below which there are no adverse health effects determined. Although the vinyl chloride CAAQS remains in force, current regulatory efforts are under CARB's Air Toxics Program.

Sources: SJVAPCD 2017c, CARB 2017b, USEPA 2017

3.3.4 Sensitive Receptors

Sensitive receptors are those segments of the population most susceptible to poor air quality: children, the elderly, and individuals with serious pre-existing health problems affected by air quality (e.g., asthma) (CARB 2005). Examples of locations that contain sensitive receptors

are residences, schools and school yards, parks and playgrounds, daycare centers, nursing homes, and medical facilities. Residences include houses, apartments, and senior living complexes. Medical facilities can include hospitals, convalescent homes, and health clinics. Playgrounds include play areas associated with parks or community centers.

Infiltration Gallery/Raw Water Pump Station Site and Raw Water Pipeline

Sensitive receptors in this area are Fox Grove Regional Park, Stanislaus Wildlife Care Center, a farm residence west of Geer Road, and a farm residence east of Geer Road. For the purposes of air quality calculations, the edge of these properties would be located approximately 520, 1,014, 1,900 feet, and 1,200 feet, respectively, from the center of the area, just east of Geer Road and the project site and south of the Tuolumne River.

Water Treatment Plant Site

Given their proximity, the sensitive receptors at this site are similar to those discussed above. The distances from the center of the WTP site to the wildlife center and the two farm residences would be approximately 740, 1,800, and 750 feet, respectively. The edge of the WTP site could be as close as 100 feet from the wildlife care center and the regional park (although the site is elevated substantially above the park property), and 140 feet from the nearest residence.

Ceres Treated Water Transmission Pipeline and Terminal Tank Facility

This pipeline alignment would largely follow the route of the Ceres Main Canal along Hatch Road and would pass within approximately 60 feet of some residences in Hughson east of Geer Road and along Hatch Road, 130 feet of Church of Christ and Hughson Christian School on Tully Road, 90 feet of the Jehovah's Witnesses church on Santa Fe Avenue, and 150 feet of the Gurdwara Sahib Modesto Sikh Temple on Santa Fe Avenue. The Ceres terminal tank facility would be located adjacent to the Ceres River Bluff Regional Park's parking lot and several agricultural parcels. Residences would be located within approximately 550 feet southwest of the nearest boundary of the Ceres terminal tank site.

Turlock Treated Water Transmission Pipeline and Turlock Terminal Tank Facility

The Turlock treated water transmission alignment would pass within approximately 50 feet of multiple residences along Berkeley Avenue, approximately 120 feet of homes south of Taylor Road, and within approximately 40-60 feet near homes along North Quincy Road. The boundary of the Turlock terminal tank facility would be located within approximately 500 feet of a residence along East Monte Vista Avenue.

Offset Water Facilities

As described in Chapter 2, *Project Description,* most of the potential locations for the production of offset water are existing well sites in Ceres or Turlock. The three exceptions are two possible, future well locations and one possible new pipeline location. One of the wells could be located in the vicinity of Dianne Drive and West Canal Drive in Turlock, next to the Dianne Stormwater Detention Pond. This site is surrounded by agricultural and commercial/industrial uses and has approximately six residences located within 1,225 feet of this site on Dianne Drive. The other potential, future well site could be located anywhere

within TID's service area that has an existing supply deficiency. The potential new pipeline that would connect existing Well 38 in Turlock to TID Upper Lateral 3 would be installed in Mountain View Road, a residential street.

3.3.5 Environmental Impacts and Mitigation

Methodology

Construction-related and operation-related air quality impacts of the proposed project were evaluated qualitatively by considering the proposed project's sources and duration of criteria pollutant, TAC, and odor emissions; proximity to sensitive receptors; and frequency and duration of emissions. In addition, the SJVAB's existing air quality attainment status and applicable air quality plans were reviewed and considered in the impact analysis. Where specific construction or operation-related details were lacking, impacts were conservatively judged to be significant, and prescriptive mitigation measures were developed to ensure significant impacts would be minimized.

The SJVAPCD has established thresholds of significance for criteria pollutant emissions, which are based on SJVAPCD New Source Review offset requirements for stationary sources. As such, the impact analysis qualitatively considered these thresholds of significance, which are identified below.

For TACs and odors associated with the proposed project, impacts were evaluated qualitatively using SJVAPCD's *Guidance for Assessing and Mitigating Air Quality Impacts* (SJVAPCD 2015a). The odor impact evaluation for project construction and operation was conducted qualitatively based on pertinent information regarding TAC and odor sources (i.e., frequency of emissions, type of sources) and the proximity to sensitive receptors.

Significance Criteria

Based on Appendix G of the State CEQA Guidelines, the proposed project would have a significant impact with regard to air quality if it would:

- Conflict with or obstruct implementation of the applicable air quality plan;
- Violate any air quality standard established by USEPA or CARB, or contribute substantially to an existing or projected air quality violation;
- 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 (including releasing emissions which exceed quantitative thresholds for ozone precursors);
- Expose sensitive receptors to substantial air pollutant concentrations; or
- Create objectionable odors affecting a substantial number of people.

SJVAPCD Thresholds of Significance

The SJVAPCD's recommended CEQA thresholds are outlined in its *Guidance for Assessing and Mitigating Air Quality Impacts* (SJVAPCD 2015a) and summarized in **Table 3.3-3**. The SJVAPCD's thresholds for reactive organic gases (ROG) and oxides of nitrogen (NO_X), which

are ozone precursors, are 10 tons per year for each pollutant. Ozone precursor emissions are generated from both heavy- and light-duty vehicle use. The SJVAPCD has determined that projects with emissions below the thresholds of significance for criteria pollutants would be considered to be in compliance with the applicable SJVAPCD air quality plans (SJVAPCD 2015a). SRWA has adopted the SJVAPCD CEQA thresholds for purposes of evaluating potential environmental impacts of the proposed project.

According to SJVAPCD's guidance, impacts of operational and construction-related emissions are considered to be less than significant if fugitive dust (PM_{10} and $PM_{2.5}$) emissions are below the significance levels listed in Table 3.3-3. In addition, SJVAPCD Regulation VIII requires all projects that involve earthmoving or travel on unpaved roads to implement fugitive dust control measures. Implementation of these control measures would be sufficient to reduce PM_{10} and $PM_{2.5}$ impacts to a level considered less than significant.

These threshold limits apply to the annual emissions, and apply separately to construction, operational permitted sources and activities, and operational non-permitted activities. In other words, a project can emit up to 10 tons of NO_X during construction, 10 tons of NO_X from permitted activities, and an additional 10 tons of NO_X from non-permitted activities for a total of 30 tons of NO_X emissions and still be under the CEQA significance threshold to be considered less than significant.

Table 3.3-3. Applicable SJVAPCD Construction and Operational Significance Thresholds under CEQA

Pollutant	Construction Emissions Threshold (tons/year)	Operational Permitted Activities (tons/year)	Operational Non-permitted activities (tons/year)
Carbon monoxide (CO)	100	100	100
Oxides of nitrogen (NO_X; ozone precursor)	10	10	10
Reactive organic gases (ROG; ozone precursor)	10	10	10
Sulfur oxides (SO_X)	27	27	27
Particulate matter (PM_{10})	15	15	15
Fine particulate matter ($PM_{2.5}$)	15	15	15

Source: SJVAPCD 2015a

The following quantitative TAC thresholds of significance are identified in the *Guidance for Assessing and Mitigating Air Quality Impacts* (SJVAPCD 2015a), with implementation of the latest revisions to SJVAPCD's risk management policy (SJVAPCD 2017d) also serving as revisions to the CEQA thresholds:

- Probability of contracting cancer for the Maximally Exposed Individual (MEI) exceeds 20 in 1 million, or
- Ground-level concentrations of non-carcinogenic TACs result in a Hazard Index greater than 1 for the MEI.

Due to the variable nature of construction activity, the generation of TAC emissions in most cases would be temporary, especially considering the short amount of time such equipment is typically operating within an influential distance that would result in the exposure of sensitive receptors to substantial concentrations. Chronic and cancer-related health effects estimated over short periods are uncertain. Cancer potency factors are based on animal lifetime studies or studies of workers with long-term exposure to the carcinogenic agent. There is considerable uncertainty in trying to evaluate the cancer risk from exposure that would last only a small fraction of a lifetime. Some studies indicate that the dose rate may change the potency of a given dose of a carcinogenic chemical. In others words, a dose delivered over a short period may have a different potency than the same dose delivered over a lifetime (OEHHA 2017). Given that the construction period for the proposed project, which is approximately 15 months for the most extensive single location (the WTP), would not involve the use of substantial quantities of construction equipment, a qualitative analysis was determined to be the appropriate level of detail required to determine the impact of potential TAC emissions.

For operational TAC emissions, the facility is required to be below the health effects quantitative thresholds in order to obtain the required operating permits consistent with SJVAPCD regulations regarding permitted sources. For construction and operation, health risks from TACs were evaluated by identifying the proposed project's potential to generate TAC emissions and determining whether sensitive receptors could be affected by those emissions.

Impact Analysis

Impact AQ-1: Potential for the Proposed Project to Conflict with or Obstruct Implementation of an Applicable Air Quality Plan (Significant and Unavoidable)

Stanislaus County and the Cities of Turlock, Ceres, and Hughson have planned for growth and adopted general plans for future development (Stanislaus County 2016, City of Ceres 1997, City of Turlock 2012, City of Hughson 2005). The SJVAPCD develops its air quality plans to attain NAAQS and CAAQS, which are in part based on the population and growth estimates provided by local planning agencies such as the Cities and the County. The SJVAPCD established mass emission thresholds of significance for criteria pollutant emissions to be consistent with levels required to be consistent with the SJVAPCD air quality plans. Thus, projects with emissions below the thresholds of significance for criteria pollutants would be determined to not conflict or obstruct implementation of the applicable air quality plans, provided that the project would not otherwise conflict with or obstruct any individual measures listed in the air quality plans.

The proposed project's purpose is to install new water distribution, treatment, and conveyance infrastructure to support and accommodate new and existing development in SRWA's service area. The proposed project would not directly add new housing or substantial sources of employment to the region (see Section 3.12, *Population and Housing,* for further discussion).

The proposed project would follow all federal, state, and SJVAPCD regulations and policies related to sources of air pollutants. In addition, construction of the proposed project would follow local air district regulations for fugitive dust, VOCs, and NO_X emissions. Construction of the proposed project may result in NO_X emissions that exceed the 10 tons per year emission

threshold and could result in other criteria pollutant emissions that exceed SJVAPCD's thresholds; therefore, construction could obstruct implementation of applicable air quality plans, which would be a significant impact. It is unknown at this time if the amount of operational emissions would exceed any significance threshold. Mitigation measures that would address construction emissions and unpermitted operational emissions are discussed under Impact AQ-2. Emissions from proposed project facilities requiring a permit to operate would be addressed under the applicable permit process and SRWA would purchase offsets for any excess emissions as required to obtain permits; however, this would not address construction-related or unpermitted operational emissions.

For these reasons, the proposed project would potentially generate emissions greater than those accounted for in the applicable air quality plans. Therefore, the proposed project would potentially obstruct or conflict with applicable air quality plans and would have a **significant and unavoidable** impact.

Impact AQ-2: Potential for the Proposed Project to Violate Any Air Quality Standard or Contribute Substantially to an Existing or Projected Air Quality Violation (Significant and Unavoidable)

As described above, the proposed project would be located in an area that is in non-attainment for federal and state ozone and $PM_{2.5}$ standards and state PM_{10} standards. In order to determine if the proposed project would violate or contribute substantially to an existing or projected air quality violation, an evaluation of the anticipated mass emissions for construction and operation compared to the applicable mass criteria emission thresholds is required.

Construction Impacts

The proposed project features would all be located within the SJVAB. Construction activities would generate emissions of criteria air pollutants via the use of heavy equipment, worker vehicle trips, and material hauling truck trips. Construction-related emissions for the proposed project were evaluated qualitatively because construction details are not yet defined.

Although SRWA would comply with all SJVAPCD rules and regulations, including Regulation VIII, Fugitive Dust Measures, emissions from construction of the proposed project would potentially exceed the SJVAPCD's significance thresholds and could create or contribute to a significant air quality violation, which would be a significant impact. Implementation of **Mitigation Measure AQ-1 (Prepare Quantitative Analysis of Construction-related Air Quality and Greenhouse Gas Emissions, and Implement Measures to Cap Emissions)** would minimize this impact by requiring a quantitative air quality analysis prior to construction of the proposed project and, should an SJVPACD significance threshold be exceeded, implementation of appropriate mitigation measures to reduce emissions to the extent feasible. However, it may not be feasible to reduce criteria pollutant emissions below the significance thresholds. Specifically, newer equipment may not be readily available, economically feasible, or able even with the best available technology, to reduce emissions below the significance threshold. Similarly, construction of the proposed project could result in emissions of criteria pollutants that exceed SJVAPCD significance thresholds listed in Table 3.3-3. Therefore, even with implementation of Mitigation Measure AQ-1, this impact would remain **significant and unavoidable.**

Operational Impacts

Operation of the proposed project would include the operation and maintenance of new pipelines, tanks, emergency generators, wells, pump stations, a water treatment facility, and offset water facilities. These activities would result in the direct emission of criteria air pollutants through employee vehicle trips and use of backup generators (primarily during emergencies or power outages), and emissions of VOCs and combustion products associated with vehicle trips, maintenance equipment, generator use, and water treatment operations. The operation and maintenance of other project facilities would not require a substantial change in the number of employees compared to existing conditions.

Emissions from the operation of emergency generators would not be substantial since any new or modified emergency generators would go through the SJVAPCD permit process to ensure that emissions are below the appropriate significance threshold for permitted sources and offsets are provided, if required. The use of fossil-fueled equipment for maintenance vehicle trips, and fugitive emissions of VOCs and smaller unpermitted stationary sources, may result in emissions above the unpermitted significance threshold and could create or contribute to a potentially significant air quality violation. Implementation of **Mitigation Measure AQ-2 (Prepare Quantitative Analysis of Operation-related Air Quality and Greenhouse Gas Emissions, and Implement Measures to Cap Emissions)** would minimize this impact by requiring a quantitative air quality analysis prior to construction of the proposed project, and, should an SJVPACD significance threshold be exceeded, implementation of appropriate mitigation measures to reduce emissions to the extent feasible. However, it may not be feasible to reduce operational criteria pollutant emissions below the significance thresholds for unpermitted sources. Specifically, newer equipment may not be readily available, economically feasible, or able, even with the best available technology, to reduce emissions below the significance threshold. Therefore, even with implementation of Mitigation Measure AQ-2, this impact would remain **significant and unavoidable**.

Overall Conclusion

While construction-related and operational impacts can be reduced with implementation of Mitigation Measures AQ-1 and AQ-2, construction and operation of the proposed project may result in emissions that exceed SJVAPCD thresholds. At the time this DEIR is being prepared, insufficient design information is available to quantitatively assess emissions that would be generated by the proposed project. Thus, even with implementation of Mitigation Measures AQ-1 and AQ-2, the proposed project's overall impact would remain **significant and unavoidable.**

Mitigation Measure AQ-1. Prepare Quantitative Analysis of Construction-related Air Quality and Greenhouse Gas Emissions, and Implement Measures to Cap Emissions.

As the project design is further defined to a level that construction emissions can be estimated and evaluated, and prior to construction, SRWA and the Cities shall prepare a quantitative analysis of construction-related air quality and GHG emissions for the proposed project**.**

The quantitative construction air quality and GHG analysis shall be based on the types, locations, numbers, and operations of equipment to be used; the amount and distance of material to be transported; and worker trips required. In addition, the analysis shall be based on the projected quantity and frequency of vehicle and truck trips, and other activities that generate emissions. The analysis shall determine whether the combined emissions of the quantified construction activities exceed the SJVAPCD's construction-related air quality thresholds (Table 3.3-2) or the 10,000 MT CO_2e per year threshold for industrial sources.

If the analysis determines that construction emissions would exceed the air quality and/or GHG significance thresholds, then SRWA shall identify and implement appropriate mitigation to the extent feasible. As a performance standard, the mitigation measures shall demonstrate that off-road equipment (greater than 50 hp) and material hauling vehicles used during construction (i.e., owned, leased, and subcontracted vehicles) will achieve emission reductions to the extent feasible. Equipment and material hauling vehicles shall achieve at least a project-wide fleet average of 20 percent NO_X reduction and 45 percent DPM reduction compared to the most recent CARB fleet average up to a Tier IV–equivalent engine. Examples of appropriate mitigation may include, but not be limited to, alternative-fueled equipment, phasing of material hauling trips, phasing of construction activities, use of chemical additives or after-market devices to reduce emissions on existing equipment, use of electrically powered equipment, reduction in total equipment hours, use of newer equipment models, use of alternative fuels, engine retrofit technology, adopting a vehicle idling policy requiring all vehicles to adhere to a 5-minute idling policy, and sourcing of material from local sources. Actual emissions efficiency for off-road equipment and motor vehicles shall be at least as efficient as the most recent CARB fleet average for off-road equipment and motor vehicles for the current calendar year.

For GHG emissions, the following measures will be considered and implemented to the extent feasible: implement energy efficiency improvements of pumps through design, construction, and refurbishment methods; investigate and implement opportunities for renewable energy development at the facilities, subject to safety, emergency, and environmental considerations; and implement a construction worker commute strategy to minimize GHG emissions from workers commuting to the site. This may include encouraging use of carpools, vanpools, and public transportation.

Mitigation Measure AQ-2. Prepare Quantitative Analysis of Operation-related Air Quality and Greenhouse Gas Emissions, and Implement Measures to Cap Emissions.

As future project design details are further defined to a level that operational emissions can be estimated and evaluated, and prior to construction, SRWA and the Cities shall prepare a quantitative air quality and GHG analysis for the proposed project**.**

The quantitative operational air quality and GHG analysis shall be based on the types, locations, numbers, and operations of equipment to be used; the amount and distance of material to be transported; and worker trips required. In addition, the analysis shall be based on the projected quantity and frequency of vehicle and truck trips and

other activities that generate emissions, including estimates of water treatment plant operations of permitted and unpermitted sources including GHG emissions, fugitive emissions of VOCs, and particulate matter. The analysis shall determine whether the quantified emissions of the project's operational activities exceed the SJVAPCD's permitted and unpermitted air quality thresholds (see the SJVAPCD thresholds presented in Table 3.3-3) or the 10,000 MT CO_2e per year threshold for industrial sources.

If the analysis determines that operational emissions would exceed the air quality or GHG significance thresholds, then SRWA shall identify and implement appropriate mitigation to the extent feasible. As a performance standard, the mitigation measures shall demonstrate that off-road equipment (greater than 50 hp) and material hauling vehicles used during project operation (i.e., owned, leased, and subcontracted vehicles) achieve emission reductions to the extent feasible. Equipment and material hauling vehicles shall achieve at least a project-wide fleet average of 20 percent NO_X reduction, 45 percent DPM reduction, and equal the GHG emissions compared to the most recent CARB fleet average up to a Tier IV–equivalent engine. This can also be achieved by replacing existing equipment with more efficient and lower emitting equipment (e.g., new emergency generators). Examples of appropriate mitigation may include, but not be limited to, alternative fueled equipment, phasing of material hauling trips, use of chemical additives or after-market devices to reduce emissions on existing equipment, use of electrically powered equipment, reduction in total equipment hours, use of newer equipment models, use of alternative fuels, engine retrofit technology, adopting a vehicle idling policy requiring all vehicles to adhere to a 5-minute idling policy, and sourcing of material from local sources. For unpermitted sources in particular, fugitive VOC and particulate matter potential emission reduction options include use of vegetative filtration (i.e., through tree planting) around areas of fugitive emissions, and any other measures deemed appropriate.

In addition, for GHG emissions the following measures will be considered and implemented to the extent feasible: implement energy efficiency improvements of pumps through design, construction, and refurbishment methods; investigate and implement opportunities for renewable energy development at the facilities subject to safety, emergency, and environmental considerations; and implement a construction worker commute strategy to minimize GHG emissions from workers commuting to the site. This may include encouraging use of carpools, vanpools, and public transportation.

Impact AQ-3: Potential to Result in a Cumulatively Considerable Net Increase of Any Criteria Pollutant for Which the Project Region Is in Non-Attainment Under an Applicable Federal or State Ambient Air Quality Standard (Significant and Unavoidable)

As discussed earlier, the proposed project would be located in an area that is in non-attainment for federal and state ozone and $PM_{2.5}$ standards and state standards for PM_{10}. Thus, the combined emissions of past, present, and probable future projects would have a significant cumulative impact on air quality in the project area. The proposed project, however, would not be sufficient in size, by itself, to cause nonattainment of the regional air quality standards. As described in Impact AQ-2 above, the proposed project could result in emissions above the significance thresholds for construction as well as for operation of non-

permitted sources. Therefore, since the proposed project could result in mass emissions above the applicable significance thresholds even after implementation of Mitigation Measures AQ-1 and AQ-2, the proposed project would have a significant impact by making a considerable contribution to cumulative impacts related to criteria pollutant emissions for which the region is in non-attainment. Mitigation Measures AQ-1 and AQ-2 would reduce the proposed project's contribution, but not to a level that would necessarily be less than considerable. No other feasible mitigation has been identified that would further reduce this impact. For these reasons, this impact would remain **significant and unavoidable**.

Impact AQ-4: Potential to Expose Sensitive Receptors to Substantial Pollutant Concentrations (Less than Significant with Mitigation)

As described in Impact AQ-2, construction and operations associated with the proposed project would potentially generate PM_{10} and $PM_{2.5}$ contained in fugitive dust and DPM from heavy equipment that would affect sensitive receptors. Furthermore, operational activities include the use of fossil-fuel-powered engines for emergency generators. The control of particulates and fugitive dust is discussed in Impact AQ-2, and SJVAPCD Regulation VIII would be implemented during construction to minimize exposure to fugitive dust. However, it may not be feasible to reduce fugitive dust, DPM, and other TAC emissions below the significance thresholds. Specifically, newer equipment may not be readily available, economically feasible, or able even with the best available technology to reduce emissions below the significance threshold. Therefore, impacts on sensitive receptors from fugitive dust and other TAC emissions during construction or operation of the proposed project would be potentially significant because sensitive receptors could be exposed to substantial pollutant concentrations

Implementation of Mitigation Measures AQ-1 and AQ-2 would reduce the amount of construction and operational emissions to the extent feasible through 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. During the SJVAPCD new source review permitting process, operational sources of TACs would be evaluated to ensure that they will not result in health impacts above the applicable thresholds listed in the risk management policy of 20 in a million cancer risk and an acute and/or chronic hazard index of 1.0. These construction and operational practices, along with the SJVAPCD permitting process, would ensure that health effects from the proposed project are minimized for nearby sensitive receptors. Thus, the proposed project would not pose long-term or substantial health risks to nearby residents and workers in the vicinity of the project sites. The impact on sensitive receptors from fugitive dust and other pollutants would be **less than significant with mitigation**.

Impact AQ-5: Potential for the Proposed Project to Create Objectionable Odors Affecting a Substantial Number of People (Less than Significant)

Construction Impacts

Project construction activities would not generate permanent or long-term objectionable odors. The odors associated with the operation of diesel-powered equipment for construction activities may be detected by nearby sensitive receptors. These odors would be of relatively short duration in any given location and would be unlikely to affect a substantial number of people at a given time, given that construction of the various proposed project

features would be spread out over time, as well as considering factors such as the migration of construction equipment along pipeline routes during construction. This impact would be less than significant.

Operational Impacts

SJVAPCD's guidelines identify common types of facilities that have been known to produce odors in the San Joaquin Valley; water distribution and treatment facilities are not included in the list (SJVAPCD 2015a). Therefore, this impact would be less than significant.

Overall Conclusion

The construction and operation of the proposed project would not result in substantial long-term sources of odors. Some odors would be associated with diesel-fueled equipment during construction and operation, which may be detected by nearby sensitive receptors. These odors would be of relatively short duration in any given location and would be unlikely to affect a substantial number of people at a given time. The proposed project is not a facility type that is known to produce odors. Therefore, the proposed project's overall impact would be **less than significant**.

3.4 Biological Resources

3.4.1 Introduction

This section discusses the regulatory and environmental setting of the proposed project and evaluates the potential for the proposed project to affect biological resources in aquatic and terrestrial habitats and the special-status plant and wildlife species that may use these habitats. The section identifies mitigation measures to avoid or reduce significant impacts on sensitive habitats, plants, and animals.

3.4.2 Regulatory Setting

Federal Laws, Regulations, and Policies

Clean Water Act

The Clean Water Act (CWA) is the primary federal law that protects the quality of the nation's surface waters, including lakes, rivers, and wetlands.

Section 404 – Discharge of Dredged and Fill Materials into Waters of the United States

CWA Section 404 regulates the discharge of dredged and fill materials into waters of the United States (waters of the U.S.), which include all navigable waters, their tributaries, and some isolated waters, as well as some wetlands adjacent to the aforementioned waters (33 CFR Section 328.3). Areas meeting the regulatory definition of waters of the U.S. are subject to the jurisdiction of the U.S. Army Corps of Engineers (USACE) under provisions of CWA Section 404. Construction activities involving placement of fill into jurisdictional waters of the U.S. are regulated by USACE through permit requirements. No USACE permit is effective in the absence of state water quality certification under CWA Section 401.

Section 401 – Water Quality Certification

Section 401 of the CWA requires evaluation of water quality when a proposed activity requiring a federal license or permit could result in a discharge to waters of the U.S. and affect water quality. In California, the U.S. Environmental Protection Agency (USEPA) has delegated its authority to the State Water Resources Control Board (SWRCB); the SWRCB, in turn, delegates implementation responsibility to the nine regional water quality control boards (RWQCBs), as discussed below with regard to the Porter-Cologne Water Quality Control Act. Applicants for a federal license or permit under CWA Section 404 must also obtain a Section 401 water quality certification to ensure that any such discharge will comply with the applicable provisions of the CWA.

Section 402 – NPDES Permit for Stormwater Discharge

CWA Section 402 regulates stormwater discharges to surface waters through the National Pollutant Discharge Elimination System (NPDES). In California, the NPDES is administered by

the SWRCB. The NPDES program provides for both general permits (which cover a group of similar or related activities) and individual (activity- or project-specific) permits.

Municipal Stormwater Permitting Program

The SWRCB regulates stormwater discharges from municipal separate storm sewer systems (MS4s) through its Municipal Storm Water Permitting Program. Permits are issued under two phases, depending on the size of the urbanized area or municipality. Phase I MS4 permits are issued for medium (population between 100,000 and 250,000 people) and large (population of 250,000 people or more) municipalities, and are often issued to a group of co-permittees within a metropolitan area. Phase II MS4 permits apply to smaller municipalities (generally population less than 100,000 but greater than 50,000, or as specified by SWCRB).

The proposed project is located within the area subject to the MS4 permit held by Stanislaus County (No. CAS000004, adopted April 30, 2003). Stanislaus County's Storm Water Management Program (SWMP; described below), included as part of the MS4 permit, includes pollution prevention activities, including construction and post-construction best management practices (BMPs) to ensure that projects implemented in the county protect water quality.

General Construction Stormwater Permit

Under CWA Section 402, most construction projects that disturb 1 acre or more of land are required to obtain coverage under SWRCB's General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (Order 2009-0009-DWQ, as amended by Orders 2010-0014-DWQ and 2012-0006-DWQ). The general permit requires the applicant to file a public notice of intent to discharge stormwater and prepare and implement a stormwater pollution prevention plan (SWPPP).

Stanislaus County has prepared a Storm Water Management Program (Stanislaus County 2004) that has been developed to meet the terms of the General Permit. The SWMP consists of the following six control measures established by the SWRCB for Phase II water discharges:

- Public education and outreach on stormwater impacts;
- Public involvement/participation;
- Illicit discharge detection and elimination;
- Construction site stormwater runoff control;
- Post-construction stormwater management in new development and redevelopment; and
- Pollution prevention/good housekeeping for municipal operations.

Implementation of these control measures is expected to substantially reduce pollutants discharged into receiving water bodies. Each control measure consists of BMPs necessary for proper stormwater management and specific tasks to meet the objective of that control measure.

Stanislaus County has adopted the BMPs listed in the current edition of the California Stormwater Quality Association (CASQA) *Stormwater Best Management Practice Handbook for Construction* (CASQA 2015). The handbook also contains guidelines for preparing a SWPPP. Developers, contractors, and design engineers are encouraged to use this publication in developing appropriate pollution control measures for individual construction projects.

The CASQA handbook includes the requirement that project proponent shall implement and maintain, as a minimum, the following stormwater quality BMPs:

- Perform routine inspection and maintenance of BMPs – The project proponent is solely responsible for preparing and maintaining inspection and monitoring records.
- Immediately correct or replace any ineffective BMP – If the measures taken by the project proponent are inadequate to effectively control water pollution, the proponent may need to revise the operations and water pollution control program.
- Ineffective BMPs may restrict the construction work from being performed until the water pollution control measures are made adequate. Continued noncompliance may result in a Notice of Violation and/or indefinite suspension of work. The Engineer [i.e., the Stanislaus County Public Works Director, or his/her appointee] reserves the right to take corrective action as needed to correct any noncompliance issues at the project proponent's sole expense.
- Contractors (or other responsible parties) shall conduct regular inspections and maintenance of stormwater BMPs on the construction site. Active construction sites may be visited at any time by County inspection staff. Violations will be enforced in accordance with County Code 14-14, Section 180, "Stormwater Management and Discharge Control, Violations."
- It shall be the responsibility of the owner and the permittee to ensure that erosion does not occur from any activity during or after project construction. Additional measures, beyond those specified, may be required as deemed necessary to control accelerated erosion.

Endangered Species Act

The Endangered Species Act (ESA) (16 USC Section 1531 et seq.; 50 CFR Parts 17 and 222) provides for conservation of species that are endangered or threatened throughout all or a substantial portion of their range, as well as protection of the habitats on which they depend. The U.S. Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS) share responsibility for implementing the ESA. In general, USFWS manages terrestrial and freshwater species, whereas NMFS manages marine and anadromous species.

Section 9 of the ESA and its implementing regulations prohibit the "take" of any fish or wildlife species listed under the ESA as endangered or threatened, unless otherwise authorized by federal regulations. The ESA defines the term "take" to mean "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct" (16 USC Section 1532). Section 7 of the ESA (16 USC Section 1531 et seq.) outlines the procedures for federal interagency cooperation to conserve federally listed species and designated critical habitats. Section 10(a)(1)(B) of the ESA provides a process by which nonfederal

entities may obtain an incidental take permit from USFWS or NMFS for otherwise lawful activities that incidentally may result in take of endangered or threatened species, subject to specific conditions.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) (16 USC Chapter 7, Subchapter II) protects migratory birds. Most actions that result in take, or the permanent or temporary possession, of a migratory bird, or the parts, nests, or eggs of such a bird, constitute violations of the MBTA. The MBTA also prohibits destruction of occupied nests. USFWS is responsible for overseeing compliance with the MBTA.

Bald and Golden Eagle Protection Act

The Bald and Golden Eagle Protection Act prohibits the taking or possession of and commerce in bald and golden eagles, with limited exceptions (16 USC Section 668). Under this act, it is a violation to "take, possess, sell, purchase, barter, offer to sell, transport, export or import, at any time or in any manner, any bald eagle commonly known as the American eagle, or golden eagle, alive or dead, or any part, nest or egg, thereof." "Take" is defined under this act to include actions to pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, destroy, molest, and disturb. "Disturb" is further defined in 50 CFR Part 22.3 as "to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available (1) injury to an eagle, (2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or (3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior."

State Laws, Regulations, and Policies

Porter-Cologne Water Quality Control Act

The 1969 Porter-Cologne Water Quality Control Act, known as the Porter-Cologne Act, dovetails with the CWA (see discussion above). It established the SWRCB and divided the state into nine regions, each overseen by an RWQCB. The SWRCB is the primary state agency responsible for protecting the quality of the state's surface water and groundwater supplies. However, much of the SWRCB's daily implementation authority is delegated to the RWQCBs, which are responsible for implementing CWA Sections 401, 402, and 303(d) (which relates to impairment of water bodies and is described in more detail in Section 3.9, *Hydrology and Water Quality*).

The Porter-Cologne Act requires the RWQCBs to develop water quality control plans, also known as Basin Plans, which designate beneficial uses of California's major surface water bodies and groundwater basins. Basin Plan standards are implemented primarily by regulating waste discharges so that water quality objectives are met.

The proposed project is located within the planning area/jurisdiction of the Central Valley RWQCB. The *Water Quality Control Plan for the Central Valley Region* (Central Valley RWQCB 2016) establishes beneficial uses for the Tuolumne River and the downstream water bodies.

California Fish and Game Code

The California Fish and Game Code (F&G Code) includes various statutes that protect biological resources, including the Native Plant Protection Act of 1977, the California Endangered Species Act (CESA), prohibitions on the take of native and migratory birds, and conditions for alteration of lakes or streambeds.

The Native Plant Protection Act of 1977 (F&G Code Sections 1900-1913) authorizes the Fish and Game Commission to designate plants as endangered or rare and prohibits take of any such plants, except as authorized in limited circumstances.

CESA (F&G Code Sections 2050–2098) prohibits state agencies from approving a project that would jeopardize the continued existence of a species listed under CESA as endangered or threatened. F&G Code Section 2080 prohibits the take of any species that is state listed as endangered or threatened or is designated as a candidate for such listing. The California Department of Fish and Wildlife (CDFW) may issue an incidental take permit authorizing take of listed and candidate species if that take is incidental to an otherwise lawful activity, subject to specified conditions.

F&G Code Sections 3503 and 3513 protect native and migratory birds, including their active or inactive nests and eggs, from all forms of take. In addition, the F&G Code also identifies species that are fully protected from all forms of take: birds (Section 3511), fish (Section 5515), mammals (Section 4700), and amphibians (Section 5050).

CDFW regulates activities that will interfere with the natural flow of, or substantially alter, the channel, bed, or bank of a lake, river, or stream. Section 1602 of the F&G Code requires that CDFW be notified of lake or streambed alteration activities. If CDFW subsequently determines that such an activity might adversely affect an existing fish and wildlife resource, it has the authority to issue a streambed alteration agreement, including requirements to protect biological resources and water quality.

Local Laws, Regulations, and Policies

Stanislaus County

The Conservation/Open Space Element of the *Stanislaus County General Plan* (Stanislaus County 2015) guides land use and development in unincorporated Stanislaus County, with an emphasis on the conservation and management of natural resources and the preservation of open space. Goals and policies related to vegetation, wildlife, and water quality in the general plan include the following:

Goal One. Encourage the protection and preservation of natural and scenic areas throughout the County.

> **Policy One.** Maintain the natural environment in areas dedicated as parks and open space.

> **Policy Two.** Assure compatibility between natural areas and development.

Policy Three. Areas of sensitive wildlife habitat and plant life (e.g., vernal pools, riparian habitats, flyways and other waterfowl habitats, etc.) including those habitats and plant species listed by state or federal agencies shall be protected from development and/or disturbance.

Policy Four. Protect and enhance oak woodlands and other native hardwood habitat.

Goal Two. Conserve water resources and protect water quality in the County.

Policy Five. Protect groundwater aquifers and recharge areas, particularly those critical for the replenishment of reservoirs and aquifers.

Policy Six. Preserve natural vegetation to protect waterways from bank erosion and siltation.

Goal Ten. Protect fish and wildlife species of the County.

Policy Twenty-Nine. Habitats of rare and endangered fish hand wildlife species, including special status wildlife and plants, shall be protected.

City of Ceres

The *City of Ceres General Plan* (City of Ceres 1997) seeks to balance the need for growth while encouraging the conservation and enhancement of the area's natural resources. Natural habitats in and around Ceres consist primarily of riparian areas adjacent to the Tuolumne River. Chapter 6 contains policies that encourage the protection of the resources in this area.

Goal 6.B. To protect and enhance the natural qualities of the Ceres area's rivers, creeks, and groundwater.

Policy 6.B.1. The City shall cooperate with other agencies in the conservation of the Tuolumne River for the protection of its water resources and its open space qualities.

Goal 6.C. To protect, restore, and enhance habitats that support fish and wildlife species so as to maintain populations at viable levels.

Policy 6.C.1. The City shall support preservation of habitats of rare, threatened, endangered, and/or other special status species. The City shall require development in areas known to have particular value for wildlife to be carefully planned and, where possible, located so that the reasonable value of the habitat for wildlife is maintained.

Policy 6.C.4. The City shall support and cooperate with efforts of other local, state, and federal agencies and private entities engaged in the preservation and protection of significant biological resources from incompatible land uses and development. Significant biological resources include endangered, threatened, or rare species and their habitats, wetland habitats, wildlife migration corridors, and locally-important species/communities.

Policy 6.C.5. The City shall support the management efforts of the California Department of Fish and Game to maintain and enhance the productivity of fisheries in the Tuolumne River.

Goal 6.D. To preserve and protect the valuable vegetation resources of the Ceres area.

Policy 6.D.1. The City shall encourage landowners and developers to preserve natural vegetation along the Tuolumne River and to use native and compatible non-native species in landscaping in these areas.

Policy 6.D.2. The City shall support the preservation of outstanding areas of natural riparian vegetation.

Policy 6.D.3. The City shall establish procedures for identifying and preserving rare, threatened, and endangered plant species and their habitats that may be adversely affected by public or private development projects. A biotic resources evaluation, as outlined under Policy 6.C.3, shall be conducted by a qualified plant biologist for these species and shall include a review of lists maintained by various resource agencies which identify known occurrences of rare, threatened, and endangered plants in the Ceres area.

Policy 6.D.4. If possible, the City shall support the management of wetland and riparian plant communities for passive recreation, groundwater recharge, nutrient catchment, and wildlife habitats.

Goal 6.E. To preserve and enhance open space lands to maintain the natural resources of the Ceres area.

Policy 6.E.1. The City shall support the preservation and enhancement of river bluffs, natural vegetation, and natural resources as open space to the maximum extent feasible. The City shall permanently protect, as open space, areas of natural resource value, including wetland preserves, riparian corridors, and floodplains, to the maximum extent feasible.

City of Turlock

The Conservation Element of the *City of Turlock General Plan* (City of Turlock 2012) establishes policies for biological resources.

Goal 7.4. Increase biological diversity. Make efforts to enhance the diversity of Turlock's flora and fauna, including street trees.

City of Hughson

The Conservation Element of the *Hughson General Plan* (City of Hughson 2005) is concerned with the protection of natural resources, including agricultural land, plants and animal wildlife, water bodies and watersheds, soils, minerals and energy conservation. The Open Space Element is intended to address the management of open space resources, defined as

any parcel or area of public or private land or water that is essentially unimproved and undeveloped.

Goal COS 3. Protect Hughson's biological resources.

Policy COS-3.2. New development shall meet all federal, State and regional regulations for habitat and species protection.

Policy COS-3.4. New development shall ensure that suitable habitat for Valley Elderberry Longhorn Beetle is adequately avoided, any elderberry shrubs are identified on project sites, and adequate mitigation is provided where development is proposed within 100 feet of elderberry shrubs.

Policy COS-3.5. New development shall ensure that active nests for special status bird species shall be avoided during construction through pre-construction surveys, and if active nests are encountered, through restrictions on construction activities until any young have fledged. This shall include both ground nesting burrowing owl and tree nesting special-status birds.

Policy COS-3.6. New development shall ensure that any jurisdictional waters are avoided to the maximum extent practicable, any required authorization is obtained from jurisdictional agencies, and adequate mitigation is provided for unavoidable impact.

PG&E Habitat Conservation Plan

The Pacific Gas & Electric Company (PG&E) San Joaquin Valley Operation & Maintenance Habitat Conservation Plan (O&M HCP) (PG&E 2006) covers specific PG&E activities throughout nine counties in the San Joaquin Valley, including Stanislaus County. The PG&E O&M HCP complies with the federal and state ESA and addresses multiple species and critical habitats. The PG&E O&M HCP outlines steps on minimizing, avoiding, and compensating for possible direct, indirect, and cumulative adverse effects on threatened and endangered species that could result from PG&E operation and maintenance activities in the San Joaquin Valley. The Proposed Program lies within the PG&E O&M HCP boundaries, but it is not a covered activity under the PG&E O&M HCP.

3.4.3 Environmental Setting

Aquatic Resources

Tuolumne River

The site of the proposed raw water pump station is located at river mile (RM) 26 on an embankment on the south side of the Tuolumne River. The Tuolumne River originates in the central Sierra Nevada mountains and drains about 1,900 square miles of west-sloping mountains. The river flows southwesterly and lies between the Merced River watershed to the south and the Stanislaus River watershed to the north. The Tuolumne River system is highly regulated, diverted, and hydrologically modified. Dams and reservoirs have been installed at several locations for power generation, water supply, and flood control; extensive

in-channel and floodplain gold and aggregate mining have occurred; and levees and artificial drainage systems have been constructed. Such modifications have reduced natural sediment supply and incidence of flooding and increased habitat suitability for non-native predator fish (FishBio 2013).

The lower Tuolumne River corridor extends from the La Grange Dam (RM 52.2) to the river's confluence with the San Joaquin River (RM 0). The dam was completed in 1883 and is 2 miles downstream from the New Don Pedro Dam that impounds the Don Pedro Reservoir. The Old Don Pedro Dam, upstream of the new dam, was completed in 1923 and was submerged under the Don Pedro Reservoir when the New Don Pedro Dam was constructed in 1971. TID and MID are co-licensees under the 1995 Federal Energy Regulatory Commission (FERC) Settlement Agreement (FSA) for the New Don Pedro Project (amended in 1996; 76 FERC 6117). The intent of the FSA and subsequent modified FERC License No. 2299 (License) Articles 37 and 58 was to improve minimum flow levels from the New Don Pedro Project, implement an adaptive management research program, and restore critical habitat to help recover the fall-run Chinook salmon population in the Tuolumne River. The FSA was the result of mediated negotiations with a diverse array of stakeholders that included TID, MID, the City and County of San Francisco, the San Francisco Bay Area Water Users Association, CDFG, California Sports Fishing Protection Alliance, Friends of the Tuolumne, Tuolumne River Expeditions, Tuolumne River Preservation Trust, USFWS, and FERC staff. TID and MID are the only Licensees for the New Don Pedro Project, but all of the stakeholders that participated in the mediation signed the FSA. Under the FSA, minimum flows October 1 through May 31 must range from 100 to 300 cubic feet per second (cfs) and flows from June 1 through September 30 must range from 50 to 250 cfs, depending on the water year type (**Table 3.4-1**). In addition, a spring pulse flow is provided in all but critically dry and dry years to stimulate outmigration of salmonids, and in most years a fall pulse flow is also provided to attract migrating adults.

Table 3.4-1. FERC Minimum Flows Below La Grange Dam

Period	Median Critical and Below	Intermediate Critical – Dry	Median Dry	Intermediate Dry – Below Normal	Median Below Normal	Intermediate Below Normal and Wetter
Oct 1-15	100	150	150	180	200	300
Oct 16 – May 31	150	150	150	180	175	300
June 1 – Sept 30	50	50	75	75	75	250

Notes: Water year classification is based on the State Water Resources Control Board's San Joaquin Basin 60-20-20 Water Supply Index and the California Department of Water Resources' April 1 San Joaquin Valley unimpaired runoff forecast.

Source: 76 FERC 61117

Since monitoring began in 1940, flows in the Tuolumne River measured at Modesto (approximately 10.5 river miles downstream of the proposed raw water pump station) peak in April and May, at an average of 2,000 cfs, and are lowest from August through November, when they average around 450 cfs (refer to **Figure 3.9-1** in Section 3.9, *Hydrology and Water Quality*).

As directed by the FSA, TID developed 10 priority restoration projects aimed at improving both geomorphic and biological components of the lower Tuolumne River corridor. TID subsequently developed a plan to divert water for irrigation from the Tuolumne River as a point of rediversion in addition to the existing water diversions at RM 52 at La Grange Dam as part of the Gravel Mining Reach and Restoration Special Run Pool [SRP] 9 Restoration and Mitigation Project (EDAW 2001). In 2001-2003, TID constructed the infiltration gallery at RM 26 to allow water that would otherwise be diverted at La Grange Dam, 26 miles upstream, to remain in the river and increase flows through salmon spawning areas downstream of the dam before being diverted (EIP 2006). After the infiltration gallery was installed, SRP 9, a former mining pit, was filled to create a narrower, shallower channel, and an expanded floodplain was built on both sides of the river that included plantings of riparian vegetation.

As described in Chapter 2, *Project Description*, the infiltration gallery was originally designed to yield up to 100 cfs (65 mgd or 45,000 gpm) of water from the Tuolumne River. The proposed pump station would have the same design capacity, and would draw water from a new wet well that would interconnect with the existing infiltration gallery. However, the WTP would be constructed in two or more phases. The initial WTP capacity would be 15 mgd and, on average, require withdrawal of approximately 24 cfs (approximately 10,770 gpm) from the Tuolumne River. The ultimate buildout capacity of the WTP would be 45 mgd, which would require withdrawal of 69.6 cfs. The initial capacity of 15 mgd would be sufficient for the Cities through approximately 2025, and the buildout capacity would accommodate buildout in the Cities, anticipated to be reached by approximately 2040. To meet the needs of Phase 1 water treatment operations, TID intends to make annual average releases of approximately 24 cfs, in addition to the FERC minimum flows, resulting in net increased flows in the Tuolumne River between Don Pedro Reservoir and the infiltration gallery.

Fish Species

Central Valley fall and late fall run Evolutionarily Significant Unit (ESU) Chinook salmon (*Oncorhynchus tshawytscha*) is a special-status species known to occur in the project area. The Central Valley Distinct Population Segment (DPS) steelhead (*O. mykiss*) may occur there as well. Other special-status fish species that may be present include hardhead (*Mylopharodon conocephalus*) and Pacific lamprey (*Entosphenus tridentatus*). **Table 3.4-2** presents the temporal and spatial distribution of various life stages for each of the special-status fish species known to occur in the proposed project vicinity.

Extensive monitoring of fish populations has been ongoing in the lower Tuolumne River for several decades. Seine surveys and rotary screw trap sampling have been conducted at multiple locations since 1986 and 1995, respectively, with sampling near the project area occurring at Waterford (RM 29.8) since 2006 (Stillwater Sciences 2012). Monitoring at the Tuolumne River Weir at RM 24.5, 1.5 miles downstream of the infiltration gallery, began in fall 2009 (FishBio 2016). Snorkeling surveys at standard locations began in 2001 but have not been conducted below RM 29.

During monitoring in 2015 at the Tuolumne River Weir, fall-run adult Chinook salmon were documented, but no steelhead were detected (FishBio 2016). Other native species detected were hardhead and Sacramento sucker (*Catostomus occidentalis*). Most (93 percent) of the species documented were non-native, including largemouth bass (*Micropterus salmoides*), smallmouth bass (*M. dolomieu*), white catfish (*Ictalurus catus*), channel catfish (*I. punctatus*),

common carp (*Cyprinus carpio*), goldfish (*Carassius auratus*), black bass (*Micropterus* spp.), and sunfish (*Lepomis* spp.). Many of the non-native species (e.g., largemouth bass, smallmouth, and catfish) are known to prey on juvenile Chinook salmon (FishBio 2013).

Salmonid Habitat

The lower Tuolumne River corridor has two geomorphic reaches based on bed composition: a gravel-bedded reach extends from La Grange Dam (RM 52.2) down to Geer Road Bridge (RM 24), and a sand-bedded reach encompasses the remaining corridor to the confluence with the San Joaquin River (RM 0) (McBain and Trush 2000). Salmonid spawning may occur throughout the entire sand-bedded reach, but the Dominant Salmon Spawning Reach in the Tuolumne River is defined as RM 52.2-46.6. Although this reach contains less than 25 percent of the available suitable spawning habitat, more than half of the total Chinook salmon spawning activity is consistently observed within those 5.6 miles (Stillwater Science 2013a). The project area is located downstream at RM 26 within the In-Channel Gravel Mining Reach (RM 24-34.2), where only 9-10 percent of total spawning activity has been observed in multiple surveys conducted since 1981 (Stillwater Sciences 2013a).

Minimum flows within the current FERC flow schedule (150-300 cfs) during the migration and spawning season (October to May) provide 90 percent or greater of available spawning habitat for adult fall-run Chinook and *O. mykiss* (Stillwater Sciences 2013a). Flows around 225 cfs appear to maximize spawning habitat in the Tuolumne River, while higher velocity flows tend to decrease habitat suitability for younger life stages; salmonid fry rearing generally occurs in low-velocity, shallow-water habitat along channel margins as well as in inundated overbank habitat locations (Stillwater Sciences 2013a).

Water temperature is an important factor controlling egg incubation rates, as well as juvenile and adult growth rates. Egg incubation requires temperatures less than 55 degrees Fahrenheit (°F) (13 degrees Celsius [°C]), temperatures suitable for early juvenile rearing need to remain below 61°F, and the smoltification process is inhibited for Chinook at temperatures above 59°F and for steelhead above 57°F (Stillwater Sciences 2013b). Spawning salmon are assumed to avoid locations with a water temperature above 60°F (16°C). Warm water temperatures can decrease dissolved oxygen in the water, can act as a barrier to migration, decrease egg hatchability, decrease the survival of fry once they emerge from the eggs, and impair or reverse the physiological function of smoltification (California Department of Fish and Game [CDFG] 2010).

Table 3.4-2. Temporal and Spatial Distribution of Life Stages for Special-status Fish Species in the Proposed Project Vicinity

Species/ Life Stage	Distribution	Month Present											
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Light gray shading [ ] = potential activity; dark gray shading [ ] = peak activity													
Central Valley Fall-run Chinook Salmon (San Joaquin River)													
Adult migration	Pacific Ocean, Bay–Delta, San Joaquin River (SJR) & tributaries												
Adult spawning	SJR & tributaries												
Egg incubation and fry emergence	SJR & tributaries												
In-river rearing	SJR & tributaries												
Smolt outmigration	SJR & tributaries, Bay–Delta, Pacific Ocean												
Central Valley Steelhead and Rainbow Trout													
Adult migration	SJR tributaries												
Adult spawning	SJR tributaries												
Egg incubation and emergence	SR/SJR tributaries												
In-river rearing	SJR tributaries						**Age 0+, 1+, and older**						
Smolt outmigration	SJR & tributaries												
Hardhead													
Adult spawning	SR, SJR, & tributaries (low to mid-elevation)												
Juvenile rearing	SR, SJR, & tributaries (low to mid-elevation)												
Pacific Lamprey													
Ammocoete	SJR tributaries												
Adult spawning	SJR tributaries												

Notes: SJR = San Joaquin River; SR = Sacramento River

Source: *Stillwater Sciences 2013a, 2013b; NMFS 2009.*

Measured temperatures in the Tuolumne River downstream of the La Grange Dam at RM 49 generally remain in the range of 50-55°F (10-13°C) during the period when salmonids are migrating and spawning, from October to April; temperatures closer to RM 26 fall within that range only from December to February (FishBio 2013). Temperatures of more than 70°F (23°C) at RM 24 have been measured at the beginning of October, and temperatures were above 60°F (16°C) in March and April 2013 (FishBio 2013). Water temperatures for over-summering *O. mykiss* are generally below the identified mortality threshold of 20°C (68°F) only upstream of Roberts Ferry Bridge (RM 39.5).

Terrestrial Resources

The vast majority of the project area—the proposed WTP, the transmission main alignments, and the terminal tank sites—are located in a matrix of agricultural and urban uses that includes orchards, row crops, ruderal vegetation, and barren areas. Riparian woodlands are present near the infiltration gallery and site of the proposed pump station. The plant community composition and wildlife species that may occur within the project area are described below.

Orchard/Row Crop

Much of the proposed project area is surrounded by agricultural lands, either planted in orchards or row crops or left as fallow lands. The site of the proposed WTP is an almond (*Prunus dulcis*) orchard, the most common nut tree in the area. English walnut (*Juglans regia*) orchards are also present in the area and along the proposed transmission main routes. A few olive (*Olea europa*) orchards are present in the area, along with ornamental trees at residences. The understory vegetation that would provide food and cover for wildlife is typically sparse in orchards, limiting the abundance and diversity of wildlife species that may be found there. Species such as the side-blotched lizard (*Uta stansburiana*), pocket gopher (*Thomomys bottae*), squirrel (*Citellus* spp.), and western brush rabbit (*Sylvilagus bachmani*) can occur in this habitat type. American Crow and Yellow-billed Magpie (*Pica nuttalli*), which forage on nut crops, are often **present.**

Fallow fields and active row crops occur along the proposed transmission main alignments to Ceres and Turlock. Alfalfa (*Medicago sativa*) and other hay crops are present and may support bees required for pollination, along with a low diversity of other wildlife species.

Developed/Ruderal/Barren

Developed land in the project area includes the urban areas of Ceres, Turlock, and Hughson and residences and other structures in unincorporated Stanislaus County. The area adjacent to the proposed transmission main alignment along the Ceres Main Canal is mostly barren, as is the developed area around the TID substation at the Geer Road/East Hatch Road intersection. Large ornamental trees such as cottonwood, cedar (*Cedrus* spp.), and redwood (*Sequoia sempervirens*) that serve as residential landscaping may support nesting birds. The area of the proposed terminal facilities adjacent to Ceres River Bluff Regional Park is mostly turf and ornamental trees. The Tuolumne River is 0.25 mile north of this site, and the nearest riparian vegetation is more than 600 feet away.

The Geer Road Bridge, which is elevated above the proposed raw water pump station and raw water transmission pipeline, contains crevices and cavities that are potential roost sites for bats, including Townsend's big-eared bat (*Corynorhinus townsendii*) and pallid bat

(*Antrozous pallidus*). Large trees in the project area could also provide roosts for western red bat (*Lasierus blossevillii*) and hoary bat (*L. cinerus*). The underside of the bridge was visually surveyed for evidence of bat use (e.g., guano, staining, smells, or sounds) in December 2016 and March 2017; no sign of bat activity was observed. However, bat use of roost sites can vary seasonally.

The roadsides and ROWs along the pipeline and transmission main alignments are barren or support ruderal vegetation. Non-native grasses and forbs common in the area include Bermuda grass (*Cynodon dactylon*), ripgut brome (*Bromus diandrus*), black mustard (*Brassica nigra*), white sweet clover (*Melilotus albus*), wild radish (*Raphanus sativa*), and bull thistle (*Cirsium vulgare*). Ruderal vegetation typically supports a relatively low diversity and abundance of wildlife species compared to undisturbed habitats. Common bird species expected in these areas include Mourning Dove (*Zenaida macroura*), Western Meadowlark (*Sturnella neglecta*), European Starling (*Sturnus vulgaris*), American Crow (*Corvus brachyrhyncos*), and Brewer's Blackbird (*Euphagus cyanocephalus*). Burrowing Owls (*Athene cunicularia*), a California Species of Special Concern, generally prefer to inhabit open areas and grasslands with low-growing or grazed vegetation and may roost in burrow systems created by medium-sized mammals (e.g., ground squirrels) or in artificial sites (e.g., drainpipes, culverts), although they occasionally dig burrows themselves. Ruderal grasslands within the project area could provide marginal habitat and orchards may provide foraging grounds for Burrowing Owls. Other wildlife species that may occur include, alligator lizard (*Elgaria multicarinata*), California ground squirrel (*Otospermophilus beecheyi*), black-tailed jackrabbit (*Lepus californicus*), house mouse (*Mus musculus*), and deer mouse (*Peromyscus maniculatus*).

Riparian Woodlands

Sensitive plant communities present in the project area include two riparian woodland types: arroyo willow (*Salix lasiolepis*) riparian scrub and blue elderberry (*Sambucus nigra* ssp. *caerulea*) stand (Sawyer et al. 2009).

Arroyo willow scrub occupies the narrow floodplain between the Tuolumne River and the southern embankment. This riparian habitat was created as part of the SRP 9 restoration project completed in conjunction with the installation of the infiltration gallery in 2002-2003 (described above). Prior to the restoration of SRP 9, very little riparian vegetation was present within the active channel in this area and the floodplain was virtually nonexistent (EDAW 2001). The restored habitat was designed to flood at flows greater than 1,500 cfs and is therefore occasionally inundated by releases from Don Pedro Reservoir (Stillwater Sciences 2006).

The sparse overstory canopy in the arroyo willow scrub includes other riparian species, such as black willow (*Salix goodingii*), California sycamore (*Platanus racemosa*), Fremont's cottonwood (*Populus fremontii*), and valley oak (*Quercus lobata*). In the shrub stratum, narrow-leaf willow (*S. exigua*), blue elderberry, box elder (*Acer negundo* var. *californicum*), and button bush (*Cephalanthus occidentalis*) are **present.** Various wetland and mesic graminoids (grasses and grass-like plants, including rushes and sedges) and forbs are present in the understory, depending on the depth to groundwater and proximity to the river.

Blue elderberry stands occur on the embankment approximately 20 feet above the Tuolumne River channel around the site of the proposed pump station. The embankment is above the

100-year flood elevation. Elderberries are also present along the edge of the access road, under Geer Road Bridge, and along the proposed raw water pipeline alignment leading to Fox Grove Regional Park and from the park to the proposed WTP. Blue elderberries occur in this area in an open, savannah-like setting with a sparse tree layer that includes live oak (*Q. agrifolia*), Fremont's cottonwood, and the non-native tree of heaven (*Ailanthus altissima*). The shrub layer is fairly sparse and includes coyote brush (*Baccharis* spp.), non-native tobacco bush (*Nicotiana glauca*), and willows, and the understory consists of non-native annual grassland. Although very few native species occur in the understory of the ruderal grassland, western pond turtle (*Actinemys marmorata*) (WPT) could potentially nest in this area due to its proximity to the freshwater Nazareno pond, which is adjacent to the proposed pump station site and provides suitable aquatic habitat for WPT.

In reconnaissance surveys in fall 2016, elderberry shrubs with apparent bore holes were present at the infiltration gallery/pump station site. Elderberry is the exclusive host plant of the valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*) (VELB), federally listed as threatened and a California Species of Concern. Adult beetles of this subspecies feed and lay eggs on elderberry shrubs in riparian communities of the Central Valley. The larvae remain within the elderberry stems until they emerge through exit holes as adults. In accordance with USFWS and CDFW regulatory guidance, VELB are presumed to be present in the area when bore holes are found.

Both types of riparian woodlands provide cover, food, and nesting habitat for a variety of wildlife species. The riparian habitat along the margins of the Tuolumne River and mature trees in the proposed project area provide potentially suitable nesting habitat for Swainson's Hawk (*Buteo swainsoni*), a species listed as threatened in California. White-tailed Kite (*Elanus leucurus*) and Loggerhead Shrike (*Lanius ludovicianus*) could also utilize the riparian habitat for nesting. Other raptor species that may nest and forage in riparian woodlands include Great Horned Owl (*Bubo virginianus*), Red-tailed Hawk (*Buteo jamaicensis*), Red-shouldered Hawk (*Buteo lineatus*), and American Kestrel (*Falco sparverius*). Foraging habitat for raptors is present in open elderberry stands and also in the adjacent agricultural areas. Yellow Warbler (*Setophaga petechia*) and Yellow-breasted Chat (*Icteria virens*) are passerine birds with similar habitat requirements that often nest in riparian willow thickets. Other avian species frequently observed in this habitat include Belted Kingfisher (*Megaceryle alcyon*), Downy Woodpecker (*Picoides pubescens*), Northern Flicker (*Colaptes auratus*), Ash-throated Flycatcher (*Myiarchus cinerascens*), Oak Titmouse (*Baeolophus inornatus*), Black Phoebe (*Sayornis nigricans*), Bushtit (*Psaltriparus minimus*), Bewick's wren (*Thryomanes bewickii*), Lazuli Bunting (*Passerina amoena*), Blue Grosbeak (*P. caerulea*), and species of Goldfinches (*Carduelis* spp.). Mammals such as raccoon (*Procyon lotor*), desert cottontail (*Sylvilagus audubonii*), striped skunk (*Mephitis mephitis*), American beaver (*Castor canadensis*), and coyote (*Canis latrans*) are common in riparian woodlands.

Special-status Species

Definitions and Methods of Assessment

For the purposes of this assessment, special-status plant and wildlife species are those species that meet one or more of the following criteria:

- Species that are listed as threatened or endangered under the ESA (50 CFR Part 17.12 for listed plants, 50 CFR Part 17.11 for listed animals);

- Species that are candidates for possible future listing as threatened or endangered under ESA (76 FR 66370);
- Species that are listed or proposed for listing by the State of California as threatened or endangered under CESA (14 CCR Section 670.5);
- Plants listed as rare under the California Native Plant Protection Act of 1977 (F&G Code Section 1900 et seq.);
- California Rare Plant Rank (CRPR) List 1, 2, 3, and 4 species;
- Species that meet the definitions of rare or endangered under CEQA (State CEQA Guidelines Section 15380); or
- Animals fully protected in California (F&G Code Sections 3511 [birds], 4700 [mammals], and 5050 [reptiles and amphibians]).

Special-status plant and animal species with the potential to occur in the proposed project area were identified through a review of the following resources:

- USFWS list of federally listed endangered and threatened species that occur within the vicinity of the proposed project (USFWS 2017a, included in **Appendix B** of this DEIR);
- California Natural Diversity Database (CNDDB) queries for the USGS 7.5-minute quadrangles within the project area and the quadrangles immediately adjacent to them: Denair, Waterford, Paulsell, Montpelier, Cressey, Turlock, Hatch, Ceres, and Riverbank (CDFW 2017, included in Appendix B);
- California Native Plant Society's (CNPS's) *Inventory of Rare and Endangered Plants of California* (CNPS 2017).

The potential for special-status species to occur in areas affected by the proposed project was evaluated according to the following criteria:

None: indicates that the area contains a complete lack of suitable habitat, the local range for the species is restricted, and/or the species is extirpated in this region.

Not Expected: indicates situations where suitable habitat or key habitat elements may be present but may be of poor quality or isolated from the nearest extant occurrences. Habitat suitability refers to factors such as elevation, soil chemistry and type, vegetation communities, microhabitats, and degraded/substantially altered habitats.

Possible: indicates the presence of suitable habitat or key habitat elements that potentially support the species.

Present: indicates that either the target species was observed directly or its presence was confirmed by diagnostic signs (i.e., tracks, scat, burrows) during field investigations or in previous studies in the area.

Threatened, Endangered, and Special-status Species

Table 3.4-3 lists the special-status plants species known to occur in the vicinity of the project area. **Table 3.4-4** lists the special-status fish and wildlife species known to occur in the

vicinity of the project area. **Figure 3.4-1** shows the CNDDB occurrences of special-status species within a 5-mile radius of the proposed project area. The life histories of species that are possible or known to be present are presented in Appendix B; species with no suitable habitat or that are not expected are not discussed further.

Table 3.4-3. Special-status Plant Species Known to Occur in the Vicinity of the Project Area

Scientific Name /Common Name	Federal/State/ CRPR Status	Habitat Characteristics	Potential to Occur
Acmispon rubriflorus red-flowered bird's foot trefoil	-/-/1B	Known from only four disjunct occurrences in cismontane woodland, valley and foothill grassland. Flowers April-June.	**Not expected.** The most recent sighting in Stanislaus is from red soil-volcanic mudflow deposits along Del Puerto Canyon Road, west of Interstate 5 at elevations of 195-490 meters. Focused rare plant surveys conducted for the Restoration Project did not detect this species (EDAW 2001).
Atriplex cordulata var. *cordulata* heartscale	-/-/1B	Alkaline soils in alkaline flats, scalds, and alkali seasonal wetlands within chenopod scrub, valley and foothill grassland, and meadow habitats. 1-560 meters. April-October.	**None.** The project area lacks suitable alkaline habitat for this species.
Atriplex subtilis Subtle orache	-/-/1B	In seasonal alkali wetlands or alkali sink scrub within chenopod scrub, alkali meadows, alkali playas, and grassland habitats. 1-835 meters. April-October.	**None.** The project area lacks suitable alkaline habitat for this species.
Calycadenia hooverii Hoover's calycadenia	-/-/1B	On exposed bare, rocky, volcanic soils in cismontane woodland, valley and foothill grassland 700-260 meters. Found on Hornitos sandstones and Ione formation.	**None.** The project area lacks suitable habitat for this species.
Castilleja campestris ssp. *succulent* succulent owl's-clover	FE/SE/1B	Vernal pools, valley and foothill grassland. Moist places, often in acidic soils. 25-750 meters. April-May.	**None.** The project area lacks suitable vernal pool habitat for this species.
Clarkia rostrate Beaked clarkia	-/-/1B	On north facing slopes; sometimes on sandstone. In cismontane woodland, valley and foothill grassland 60-915 meters.	**None.** The project area lacks suitable habitat for this species.

Scientific Name /Common Name	Federal/State/ CRPR Status	Habitat Characteristics	Potential to Occur
Eryngium racemosum Delta button-celery	-/SE/1B	Found in seasonally inundated clay depressions within riparian scrub. 3-30 meters. Blooms June through October.	**Not expected.** There are 5 CNDDB occurrences in Stanislaus County, two are presumed extirpated, the nearest occurrence believed extant is from Turlock Lake area more than 10 miles away (CDFW 2017). Focused rare plant surveys conducted for the Restoration Project did not detect this species (EDAW 2001).
Euphorbia hooveri Hoover's spurge	FE/ST/1B	Vernal pools on volcanic mudflow or clay substrate. 25-130 meters. Flowers July to September.	**None.** The project area lacks suitable habitat for this species.
Monardella leucocephala Merced monardella	-/-/1A	Restricted to sandy or subalkaline soils in valley and foothill grasslands and riverbeds.	**Not expected.** It is known from 3 historical observations in Stanislaus and Merced counties that have been extirpated (CDFW 2017). Focused rare plant surveys conducted for the Restoration Project did not detect this species (EDAW 2001).
Neostapfia colusana Colusa grass	FT/ST/1B	Usually in large, or deep vernal pool bottoms; adobe soils. 5-125 meters. Flowers May to August.	**None.** The project area lacks suitable habitat for this species.
Orcuttia pilosa hairy Orcutt grass	FE/ST/1B	Vernal pools 25-125 meters. Flowers May to September.	**None.** The project area lacks suitable habitat for this species.
Pseudobahia bahiifolia Hartweg's golden sunburst	FE/SE/1B	Known from clay soils, often acidic, in cismontane woodland, valley and foothill grassland. Predominantly on the northern slopes of knolls, but also along shady creeks or near vernal pools. 15-150 meters. Flowers March to May.	**Not expected.** There are 12 CNDDB occurrences of this species within Stanislaus County, the nearest is greater than 10 miles away (CDFW 2017). This species is typically found on Mima mound topography (USFWS 2007), which is not present at the site. Focused rare plant surveys conducted for the Restoration Project did not detect this species (EDAW 2001).

Scientific Name /Common Name	Federal/State/ CRPR Status	Habitat Characteristics	Potential to Occur
Tuctoria greenei Greene's tuctoria	FE/SR/1B	Clay bottoms of drying vernal pools and lakes in valley grassland. 5-10 meters. Flowers May to September.	**None.** The project area lacks suitable habitat for this species.

Federal:

FE = federally listed as endangered

FT = federally listed as threatened

State:

SE = state listed as endangered

ST = state listed as threatened

SR = state listed as rare

FP = California fully protected

CRPR (California Rare Plant Rank):

1A = Plants Presumed Extirpated in California and Either Rare or Extinct Elsewhere

1B = Plants Rare, Threatened, or Endangered in California and Elsewhere

2A = Plants Presumed Extirpated in California, But More Common Elsewhere

2B = Plants Rare, Threatened, or Endangered in California, But More Common Elsewhere

Sources: USFWS 2017a; CDFW 2017; CNPS 2017; as provided in Appendix B

Table 3.4-4. Special-status Fish and Wildlife Species Known to Occur in the Vicinity of the Proposed Project Area

Scientific Name/ Common Name	Federal/State Status	Habitat Characteristics	Potential to Occur
Invertebrates			
Branchinecta lynchi vernal pool fairy shrimp	FT/--	Inhabit small, clear-water sandstone-depression pools and grassed swale, earth slump, or basalt-flow depression pools.	**None.** The project area lacks suitable habitat for this species.
Desmocerus californicus dimorphus valley elderberry longhorn beetle	FT/--	Occurs in riparian communities of the Central Valley of California, in exclusive association with its host plant, blue elderberry (*Sambucus mexicana*). Adult beetles of this subspecies feed and lay eggs on elderberry shrubs. The larvae remain within the elderberry stems until they emerge through exit holes as adults.	**Present.** Elderberry shrubs are present within 50 meters of the project area. Many have exit holes which suggest they are occupied by valley elderberry longhorn beetle.
Lepidurus packardi vernal pool tadpole shrimp	FE/--	Inhabits vernal pools and swales in the Sacramento Valley containing clear to highly turbid water.	**None.** The project area lacks suitable habitat for this species.
Fish			
Entosphenus tridentate Pacific lamprey	FSC/--	Found throughout California and in tributaries of the San Joaquin River downstream of impassable dams. Requires swift-current, gravel-bottomed areas for spawning with water temperatures of 12-18°C. Ammocoetes need soft sand or mud.	**Present.** Pacific lamprey have been observed in the Tuolumne River in snorkel surveys above RM 31 (Stillwater Sciences 2014). Various life stages may be present in lower reaches year round. Spawning habitat is not **present.**
Hypomesus transpacificus Delta smelt	FT/SE	Sacramento-San Joaquin Delta. Seasonally in Suisun Bay, Carquinez Strait & San Pablo Bay. Seldom found at salinities > 10 ppt. Most often at salinities < 2 ppt.	**None.** Project area is out of range of the species.

Scientific Name/ Common Name	Federal/State Status	Habitat Characteristics	Potential to Occur
Mylopharodon conocephalus hardhead	--/SSC	Widely distributed in low to mid-elevation streams in the Sacramento & San Joaquin River tributaries.	**Present.** Species has recently been observed in Tuolumne River (FishBio 2016).
Pogonichthys macrolepidotus Sacramento splittail	--/SSC	Endemic to the lakes and rivers of the Central Valley, but now confined mostly to the Delta and Suisun Bay. Requires flooded vegetation for spawning & foraging for young and may occur in slow moving river section and dead-end sloughs.	**Not expected.** In wet years, splittail have been observed in the Tuolumne River as far up as Modesto, and have been reported to spawn in the lower 6.8 miles (Moyle et al. 2004).
Oncorhynchus mykiss steelhead (Central Valley DPS)	FT/--	Populations spawn in the Sacramento & San Joaquin rivers and their tributaries. The distribution of steelhead in the Central Valley has been significantly reduced in recent years. Require beds of loose, silt-free, coarse gravel for spawning and also need cover, cool water & sufficient dissolved oxygen.	**Possible.** Steelhead have been very infrequently detected in the Tuolumne River below RM 42, and most are thought to be the non-anadromous form of *O. mykiss* (Stillwater Sciences 2012).
Oncorhynchus tshawytscha Chinook salmon (Central Valley fall-, late fall-run Evolutionarily Significant Unit (ESU)	FC/SSC	Populations spawn in the Sacramento & San Joaquin rivers and tributaries. Beds of loose, silt-free, coarse gravel are required for spawning. The species also needs cover, cool water & high dissolved oxygen.	**Present.** The Tuolumne River supports fall-run Chinook in the vicinity of the project area.
Oncorhynchus tshawytscha Chinook salmon, Central Valley spring-run ESU	FT/ST	The San Joaquin River Basin is considered Essential Fish Habitat (EFH) for this species. Beds of loose, silt-free, coarse gravel are required for spawning. The species also needs cover, cool water & high dissolved oxygen.	**Not expected.** Spring run Chinook Salmon have been extirpated from the Tuolumne River Strays have a low potential to occur.
Oncorhynchus tshawytscha Chinook Salmon, Spring-run (Nonessential experimental population)	See F&G Code Sections 2080.2-2080.4	Spring-run Chinook Salmon have been reintroduced to the San Joaquin River within an experimental area which extends from Friant Dam downstream to the confluence with the Merced River. Fish of any origin within this area are defined as a	**Not Expected.** Spring-run Chinook Salmon has recently been reintroduced to the San Joaquin River basin. Strays from the experimental population have a low potential to occur in the Tuolumne River.

Scientific Name/ Common Name	Federal/State Status	Habitat Characteristics	Potential to Occur
		nonessential experimental population.	
Amphibians and Reptiles			
Actinemys marmorata western pond turtle	-/CSC	A thoroughly aquatic turtle of ponds, marshes, rivers, streams & irrigation ditches, usually with aquatic vegetation, below 6,000 feet elevation. Need basking sites and suitable (sandy banks or grassy open fields) upland habitat up to 0.5 kilometer from water for egg-laying.	**Possible.** The Nazareno pond provides suitable aquatic habitat and adjacent grasslands with sparse vegetation provide potential nesting habitat. The species may also occur in the Tuolumne River. The nearest CNDDB occurrence is 9 miles south of Ceres in an irrigation ditch with dense cattail.
Ambystoma californiense California tiger salamander	FT/ST	Need underground refuges, especially ground squirrel burrows and vernal pools or other seasonal water sources for breeding.	**None.** The project area lacks suitable breeding habitat, is isolated from potential breeding outside of the site, and the upland habitat is generally unsuitable for this species. The nearest known CNDDB occurrence is in the Hickman vernal pool complex about 15 miles west.
Rana draytonii California red-legged frog	FT/SCC	Lowlands and foothills in or near permanent sources of deep water with dense, shrubby or emergent riparian vegetation.	**None.** The project area lacks suitable breeding habitat, is isolated from potential breeding outside of the site, and the riparian habitat is generally unsuitable for this species. There are 9 CNDDB occurrences from Stanislaus County, the nearest is from a pond near Newman, about 20 miles southwest.
Spea hammondii western spadefoot toad	--/CSC	Reproduction requires presence of temporary, shallow pools formed from winter rains. Occurs in grasslands in the Central Valley. Egg laying may occur from late winter through March.	**Not Expected.** The project area lacks suitable breeding habitat for this species. The nearest known occurrence is in the Hickman vernal pool complex about 15 miles west.

Scientific Name/ Common Name	Federal/State Status	Habitat Characteristics	Potential to Occur
Thamnophis gigas giant garter snake	FT/ST	This is the most aquatic of the garter snakes in California. Prefers freshwater marsh and low gradient streams, but has adapted to drainage canals and irrigation ditches. Habitat consists of (1) adequate water during the snake's active season, (2) emergent herbaceous wetland vegetation for escape and foraging habitat, (3) grassy banks and openings in waterside vegetation for basking, and (4) higher elevation upland habitat for cover and refuge from flooding (USFWS 2012).	**None.** The project area does not provide suitable freshwater marsh habitat for this species. This species is not known to occur in this area of the Tuolumne River.
Birds			
Agelaius tricolor tricolored blackbird	--/ CSC	Highly colonial species, most numerous in Central Valley and vicinity. Largely endemic to California. Requires open water, protected nesting substrate, and foraging area with insect prey within a few kilometers of the colony. Nests in dense thickets of cattails (*Typha* spp.), bulrush (*Schoenoplectus* spp.), willow (*Salix* spp.), blackberry (*Rubus* spp.), wild rose (*Rosa californica*), and other tall vegetation near fresh water.	**Not Expected.** There are no known CNDDB occurrences within 5 miles of the site. Species may nest in silage fields, but most agricultural lands adjacent to project activities are planted in orchards.
Athene cunicularia burrowing owl	--/CSC	Yearlong resident of open, dry annual or perennial grasslands and desert habitats. Requires subterranean burrows for nesting, dependent upon burrowing mammals, most notably, the California ground squirrel (*Spermophilus beecheyi*). Prefers short vegetation for foraging grounds.	**Possible.** The ruderal areas provide potential habitat, but the herbaceous vegetation tend to be taller than preferred habitat. There is one CNDDB occurrence from Stanislaus County near the town of Riverbank, about 9 miles north of the project area.

Scientific Name/ Common Name	Federal/State Status	Habitat Characteristics	Potential to Occur
Buteo swainsoni Swainson's hawk	--/ST	Breeds in grasslands with scattered trees, juniper-sage flats, riparian areas, savannahs, and agricultural or ranch lands with groves or lines of trees. Requires adjacent suitable foraging areas such as grasslands, or alfalfa or grain fields supporting rodent populations.	**Possible.** Suitable nesting habitat is present within and adjacent to the project area. Open areas within riparian habitat and agricultural areas provide potential foraging habitat. There are 7 CNDDB records of Swainson's Hawk from Stanislaus County, the closet is several miles east of the proposed terminal facilities in Turlock.
Dendroica petechial Yellow warbler	--/CSC	Occupy riparian vegetation near streams or wet meadows. Diet is general and they appear to adapt foraging habits to local vegetation structure.	**Not Expected.** The species is largely extirpated as a breeder in the San Joaquin Valley region, but very limited nesting has been observed in Stanislaus County. There are no known CNDDB occurrences within 5 miles of the site.
Elanus leucurus white-tailed kite	--/FP	Nests in rolling foothills/valley margins with scattered oaks and river bottomlands or marshes next to deciduous woodland. Open grasslands, meadows, or marshes for foraging close to isolated, dense-topped trees for nesting and perching.	**Possible.** Riparian trees and mature ornamental trees provide suitable nesting sites for this species. Ruderal habitats also provide foraging habitat.
Falco peregrinus peregrine falcon	FD/FP	This raptor is adapted to open habitats in all seasons. Shows preference for breeding sites near water with nearby cliffs or ledges for nesting sites. They do not build nests, but instead make scrapes in various substrates.	**Not Expected.** Peregrines occur throughout the Central Valley, but do not breed there.
Haliaeetus leucocephalus bald eagle	FD/FP	Requires large bodies of water, or free flowing rivers with abundant fish, and adjacent snags or other perches. Permanent resident, and uncommon winter migrant, now restricted to breeding mostly in Butte, Lake, Lassen, Modoc, Plumas, Shasta, Siskiyou, and Trinity Counties.	**Possible.** Bald Eagles may utilize the riparian corridor for non-breeding habitat. Nesting is **not expected.**

Scientific Name/ Common Name	Federal/State Status	Habitat Characteristics	Potential to Occur
Laterallus jamaicensis coturniculus California black rail	--/SE, FP	Inhabits freshwater marshes, wetland meadows, and the shallow margins of saltwater marshes bordering larger bays. Needs water depths of about 1 inch that do not fluctuate during the year & dense vegetation for nesting habitat.	**None.** The project area lacks suitable habitat for this species.
Mammals			
Antrozous pallidus pallid bat	--/CSC	Deserts, grasslands, shrublands, woodlands, and forests. Most common in open, dry habitats with rocky areas for roosting. Roosts must protect bats from high temperatures. Very sensitive to disturbance of roosting sites.	**Possible.** Riparian habitat along the Tuolumne River provides suitable roosting and foraging habitat for this species, and adjacent ruderal habitats with trees also provides limited roosting and foraging habitat.
Corynorhinus townsendii Townsend's big-eared bat	--/CSC	Found throughout California in a wide variety of habitats, including woodlands, forests, chaparral, scrubs, and grasslands. Most common in mesic sites. Roosts on open surfaces in caves, abandoned mines, and buildings. Also uses bridges, rock crevices and hollow trees as roost sites. Roosting sites are limiting. This species is extremely sensitive to human disturbance.	**Possible.** The Geer Road Bridge provides potentially suitable roosting habitat, but no use by bats was detected during site visits. The nearest CNDDB occurrence was detected in 2012 at the Santa Fe Road Bridge over the Tuolumne River, three miles to the west of the infiltration gallery.
Lasiurus blossevillii Western red bat	--/CSC	Cismontane woodland, lower montane coniferous forest, riparian forest and woodlands. Roosts primarily in trees, 2-40 feet above ground, from sea level up through mixed conifer forests. Prefers habitat edges and mosaics with trees that are protected from above and open below with open areas for foraging.	**Possible.** Riparian habitat along the Tuolumne River provides suitable roosting and foraging habitat for this species, and adjacent ruderal habitats with trees also provides limited roosting and foraging habitat.

Scientific Name/ Common Name	Federal/State Status	Habitat Characteristics	Potential to Occur
Taxidea taxus American badger	--/CSC	Most abundant in drier open stages of most shrub, forest, and herbaceous habitats. Needs sufficient food, friable soils and open, uncultivated ground. Preys on burrowing rodents and digs burrows.	**Not expected.** This species could utilize the open grassland and walnut orchard for foraging, but no substantial or suitable burrows were observed during reconnaissance surveys.

Federal:		***State:***		***CRPR (California Rare Plant Rank):***	
FE =	federally listed as endangered	SE =	state listed as endangered	1A =	Plants Presumed Extirpated in California and Either Rare or Extinct Elsewhere
FT =	federally listed as threatened	ST =	state listed as threatened	1B =	Plants Rare, Threatened, or Endangered in California and Elsewhere
FD =	federally de-listed	SR =	state listed as rare	2A =	Plants Presumed Extirpated in California, But More Common Elsewhere
FC =	federal candidate	FP=	California fully protected	2B =	Plants Rare, Threatened, or Endangered in California, But More Common Elsewhere
FP =	federally proposed for listing as threatened or endangered	CSC =	California species of special concern		
FSC =	federal species of concern				

Sources: USFWS 2017a; CDFW 2017; IPAC 2017; as provided in Appendix B

San Joaquin Valley Orcutt grass

Colusa grass

Greene's tuctoria

Swainson's hawk

valley elderberry longhorn beetle

valley elderberry longhorn beetle

Townsend's big-eared bat

hardhead

hardhead

valley elderberry longhorn beetle

Swainson's hawk

valley elderberry longhorn beetle

steelhead - Central Valley DPS

San Joaquin Valley Orcutt grass

heartscale

subtle orache

Swainson's hawk

Swainson's hawk

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CNDDB Occurrences

- Colusa grass
- Greene's tuctoria
- San Joaquin Valley Orcutt grass
- Swainson's hawk
- Townsend's big-eared bat
- hardhead
- heartscale
- steelhead - Central Valley DPS
- subtle orache
- valley elderberry longhorn beetle

Source: California Dept. of Fish & Wildlife, July 2017

N

0 0.5 1 2

Miles

- Ceres Finished Water Transmission Main
- Raw Water Transmission Main
- Turlock Finished Water Transmission Main
- Study Area
- 5-mile Radius of Study Area

Horizon WATER and ENVIRONMENT

Figure 3.4-1
Special-status Species Mapped by CNDDB near the Proposed Project Area

Surface Water Supply Project

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3.4.4 Environmental Impacts and Mitigation

Methodology

The potential for the proposed project to have impacts on existing biological resources was evaluated by comparing the quantity and quality of habitats present in the study area under baseline conditions against anticipated conditions during construction and operation of the proposed project. Direct and indirect impacts on special-status species were assessed based on the potential for the species or their habitat to be disturbed (or enhanced) by implementation of the proposed project.

Significance Criteria

Based on Appendix G of the State CEQA Guidelines, the proposed project would have a significant impact on biological resources if it would:

- 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;
- 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;
- Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the CWA (including, but not limited to, marsh, vernal pool, and coastal) through direct removal, filling, hydrological interruption, or other means;
- 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;
- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; or
- Conflict with the provisions of an adopted HCP, natural community conservation plan, or other approved local, regional, or state HCP.

Impact Analysis

Impact BIO-1: Impacts on Special-status Plants (No Impact)

Construction of the proposed project would involve vegetation clearing, excavation, and trenching. The CNDDB indicates occurrences of five special-status plants within 5 miles of the project area (Figure 3.4-1): Colusa grass (*Neostapfia colusana*), San Joaquin Valley orcutt grass (*Orcuttia inaequalis*), Greene's tuctoria (*Tuctoria greenei*), heartscale (Atriplex *cordulata* var. *cordulata*), and subtle orache (*A. subtilis*). Colusa grass, San Joaquin Valley orcutt grass, and Greene's tuctoria are found in vernal pool habitats. Heartscale and subtle orache occur in alkaline habitats. As indicated in Table 3.4-3, no suitable habitat for these plant species is present near the pump station, in the WTP area, along the proposed pipeline alignments, or at the sites of potential offset water facilities. The potential for any of these

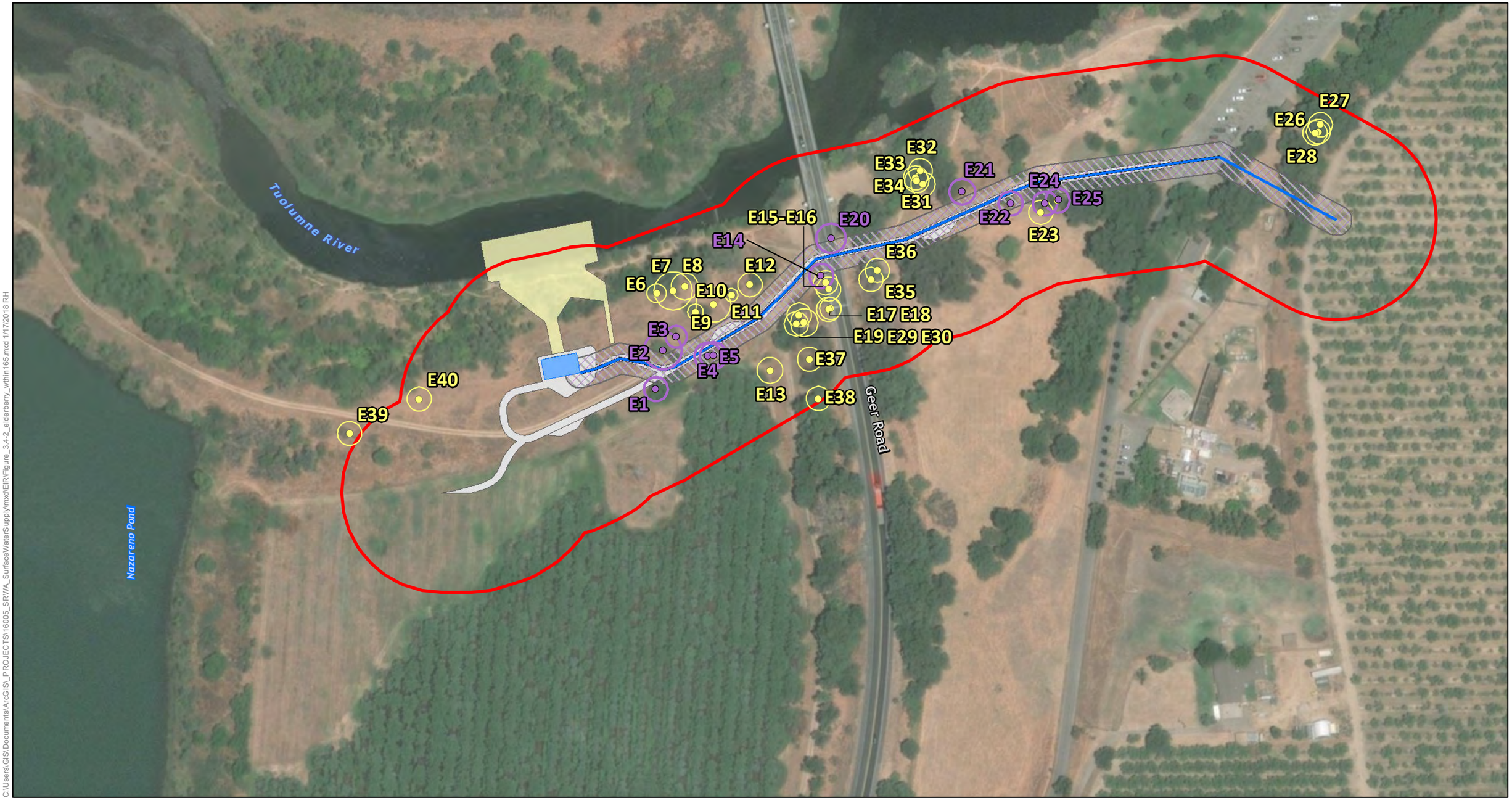
special-status plant species to occur along the roadsides, in the canal ROWs, or at the WTP site would be minimal because vegetation in these areas is mowed and managed with herbicides by the farmers, landowners, water districts, Stanislaus County, and the Cities of Ceres, Turlock, and Hughson. Thus, special-status plant species would not be affected by proposed project activities and **no impact** would occur.

Impact BIO-2: Impacts on Special-status Invertebrates (Less than Significant with Mitigation)

As described in Section 3.4.3, blue elderberry shrubs with apparent exit holes are present at the site of the proposed raw water pump station and raw water transmission pipeline. In accordance with USFWS and CDFW guidance, VELB are presumed to be present in the area when exit holes are found (USFWS 2017b). A total of 40 blue elderberry shrubs were mapped in the riparian area within 165 feet of the proposed pump station and along the edges of the access road in Fox Grove Park (**Figure 3.4-2**).

The *Framework for Assessing Impacts to Valley Elderberry Longhorn Beetle* (USFWS 2017b) recommends that any activities that may damage or kill an elderberry shrub (e.g., trenching) may require an avoidance area of 20 feet from the canopy dripline. Installation of the raw water transmission pipeline would occur mostly within the 12-foot-wide access road and ROW that starts at the proposed raw water pump station, travels east under the Geer Road Bridge and across Fox Grove Regional Park, and turns south to the WTP parcel. The raw water transmission pipeline would be 60 inches in diameter and approximately 3,900 feet long, and would be buried at least 5 feet deep wherever **possible.** The alignment has been designed to avoid the need to remove or impact elderberry shrubs to the extent **possible.** However, trenching for the raw water transmission pipeline would occur within 20 feet of the canopy dripline of approximately seven individual shrubs (Figure 3.4-2). These elderberry shrubs would be transplanted to a USFWS-approved VELB conservation bank, as feasible and necessary.

The treated water transmission mains from the WTP to the Ceres Main Canal and the terminal tank facilities in Ceres and Turlock would be installed in trenches within road ROWs. No elderberry shrubs were detected along these routes during reconnaissance surveys in fall 2016.



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Feet

1:1,855

Horizon WATER and ENVIRONMENT

- Avoided Elderberry (29 shrubs)
- 20-ft Canopy Buffer
- Elderberry with canopy encroachment (11 shrubs)
- 20-ft Canopy Buffer
- 165-Foot Avoidance Buffer

Proposed Project Facilities

- Wet Well/Pump Station
- Raw Water Transmission Main
- 50-ft Pipeline Disturbance Zone
- Access Road and Pullouts
- Infiltration Gallery

Figure 3.4-2
Elderberry Mapped within the Proposed Project Area

Surface Water Supply Project

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Impacts on VELB and individual elderberry shrubs could result from direct damage to elderberry plants during construction or operation of the proposed project from causes such as trenching activities, passing vehicles, generation of excessive dust, or altered soil and drainage conditions. Any impacts that result in direct mortality of VELB or substantial degradation of their habitat are considered significant. **Mitigation Measure BIO-1 (Avoid Impacts on Valley Elderberry Longhorn Beetle Where Feasible)** would require SRWA and its contractor(s) to avoid impacts on the host plant for this species to the extent feasible. If avoidance is not possible, **Mitigation Measure BIO-2 (Implement VELB Compensatory Mitigation, if Necessary)** and **Mitigation Measure BIO-3 (Where Avoidance Is Not Feasible, Transplant Elderberry Shrubs)** would require transplantation of affected shrubs and the purchase of compensatory mitigation credits from a USFWS-approved mitigation bank. Impacts on VELB to **less than significant with mitigation**.

Mitigation Measure BIO-1. Avoid Impacts on Valley Elderberry Longhorn Beetle Where Feasible.

To the extent feasible, SRWA and its contractor(s) shall comply with and implement the following avoidance measures (based on USFWS' *Framework for Assessing Impacts to the Valley Elderberry Longhorn Beetle* (USFWS 2017b)):

- No less than 15 days prior to commencing construction, document the locations and condition of elderberry plants within 165 feet of construction areas, including photographing the base, stems, and canopy of those shrubs.
- Fence and flag all areas to be avoided during construction activities, including the access road corridor and the 20-foot buffer from the dripline of the canopy of all established elderberry shrubs within 165 feet of the access road.
- A qualified biologist shall provide training for all contractors, work crews, and any on-site personnel on the status of the VELB, its host plant and habitat, the need to avoid damaging the elderberry shrubs, and the possible penalties for noncompliance.
- A qualified biologist will conduct weekly site inspections during the VELB flight season (March-July) to examine elderberry shrub condition.
- To the extent feasible, all activities that could occur within 165 feet of an elderberry shrub shall be conducted outside of the flight season of the VELB (March-July).
- Erect signs every 50 feet along the edge of the avoidance area with the following information: "This area is habitat of the valley elderberry longhorn beetle, a threatened species, and must not be disturbed. This species is protected by the Endangered Species Act of 1973, as amended. Violators are subject to prosecution, fines, and imprisonment." The signs will be maintained for the duration of construction.
- If required, trimming of elderberry shrubs shall occur between November and February and shall avoid the removal of any branches or stems that are 1 inch or greater in diameter.
- Herbicides shall not be used within the dripline of an elderberry shrub. Insecticides shall not be used within 100 feet of an elderberry shrub. All

chemicals shall be applied using a backpack sprayer or similar direct application method.

- Mechanical weed removal within the dripline of elderberry shrubs shall be limited to the season when VELB adults are not active (August-February) and shall avoid damaging the shrubs.
- Erosion control shall be implemented and the affected area shall be revegetated with appropriate native plants.

Mitigation Measure BIO-2. Implement VELB Compensatory Mitigation, if Necessary.

Where VELB shrub avoidance is not feasible, SRWA shall implement the following compensatory mitigation measures (based on USFWS' *Framework for Assessing Impacts to the Valley Elderberry Longhorn Beetle* [USFWS 2017b]):

- Impacts on VELB habitat shall be mitigated through purchase of compensatory mitigation credits from a USFWS-approved mitigation bank or through on- or off-site mitigation. If on- or off-site mitigation is planned, a Compensatory Mitigation Proposal shall be developed and shall be subject to approval by USFWS.
- Mitigation ratios shall be based on impacts on riparian habitat, as well as impacts to individual shrubs. Impacts on riparian habitat shall be mitigated at a ratio of 3 acres of mitigation bank credits or replacement habitat for every 1 acre of elderberry shrubs in riparian habitat that would be disturbed (a 3:1 mitigation ratio). For disturbance to elderberry shrubs in non-riparian habitat, a 1:1 ratio shall be used.
- Impacts on individual shrubs in riparian areas may be mitigated by the purchase of 2 credits at a USFWS-approved bank for each shrub affected (a 2:1 ratio), regardless of the presence of exit holes. Impacts on individual shrubs in non-riparian areas shall be replaced at a 1:1 ratio if exit holes have been found in any shrub on or within 165 feet of the project area.

Mitigation Measure BIO-3. Where Avoidance Is Not Feasible, Transplant Elderberry Shrubs.

Where VELB shrub avoidance is not feasible, SRWA or its contractor(s) shall transplant elderberry shrubs according to the following methodology (based on USFWS' *Framework for Assessing Impacts to the Valley Elderberry Longhorn Beetle* [USFWS 2017b]):

- If an elderberry shrub cannot be avoided or if indirect effects will result in the death of stems or the entire shrub, then, in addition to implementation of Mitigation Measure BIO-2, the shrub shall be transplanted, if feasible. Any elderberry shrub that would be extremely difficult to move or is unlikely to survive transplanting may not be appropriate for transplanting.
- Elderberry shrubs shall be transplanted as close as possible to their original location. Elderberry shrubs may be relocated adjacent to the project footprint if: (1) the planting location is suitable for elderberry growth and reproduction; and (2) SRWA and its contractor(s) are able to protect the

shrub and ensure that the shrub becomes reestablished. If these criteria cannot be met, the shrub may be transplanted to an appropriate USFWS-approved mitigation site.

- Elderberry shrubs shall be transplanted in accordance with the following guidelines:
  - A qualified biologist shall be present on site for the duration of transplanting activities to ensure compliance with avoidance and minimization measures and other conservation measures identified in Mitigation Measures BIO-1 and BIO-2 (described above), as well as in the USFWS' framework document (USFWS 2017b).
  - Exit-hole surveys shall be completed immediately before transplanting. The number of exit holes found, the GPS location of the plant to be relocated, and the GPS location of the site where the plant is transplanted shall be reported to USFWS and CNDDB.
  - Elderberry shrubs shall be transplanted when the shrubs are dormant (November through the first 2 weeks in February) and after they have lost their leaves.
  - Transplanting shall follow the most current version of the Tree Care Industry Association's ANSI A300 (Part 6) guidelines for transplanting (Tree Care Industry Association 2017).

Impact BIO-3: Impacts on Special-status Fish (Less than Significant with Mitigation)

The *Initial Study/Mitigated Negative Declaration Infiltration Gallery Project in Special Run Pool 9* (EDAW 2001) included a detailed analysis of the potential operational effects on aquatic resources of the release and diversion of 100 cfs of irrigation water from the La Grange Dam through the infiltration gallery at the proposed project site from mid-March through mid-October. That study determined that infiltration gallery operations would not adversely affect fisheries resources in the Tuolumne River and would instead constitute a beneficial effect on aquatic resources. The infiltration gallery was subsequently installed at RM 26 in 2001-2003. The purpose of constructing the infiltration gallery was to allow water that would otherwise be diverted at the La Grange Dam to remain in the river for an additional 26 miles, thereby increasing flows through salmon spawning areas downstream of the dam before being diverted through the infiltration gallery at RM 26 and reducing water temperatures in this reach (EDAW 2001).

In 2006, the *Regional Surface Water Supply Project Draft Environmental Impact Report* (EIP 2006) proposed to divert water for domestic use year-round at a rate of up to 66 cfs. During the irrigation season (mid-March to mid-October), the 66 cfs diverted for domestic use would replace an equivalent amount of water that was originally intended to be diverted for agricultural use at the infiltration gallery, for a total diversion rate of 100 cfs. That EIR concluded that impacts on special-status fish species would be less than significant for the following reasons:

- the design of the infiltration gallery reduces the potential for the entrainment or impingement of fish at the water intake to negligible levels;
- almost all Chinook and *O. mykiss* spawn upstream of the infiltration gallery;

- an increased flow of 100 cfs would increase spawning habitat for Chinook and *O. mykiss*;
- air purging to maintain the infiltration gallery would mobilize minor amounts of sediment during periods when sediment is already being moved by the river; and
- additional water released into the reach downstream of the dam would help reduce high fall water temperatures that may be stressful for spawning Chinook.

With respect to aquatic resources, the proposed project differs from the previously analyzed project in the amount of water that may be released and diverted. As described above and in Chapter 2, *Project Description*, the infiltration gallery was designed to yield up to 100 cfs (65 mgd or 45,000 gpm) of water from the infiltration gallery piping network. On an average annual basis, the initial WTP operations would require withdrawal of approximately 24 cfs (approximately 10,770 gpm) from the Tuolumne River to meet planned treated water deliveries of 15 mgd. It is anticipated that the initial capacity of 15 mgd would be sufficient to conjunctively meet the Cities' anticipated demands through about 2025. The ultimate buildout capacity of the WTP would require withdrawal of 69.6 cfs to meet treated water deliveries of 45 mgd at buildout by 2040. The proposed project evaluates the effects of year-round water treatment plant operations; later phases would be accommodated by increased withdrawals from the infiltration gallery coupled with increased WTP capacity. TID may divert water through the infiltration gallery for agricultural uses only (1) if there is an emergency or operational problem in TID's canal system or (2) if water was ordered by the Cities but cannot be used by the Cities after the water is released at La Grange Dam because of an emergency or operational problem at the water treatment plant or in the proposed project's treated water transmission system.

During infiltration gallery operation in Phase 1, TID would release 24 cfs in addition to the releases required by the 1996 FSA to meet FERC-mandated minimum flows. The result would be a year-round release (and corresponding downstream diversion) of up to 24 cfs from La Grange Dam for domestic drinking water purposes that could increase baseline flows during the migration and spawning season (from October to May) from the existing 150-300 cfs to 150-324 cfs (Table 3.4-1). From June through September, existing flows of 50-250 cfs could increase to 50-274 cfs.

The following analysis considers the potential effects of infiltration gallery operations and construction of the proposed raw water pump station on special-status fish, including the following categories of impacts:

- Potential effects of additional releases of up to 24 cfs of cold water from the La Grange Dam on migration, spawning, and rearing;
- Potential for entrainment or impingement of fish at the water intake;
- Potential effects from mobilization of fine sediment during maintenance air purging of the gravel filter pack; and
- Potential adverse effects on water quality from stormwater runoff during construction of the pump station and raw water transmission pipelines.

This analysis draws on the following Water & Aquatic Resources (W&AR) studies being conducted as part of the Don Pedro Project relicensing process (HDR 2013):

- W&AR-4 – Spawning Gravel Study
- W&AR-5 – Salmonid Population Synthesis
- W&AR-6 – Chinook Salmon Population Model
- W&AR-7 – Predation Study
- W&AR-8 – Salmonid Redd Mapping
- W&AR-10 – *O. mykiss* Population Model
- W&AR-11 – Chinook Salmon Otolith Study
- W&AR-12 – *O. mykiss* Habitat Study
- W&AR-20 – *O. mykiss* Age Determination Study

Potential Effect of Additional Releases of up to 24 cfs on Migration, Spawning, and Rearing

Releases of 24 cfs of cold water from the La Grange Dam during Phase 1 would decrease water temperatures in the Tuolumne River for some distance downstream. During the high flows in winter months and spring runoff (as shown in Figure 3.9-1 in Section 3.9, *Hydrology and Water Quality*), an additional flow of 24 cfs would have minimal impact on already low water temperatures throughout the river corridor. During low flows in the summer and early fall, additional flows of 24 cfs would decrease water temperatures and increase habitat suitability for salmonids. One study predicted that an additional release of 100 cfs would extend the downstream extent of temperatures (65-68°F) suitable for Chinook fry and juveniles by 3-6 miles from the La Grange Dam under low-flow conditions from June to September, depending on the water year type (Theurer et al. 1984, as cited in EDAW 2001). Modeling of fish habitat conditions has not been conducted for a release of 24 cfs, but the additional release of 24 cfs is expected to range from minimal to a small beneficial effect on salmonid habitat conditions in the lower Tuolumne River. Downstream of the infiltration gallery, minimum FERC flows would be met, habitat suitability would remain unchanged, and there would be no adverse effect.

Pacific lamprey spawn in the Tuolumne River in spring and early summer. They dig small depressions in gravelly riffles and prefer relatively small gravel sizes in slow backwater or edgewater habitat. Ammocoetes may be present year-round, but a modest increase in flow of 24 cfs would not substantially affect the limited amount of available habitat near the infiltration gallery or any spawning activities that may occur nearby. If river lamprey spawn upstream of the project area, then juveniles would move downstream past the infiltration gallery. Release of additional water would be unlikely to substantially alter outmigration or instream movements of lamprey.

Hardhead have been documented in the vicinity of the proposed project site in various surveys, but spawning has never been directly observed (Stillwater Sciences 2012, FishBio 2016). Hardhead are thought to spawn between April and May and rearing juveniles may be present year-round. Hardhead spawning behavior is poorly understood, making it difficult to predict the response to additional water releases. However, hardhead prefer cool, clear water, and the relatively modest increase in flow is not likely to have a substantial effect on habitat conditions for hardhead.

In conclusion, the overall effect from the additional release of 24 cfs on habitat for special-status fish species would be beneficial; the additional release under buildout conditions of up to 69.6 cfs would increase this benefit.

Potential for Fish Entrainment or Impingement

Water diversion structures that are not buried have the potential to entrain fish that venture too close to intakes. An infiltration gallery reduces this risk by incorporating a filter bed cover of gravels, which increases the surface area through which water is collected. The infiltration gallery was constructed with approximately 4-6 feet of graded gravels around and on top of 16 gallery screens that act as a filter bed. The gallery laterals have a diameter of 24 inches each and a screen length of 45 feet, and are spaced 12 feet apart, for an effective screening surface area of 8,640 square feet (16 screens x 12 feet x 45 feet). NMFS screening criteria set a maximum approach velocity of 0.33 feet per second (fps) (NMFS 1997, as cited in EDAW 2001). At the full-capacity diversion rate of 100 cfs, the intake velocity at the gravel's surface would be approximately 0.01 fps, or approximately 30 times lower than the NMFS limit for conventional fish screens (Smith, pers. comm., 2017). The intake velocity at a diversion rate of 24 cfs during Phase 1 would be much lower, well below the minimum swimming speeds of salmonid fry, juveniles, or smolts, which can sustain swimming speeds of at least 0.40 fps for periods long enough to avoid obstacles (NMFS 1997, as cited in EDAW 2001). The mesh size of the infiltration gallery intake pipes is approximately 0.06 inch, thereby excluding items as small as Chinook salmon eggs (0.18-0.34 inch in diameter) (EDAW 2001). Therefore, swimming speed and mesh size would be sufficient to prevent entrainment or impingement of free-swimming salmonids and unhatched eggs. Thus, the impact of infiltration gallery operations on potential fish entrainment or impingement would be less than significant.

Potential Effects from Mobilization of Fine Sediment due to Air Purging

Air purging would be used periodically to remove fine sediment from the infiltration gallery and maintain its capacity. Potential impacts of air purging on sensitive fish species could result from increased concentrations of total suspended solids (TSS), the redeposition of entrained sediment, and potential infiltration of that sediment into bed substrates. Increases in sedimentation and siltation above background levels could potentially affect sensitive fish and their habitat by reducing egg and juvenile survival; interfering with feeding activities; causing a breakdown of social organization; irritating sensitive tissues, such as gill and eye membranes; and reducing primary and secondary productivity, which could alter the food web on which fish rely. The magnitude of potential effects depends on the timing and extent of sediment loading and flow in the river before, during, and immediately following the activity.

During the course of normal infiltration gallery operations, fine-grained sediment may accumulate in the well screens and gravel pack surrounding the water intake. This sediment must be cleared periodically by releasing pressurized air through gallery bays and into the surrounding gravel pack. Maintenance air purging is necessary to mitigate the gradual reduction in hydraulic capacity of the gallery due to sediment accumulation. The infiltration gallery screens and pipes are covered by 4-6 feet of native cobble and gravel; sand and some fines are likely present in the gravel/cobble interstices. It is also possible there could be layers of fines between the streambed gravel/cobble and the infiltration gallery cover; however, during sampling of streambed substrate in October 2017, no fines were recovered in the samples and the streambed condition was described as relatively armored or

embedded (FishBio, pers. comm., 2017). Therefore, it is not expected that air purging would be capable of forcing a substantial volume of fines to the surface through the coarse layer of sediment on the streambed surface. It is important to note that the sediment entrained during air purging would not be new sediment introduced into the river, but rather existing, previously deposited sediment resuspended through air pressure. Although the generation of turbidity during air purging is expected to be short in duration, magnitude, and spatial extent, even a short-term increase in TSS could have an adverse impact on any Chinook spawning activities that could occur as well as adversely affecting any *O. mykiss* that may be passing through the area. Chinook salmon spawning has been documented in the reach between RM 22 and RM 34 (Stillwater Sciences 2013a), and therefore has the potential to occur in the immediate project area at RM 26. *O. mykiss* are found almost exclusively above RM 42 and no spawning has been detected below RM 39 (Stillwater Sciences 2012). However, a small number of *O. mykiss* in the Tuolumne River may exhibit an anadromous life cycle and, therefore, may occur within the project area during the peak migration period (December-February).

Increased TSS and/or increased sediment deposition from mobilized sediment due to air purging during fall-run Chinook migration (October-November), spawning (November), juvenile emergence and rearing (November-March) or the peak migration period (December-February) for steelhead, is considered a potentially significant impact. Implementation of **Mitigation Measure BIO-4 (Schedule Air Purging to Avoid or Minimize Increased TSS and Sediment Deposition)** would limit air purging to the period from April 1 to September 30 where feasible, which would avoid potential adverse effects on salmonid spawning and migration. With the implementation of Mitigation Measure BIO-4, this impact would be less than significant with mitigation.

Pacific lampreys are believed to spawn from March through June, but ammocoetes (the larval form) may be present year-round in slow backwater or edgewater habitat with relatively small gravel sizes (Stillwater Sciences 2014). This type of habitat is limited in the area near the infiltration gallery and therefore the number of lamprey that could be displaced or partially buried during air purging is likely to be very small. Given the short duration, localized extent, and infrequency of maintenance air purging, it is not likely to result in substantial adverse effects on Pacific lamprey.

Hardhead are known to be sensitive to changes in water quality, including increased levels of turbidity (Gard 2002). River-dwelling adult hardhead are typically found in the lower half of the water column, whereas juveniles primarily occupy shallow areas near the channel margins (Moyle et al. 1995). Air purging would temporarily increase turbidity in the area immediately downstream of the infiltration gallery, but the resulting reduction in water quality would be short term and is likely to have limited effects on water temperature or dissolved oxygen. Given the localized extent and infrequency of the activity, it is not likely to result in substantial adverse effects on hardhead.

Potential Effect of Stormwater from Construction Site on Water Quality

As described in Chapter 2, *Project Description*, construction of the raw water pump station and raw water transmission main would require the use of heavy equipment that would disturb soil and could cause erosion. Ground-disturbing activities during project construction would loosen soil that could be washed into the Tuolumne River during a precipitation event, resulting in adverse water quality effects and impairment of beneficial uses. Additionally,

construction would involve storage and use of fuel and other materials in equipment that could leak or spill, causing water quality impacts. As described in Impact HYD/WQ-1 in Section 3.19, *Hydrology and Water Quality,* the proposed project would be subject to an NPDES General Construction Permit and implementation of a stormwater pollution prevention plan (SWPPP) to prevent significant adverse effects on water quality or violation of water quality objectives during project construction. As a result, this impact would be less than significant.

Conclusion

As described above, operation of the infiltration gallery and construction and operation of the raw water pump station and transmission pipeline could result in impacts on special-status fish through various mechanisms. Additional releases of up to 24 cfs of cold water from the La Grange Dam during Phase 1 would have minimal impact on already low water temperatures throughout the river corridor during winter and, during low flows in the summer and early fall, would decrease water temperatures and increase habitat suitability for salmonids. Swimming speed and mesh size would be sufficient to prevent entrainment or impingement of free-swimming salmonids and unhatched eggs. Compliance with the NPDES General Construction Permit and SWPPP would prevent significant adverse effects on water quality or violation of water quality objectives during project construction. Impacts on hardhead and Pacific lamprey would be minimal.

Maintenance air purging of the infiltration gallery could result in significant impacts on special-status fish if mobilized sediment results in increased TSS and/or increased sediment deposition during fall-run Chinook migration (October-November), spawning (November), juvenile emergence and rearing (November-March) or the peak migration period (December-February) for steelhead. Implementation of Mitigation Measure BIO-4 would limit air purging to periods when salmonid spawning would not be adversely affected. As a result, impacts on special-status fish would be **less than significant with mitigation**.

Mitigation Measure BIO-4. Schedule Air Purging to Avoid or Minimize Increased TSS and Sediment Deposition.

To the extent feasible, SRWA and its contractor(s) shall limit air purging of the infiltration gallery to the work period between April 1 and September 30 to avoid increased TSS and sediment deposition during peak salmonid spawning migration and sensitive development stages. If air purging must be conducted outside the period between April 1 and September 30, SRWA shall consult with NMFS, USFWS, and CDFW to identify a suitable work period, based on the hydrologic and biological conditions for the year of testing that will not result in substantial increases in TSS and sediment deposition to avoid adverse effects on special-status fish.

Impact BIO-4: Impacts on Nesting Birds (Less than Significant with Mitigation)

Riparian woodlands present near the infiltration gallery and site of the proposed pump station provide potentially suitable nesting habitat for a variety of bird species including special status species. Table 3.4-3 lists the special-status bird species with potential to occur in the vicinity of the project area. There are four CNDDB occurrences of Swainson's Hawk within 5 miles of the project area (Figure 3.4-1). Impacts to this species are discussed below. The riparian habitat could support nesting Yellow Warbler and Yellow-breasted Chat in the spring and summer. Both species are California Species of Special Concern. Yellow Warblers

have been observed at Fox Grove Park and Ceres River Bluff Regional Park (eBird 2017). Riparian habitat could also support nesting of a variety of species protected under the MBTA including Yellow Billed Magpie (*Pica nuttallii*) and Nuttal's woodpecker (*Picoides nutallii*), both of which are commonly observed in the area (eBird 2017).

Large ornamental trees that serve as residential landscaping could also support nesting birds. However, during reconnaissance surveys in fall 2016, suitable breeding habitat for birds was only observed in the riparian habitat near the Tuolumne River. No other suitable nesting habitat was observed within 300 feet of the remainder of the project area, including the WTP site, the alignments of the treated water transmission pipelines, or the terminal facility sites. The other riparian vegetation in the vicinity is in Ceres River Bluff Regional Park, more than 600 feet north of the proposed terminal facility.

Construction activities during the breeding season could disturb nesting by generating noise, creating visual distractions, or having a direct impact on occupied nests (e.g., vegetation or structure removal). The impact from construction activities that disturb nesting of any native or special status birds would be considered potentially significant. Implementation of **Mitigation Measure BIO-5 (Minimize Impacts on Nesting Birds with Site Assessments, Surveys, and Avoidance Measures)** would require SRWA or its contractor(s) to identify bird nests and avoid impacts on nesting birds. Therefore, impacts on nesting birds would be **less than significant with mitigation**.

Mitigation Measure BIO-5. Minimize Impacts on Nesting Birds with Site Assessments, Surveys, and Avoidance Measures.

If vegetation clearing or ground-disturbing activities commence between February 15 and August 31, SRWA or its contractor(s) shall require that a qualified biologist conduct a nesting bird survey within 2 weeks prior to the start of work. If a lapse in project-related work of 2 weeks or longer occurs during this period, another focused survey shall be conducted before project work can be reinitiated.

If nesting birds are found, a buffer shall be established around the nest and maintained until the young have fledged. Appropriate buffer widths are 300 feet for non-listed raptors and special-status passerines and 100 feet for non-listed passerines, unless a qualified biologist determines, based on a site-specific evaluation, that a smaller buffer is sufficient to avoid impacts on nesting raptors. Work shall not commence within the buffer until fledglings are fully mobile and no longer reliant upon the nest or parental care for survival.

Impact BIO-5: Impacts on Nesting Raptors, Including Swainson's Hawk and White-tailed Kite (Less than Significant with Mitigation)

Swainson's Hawks and White-tailed Kites are California Species of Special Concern. The Swainson's Hawks have been observed at Fox Grove Regional Park and Ceres River Bluff Regional Park (eBird 2017). There are four CNDDB occurrences of this species within 5 miles of the project area (**Figure 3.4-1**). Riparian habitat along the margins of the Tuolumne River and mature trees within the proposed project area provide suitable nesting habitat for both species. Other raptor species that may nest and forage in riparian woodlands include Red-tailed Hawk, Red-shouldered Hawk and American Kestrel. Low-quality foraging habitat for raptors is present in open elderberry stands and in the adjacent agricultural areas. Construction in the vicinity of nest sites could disturb breeding through generation of noise

and visual distraction. Impacts on raptor nesting sites that result in nest abandonment, nest failure, or reduced health or vigor of nestlings would be significant. The Swainson's Hawk Technical Advisory Committee has developed a set of survey recommendations to maximize detection of nests and thus reduce the potential for nest failures caused by project activities (SHTAC 2000). Implementation of **Mitigation Measure BIO-6 (Conduct Nesting Raptor Surveys and Establish Buffers to Avoid or Minimize Impacts on Swainson's Hawk and White-tailed Kite)** would reduce impacts on nesting raptors to less than significant with mitigation.

Mitigation Measure BIO-6. Conduct Nesting Raptor Surveys and Establish Buffers to Avoid or Minimize Impacts on Swainson's Hawk and White-tailed Kite.

If construction occurs between February 1 and August 31, SRWA or its contractor(s) shall require that a qualified biologist conduct surveys for Swainson's Hawk and White-tailed Kite in accordance with the recommended timing and methodology developed by the Swainson's Hawk Technical Advisory Committee (2000 or most recent). Surveys will cover a minimum 500-foot radius around the construction area. If nesting Swainson's Hawk or White-tailed Kite are detected, buffers shall be established around active nests that are sufficient to ensure that breeding is not likely to be disrupted or adversely affected by construction. Buffers around active nests will be 500 feet unless a qualified biologist determines, based on a site-specific evaluation, that a smaller buffer is sufficient to avoid impacts on nesting raptors. Factors to be considered when determining buffer size include the presence of natural buffers provided by vegetation or topography, nest height, locations of foraging territory, and baseline levels of noise and human activity. Buffers shall be maintained until a qualified biologist has determined that the young have fledged and are no longer reliant on the nest or parental care for survival.

Impact BIO-6: Impacts on Burrowing Owls (Less than Significant with Mitigation)

Burrowing Owls are a California Species of Special Concern. No CNDDB occurrences of Burrowing Owls are known in the vicinity of the project area. Burrowing Owls are a resident species that live in small colonies and typically nest and roost in burrow systems created by medium-sized mammals (e.g., ground squirrels) or in artificial sites (e.g., drainpipes, culverts). Occasionally, they dig burrows themselves. Open areas near the proposed raw water pump station provide marginal habitat with tall, weedy vegetation that is not favored by Burrowing Owls. They generally prefer to inhabit grasslands with low-growing or grazed vegetation. Orchards may provide suitable foraging grounds. The alignments of the treated water transmission pipelines are in disturbed roadsides that, are not likely to support Burrowing Owls. There is the potential for this species to be found at the terminal facilities and for individuals to occur as transients.

If Burrowing Owls were to be present at portions of the project site, construction activities could disturb them through noise, visual distraction, or destruction of burrows. Such impacts could affect reproduction or fitness of individuals and would be significant. Implementation of **Mitigation Measure BIO-7 (Conduct Preconstruction Surveys for Burrowing Owls, and Avoid or Minimize Impacts)** would ensure that Burrowing Owls are not adversely affected during nesting season. Therefore, impacts on Burrowing Owls would be less than significant with mitigation.

Mitigation Measure BIO-7. Conduct Preconstruction Surveys for Burrowing Owls, and Avoid or Minimize Impacts

SRWA or its contractor(s) shall require that a qualified biologist conduct a preconstruction survey in all accessible areas of suitable Burrowing Owl habitat within 500 feet of construction activity. Surveys shall be conducted within 14 days before the start of construction activity in accordance with protocols established in the *Staff Report on Burrowing Owl Mitigation* (CDFG 2012 or current version). If no Burrowing Owls or signs of Burrowing Owls are detected during the survey, no further mitigation shall be required.

If a preconstruction survey detects occupied burrows, a buffer shall be established, within which no ground-disturbing or vegetation removal activity is permissible. In accordance with guidance provided by CDFW, buffers around occupied burrows shall be a minimum of 656 feet (200 meters) during the breeding season (February 1 through August 31), and 160 feet (100 meters) during the non-breeding season, unless a qualified biologist determines, based on a site-specific evaluation, that a smaller buffer is sufficient to avoid impacts on the Burrowing Owl burrow.

This protected area will remain in effect until the end of the Burrowing Owl nesting season (February 1 through August 31) or until CDFW approves a passive relocation plan. No Burrowing Owls will be relocated from burrows during the Burrowing Owl nesting season.

If occupied burrows are to be relocated, a passive relocation plan shall be developed by a qualified biologist and approved by CDFW prior to implementation. SRWA shall enhance or create burrows in appropriate habitat at a 1:1 ratio (burrows destroyed to burrows enhanced or created) one week prior to implementation of passive relocation techniques. If burrowing owl habitat enhancement or creation takes place, SRWA shall develop and implement a monitoring and management plan to assess the effectiveness of the mitigation. The plan shall be subject to the approval of CDFW.

Impact BIO-7: Impacts on Special-status Amphibians and Reptiles (Less than Significant with Mitigation)

The western pond turtle (*Actinemys marmorata*; WPT) is a highly aquatic turtle that spends much of its time in fresh water. It moves to adjacent upland habitat with sparse vegetation to bask and lay eggs (Holland 1992). The WPT is a California Species of Special Concern. No CNDDB occurrences of WPT are known in the vicinity of the project area, but the freshwater Nazareno pond near the raw water pump station site provides suitable aquatic habitat for WPT, and the adjacent vegetated areas could provide nesting habitat. WPT eggs are laid from March to August, depending on local conditions; at the proposed project site, WPT would most likely lay eggs from May to July. Although nesting within the project area is not likely, any direct or indirect effect on WPT or their nests (e.g., removal of nests or logs, rocks, or other vegetation required for basking) would be potentially significant. Implementation of **Mitigation Measure BIO-8 (Conduct Preconstruction Surveys, Establish Buffers around Nests, and Implement Measures to Avoid or Minimize Impacts on Western Pond Turtle)** would reduce impacts on WPT to **less than significant with mitigation**.

Mitigation Measure BIO-8. Conduct Preconstruction Surveys, Establish Buffers around Nests, and Implement Measures to Avoid or Minimize Impacts on Western Pond Turtle.

SRWA or its contractor(s) shall require that preconstruction surveys for WPT are conducted by a qualified biologist 14 days before and 24 hours before the start of construction activities in areas where suitable habitat exists (i.e., riparian areas, freshwater emergent wetlands, and adjacent uplands). If WPTs or their nests are observed during preconstruction surveys, the following measures shall be implemented.

WPTs found within the construction area will be allowed to leave on their own volition or will be relocated by a qualified biologist out of harm's way to suitable habitat immediately upstream or downstream of the project site. To be qualified to move turtles, the biologist shall possess a valid memorandum of understanding from CDFW authorizing the capture and relocation of turtles.

If a WPT nest is identified in the work area during preconstruction surveys, a 50-foot no-disturbance buffer shall be established between the nest and any areas of potential disturbance unless a qualified biologist determines, based on a site-specific evaluation, that a smaller buffer is sufficient to avoid impacts on the nest. Buffers will be clearly marked with temporary fencing. Construction will not be allowed to commence in the exclusion area until hatchlings have emerged from the nest or the nest is deemed inactive by a qualified biologist.

Impact BIO-8: Impacts on Special-status Mammals (Less than Significant with Mitigation)

Townsend's big-eared bat, pallid bat, and western red bat are special-status mammals that may occur in the proposed project area. The nearest CNDDB occurrence of Townsend's big ear bat was detected in 2012 at the Santa Fe Road Bridge, about one mile north of Hatch Road and 3 miles south of Geer Road (Figure 3.4-1). The Geer Road Bridge, which is elevated above the proposed raw water pump station and raw water transmission pipeline, contains crevices and cavities that are potential roost sites for Townsend's big-eared bat and pallid bat. The underside of the bridge was visually surveyed for evidence of bat use (e.g., guano, staining, smells, or sounds) in December 2016 and March 2017; no sign of bat activity was observed. However, bat use of roost sites can vary seasonally. Large trees in the riparian woodland could provide roosts for western red bat and non-special-status hoary bat. However, no large tree removal will occur as part of the project. Noise, vibration, or increased lighting can disturb roosting bats, if **present.** Potential construction-related impacts on bat roosts would be temporary, but activities that lead to the disturbance or abandonment of a special-status bat maternity roost would be a significant impact. Implementation of **Mitigation Measure BIO-9 (Conduct Preconstruction Surveys and Implement Measures to Avoid or Minimize Impacts on Special-status Bats)** would reduce impacts on special-status bats and maternity roosts to **less than significant with mitigation**.

Mitigation Measure BIO-9. Conduct Preconstruction Surveys and Implement Measures to Avoid or Minimize Impacts on Special-status Bats.

SRWA or its contractor(s) shall require that a preconstruction survey is conducted by a qualified bat biologist between May 1 and July 15 to maximize detection of bats during maternity season. The survey shall focus on the Geer Road Bridge and consist

of a daytime pedestrian survey to inspect the bridge for indications of bat use (e.g., occupancy, guano, staining, smells, or sounds) and a night roost/emergence survey using night vision equipment and/or infrared-sensitive optical or video equipment. Suitable large trees in the surrounding area will also be inspected for evidence of bat use. Bioacoustic detectors (bat detectors) may be deployed to maximize detection.

If the bat biologist determines that the bridge is being used, or is likely to be used, as a bat maternity roost and may be affected by construction, then specific measures will be developed and implemented to minimize impacts on the roost. Such measures may include minimizing construction activity (including truck traffic) under the bridge during the maternity season (May 1-July 15), excluding bats from the roost site prior to the maternity season during the year(s) of construction, or other measures developed by a qualified bat biologist that will minimize the disturbance. If bat exclusion is feasible for the Geer Road Bridge, a plan detailing the specifications for exclusion measures shall be developed by a qualified bat biologist and submitted to CDFW for approval.

Impact BIO-9: Impacts on Riparian Habitat or Other Sensitive Natural Communities (Less than Significant with Mitigation)

The proposed raw water pump station would be constructed in an open and disturbed elderberry stand (a sensitive natural community) on an embankment above the Tuolumne River. The pump station building (67 feet by 58 feet) would be an addition to the concrete structure of the previously constructed wet well (36 feet by 60 feet) and would result in additional permanent disturbance of 1,726 square feet (0.04 acre). Trenching within the access road for installation of the raw water transmission main would affect the buffer zone within 20 feet of the dripline of elderberry shrubs, as described in Impact BIO-2. The removal of other native tree and shrub species during construction is not expected, although trimming of some individual oak trees is possible adjacent to the access road. Temporary and permanent disturbance to riparian habitat or other sensitive natural communities would be considered potentially significant. As described in Impact BIO-2, implementation of Mitigation Measures BIO-1, BIO-2, and BIO-3 would reduce impacts on elderberry shrubs to a less-than-significant level. Implementation of **Mitigation Measure BIO-10 (Implement Revegetation in Riparian Habitat and Sensitive Natural Communities Disturbed during Construction)** would require revegetation of native vegetation areas disturbed during construction activities. As a result, this impact would be **less than significant with mitigation**.

Mitigation Measure BIO-10. Implement Revegetation in Riparian Habitat and Sensitive Natural Communities Disturbed during Construction.

SRWA or its contractor(s) shall require that, upon completion of construction, disturbed soils within areas of native vegetation shall be revegetated with site-appropriate native species to limit subsequent encroachment of non-native weeds. Any plants of native woody species of 4 inches dbh or greater that are damaged or removed as a result of construction activity shall be replaced at a 1:1 ratio; this ratio will increase to 3:1 for native trees of 24 inches dbh and greater. Replaced woody plant species shall be maintained and monitored to ensure a minimum of 65 percent survival of woody plantings after 3 years.

Impact BIO-10: Impact on Federally Protected Wetlands or Waters of the U.S. (No Impact)

The Tuolumne River is considered Traditional Navigable Waters and is subject to CWA Section 404 regulations. The riparian woodlands at or below the ordinary high water mark adjacent to the Tuolumne River would also be subject to those regulations. A jurisdictional delineation of waters of the U.S., including wetlands, was conducted in the vicinity of the proposed raw water pump station in December 2016 for the Infiltration Gallery Testing Project. The delineation did not identify any jurisdictional wetlands and identified the Tuolumne River and the Nazareno pond as potential jurisdictional Waters of the U.S. The pond is located outside of the proposed project area, and no work would occur within the Tuolumne River or within the floodplain below the ordinary high water mark as part of this proposed project. Reconnaissance surveys of the remaining proposed project components (WTP, pipelines, and terminal facility sites) did not identify any wetlands or Waters of the U.S. Therefore, the proposed project would have **no impact** on federally protected wetlands as defined by CWA Section 404 regulations.

Impact BIO-11: Impact on the Movement of Any Native Resident or Migratory Fish or Wildlife Species (Less than Significant with Mitigation)

Wildlife corridors link areas of suitable wildlife habitat and allow movement of species between areas that would otherwise be fragmented or isolated by changes in vegetation, rugged terrain, or human disturbance. A wildlife corridor is generally a topographical/ landscape feature or movement area that connects two open space habitat areas. The Tuolumne River and associated riparian habitat at the site of the existing infiltration gallery and proposed raw water pump station form an important wildlife movement corridor in this portion of the San Joaquin Valley.

Construction and operations of the proposed raw water pump station would generate noise, light, and an increased level of human activity relative to existing conditions. Noise generated at the facility would come from sources such as vehicles, large construction equipment (e.g., excavators, bulldozers), water pumps, generators, and human activity. This noise could create sufficient disturbance of wildlife that it could disrupt use of the wildlife corridor. Noise generated during the construction phase would be reduced, however, with implementation of **Mitigation Measures NOI-1, NOI-2, and NOI-5** (refer to Section 3.11, *Noise*). The water pumps and air compressors required for daily operation of the raw water pump station would also generate noise that would be minimized during the design and operational phases with implementation of Mitigation Measures NOI-2 and NOI-5. Temporary security fencing installed during construction of the proposed raw water pump station would not span across the entire riparian corridor in a manner that would prevent or block wildlife movement. Permanent fencing would be installed around the facility once construction is completed; however, it would be similar in type and extent to the chain-link fencing that is already present under the Geer Road Bridge. The motion-activated security lighting would be located on the pump station building inside the fencing and thus would not substantially affect wildlife or restrict movement.

The proposed project would incorporate temporal restrictions on infiltration gallery maintenance air purging to limit mobilization of fine sediment that would be returned to the Tuolumne River, as described above in Impact BIO-3 (Mitigation Measure BIO-4). As a result, air purging would not adversely affect Chinook salmon and hardhead migration and spawning.

For construction activities that would occur during the breeding season for birds that may nest in the riparian corridor, Mitigation Measures BIO-5 and BIO-7 would require preconstruction surveys to identify nest sites and subsequently minimize disturbance to active nests or breeding sites. Mitigation Measure BIO-6 would require preconstruction surveys to identify Burrowing Owl nest sites; actions to avoid or minimize disturbance to active nests or breeding during the nesting season; and passive relocation of any owls that cannot be avoided during the non-breeding season. SWRA would implement a restoration plan for riparian habitat and sensitive natural communities disturbed during construction (Mitigation Measure BIO-10).

As a result, this impact would be **less than significant with mitigation**.

Impact BIO-12: Conflict with Any Local Policies or Ordinances Protecting Biological Resources (Less than Significant)

Relevant local policies are described in Section 3.4.2 and include the General Plans of Stanislaus County and the Cities of Ceres, Turlock, and Hughson. The Conservation/Open Space Element of the *Stanislaus County General Plan* (Stanislaus County 2015) emphasizes the conservation and management of natural resources and the preservation of open space lands within unincorporated Stanislaus County. Chapter 6 of the *City of Ceres General Plan* (City of Ceres 1997) contains policies that encourage the conservation and enhancement of the area's natural resources in and around Ceres, including riparian areas adjacent to the Tuolumne River. The Conservation Element of the *City of Turlock General Plan* (City of Turlock 2012) establishes a policy for the City to make efforts to enhance the diversity of Turlock's flora and fauna, including street trees. The Conservation and Open Space Elements of the *City of Hughson General Plan* (City of Hughson 2005) include policies to promote protection of natural resources, including plants and wildlife.

The proposed project would permanently replace a very small area of riparian habitat along the Tuolumne River with a municipal water supply facility. The area represents a negligible percentage of habitat present within Stanislaus County, but other aspects of the proposed project are consistent with the general conservation and preservation goals and policies of the Stanislaus County General Plan. The terminal facilities in Ceres and Turlock would be constructed on vacant parcels and would not conflict with conservation policies in those cities. Therefore, the impact of the proposed project is **less than significant.**

Impact BIO-13: Conflict with Provisions of an Adopted HCP or Other Approved Local, Regional, or State HCP (No Impact)

The project area is within the boundaries of the PG&E San Joaquin Valley Operation and Maintenance HCP (PG&E 2006). The purpose of this HCP is to enable PG&E to continue to conduct current and future operation and maintenance activities within the San Joaquin Valley. It primarily addresses small-scale temporary effects from PG&E project-related activities that are dispersed over a large geographic area. Because this HCP is specifically for

PG&E activities, it is not applicable to the proposed project, which is not being conducted by PG&E. Furthermore, no proposed HCP conservation areas would be affected. There are no other HCPs or natural community conservation plans that cover the proposed project site. Therefore, the proposed project would not conflict with any such plans. As a result, the proposed project would have **no impact**.

3.5 Cultural Resources

3.5.1 Introduction

This section describes potential impacts of the proposed project related to cultural and paleontological resources. Cultural resources include prehistoric and historic-era archaeological sites; tribal cultural resources (TCRs) or traditional cultural properties; and historic-era buildings, structures, landscapes, districts, and linear features. Prehistoric archaeological sites are places where Native Americans lived or carried out activities during the prehistoric period, which is generally defined as before the early 1800s in the proposed project area. Historic-era archaeological sites reflect the activities of people after initial exploration and settlement in the region during the early 1800s. Native American sites can also reflect the historic era. Prehistoric and historic-era sites may contain artifacts, cultural features, subsistence remains, and/or human burials. TCRs are sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe; impacts of the proposed project on TCRs are discussed in Section 3.16 of this EIR. Traditional cultural properties can include TCRs, but they also encompass resources that are culturally important to any community.

Paleontological resources are the fossil remains of prehistoric flora and fauna, or traces or evidence of their existence. This section addresses the occurrence of paleontological resources within the proposed project area and the potential impact that construction activities and operation of the proposed project would have on scientifically important fossil remains, as identified in the State CEQA Guidelines. The analysis presented in this section conforms to the Society of Vertebrate Paleontology criteria.

This section describes the regulatory setting associated with cultural and paleontological resources, identifies the affected environment for these resources, evaluates project-related impacts on cultural and paleontological resources, and recommends mitigation measures that would reduce these impacts to a less-than-significant level.

3.5.2 Regulatory Setting

Federal Plans, Policies, and Regulations

National Historic Preservation Act

The proposed project would require a permit from the U.S. Army Corps of Engineers under Section 404 of the Clean Water Act. Projects that require federal permits, receive federal funding, or are located on federal lands must comply with 54 U.S. Code (USC), formally and more commonly known as Section 106 of the National Historic Preservation Act (NHPA). To comply with Section 106, a federal agency must "take into account the effect of the undertaking on any district, site, building, structure, or object that is included in or eligible for inclusion in the National Register of Historic Places [NRHP]." The implementing regulations for Section 106 are found in 36 CFR Part 800, as amended (2004).

The implementing regulations of the NHPA require that cultural resources be evaluated for NRHP eligibility if they cannot be avoided by an undertaking or project. To determine if a site,

district, structure, object, and/or building is significant, the NRHP Criteria for Evaluation are applied. A resource is significant and considered a historic property when it:

A. Is associated with events that have made a significant contribution to the broad patterns of our history; or

B. Is associated with the lives of persons significant in our past; or

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

D. Yields, or may be likely to yield, information important in prehistory or history.

In addition, 36 CFR Section 60.4 requires that, to be considered significant and historic, a resource must also exhibit the quality of significance in American history, architecture, archaeology, engineering, or culture and must possess integrity of location, design, setting, materials, workmanship, feeling, and association.

Other "criteria considerations" need to be applied to religious properties, properties that are less than 50 years old, a resource no longer situated in its original location, a birthplace or grave of a historical figure, a cemetery, a reconstructed building, and commemorative properties. These types of properties are typically not eligible for NRHP inclusion unless the criteria for evaluation and criteria considerations are met.

For archaeological sites evaluated under criterion D, "integrity" requires that the site remain sufficiently intact to convey the expected information to address specific important research questions.

Traditional cultural properties are locations of cultural value that are historic properties. A place of cultural value is eligible as a traditional cultural property "because of its association with cultural practices or beliefs of a living community that (a) are rooted in that community's history, and (b) are important in maintaining the continuing cultural identity of the community" (Parker and King 1990, rev. 1998). A traditional cultural property must be a tangible property, meaning that it must be a place with a referenced location, and it must have been continually a part of the community's cultural practices and beliefs for the past 50 years or more.

Note that typically, consultation between the U.S. Army Corps of Engineers (USACE) and State Historic Preservation Officer (SHPO) is limited to areas under USACE jurisdiction (i.e., activities to be conducted within waters of the U.S.).

State Laws, Regulations, and Policies

CEQA and State CEQA Guidelines

Pub. Res. Code Section 21083.2 requires that the lead agency determine whether a project may have a significant effect on unique archaeological resources. A unique archaeological

resource is defined as an archaeological artifact, object, or site about which it can be clearly demonstrated that there is a high probability that it:

- Contains information needed to answer important scientific research questions, and there is demonstrable public interest in that information;
- Has a special or particular quality, such as being the oldest of its type or the best available example of its type; or
- Is directly associated with a scientifically recognized important prehistoric or historic event or person.

Although not specifically inclusive of paleontological resources, these criteria may also help to define "a unique paleontological resource or site."

Measures to avoid, conserve, preserve, or mitigate significant effects on these resources are also provided in Pub. Res. Code Section 21083.2.

Section 15064.5 of the State CEQA Guidelines notes that "a project with an effect that may cause a substantial adverse change in the significance of an historical resource is a project that may have a significant effect on the environment." Substantial adverse changes include physical changes to the historical resource or to its immediate surroundings, such that the significance of the historical resource would be materially impaired. CEQA lead agencies are expected to identify potentially feasible measures to mitigate significant adverse changes in the significance of a historical resource before they approve such projects. Historical resources are those that are:

- listed in, or determined to be eligible for listing in, the California Register of Historical Resources (CRHR) (Pub. Res. Code Section 5024.1[k]);
- included in a local register of historic resources (Pub. Res. Code Section 5020.1) or identified as significant in an historic resource survey meeting the requirements of Pub. Res. Code Section 5024.1(g); or
- determined by a lead agency to be historically significant.

State CEQA Guidelines Section 15064.5 also prescribes the processes and procedures found under Health and Safety Code Section 7050.5 and Pub. Res. Code Section 5097.95 for addressing the existence of, or probable likelihood of, Native American human remains, as well as the unexpected discovery of any human remains within the proposed project site. This includes consultation with the appropriate Native American tribes.

State CEQA Guidelines Section 15126.4 provides further guidance about minimizing effects on historical resources through the application of mitigation measures, which must be legally binding and fully enforceable.

California Register of Historical Resources

Pub. Res. Code Section 5024.1 establishes the CRHR. The register lists all California properties considered to be significant historical resources. The CRHR includes all properties listed as or determined to be eligible for listing in the NRHP, including properties evaluated under

Section 106 of the NHPA. The criteria for listing are similar to those of the NRHP. Criteria for listing in the CRHR include resources that:

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

The regulations set forth the criteria for eligibility as well as guidelines for assessing historical integrity and resources that have special considerations.

Local Laws, Regulations, and Policies

Stanislaus County

The *Stanislaus County General Plan* (Stanislaus County 2015) has the following goals and policies pertaining to cultural resources listed in its Conservation and Open Space chapter:

Goal Eight. Preserve areas of national, state, regional, and local historical importance.

> **Policy Twenty-four.** The County will support the preservation of Stanislaus County's cultural legacy of archeological, historical, and paleontological resources for future generations.

City of Ceres

The *City of Ceres General Plan* (City of Ceres 1997) addresses cultural resources under the Recreation and Cultural Resources Chapter. The General Plan contains two goals and numerous policies for cultural resource:

Goal 5.B. To preserve and maintain sites, structures, and landscapes that serve as significant, visible reminders of the city's social, architectural, and agricultural history.

> **Policy 5.B.1.** The City shall assist property owners in seeking registration of historic structures and sites as State Historic Landmarks or listing on the National Register of Historic Places.
>
> **Policy 5.B.4.** The City shall encourage relocation of reusable historic buildings as a means of historic preservation.

Goal 5.C. To protect Ceres' Native American heritage.

Policy 5.C.1. The City shall refer development proposals that may adversely affect archaeological sites to the California Archaeological Inventory at California State University, Stanislaus.

Policy 5.C.2. The City shall not knowingly approve any public or private project that may adversely affect an archaeological site without first consulting the California Archaeological Inventory, conducting a site evaluation as may be indicated, and attempting to mitigate any adverse impacts according to the recommendations of a qualified archaeologist. City implementation of this policy shall be guided by Appendix K of the CEQA Guidelines.

The *City of Ceres General Plan* is silent on the topic of paleontological resources.

City of Turlock

Cultural resources are addressed by two Guiding Policies in the *City of Turlock General Plan* (City of Turlock 2012) under the Conservation Element. It is important to note that the City of Turlock includes paleontological resources in its definition of cultural resources.

Guiding Policy 7.5-a. Protect Archaeological Resources. Protect significant archaeological resources in the Study Area that may be identified during construction.

Guiding Policy 7.5-b. Preserve Historic Places. Integrate historic preservation into planning for Downtown and other areas with historic significance.

Implementing Policy 7.5-c. Evaluate Resource Discoveries. Should archaeological or human remains be discovered during construction, work shall be immediately halted within 50 meters of the find until it can be evaluated by a qualified archaeologist. If it is determined to be historically or culturally significant, appropriate mitigation measures to protect and preserve the resource shall be formulated and implemented.

City of Hughson

The *City of Hughson General Plan* (City of Hughson 2005) has one goal for cultural resources under the Conservation and Open Space element.

Goal COS-4. Preserve Hughson's cultural resources.

Policy COS 4.2. Consistent with CEQA, prior to project approval developers will be required to provide an assessment by appropriate professionals regarding the presence and condition of on-site historical, archaeological and paleontological resources on and adjacent to a project site, the potential for adverse impacts on these resources and appropriate mitigation. This will apply to projects subject to CEQA, as well as for ministerial projects with the potential to affect buildings 45 years or older. As part of this assessment, historical buildings will be assessed as to the viability of their continued use and re-use. Areas within one mile of the Tuolumne River should receive special attention due to the higher potential for archeological resources.

Policy COS 4.3. If cultural resources, including archaeological or paleontological resources, are uncovered during grading or other on-site excavation activities, construction should stop until appropriate mitigation is implemented.

3.5.3 Environmental Setting

Prehistory

Little archaeological work has been conducted in Stanislaus County or in the San Joaquin Valley in general; therefore, the archaeology of the proposed project area is understood within the prehistoric context developed for the Central Valley as a whole. Since the early 1930s, various schemes have been set forth by researchers to organize the archaeological data of California into a chronological framework. The Central Valley sequence established by Lillard, Heizer, and Fenenga in 1939 is particularly notable. Based on archaeological investigations in the lower Sacramento Valley, Lillard and colleagues divided human prehistory into three broad cultural horizons: Early, Middle, and Late. This chronology was first known as the Delta sequence and later became the basis of Richard Beardsley's Central California Taxonomic System (CCTS) (Moratto 2004:181). The system relies on the identification of characteristics such as burial patterns, shell bead types, stone tools, and the types of locations where the sites tend to occur. These traits and characteristics are used to identify an archaeological resource as belonging to a specific period.

The CCTS has continued to undergo substantial refinement but remains the framework within which California archaeologists explain cultural change. The general system is still widely used by archaeologists, but it has been expanded and revised to include economic and technological strategies, socio-politics, trade networks, population density, and variations of artifact types as criteria to differentiate between cultural periods. The current chronology (Rosenthal et al. 2010:150) for central California archaeology is as follows:

- Paleo-Indian: 11,550–8550 B.C.
- Lower Archaic: 8550–5550 B.C.
- Middle Archaic: 5550–550 B.C.
- Upper Archaic: 550 B.C to 1100 A.D.
- Emergent: 1100 A.D. to historic period

The Paleo-Indian Period (11,550–8550 B.C.) is generally characterized by big-game hunters occupying broad geographic areas. Archaeological deposits from the Paleo-Indian period are rarely found in the Central Valley, however, and those that have been identified have largely been discovered at the south end of the San Joaquin Valley near Tulare Lake. Post-depositional processes, mainly glacial outwash occurring at the end of the Pleistocene Epoch, either destroyed or deeply buried much of the existing evidence of human activity in the region from this period. As a result, little is known about Paleo-Indian lifeways in the region (Moratto 2004:214).

Similarly, the Lower Archaic Period (8550–5550 B.C.) is presumed to reflect a mobile population that continued to hunt big game. Few localities in the Central Valley are associated with this period, and those that have been found are largely isolated artifacts consisting of large wide-stemmed and leaf-shaped projectile points, along with flaked stone crescents. Only two sites with associated deposits of faunal and shell remains have been identified for the Lower Archaic Period, one at Buena Vista Lake in the southern San Joaquin Valley

(Rosenthal et al. 2010:151-152) and one in Sacramento (Tremaine 2008). Some sites in the Sierra Nevada foothills from this period, however, indicate the use of milling equipment (hand stones and milling stones) to process seeds and nuts.

The Middle Archaic Period (5550–550 B.C.) indicates a shift to a more settled way of life that is reflected by substantial, though often deeply buried, archaeological sites with artifacts that are more elaborate in design, imply a more diverse subsistence regime, and indicate interregional trade. Sites are often situated along the major rivers and streams within the Central Valley, emphasizing a focus on riverine and marsh habitats. The Windmiller Tradition (or Pattern), which was first identified in sites around the Sacramento–San Joaquin River Delta, is often considered representative of this period. Characteristic artifacts from this period include a variety of fish hooks and spears; large stemmed and leaf-shaped projectile points of obsidian and chert; shaped charmstones of alabaster, steatite, or marble; and a variety of *Haliotis* shell ornaments and *Olivella* shell beads. Mortars and pestles, associated with acorn preparation, became commonplace by the middle of the period. The presence of ventrally and dorsally extended burials with a western orientation is particularly indicative of the Windmiller Pattern.

Increased sedentism (i.e., living in one place for long periods) and technological specialization are evidenced during the Upper Archaic Period (550 B.C to 1100 A.D.), as populations exploited more diverse resources and established trade relationships. Mortars and pestles became the primary ground stone implements, suggesting that acorns had become a more important dietary staple. Regional diversity in artifact styles, such as *Haliotis* shell ornaments, bone tools, and ground charmstones or plummets, became more pronounced; burial postures also varied.

Archaeological sites from the Emergent Period (A.D. 1100 to the historic period) indicate increased social complexity and the development of large, central villages with resident political leaders and specialized activity sites. Enhanced regional diversity in terms of artifact styles, housing, and interment methods is evident in the archaeological record. Artifacts associated with the period include the bow and arrow, small corner-notched projectile points, and a variety of shell and stone beads and ornaments.

Ethnography

The proposed project area lies within the ancestral territory of the Northern Valley Yokuts. "Yokuts" is a term applied to a large and diverse group of people inhabiting the San Joaquin Valley and Sierra Nevada foothills of central California. The Northern Valley Yokuts inhabited a 40- to 60-mile-wide area straddling the San Joaquin River, south of the Mokelumne River, east of the Diablo Range, and north of the sharp bend in the San Joaquin River to the east-northeast near Mendota in Fresno County. The Southern Valley Yokuts inhabited the San Joaquin Valley south of the bend in the river. Although they were divided geographically and ecologically, the two groups have a common linguistic heritage (Wallace 1978:462).

The culture of the Northern Valley tribes closely resembled the Yokuts groups to the south, although there were some significant differences. The northerners had greater access to salmon and acorns, two important dietary resources, and some of their religious practices reflected the influences of groups to the north, such as the Miwok. While inhumation (burial) was the usual practice in the southern valley, the Northern Valley Yokuts also sometimes cremated their dead (Wallace 1978:464, 468). A chief headed each tribal village, which

averaged around 300 people. Family houses were round or oval, sunken, with a conically shaped pole frame, and covered with tule mats. Each village also had a lodge for dances and other community functions, as well as a sweathouse (Wallace 1978:464-466).

The Northern Valley Yokuts built their riverside villages on elevated areas along the water's edge to avoid the spring floods, which were a result of typically heavy Sierra Nevada snow melts. Living beside rivers and streams provided plentiful river perch, Sacramento pike, salmon, and sturgeon. The groups hunted waterfowl such as geese and ducks, as well as terrestrial animals such as antelope, elk, and brown bear; however, by all indications, fish constituted most of their diet. The surrounding woodland, grasslands, and marshes provided acorns, tule root, and seeds.

The Northern Valley Yokuts used bone harpoon tips for fishing, stone sinkers for nets, chert projectile points for hunting, mortars and pestles, scrapers, knives, and bone awl tools to procure and process food. Marine shells, procured from coastal tribes, were used for necklaces and other adornments, and marine shell beads sometimes accompanied the deceased. The Yokuts used tule reed rafts to navigate the waterways for fishing and fowling. They also manufactured intricate baskets for a variety of purposes, including storing, cooking, eating, winnowing, hopper mortars, the transport of food materials, and ritual. Very little is known of the Northern Valley Yokuts' clothing, but drawings of their tattoos show that they served not only as a decoration but also as a form of identity (Wallace 1978:464).

Initially, the Diablo Range served as a natural barrier against heavy recruitment of Native Californians by the Spanish, who established missions along the coast. By the early 19th century, however, Spanish and (later) Mexican missionaries began to explore the inner valleys in search of potential converts. The Yokuts resisted recruitment and California Indians from a variety of tribes sought refuge among the Yokuts after fleeing the missions. Introduced diseases, destruction of traditional resources from cattle grazing, and forced relocation took a heavy toll on the Northern Yokuts. Despite decades of hardship, many individuals who can trace their ancestry to the Northern Valley Yokuts continue to live and thrive in the Central Valley and throughout California and the United States.

History

The historic era began in Stanislaus County when the first Spanish expedition entered the San Joaquin Valley in 1806 under the leadership of Gabriel Moraga. Traveling north and northwest through the region in search of possible mission sites, Moraga's party explored along what came to be known as the Stanislaus River. Moraga visited the area again in 1808 and 1810 (Kyle et al. 2002:516-517).

After Mexico gained its independence from Spain in 1822, two additional expedition forces entered the area; however, the purposes of their campaigns were no longer exploratory. Soldiers were sent into the Central Valley to recover stolen animals and punish hostile Indians in order to reduce the attacks upon coastal towns, missions, and ranchos.

Americans also began to enter the region during the Mexican period. In 1827 and 1828, Jedediah Smith entered the San Joaquin Valley through the Tejon Pass and trapped beavers along the San Joaquin and Kings Rivers, as well as other rivers and streams that flowed from the Sierra Nevada. Smith was followed by fellow trappers, including Peter Ogden, Ewing Young, Kit Carson, and Joseph Walker.

The first permanent European settlement in Stanislaus County may have occurred when two land grants were issued by the Mexican government in 1843. The first was the *Rancho El Pescadero* on the west side of the San Joaquin River near the border of what would eventually become San Joaquin County. The second was the *Rancheria del Rio de Estanislao* located north of the Stanislaus River bordering Tuolumne County. Two additional land grants were issued the following year. These were the *Rancho del Puerto* and *Rancho Orestimba*, both of which were on the west side of modern-day Stanislaus County near *Rancho El Pescadero* (eReferenceDesk 2016).

Anglo-Americans started to arrive in the territory that would become Stanislaus County during the Gold Rush, both as miners seeking gold and as agricultural entrepreneurs who recognized the opportunity to raise livestock or grow food for the gold seekers. As early as 1849, the town of Adamsville was founded on the south bank of the Tuolumne River just east of present-day Modesto. It became the first county seat of Stanislaus County in 1854 but was replaced by Empire, a short distance upriver, soon thereafter (Kyle et al. 2002).

During the historic era, the proposed project area was agricultural, and it has remained so. Turlock was part of a large wheat operation owned by John W. Mitchell, until he founded the city in 1871. Similarly, Hughson was originally a 2,080-acre ranch operated by Hiram Hughson, until the town was laid out and subdivided into small farms after the property was purchased in 1907. Ceres, Hickman, and Waterford are other small farming communities along the Tuolumne River in the proposed project area that have persisted since the mid-1800s (Tinkham 1921). Although grains and cattle were among the most profitable commodities during the early years of settlement in Stanislaus County, today agriculture is dominated by nut crops, dairying, cattle, and poultry production; a variety of beans are the most profitable field crops in the county (Stanislaus County Agricultural Commissioner 2015).

Paleontology

A review of soils maps indicates that the soils in the proposed project area are described as Grangeville series (NRCS 2017). These soils are generally found on floodplains and at the toes of alluvial fans and terraces in areas with a high water table (U.S. Soil Conservation Service 1999). They have a depth of about 60 inches. Deposited during the Middle Holocene Epoch, or 4,000–7,000 years ago (Rosenthal et al. 2004), these soils provide virtually no potential for buried paleontological resources. However, these soils overlie other sediments, deposited during the Quaternary Period, which have yielded fossils of Pleistocene vertebrates, including extinct horses, mammoths, and giant ground sloth. Other animals noted are marine-living animals such as marine turtles, sharks, and sea urchins (Sierra College 2016).

Cultural Resource Studies

Native American Consultation

The Native American Heritage Commission (NAHC) was contacted by email on November 14, 2016, for a search of the sacred lands files for the proposed project study area and a list of individuals who might have additional knowledge about tribal resources in the project area. The NAHC responded on November 15, 2016, stating that the sacred land files failed to identify any Native American cultural resources in the project area and providing a list of

Native Americans contacts. Native American consultation was conducted under the auspices of Pub. Res. Code Section 21080.3.1 and is described in Section 3.16, *Tribal Cultural Resources*.

Archival Research

Two record searches were conducted by the Central California Information Center (CCIC) of the California Historical Resources Information System (CHRIS), located at California State University at Stanislaus. The first was conducted in November 2016 (CCIC File No. 10088N) specifically for the infiltration gallery and wet well. The second was conducted in March 2017 (CCIC File No. 10236N) for the proposed water treatment plant and the pipeline routes. The purpose of the record searches was to identify the presence of any previously recorded cultural resources within the proposed project's area of potential effect (APE) and to determine if any portions of the project site had previously been surveyed for cultural resources. The record search for the project study area encompassed the project area and a ½-mile radius around the project area. Potential locations for offset water facilities were not included in the record search.

The record search found that 13 cultural resource studies had previously been conducted within the project study area, as listed in **Table 3.5-1**. Another 10 studies (not listed) have been conducted within ½ mile.

Table 3.5-1. Previous Cultural Resources Studies in the Project Study Area

CCIC No.	Author(s)	Year	Title
ST-00859	D. Chavez	1976	An Archaeological Reconnaissance of the Robert's Ferry Reservoir and Water Extraction and Conveyance Systems, Stanislaus County, California: Phase II
ST-00925	Peak & Associates	1979	Cultural Resource Assessment of the Hughson Wastewater Treatment Facilities Stanislaus County, California
ST-01451	L. K. Napton	1992	Cultural Resources Investigation of the Proposed Livingston Cogeneration Project, Merced and Stanislaus Counties, California
ST-01793	L. K. Napton	1992	Cultural Resource Investigations of the Proposed Livingston Cogeneration Project, Merced and Stanislaus Counties, Addendum 1: New Alternative to MID 115KV Transmission Routes Stanislaus County, California
ST-02930	P. Jensen	1996	Archaeological Inventory Survey; Tracy to Fresno Longhaul Fiberoptics Data Transmission Line, Portions of Fresno, Madera, Merced, Stanislaus, and San Joaquin Counties, California
ST-03569	S. Davis-King	1998	Historic Properties Survey Report for the Tuolumne River Restoration Project (Special Run Pools 9 & 10 and Gravel Mining Reach) Stanislaus County, California

CCIC No.	Author(s)	Year	Title
ST-04176	E. Derr	2000	Turlock Irrigation District: Infiltration Gallery Project EA/IS/MND. Turlock Irrigation District, Stanislaus County
ST-04504	S. Davis-King	2002	Greer Road Bridge Retrofit Archaeological Survey
ST-04701	R. Cartier	2002	Cultural Resource Evaluation of the Hatch Road Regional Park Project in the County of Stanislaus
ST-05862	S. Davis-King	2005	Negative Archaeological Survey Report, Left-Turn Pockets on Hatch Road at Four Intersections: Faith Home, Gilbert, Parks, and Clinton Roads
ST-06446	M. A. Peak	2006	Cultural Resources Assessment for the Turlock Irrigation District's Regional Water Supply Project County of Stanislaus, California
ST-07671	C. Broodshear	2012	Historic Properties Survey Report for the Proposed Geer Road Bridge Seismic Retrofit Project, Geer Road at Tuolumne River, Near City of Hughson, Stanislaus Co., CA; Historical Resources Survey Report (prepared by JRP) and Archaeological Survey Report
ST-08284	AECOM	2011	Cultural Resources Inventory Report for the Central Valley Independent Network Fiber Optic Communications Network Project, California

Three linear resources that cross over the pipeline route have previously been recorded. These are the Ceres Main Canal; the Upper Lateral No. 2, Upper Lateral No. 2½, and Upper Lateral No. 3 components of the TID Water Conveyance System (P-50-0073; CA-STA-426H); and the Atchison Topeka Santa Fe Railroad (ATSF) (P-50-2006; CA-STA-424H), which is also known as the San Francisco San Joaquin Valley Railroad and the Burlington Northern Santa Fe Railroad. The proposed route for the Turlock treated water transmission main crosses the Ceres Main Canal at Euclid Avenue, Faith Home Road, and Aldrich Road; Upper Lateral No. 2 at East Service Road; Upper Lateral No. 2½ at Berkeley Road; and Upper Lateral No. 3 at Quincy Road. The proposed Turlock treated water transmission main crosses the ATSF north of Alderson Road, and the proposed Ceres treated water transmission main crosses the ATSF on Hatch Road.

Sections of the TID system that are crossed by the proposed project pipeline route have not yet been recorded, although nearby and adjacent sections have been recorded. The site record for the TID system is not detailed (Daly 2009a) but it states that, while the TID system appears eligible for the NRHP and CRHR as being the first publicly owned irrigation system in California, the various canals do not appear to be individually eligible due to loss of integrity over decades of modifications, such that they no longer resemble the original dirt conveyances. The Historic Property Data File for Stanislaus County, compiled by the Office of Historic Preservation, lists the Ceres Main Canal at Hatch Road with a rating of 6Y, not eligible for listing in the NRHP.

There are two site records for the ATSF, both of which record segments of the railroad not included the project study area; one recorded section is near Riverbank (Carey & Co. 2007), while the second is near Hughson (Daly 2009b). The Carey & Co. (2007) site record reports that the railroad line does not appear eligible for listing on the NRHP and CRHR. The Daly (2009b) site record, however, indicates that, while the ATSF line appears NRHP/CRHR eligible, individual segments are not eligible due to lack of integrity due to continual upgrades such as replacement of rails, ties, ballast bed, crossing guards, and other related equipment.

Field Survey and Results

A field review of the proposed project study area was conducted by Horizon archaeologists on June 14 and 16, 2017. The survey area included both sides of roads where new pipelines would be constructed, which were surveyed for a distance of 5 feet from the edge of pavement; a 25-foot-wide corridor in locations where the pipeline route would not follow a roadway; all staging and boring locations; and the locations of the Ceres and Turlock terminal facilities. The 48-acre WTP parcel was not surveyed at this time as the exact location of the plant, which will occupy only a portion of the property, has not been determined. Likewise, the potential locations of offset water facilities were not surveyed; however, most of these locations are existing well sites. Infrastructure features such as the TID canals and the ATSF were not recorded as part of this study because the pipelines at these locations would be constructed by boring under the features, which would not be disturbed. Ground surface visibility was good to fair throughout the project area, which consisted primarily of orchards and agricultural fields. No cultural resources were identified. The methods and results of the survey are reported in *Archaeological Inventory Report of the Stanislaus Regional Water Authority Surface Water Supply Project* (Horizon Water and Environment 2017), which is included as **Appendix C**.

3.5.4 Environmental Impacts and Mitigation

Methodology

All aspects of the cultural resources study for the proposed project were conducted in accordance with the U.S. Secretary of the Interior's Standards and Guidelines for Identification of Cultural Resources (48 CFR Parts 44720–44723). The cultural resource study for the project study area included archival research, Native American outreach and consultation, and a pedestrian field survey.

The project study area/APE is comprised of approximately 13 lineal miles of new water line consisting of 0.75 mile of raw water transmission line and 12.3 miles of treated water transmission mains that lead to terminal facilities in Ceres and Turlock. A new WTP would be located in approximately half, or possibly more, of a 48-acre parcel west of Aldrich Road, east of Fox Grove Park, and north of Ceres Main Canal, while terminal facilities would be placed in Ceres and Turlock. The study area for construction easements associated with construction activities is approximately 8 acres, while the area for the Ceres and Turlock terminal facilities totals about 8 acres. Altogether, the project study area includes about 64 acres plus the pipeline alignments. The project study area is depicted in Figure 2-2 in Chapter 2, *Project Description*.

Significance Criteria

Based on Appendix G of the State CEQA Guidelines, the proposed project would result in a significant impact on cultural resources if it would:

- Cause a substantial adverse change in the significance of a historical resource as defined in State CEQA Guidelines Section 15064.5;
- Cause a substantial adverse change in the significance of an archaeological resource pursuant to State CEQA Guidelines Section 15064.5;
- Directly or indirectly destroy a unique paleontological resource or site or unique geological feature; or
- Disturb any human remains, including those interred outside of dedicated cemeteries.

CEQA does not establish criteria for determining the significance of paleontological resources. Appendix G of the State CEQA Guidelines and the standard guidelines for assessment and mitigation of adverse impacts on paleontological resources set forth by the Society of Vertebrate Paleontology (2010) were used to establish three categories of sensitivity: high, low, and undetermined. Areas that consist of rock units that have yielded vertebrate or significant invertebrate, plant, or trace fossils are considered to have a high potential for paleontological resources.

Impact Analysis

The following impact analysis focuses on potential construction-related impacts on cultural and paleontological resources, as operational impacts would not cause additional ground disturbance.

Impact CUL-1: Potential for a Substantial Adverse Impact on Historical Resources (No Impact)

No cultural resources that are eligible for inclusion in the CRHR or otherwise eligible as a significant historic resource under CEQA standards, and, thus, defined as an historical resource, have been identified within the project study area. As a result, there would be **no impact** on historical resources.

Impact CUL-2: Potential for a Substantial Adverse Impact on Archaeological Resources from Construction (Less than Significant with Mitigation)

An archaeological survey was conducted for nearly all of the proposed project's APE; however, the 48-acre WTP parcel and the potential locations of offset water facilities have not been surveyed. Although no archaeological resources were found during the survey effort, archaeological remains could be buried with no surface manifestation. Excavations related to construction of the WTP and terminal facilities, open trenching for the water lines, and boring activities could uncover buried archaeological deposits. Should a previously undiscovered resource be found during construction and be determined eligible for inclusion in the CRHR, and should proposed project activities have the potential to render the resource ineligible for inclusion in the CRHR, the impact would be potentially significant. Implementation of **Mitigation Measures CUL-1 (Conduct Archaeological Survey of the**

Proposed Water Treatment Plant and Offset Water Facility Locations) and **CUL-2 (Suspend Construction Immediately if Cultural Resources Are Discovered, Evaluate All Identified Cultural Resources for CRHR Eligibility, and Implement Appropriate Mitigation Measures for Eligible Resources)** would reduce any impacts on NRHP/CRHR-eligible archaeological sites accidentally uncovered during construction. Therefore, the impact would be **less than significant with mitigation**.

Mitigation Measure CUL-1. Conduct Archaeological Survey of the Proposed Water Treatment Plant and Offset Water Facility Locations.

Prior to completing the design for the proposed WTP and identifying the locations of offset water facilities and initiating construction, the WTP location, access roads, staging areas, connecting water transmission line routes, and offset water facility locations shall be surveyed for archaeological resources. If an archaeological resource is identified and appears to be more than a superficial scatter of surface materials, and the resource cannot be avoided by project redesign, the resource shall be evaluated for NRHP/CRHR eligibility. Resource evaluation shall be conducted by individuals who meet the U.S. Secretary of the Interior's professional standards in archaeology. If any of the resource meets the eligibility criteria identified in 36 CFR Part 60.4, Pub. Res. Code Section 5024.1, or State CEQA Guidelines Section 21083.2(g), SRWA will develop and implement mitigation measures in accordance with State CEQA Guidelines Section 15126.4(b).

Mitigation Measure CUL-2. Suspend Construction Immediately if Cultural Resources Are Discovered, Evaluate All Identified Cultural Resources for NRHP/CRHR Eligibility, and Implement Appropriate Mitigation Measures for Eligible Resources.

Not all cultural resources are visible on the ground surface. If any cultural resources, including structural features, unusual amounts of bone or shell, flaked or ground stone artifacts, historic-era artifacts (e.g., glass, ceramics, metal objects, bricks), human remains, or architectural remains, are encountered during proposed project construction activities, work shall be suspended immediately at the location of the find and within a radius of at least 50 feet and SRWA will be contacted. SRWA will engage a qualified archaeologist to evaluate the nature of the finds.

All archaeological resources uncovered during construction within the proposed project APE shall be evaluated for eligibility for inclusion in the NRHP/CRHR. Resource evaluations shall be conducted by individuals who meet the U.S. Secretary of the Interior's professional standards. If any of the resources meet the eligibility criteria identified in 36 CFR Part 60.4, Pub. Res. Code Section 5024.1, or State CEQA Guidelines Section 21083.2(g), SRWA will develop and implement mitigation measures in accordance with State CEQA Guidelines Section 15126.4(b) before construction resumes.

If the discovered resource is identified as eligible for listing in the NRHP/CRHR and it would be rendered ineligible by the proposed project construction, additional mitigation measures shall be implemented. Mitigation measures for archaeological resources may include (but are not limited to) avoidance; incorporation of sites within parks, greenspace, or other open space; capping the site; deeding the site into a permanent conservation easement; or data recovery excavation. Mitigation

measures for archaeological resources shall be developed in consultation with responsible agencies and, as appropriate, interested parties such as Native American tribes. Native American consultation is required if an archaeological site is determined to be a tribal cultural resource. Implementation of any SRWA-approved mitigation is required before resuming any construction activities with the potential to affect identified eligible resources at the site.

Impact CUL-3: Potential to Directly or Indirectly Destroy a Unique Paleontological Resource or Site, or Unique Geological Feature (Less than Significant with Mitigation)

New offset water wells, if constructed for the proposed project, could reach depths of up to 600 feet. Research indicates that the alluvial soils that underlie the site have the potential to contain terrestrial and marine fossils; the deeper Mehrten Formation could also contain fossils. As a result, it is possible that fossils could be encountered during construction. Should fossils be discovered during construction and be determined to be a unique paleontological resource or site, and should proposed project activities have the potential to destroy the resource, the impact would be potentially significant. Implementation of **Mitigation Measure CUL-3 (Suspend Construction Immediately if Paleontological Resources Are Discovered, Evaluate the Significance of the Resources, and Implement Appropriate Mitigation Measures as Necessary)** would reduce any impacts on unique paleontological resources or sites accidentally uncovered during construction. Therefore, the impact would be **less than significant with mitigation**.

Mitigation Measure CUL-3. Suspend Construction Immediately if Paleontological Resources Are Discovered, Evaluate the Significance of the Resources, and Implement Appropriate Mitigation Measures as Necessary.

Paleontological resources are not necessarily visible on the ground surface. If any items of paleontological interest are discovered during construction, work shall be suspended immediately within 50 feet of the discovery site, or to the extent needed to protect the site, and SRWA shall be notified. SRWA will retain a qualified paleontologist to examine the discovery.

Any discovery of paleontological resources during construction shall be evaluated by the qualified paleontologist. If it is determined that the proposed project could damage a unique paleontological resource, mitigation shall be implemented in accordance with Pub. Res. Code Section 21083.2 and State CEQA Guidelines Section 15126.4. If avoidance is not feasible, the paleontologist shall develop a treatment plan in consultation with SRWA. Work shall not be resumed until authorization is received from SRWA and any additional mitigation directed by SRWA has been implemented.

Impact CUL-4: Potential for Disturbance of Human Remains, including Those Interred Outside of Dedicated Cemeteries (Less than Significant with Mitigation)

No human remains were identified within the proposed project APE as a result of background research or the field survey. The potential for human remains to be identified in the project area during construction is considered low, although their presence cannot be entirely discounted. Implementation of **Mitigation Measure CUL-4 (Halt Construction Immediately if Human Remains Are Discovered and Implement Applicable Provisions of the California Health and Safety Code)** would reduce impacts on any human remains discovered during construction to a level that is **less than significant with mitigation**.

Mitigation Measure CUL-4. Halt Construction Immediately if Human Remains Are Discovered and Implement Applicable Provisions of the California Health and Safety Code.

If human remains are discovered during construction activities, the requirements of Section 7050.5 of the California Health and Safety Code shall be followed. Potentially damaging excavation shall halt on the proposed project site within a minimum radius of 100 feet of the remains and the County Coroner shall be notified. The Coroner is required to examine all discoveries of human remains within 48 hours of receiving notice of a discovery on private or state lands (Health and Safety Code Section 7050.5[b]). If the Coroner determines that the remains are those of a Native American, he or she must contact the NAHC by phone within 24 hours of making that determination (Health and Safety Code Section 7050[c]). In accordance with the provisions of Pub. Res. Code Section 5097.98, the NAHC shall identify a Most Likely Descendent (MLD). The MLD designated by the NAHC shall have at least 48 hours to inspect the site and propose treatment and disposition of the remains and any associated grave goods. SRWA or its designee shall work with the MLD to ensure that the remains are removed to a protected location and treated with dignity and respect.

3.6 Geology, Soils, Seismicity, and Mineral Resources

3.6.1 Introduction

This section identifies geologic, soils, and seismic conditions and mineral resources that could affect or be affected by the proposed project. The section describes the regulatory setting, affected environment, impacts, and proposed mitigation measures based on published geologic reports and maps, mineral reports, a geotechnical report, general plan information, and professional expertise. The discussion of impacts considers the consequences of the proposed project on geology, soils, seismicity, and mineral resources.

3.6.2 Regulatory Setting

Federal Plans, Policies, and Regulations

Section 402 of the Clean Water Act – National Pollutant Discharge Elimination System

The federal Clean Water Act (CWA) is discussed in detail in Section 3.4, *Biological Resources,* and Section 3.9, *Hydrology and Water Quality*. Because Section 402 of the CWA is directly relevant to earthwork, additional information is provided here.

The 1987 amendments to the CWA added Section 402(p), which establishes a framework for regulating municipal and industrial stormwater discharges under the NPDES program. USEPA has delegated to the SWRCB the authority for the NPDES program in California, where it is implemented by the state's nine RWQCBs. Under the NPDES Phase II Rule, any construction activity disturbing 1 acre or more must obtain coverage under the state's General Permit for Storm Water Discharges Associated with Construction Activity (General Permit). General Permit applicants are required to prepare a Notice of Intent stating that stormwater will be discharged from a construction site, and that a SWPPP that describes the best management practices (BMPs) will be implemented to avoid adverse effects on receiving water quality as a result of construction activities, including earthwork.

National Earthquake Hazards Reduction Act

The National Earthquake Hazards Reduction Act of 1977 (Public Law 95-124) and creation of the National Earthquake Hazards Reduction Program (NEHRP) established a long-term earthquake risk reduction program to better understand, predict, and mitigate risks associated with seismic events. Four federal agencies are responsible for coordinating activities under NEHRP: U.S. Geological Survey (USGS); National Science Foundation (NSF); Federal Emergency Management Agency (FEMA); and National Institute of Standards and Technology. Since its inception, NEHRP has shifted its focus from earthquake prediction to hazard reduction. The current program objectives (NEHRP 2017) are as follows:

- Develop effective measures to reduce earthquake hazards;
- Reduce facilities and system vulnerabilities to earthquakes;

- Improve earthquake hazards identification and risk assessment methods; and
- Improve the understanding of earthquakes and their effects.

NEHRP objectives are implemented primarily through original research; publications; and recommendations and guidelines for state, regional, and local agencies in the development of plans and policies to promote safety and emergency planning.

State Laws, Regulations, and Policies

Alquist-Priolo Earthquake Fault Zoning Act

The Alquist-Priolo Earthquake Fault Zoning Act (Alquist-Priolo Act; Pub. Res. Code Section 2621 et seq.) was enacted in 1972 to reduce the risk to life and property from surface faulting in California. The Alquist-Priolo Act prohibits construction of most types of structures intended for human occupancy on the surface traces of active faults and strictly regulates construction in the corridors along active faults (earthquake fault zones). It also defines criteria for identifying active faults, giving legal weight to terms such as "active," and establishes a process for reviewing building proposals in and adjacent to earthquake fault zones.

Under the Alquist-Priolo Act, faults are zoned and construction along or across them is strictly regulated if they are "sufficiently active" and "well defined." A fault is considered sufficiently active if one or more of its segments or strands shows evidence of surface displacement during the Holocene (defined for purposes of the act as referring to approximately the last 11,000 years). A fault is considered well defined if its trace can be clearly identified by a trained geologist at the ground surface or in the shallow subsurface, using standard professional techniques, criteria, and judgment (Bryant and Hart 2007). Before a project can be permitted, cities and counties must require a geologic investigation to demonstrate that proposed buildings would not be constructed across active faults.

Seismic Hazards Mapping Act

As with the Alquist-Priolo Act, the Seismic Hazards Mapping Act of 1990 (SHMA) (Pub. Res. Code Sections 2690–2699.6) is intended to reduce damage resulting from earthquakes. The Alquist-Priolo Act addresses surface fault rupture, including strong groundshaking, liquefaction, and seismically induced landslides, and SHMA provisions are similar in concept in that the state is charged with identifying and mapping areas of risk of strong groundshaking, liquefaction, landslides, and other corollary hazards, and cities and counties are required to regulate development within seismic hazard zones.

Under SHMA, permit review is the primary mechanism by which development can be locally regulated. Specifically, cities and counties are prohibited from issuing development permits for sites within seismic hazard zones until appropriate site-specific geologic and/or geotechnical investigations have been performed and measures to reduce potential damage have been incorporated into the development plans.

California Building Code

Title 24 of the California Code of Regulations (CCR), also known as the California Building Standards Code (CBC), specifies standards for geologic and seismic hazards other than surface faulting. These codes are administered and updated by the California Building Standards Commission. CBC specifies criteria for open excavation, seismic design, and load-bearing capacity directly related to construction in California.

Surface Mining and Reclamation Act of 1975

The Surface Mining and Reclamation Act of 1975 (SMARA) provides comprehensive policies on surface mining and reclamation activities to ensure the minimization of adverse environmental impacts. Another responsibility of SMARA is to encourage the production, conservation, and protection of mineral resources of the state (DOC 2015a). As part of the act, all mines of the state are required to provide annual reports. The State Mining and Geology Board is required to identify, map, and classify any aggregate resources found throughout the state that contain significant mineral resources. Local jurisdictions are required to establish mineral resource management policies in their general plans that seek to enhance mineral conservation.

Local Laws, Regulations, and Policies

Stanislaus County

The *Stanislaus County General Plan* (Stanislaus County 2015) guides land use and development in the unincorporated Stanislaus County. The Conservation/Open Space Element of the general plan emphasizes the conservation and management of natural resources, including mineral resources, and the preservation of open space lands. The Safety Element of the general plan focuses on the protection of the community from unreasonable risks associated with the effects of seismically induced surface rupture, ground shaking, ground failure, tsunami, seiche, and dam failure; slope instability leading to mudslides and landslides; subsidence; liquefaction; and other geologic hazards. The Agricultural Element focuses on the conservation and management of agricultural resources. Goals and policies related to geology, soils, and seismicity in the general plan include the following:

Conservation and Open Space Element

Goal Two. Conserve water resources and protect water quality in the County.

> **Policy Five.** Protect groundwater aquifers and recharge areas, particularly those critical for the replenishment of reservoirs and aquifers.
>
> **Policy Six.** Preserve natural vegetation to protect waterways from bank erosion and siltation.

Goal Five. Reserve, as open space, lands subject to natural disaster in order to minimize loss of life and property of residents of Stanislaus County.

> **Policy Sixteen.** Discourage development on lands that are subject to flooding, landslide, faulting, or any natural disaster to minimize loss of life and property.

Safety Element

Goal One. Prevent loss of life and reduce property damage as a result of natural disasters.

> **Policy Three.** Development should not be allowed in areas that are particularly susceptible to seismic hazard.

Goal Two. Minimize the effects of hazardous conditions that might cause loss of life and property.

> **Policy Six.** All new development shall be designed to reduce safety and health hazards.

> **Policy Fourteen.** The County will continue to enforce state-mandated structural Health and Safety Codes, including but not limited to the California Building Code, the International Property Maintenance Code, the California Fire Code, the California Plumbing Code, California Electric Code, and Title 24, Parts 1-9.

Agricultural Element

Goal Three. Protect the natural resources that sustain our agricultural industry.

> **Policy 3.7.** The County shall encourage the conservation of soil resources.

The *Stanislaus County General Plan* Conservation/Open Space Element contains goals and policies relevant to mineral resources (Stanislaus County 2015). Although the infiltration gallery and pump station portion of the project site was, at one time, subject to mining activities (Mine ID: 91-50-0002), the gravel mining pit on the property was closed and merged as of 2012 (DOC 2012). Reclamation has not started for this mine. Furthermore, the two other mining sites located approximately 0.25 mile from the TID Property Area are no longer conducting mining activities, with one already reclaimed (Mine ID: 91-50-0001) (DOC 1999, 2015b). As a result, none of the goals or policies included in the general plan are applicable to the proposed project.

City of Ceres

The *City of Ceres General Plan* (City of Ceres 1997) guides land use and development in the City of Ceres. Goals and policies in the General Plan related to geology, soils, and seismicity that are potentially relevant to the proposed project include the following:

Chapter 6, Agricultural and Natural Resources

Goal 6.B. To protect and enhance the natural qualities of the Ceres area's rivers, creeks, and groundwater.

> **Policy 6.B.1.** The City shall cooperate with other agencies in the conservation of the Tuolumne River for the protection of its water resources and its open space qualities.

> **Policy 6.B.3.** The City shall help protect groundwater resources from overdraft by promoting water conservation and groundwater recharge efforts.

Policy 6.B.4. The City shall continue to require the use of feasible and practical best management practices (BMPs) to protect receiving waters from the adverse effects of construction activities and urban runoff.

Chapter 7, Health and Safety

Goal 7.A. To minimize the loss of life, injury, and property damage due to seismic and geological hazards.

Policy 7.A.3. The City shall require that new structures and alterations to existing structures comply with the current edition of the *Uniform Building Code*.

Policy 7.A.6. The City shall avoid siting of structures across soil materials of substantially different expansive properties.

City of Turlock General Plan

The *City of Turlock General Plan* (City of Turlock 2012) guides land use and development in the City of Turlock. Goals and policies in the general plan related to geology, soils, and seismicity that are potentially relevant to the proposed project include:

Conservation Element

Policy 7.2-c. Protect Soil and Water. Work to protect and restore natural resources essential for agricultural production.

Policy 7.2-n. Minimize Soil Erosion. Require new development to implement measures to minimize soil erosion related to construction. Identify erosion-minimizing site preparation and grading techniques in the zoning code.

Policy 10.2-a. Minimize Geologic and Seismic Risk. Continue to use building codes as the primary tool for reducing seismic risk in structures.

Policy 10.2-b. Meet Most Current Seismic Standards. Continue to require all new buildings in the City to be built under the seismic requirements of the latest adopted California Building Code.

Policy 10.2-e. Ensure Stability of Sensitive Public Facilities. Evaluate the structural stability and ability to withstand seismic activity of water tanks, underground utilities, berms, and other sensitive public facilities, and plan for any needed repairs.

Policy 10.2-f. Require Geotechnical Investigations for Proposed Critical Structures. Require that geotechnical investigations be prepared for all proposed critical structures (including water towers and wastewater lift stations) before construction or approval of building permits, if deemed necessary. The investigation shall include estimation of the maximum credible earthquake, maximum ground acceleration, duration, and the potential for ground failure because of liquefaction or differential settling.

Policy 10.2-g. Require Investigations for All Development on Sites Where Soils Pose Risk. Require soils reports for new development projects where soils pose a potential geologic risk, and use the information to determine appropriate permitting requirements, if deemed necessary.

Policy 10.2-h. Require Erosion Control Plans. Require new development to include grading and erosion control plans prepared by a qualified engineer or land surveyor.

City of Hughson

The *Hughson General Plan* (City of Hughson 2005) guides land use and development in the City of Hughes. Goals and policies in the General Plan related to geology, soils, and seismicity include:

Conservation and Open Space Element

Goal COS-6. Maintain Hughson's ground and surface water quality.

Policy COS-6.3. The City will enforce project design and construction regulations that limit amounts of impervious services and control erosion to minimize associated runoff and ground water pollution.

Safety Element

Goal S-1. Minimize the risks associated with seismic and other geologic hazards.

Policy S-1.1. All new developments shall be subjected to adequate professional geologic and engineering studies.

Policy S-1.2. The City will enforce the building codes adopted by the State of California in all new construction and renovations.

Policy S-1.3. Site preparation procedures and construction phasing shall be managed to minimize erosion, run-off, exposure of soils and loss of top soil.

Policy S-1.4. No new development shall occur on expansive soil unless conditions are properly mitigated.

3.6.3 Environmental Setting

The proposed project area is located within the Great Valley geomorphic province of central California. This geomorphic province is characterized as an alluvial plain approximately 50 miles wide and 400 miles long (California Geologic Survey [CGS] 2002). The project area is within the central portion of the province at the northern end of the San Joaquin Basin. The San Joaquin Basin is bounded by the Sierra Nevada to the east, the Tehachapi Mountains to the south, and the Coast Range (Diablo Range) to the west.

Most of the proposed project area is located within the alluvial plain of the Tuolumne River, a major tributary to the San Joaquin River, in eastern Stanislaus County. The project area is drained primarily by the Tuolumne River with the pipeline alignments draining to the San Joaquin River itself. The project area is predominantly flat with much of the pipeline

alignment traversing agricultural areas approximately 120-135 feet above mean sea level (msl). Most variations in surface topography occur near the raw water pump station and WTP sites along the Tuolumne River, with elevations ranging from 60 to 140 feet above msl (approximate) (USGS 2015).

Local Geology

Alluvial sediments have accumulated within the Great Valley and San Joaquin Basin almost persistently for tens of millions of years. Most sediments in the basin derive from the Sierra Nevada, transported and deposited by the alluvial fans draining the western flanks of that range. Some sediment originates from the Diablo Range, particularly on the western side of the basin west of the San Joaquin River.

The headwaters of the Tuolumne River and other regional drainages near the proposed project area originate from the granitic terrain of the Sierran Batholith in the core of the Sierra Nevada. Flowing westward, these drainages dissect Tertiary volcanic and sedimentary rocks that overlie older Jurassic metavolcanic and metasedimentary materials of the foothills (CGS 1991). Eventually, the drainages emerge onto the San Joaquin basin floor. This break in slope results in large alluvial fans and deposition and creation of the Pleistocene-aged Modesto Formation (CGS 1991). The Modesto Formation is composed primarily of unconsolidated, unweathered, coarse sand and sandy silt along the upper portions of the unit. The older, deeper portions of this unit shift to more consolidated, slightly weathered, well-sorted silt and fine sand, silty sand, and sandy silt. Near the Tuolumne River, younger (Holocene) alluvium overlies the Modesto Formation (CGS 1991).

Soils

Soils consist of younger alluvial material overlying older alluvium. These alluvial fan soils are highly fertile and productive for agricultural uses. Soil associations mapped as occurring in the proposed project area generally consist of Hanford, Dinuba, Tujunga, or Modesto (NRCS 2017). Most soils in the proposed project area consist of deep (i.e., more than 80 inches) sandy loam to fine sandy loam. In general, these soils are considered moderately well to well drained, with a very low to medium runoff class (NRCS 2017). Limited areas of the Turlock treated water transmission main alignment are underlain with San Joaquin and Madera sandy loams (NRCS 2017). These soils are moderately drained with very high runoff and a hardpan layer approximately 20 to 40 inches below ground surface (bgs). Grangeville very fine sandy loam may be present near the Tuolumne River sites. This soil unit is alluvium derived from granite and is considered somewhat poorly drained, with a very low runoff class and moderate to high susceptibility to erosion (NRCS 2017). However, much of the area within the vicinity of the Tuolumne River is highly disturbed due to historic aggregate mining operations and subsequent restoration with native soils.

As part of the final design process for the proposed project, SRWA would commission a detailed geotechnical investigation of the project sites to identify any geotechnical or soil issues that should be noted and addressed during design and construction.

Soil Erosion

Soil erosion is the process of removing soil particles from a land surface by wind, water, or gravity. Factors influencing the rate of erosion may include climatic conditions, soil composition and roughness, soil moisture, ground cover, and topography and slope. Most

natural erosion occurs slowly. However, ground-disturbing construction activities may increase the rate of erosion by exposing bare soils to the effects of wind and/or water. Erosion also may occur along the Tuolumne River corridor during storm events, resulting in local bank failures if the bank integrity is compromised or not properly stabilized. In general, the erosion potential of most soils in the project area is considered low to moderate (NRCS 2017).

Expansive Soils

Expansive soils are predominantly composed of clays and can undergo substantial volume change in response to changes in moisture content. During wetting and drying cycles, expansive soils may shrink and swell, creating differential ground movements. In general, the expansion potential of soils in the project area is considered low (NRCS 2017).

Seismicity

California is subjected to enormous tectonic forces stemming from the lateral motion of the Pacific (west) and North American (east) plates moving in opposing directions. The shearing forces of the plate movement results in an extremely fractured boundary referred to as the San Andreas Fault Zone. Many smaller active and historic fault zones are associated with the Pacific/North American tectonic movement as well.

The eastern portion of the San Joaquin Valley and the proposed project area lies in a region with limited faulting and relatively low seismic activity. Despite this limited seismic activity, there have been several large regional earthquakes that resulted in ground shaking in the project area during the last 200 years. Potential seismic hazards resulting from a regional moderate-to-major earthquake include fault ground rupture (surface faulting); ground shaking; liquefaction, subsidence, and differential settlement; and landslide, slope failure, and lateral spreading. Regional seismic faulting and hazards and their potential to occur in the proposed project area are discussed below.

Alquist-Priolo Fault Zones and Ground Rupture

Horizontal and/or vertical surface or ground ruptures can occur during seismic events, typically along existing fault lines. Ground rupture that occurs along a fault trace (mapped location of the intersection[s] of a fault with the ground surface) is referred to as *fault rupture*. Some seismogenic faults (e.g., blind thrusts) do not extend to the ground surface and may not generate fault rupture even during major earthquakes. Other rupturing of the ground surface can occur as the result of slope failure or settlement caused by seismic shaking. Ground ruptures can result in damage to buildings, roads, and underground utilities. The potential for ground rupture depends on the proximity of faults, shaking severity, and local geologic conditions.

Fault areas considered to be of greatest risk are identified as Alquist-Priolo fault zones. No designated Alquist-Priolo fault zones or potentially active faults exist within or near the project area. Most seismic activity in this region stems from the San Andreas Fault Zone and associated fault systems west of the project area. Past evidence of recent fault displacement can be seen throughout the San Andreas Fault Zone and San Francisco Bay area. Active and potentially active faults near the project site are presented in **Table 3.6-1**.

Table 3.6-1. Regional Faults in Proximity to the Project Site

Fault	Approximate Distance from Proposed Project Area	Last Known Major Displacement
San Joaquin Fault (potentially active)	19 miles west	11,700–700,000 years ago; without historical record
Ortigalita Fault Zone, Cottonwood Arm Section (potentially active)	22 miles southwest	11,700–700,000 years ago; without historical record
Foothills Fault System, Southern Reach Section (potentially active)	23 miles east	11,700–700,000 years ago; without historical record
Greenville Fault Zone (active)	35 miles west	1980, M 5.8
Calaveras Fault Zone, Central Calaveras Section (active)	50 miles west	1979, M 5.7 2007, M 5.6
San Andreas Fault Zone, Santa Cruz Mountains Section (active)	63 miles southwest	1989, M 7.2 1906, M 7.9

Note: M = magnitude (according to the Richter Scale)
Source: CGS 2010; USGS 2017

Ground Shaking

Seismically induced ground shaking can cause substantial damage to structures. The severity of ground shaking experienced at a specific location depends on a variety of factors, such as the magnitude and duration of the seismic event, fault type associated with the event, distance from the epicenter, and physical properties of the underlying geology and soils. The Modified Mercalli Intensity Scale (MMI) of perceived intensity, shown in **Table 3.6-2**, is based on observed effects and is the current standard used throughout the United States. Less intense earthquakes are typically rated on the basis of individual accounts, whereas higher intensity events are rated based on observed structural damage.

Table 3.6-2. Modified Mercalli Intensity Scale

Intensity	Shaking	Description/Damage
I	Not Felt	Not felt except by a very few under especially favorable conditions.
II	Weak	Felt only by a few persons at rest, especially on upper floors of buildings.
III	Weak	Felt quite noticeably by persons indoors, especially on upper floors of buildings. Many people do not recognize it as an earthquake. Standing motor cars may rock slightly. Vibrations similar to the passing of a truck. Duration estimated.
IV	Light	Felt indoors by many, outdoors by few during the day. At night, some awakened. Dishes, windows, doors disturbed; walls make cracking sound. Sensation like heavy truck striking building. Standing motor cars rocked noticeably.
V	Moderate	Felt by nearly everyone; many awakened. Some dishes, windows broken. Unstable objects overturned. Pendulum clocks may stop.
VI	Strong	Felt by all, many frightened. Some heavy furniture moved; a few instances of fallen plaster. Damage slight.
VII	Very Strong	Damage negligible in buildings of good design and construction; slight to moderate in well-built ordinary structures; considerable damage in poorly built or badly designed structures; some chimneys broken.
VIII	Severe	Damage slight in specially designed structures; considerable damage in ordinary substantial buildings with partial collapse. Damage great in poorly built structures. Fall of chimneys, factory stacks, columns, monuments, walls. Heavy furniture overturned.
IX	Violent	Damage considerable in specially designed structures; well-designed frame structures thrown out of plumb. Damage great in substantial buildings, with partial collapse. Buildings shifted off foundations.
X	Extreme	Some well-built wooden structures destroyed; most masonry and frame structures destroyed with foundations. Rails bent.

Source: USGS 1989

Although ground shaking in the project area has historically been minimal, ground-shaking events periodically affect the region. In Stanislaus County, the level of seismic ground shaking decreases from High risk along the western border of the county and the foothills of the Diablo Range, to Moderate risk in the central part of the County, to Low risk in the eastern portion (CGS 2008). The proposed project area lies within the central portion of the county and is considered at Low to Moderate risk for earthquake shaking potential. In addition, the expected (10 percent chance of occurring in the next 50 years) peak ground shaking (acceleration[1]) at the project site is relatively low at 0.354 *g* (CGS 2008).

[1] Ground shaking is usually expressed quantitatively as the acceleration of movement relative to the acceleration of gravity (*g*).

Differential Settling, Subsidence, and Liquefaction

Settlement of the ground surface can be caused by various geologic processes. Settlement is the lowering of the land surface elevation as a result of the compression, compaction, or consolidation of underlying soils, sediment, or rock. These processes are exacerbated under increased loading (e.g., additional sediment deposition or construction of structures, including fills) or the withdrawal of subsurface water. These processes cause a reduction in the volume of the materials. Compaction and compression generally occurs within unconsolidated granular soils or sediment over a relatively short timeframe. Consolidation usually occurs over a longer period (sometimes many years) in saturated finer grained material as pore water (i.e., water within the spaces between sediment grains) is forced out of the sediment structure under loading or groundwater pumping.

Surface settlement can be referred to as *subsidence*, a term generally used for settlement of large magnitude or affecting a large area. Areas consisting of fine-grained sediments are more susceptible to ground subsidence. Although mining and extraction activities may also lead to subsidence, excessive pumping of groundwater is the predominant cause of this phenomenon in the San Joaquin Valley. When ground settlement is non-uniform or uneven, differential settlement results, potentially inducing stress to structures.

Liquefaction can occur when water-saturated, loose sandy soils suddenly lose strength during seismic shaking. The primary factor that triggers liquefaction is moderate to strong ground shaking. The probability of liquefaction correlates directly with the intensity and duration of ground shaking (i.e., the stronger and/or longer the earthquake, the greater the chance of liquefaction). Additionally, physical properties of soil may increase its susceptibility to liquefaction. Saturated, relatively clean/loose granular soils have a relatively high susceptibility for liquefaction while cohesive soils (even if saturated) have a low susceptibility. No specific liquefaction hazards have been identified in Stanislaus County (Bryant and Hart 2007). However, areas with higher water tables and unconsolidated, granular sandy soils, such as the areas adjacent to the Tuolumne River, may be at increased risk for liquefaction.

Groundwater elevations at the raw water pump station site are hydraulically connected to the Tuolumne River surface elevation but may fluctuate with seasonal precipitation. Based on observed groundwater elevations during previous geotechnical investigations, the approximate groundwater level at the pump station site is estimated at 68 feet above msl (Crawford & Associates 2017). For comparison, the top slab of the wet well, which would become the floor of the raw water pump station, has been designed at an elevation of 83.5 feet above msl. Thus, excavation greater than 15 feet below msl at the site of the raw water pump station and raw water transmission pipeline would have the potential to encounter shallow groundwater.

Existing grade at the WTP site varies from about 105 feet to 130 feet above msl. A geotechnical report for the project indicates that groundwater levels at the WTP site are at approximately 40-60 feet below ground surface (Kleinfelder 2007). Excavations for WTP construction would extend approximately 15 feet deep; therefore, they would be unlikely to encounter groundwater.

Landslide, Slope Failure, and Lateral Spreading

Landslides or slope failure may occur in steeply sloped areas (15 percent slope or greater) following heavy rains, seismic events, or human activities (e.g., grading or excavation activities). Similarly, horizontal displacement of gently sloping ground (5 percent or less slope) may occur along river banks or exposed embankments, a phenomenon known as lateral spreading. Saturated, loosely consolidated soils and precipitation events increase the likelihood that an earthquake will trigger landslides, slope failure, or lateral spreading.

Most of the project area and surrounding properties are relatively flat with little variation in topography. Some gradual slopes may be observed near the Tuolumne River. Effects of landslides, slope failures, and lateral spreading in the project area are low.

Mineral Resources

Under CEQA, mineral resources generally refer to aggregate material throughout the state of California that contains regionally significant minerals as determined by their classification of Mineral Resource Zone values (discussed below). Stanislaus County's extractive resources are minimal throughout the area. Currently, the only significant extractive commercial resources are sand and gravel. Minerals found throughout the county include bementite, manesite, psilomelane, pyrobrsite, and rhodochrosite. Oil and gas wells also operate in the county.

The project area is designated by the DOC's Division of Mines and Geology (CDMG) as a Mineral Resources Zone (MRZ) 3-a, containing concrete grade sand and gravel resources (DOC 1993). The raw water pump station portion of the project site is located on sand and gravel resources areas that run along the Tuolumne River and a clay pit that lies directly south of the project site in the city of Hughson. MRZ classifications are defined as follows (Stanislaus County 2016):

> **MRZ-1**: Areas where adequate information indicates that no significant mineral deposits are present or where it is judged that little likelihood exists for their presence.
>
> **MRZ-2**: Areas where adequate information indicates that significant mineral deposits are present or where it is judged that a high likelihood for their presence exists.
>
> **MRZ-3**: Areas containing mineral deposits, the significance of which cannot be evaluated from available data.
>
> **MRZ-4:** Areas were available information is inadequate for assignment into any other MRZ.

The entire proposed project site is located in a zone that consists of Pliocene and younger alluvium (MRZ-3a$^{sg(C14)}$), which is made up of varying proportions of fine- and coarse-grained sediments. The Tuolumne River located just north of Fox Grove Regional Park consists of Tuolumne River alluvium (MRZ-3a$^{sg(C17)}$). In-stream clasts are predominately sand- and finer-sized while clast sizes decrease from mostly in-channel cobble and pebble-sized clasts in this general area (DOC 1993). The portion of the project area where the raw water pump station

and pipeline would be located, adjacent to Fox Grove Regional Park and its access road, was previously part of a gravel mining operation along the Tuolumne River.

Three mining sites are located in the project area:

- The Landmark Pit (Mine ID: 91-50-0001) is located approximately 0.25 mile from the raw water pump station site. This mine consists of 20 acres and is owned and operated by Calaveras Materials, Inc. As of report year 1999, mining operations have ceased and reclamation has been certified as complete by the lead agency (DOC 1999).
- The Schmidt Pit (Mine ID: 91-50-0002) is located where the Fox Grove Regional Park property currently stands. This mine is also an open pit type consisting of sand and gravel over an area of 80 acres. It is owned and operated by Baldwin Contracting Company, Inc. and DBA Knife River Construction. The mine has been closed and merged with the Schmidt Pit (Mine ID: 91-50-0018) (described below); however, reclamation has not started (DOC 2012). The 2001 project that resulted in construction of TID's infiltration gallery involved some restoration of the gravel pit and surrounding area, resulting in the Nazareno pond adjacent to the site. Since that time, no mining activities have taken place on the site.
- A second location also known as the Schmidt Pit (Mine ID: 91-50-0018) is located 0.25 mile from the WTP parcel and directly adjacent to the Landmark Pit. This mine is also an open pit type consisting of sand and gravel and 49 permitted acres. It is also owned by Calaveras Materials, Inc. and its reclamation is in progress as reported in 2015 (DOC 2015b).

In addition, two oil and gas wells are located within 1 mile of the project area. Both are closest to the location where the Ceres terminal tank would be constructed:

- Well #1 located southwest of the tank along Helen Perry Road and is operated by Mobil Oil Exploration & Production North America, Inc. It is no longer in use and has been plugged and abandoned (DOC 2017a).
- Well #2J1 located northwest of the tank and east of Mitchell Road. The well is operated by Roy C. and Georgette M. Cravey, but has also been plugged and abandoned (DOC 2017b).

3.6.4 Environmental Impacts and Mitigation

Methodology

The methods used to evaluate the potential environmental impacts of the proposed project on geology, soils, and seismicity involved a review and assessment of published maps, professional publications, and reports pertaining to the geology, soils, and seismicity in the project area. The information included USGS and CGS geologic maps (CGS 1991, 2002; USGS 2015, 2017), NRCS soils maps (NRCS 2017), California seismic hazard zone mapping (Bryant and Hart 2007; CGS 2008, 2010), USGS historic earthquake data [not cited], and technical memoranda prepared for the proposed project (Kleinfelder 2007; Crawford & Associates 2017).

To evaluate proposed project impacts on mineral resources, this section is based on an evaluation of the MRZ classifications of project area soils and reference to the following sources:

- California Statutes and Regulations for the Office of Mine Reclamation – Surface Mining and Reclamation Act of 1975 (DOC 2015);
- *Stanislaus County 2015 General Plan* (Stanislaus County 2015);
- *Stanislaus County General Plan and Airport Land Use Compatibility Plan Update Draft PEIR* (Stanislaus County 2016);
- California Department of Conservation – Mines Online (DOC 1999, 2012, 2015, 2016);
- California Department of Conservation – SMARA Mineral Lands Classification Data Portal (DOC 2017a, 2017b); and
- Mineral Land Classification of Stanislaus County, California 1993 – Special Report 173 (DOC 1993).

Significance Criteria

Based on Appendix G of the State CEQA Guidelines, the proposed project would result in a significant impact on geology, soils, and seismicity if it would:

- Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:
  - Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault;
  - Strong seismic ground shaking;
  - Seismic-related ground failure, including liquefaction; or
  - Landslides;
- Result in substantial soil erosion or the loss of topsoil;
- Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse;
- Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property; or
- Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water.

Based on Appendix G of the State CEQA Guidelines, the proposed project would result in a significant impact on mineral resources if it would:

- Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state; or

- Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan.

Impact Analysis

Impact GEO-1: Expose People or Structures to Potential Substantial Adverse Effects Involving Seismic-related Rupture of a Known Earthquake Fault (No Impact)

The proposed project is not located in an Alquist–Priolo zone or near a known active fault. The nearest potentially active faults (i.e., surface displacement in the last 1.6 million years) are the San Joaquin Fault (approximately 19 miles west), the Ortigalita Fault Zone (approximately 22 miles southwest), and the Foothill Fault System (approximately 23 miles northeast) (CGS 2010). The Greenville Fault (35 miles west) is the nearest active fault (i.e., evidence of fault rupture within the last 10,000 years). Since there are no known faults in the project area, there would be **no impact** related to rupture of a known earthquake fault.

Impact GEO-2: Expose People or Structures to Potential Substantial Adverse Effects Involving Strong Seismic Ground Shaking (Less than Significant)

Due to the substantial distance to active faults and the underlying geologic and soil conditions, the Central Valley generally experiences infrequent, lower levels of ground shaking than many other regions of California. In general, the anticipated level of ground shaking at the project sites would be low to moderate compared to other regions of California. Little to no damage would occur to most structures in the project area following ground shaking of this magnitude. In addition, the concrete foundations of project structures—in particular, the WTP and terminal tanks—would be constructed to current CBC standards, which consider seismically induced stresses for new construction. The seismic building requirements under Title 24, Part 2 of the CBC are specifically tailored to meet regional requirements for increased seismic stability. With adherence to the current CBC standards, any potential for foundational or structural damage associated with seismic ground shaking would be minimal. Therefore, effects of seismic ground shaking would be **less than significant**.

Impact GEO-3: Expose People or Structures to Potential Substantial Adverse Effects Involving Seismic-related Ground Failure, Including Liquefaction and Landslides (Less than Significant)

The proposed project sites are located in a relatively flat area with only minor changes in topography. Some gradual slopes may be observed near river terraces and the banks of the Tuolumne River; the raw water pump station site is located on a levee with somewhat steeper banks, and a portion of the raw water transmission pipeline would cross this levee southeast of the Fox Grove parking lot. However, landslides are not likely to occur on or near any of the project sites. Therefore, potential impacts related to landslides would be less than significant.

No specific liquefaction hazards have been identified in Stanislaus County (Bryant and Hart 2007). Since the primary factor that triggers liquefaction is moderate to strong ground shaking, the probability of liquefaction in the project area is considered low.

Most of the project area is underlain by alluvium and other Quaternary sedimentary rock with differing strength and stability characteristics. Geotechnical investigations observed unstable poorly graded sand and poorly graded gravel with sand at the location of the proposed wet well (Kleinfelder 2007; Crawford & Associates 2017). Project activities may further destabilize steep, relatively unstable geologic layers and increase the potential for slope failure, potentially resulting in damage to structures or injury to workers.

As part of the proposed project, SRWA and its contractors would incorporate the site-specific recommendations outlined in the existing geotechnical investigation (Kleinfelder 2007; Crawford & Associates 2017), as well as any future investigations, into the design and construction of all project facilities. In addition, proposed project facilities would be constructed to current CBC standards. By implementing recommendations addressing site-specific geotechnical conditions and adhering to the current CBC standards, any potential for foundational or structural damage associated with seismic-related ground-failure, liquefaction, or landslides would be minimized. Therefore, this impact would be **less than significant**.

Impact GEO-4: Expose People or Structures to Potential Substantial Adverse Effects Involving Substantial Soil Erosion or Loss of Topsoil (Less than Significant)

The proposed project would include the construction of a WTP, terminal water storage tanks, a raw water pump station, and pipelines. Construction-related grubbing, excavation, grading, or other activities may remove the vegetative cover and/or compromise the soil structure, thereby increasing the potential for wind and runoff erosion of soils. The proposed project could therefore result in substantial soil erosion from wind and rainfall runoff occurrences during project construction when soils would be disturbed.

As discussed in further detail in Section 3.9, *Hydrology and Water Quality,* SRWA or its contractors would prepare and implement a SWPPP, as required under CWA Section 402, to ensure that project-related construction activities would not result in substantial soil erosion or loss of topsoil. The SWPPP would identify soil stabilization and sediment control practices, revegetation requirements for disturbed areas, and monitoring methodologies. The SWPPP would be implemented throughout project construction and operation, and compliance would be monitored by a qualified SWPPP practitioner. Compliance with the SWPPP would ensure that this impact would be less than significant. Project activities would be avoided or minimized through implementation of BMPs, compliance with the NPDES General Construction Permit, and implementation of SWPPP requirements, as required by CWA Section 402 and state construction regulations. Therefore, construction and operation of the proposed project would not result in substantial soil erosion and would be **less than significant**.

Impact GEO-5: Location on a Geologic Unit or Soil that Is Unstable or That Would Become Unstable as a Result of the Proposed Project and Potentially Result in an On-site or Off-site Landslide, Lateral Spreading, Subsidence, Liquefaction, or Collapse (Less than Significant)

The proposed project area is relatively flat and the potential for landslides or lateral spreading is nominal. Although excavation of the raw water transmission main may require temporary dewatering during construction activities, groundwater resources would not be

substantially affected during construction activities or project operation, and risks related to subsidence or collapse would be minimal.

Excavations for WTP construction would extend approximately 15 feet deep, whereas groundwater is 40-60 feet dep; therefore, WTP construction activities would be unlikely to encounter groundwater.

No specific liquefaction hazards have been identified in Stanislaus County (Bryant and Hart 2007). Since the primary factor that triggers liquefaction is moderate to strong ground shaking, the probability of liquefaction in the Project area is considered low.

Most of the proposed project sites are underlain by alluvium and other Quaternary sedimentary rock with differing strength and stability characteristics. Geotechnical investigations observed unstable poorly graded sand and poorly graded gravel with sand at the location of the proposed pump station (Crawford & Associates 2017). These coarse materials, coupled with the possibility of a shallow groundwater table near the Tuolumne River, may result in unstable slopes during excavation and trenching activities for pump station installation. Proposed project activities related to pipeline installation may further destabilize steep, relatively unstable geologic layers and increase the potential for slope failure, potentially resulting in damage to structures or injury to workers.

However, as described in the geotechnical investigations (Kleinfelder 2007; Crawford & Associates 2017) and Impact GEO-3 above, the proposed project facilities would be designed and constructed to address site-specific seismic-related or soil stability issues and minimize the potential risk of structural failure. In addition, SRWA would commission a more detailed geotechnical investigation of the project sites to address code changes since the 2007 study and to facilitate final design of the facilities. To reduce the risk of excavation-related accidents, the U.S. Department of Labor, Occupational Safety and Health Administration (OSHA) outlines specific Excavation and Trenching standards for building (29 CFR Section 1926.650) and utility trenching operations (29 CFR Section 1926.652). Prior to construction-related excavation and trenching activities, a shoring and excavation plan would be prepared that would describe appropriate methods of slope stabilization to be implemented during excavation activities. In addition, adherence to CBC standards would further reduce potential hazards from landslide, lateral spreading, liquefaction, or collapse. Therefore, risks related to unstable geologic units would be **less than significant**.

Impact GEO-6: Location on Expansive Soil, Creating Substantial Risks to Life or Property (Less than Significant)

According to NRCS mapping (NRCS 2017) and geotechnical investigations (Crawford & Associates 2017), soils underlying the Project area consist of sandy loam to very fine sandy loam, composed mostly of sandy silt, silty sand, or sandy gravel. Deeper soils may contain clayey sand and silty sand with interbedded layers of lean clay. Risks of expansion related to these soil units are considered very low. The risk to life or impacts on proposed facilities due to expansive soils would be **less than significant**.

Impact GEO-7: Have Soils Incapable of Adequately Supporting the Use of Septic Tanks or Alternative Wastewater Disposal Systems in Areas Where Sewers Are Not Available for the Disposal of Wastewater (Less than Significant)

The WTP would rely on a septic system to treat domestic wastewater generated as part of the proposed project. Based on the proximity of residential properties to the WTP site, soils at the site would be adequate to support the use of a septic system. It is unknown at this time whether the Ceres and Turlock terminal tank sites would include restroom facilities; because both sites are located near other properties served by septic systems, it is reasonable to assume that the sites have soils capable of adequately supporting the use of septic systems if necessary. The proposed project would have a **less-than-significant** impact.

Impact GEO-8: Result in the Loss of Availability of a Known Mineral Resource or a Locally Important Mineral Resource Recovery Site (No Impact)

Based on MRZ data for the land surrounding the project area, the area consists of sand and gravel materials that can be used for concrete (Stanislaus County 2016). Excavation along the roadways mapped out for the Ceres and Turlock treated water transmission main alignments may result in the loss of these known mineral resources. However, these areas are already being used as roadway ROW and are unavailable for mineral resource excavation. As a result, there would not be loss of availability of a locally important mineral resource site.

Portions of the proposed project site close to Fox Grove Regional Park were mined for aggregate in the past in association with the Schmidt Pit (Mine ID: 91-50-0002), and areas where the raw water pump station is proposed for construction were restored as part of that project (DOC 2012). As a result, the location that was used for mining now contains TID's infiltration gallery that would be operated as part of the proposed project. The proposed project features in this area would not result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan. The other two mines located in the project area would not be affected by the proposed project as they are located 0.25 mile away and would not be affected by project construction (DOC 1999, 2015). Therefore, the proposed project would have **no impact** on mineral extraction or mineral resources**.**

3.7 Greenhouse Gas Emissions and Energy Resources

3.7.1 Introduction

This section describes the regulatory and environmental setting related to global climate change, greenhouse gases (GHGs), and energy resources and then evaluates impacts related to the proposed project's forecasted GHG emissions. The impact evaluation begins by describing the methodology used to evaluate significance and the GHG significance criteria, and then presents the impact evaluation. Mitigation measures are identified for impacts that are determined to be significant.

3.7.2 Regulatory Setting

Federal Plans, Policies, and Regulations

At the federal level, USEPA has developed regulations to reduce GHG emissions from motor vehicles and has developed permitting and reporting requirements for large stationary emitters of GHGs.

On April 1, 2010, USEPA and the National Highway Traffic Safety Administration (NHTSA) established a program to reduce GHG emissions and improve fuel economy standards for new model year 2012–2016 cars and light trucks. On August 9, 2011, USEPA and the NHTSA announced standards to reduce GHG emissions and improve fuel efficiency for heavy-duty trucks and buses. In August 2016, USEPA and the NHTSA jointly finalized Phase 2 Heavy-Duty National Program standards to reduce GHG emissions and improve fuel efficiency of medium- and heavy-duty vehicles for model year 2018 and beyond (USEPA 2017). However, on March 15, 2017, President Donald Trump ordered a midterm evaluation of the later years of the 2017-2025 standards, and thus the increased mileage standard requirements may be subject to change.

On October 5, 2009, Executive Order 13514, Federal Leadership in Environmental, Energy, and Economic Performance, was issued by the Council on Environmental Quality (CEQ). The Executive Order required federal agencies to set a 2020 GHG emissions reduction target within 90 days, increase energy efficiency, reduce fleet petroleum consumption, conserve water, reduce waste, support sustainable communities, and leverage federal purchasing power to promote environmentally responsible products and technologies.

On August 1, 2016, the CEQ released final guidance on the consideration of GHG emissions and climate change in environmental review under the National Environmental Policy Act (CEQ 2016). This is an update to guidance issued in draft form in February 2010 and December 2014. The guidance encourages federal agencies to include a quantitative assessment of GHG emissions as part of their environmental analysis. The guidance states that the assessment of direct and indirect climate change effects should account for upstream and downstream emissions and includes guidance on biogenic sources of GHG emissions from land management actions.

State Laws, Regulations, and Policies

In recent years, California has enacted numerous policies and plans to address GHG emissions and climate change. In 2006, the California State Legislature enacted Assembly Bill (AB) 32, the Global Warming Solutions Act, which set the overall goals for reducing California's GHG emissions to 1990 levels by 2020. Executive Orders S-3-05 and B-16-2012 further extend this goal to 80 percent below 1990 levels by 2050. CARB has completed rulemaking to implement several GHG emission reduction regulations and continues to investigate the feasibility of implementing additional regulations. These include the low carbon fuel standard, which reduces GHG emissions associated with fuel usage, and the Renewable Portfolio Standard (RPS), which requires electricity suppliers to increase the amount of electricity generated from renewable sources to 33 percent by 2020.

CARB approved the *First Update to the AB 32 Scoping Plan* on May 22, 2014 (CARB 2014). This update defines climate change priorities for the next 5 years and sets the groundwork to reach long-term goals set forth in Executive Orders S-3-05 and B-16-2012. The update also highlights California's progress toward meeting the near-term 2020 GHG emission reduction goals and evaluates how to align the state's longer term GHG reduction strategies with other state policy priorities for water, waste, natural resources, clean energy, transportation, and land use.

In April 2015, Governor Brown issued Executive Order B-30-15, which established a GHG reduction target of 40 percent below 1990 levels by 2030. This is an intermediate step between previously established targets of achieving 1990 levels by 2020 and 80 percent below 1990 levels by 2050. The Executive Order also directs the state to incorporate climate change impacts in the Five-Year Infrastructure Plan, update the state's climate adaptation strategy, and implement measures under existing agency and departmental authority to reduce GHG emissions.

Senate Bill (SB) 32, a follow-up to the California Global Warming Solutions Act of 2006 (AB 32), similarly calls for a statewide GHG emissions reduction to 40 percent below 1990 levels by December 31, 2030. This target would be accomplished by promoting technology and implementing cost-effective GHG emission reductions, especially in the state's most disadvantaged communities, which would be disproportionally affected by climate change.

AB 197 expands the legislative oversight of CARB and associated climate change activities. The bill includes updates to the CARB board membership numbers and responsibility, CARB regulations and rulemaking, and the schedule by which information is updated and disclosed. AB 197 and Senate Bill 32 were approved by the governor in September 2016.

CARB is updating the Scoping Plan to reflect progress since 2005, additional reduction measures, and plans for reductions beyond 2020. In early 2017, CARB released the draft proposed second update to reflect the 2030 target set by Executive Order B-30-15 and codified by SB 32 (CARB 2017a, 2017b). The final Scoping Plan was published by CARB in November 2017 (CARB 2017c). The Scoping Plan suggests several areas where measures for water distribution and treatment could be considered. This includes improving the energy consumption for water pumping, treatment, and heating.

Local Laws, Regulations, and Policies

Stanislaus County

San Joaquin Valley Air Pollution Control District

The SJVAPCD's *Climate Change Action Plan*, adopted in 2008, directed the District Air Pollution Control Officer to develop guidance to assist lead agencies, project proponents, permit applicants, and interested parties in assessing and reducing the impacts of project-specific GHG emissions on global climate change (SJVAPCD 2009a, 2017). On December 17, 2009, the SJVAPCD adopted *Guidance for Valley Land-use Agencies in Addressing GHG Emission Impacts for New Projects under CEQA* (Guidance) (SJVAPCD 2009b). The Guidance establishes a streamlined process that can be used to evaluate the significance of project-specific GHG emission impacts on global climate change, based on the use of Best Performance Standards (BPS) (SJVAPCD 2009b); the streamlined evaluation process is designed to meet the reduction goals of AB 32. The SJVAPCD defines BPS as "the most effective achieved-in-practice means of reducing or limiting GHG emissions from a GHG emissions source." Types of BPS include equipment type, equipment design, operational and maintenance practices, measures that improve energy efficiency, and measures that reduce vehicle miles traveled (SJVAPCD 2009b). If BPS are not available, the SJVAPCD encourages users to demonstrate at least a 29-percent reduction from business as usual (BAU); however, the Guidance does not provide clear BPS or thresholds for the evaluation of construction-related or short-term, one-time effects under CEQA. In addition, lead agencies are not restricted by the Guidance from establishing their own processes and guidance for determining significance of project-related impacts on global climate change.

Stanislaus County Regional Sustainability Toolbox

Stanislaus County, in collaboration with the nine cities within the county, completed the Stanislaus Regional Sustainability Toolbox (RST) (Stanislaus County 2017). The RST includes multiple planning tools to achieve regional GHG reductions. The planning tools include an example climate action plan (CAP) with regional CAP strategies and low impact development (LID) standards and specifications. Relevant regional strategies from this model CAP that are related to water-related infrastructure projects like the proposed project include the following (ESA 2013):

Goal E.1. Increase Building and Equipment Efficiency Community-Wide

> **Strategy E.1.5.** Industrial Equipment Energy Efficiency Promotion. Promote understanding of San Joaquin Valley Air Pollution Control District Industrial Equipment Energy Efficiency Best Performance Standards.
>
> **Action E.1.5a.** Make information available regarding the San Joaquin Valley Air Pollution Control District Best Performance Standards for industrial energy efficiency.

Goal E.3: Increase Energy Efficiency and Renewable Energy Generation and Use in Municipal Operations

Strategy E.3.1: Municipal Energy Efficiency. Increase energy efficiency in government operations, including City buildings and facilities.

Strategy E.3.2: Municipal On-site Renewable Energy Sources. Increase on-site renewable energy systems at City facilities.

Stanislaus County General Plan

The *Stanislaus County General Plan 2015* Conservation/Open Space Element (Stanislaus County 2016) identifies water conservation-related goals and policies that would contribute to reduced GHG emissions by conserving water resources and reducing related energy use for water supply/distribution activities. The following goal, policies, and implementation measures also apply to the proposed project:

Goal Six: Improve air quality.

Policy Nineteen: The County will strive to accurately determine and fairly mitigate the local and regional air quality impacts of proposed projects.

Implementation Measure 1. Require all development proposals, where appropriate, to include reasonable air quality mitigation measures.

Implementation Measure 2. Minimize case-by-case analysis of air quality impacts through the use of standard criteria for determining significant environmental effects, a uniform method of calculating project emissions, and standard mitigation methods to reduce air quality impacts.

Policy Twenty: The County shall strive to reduce motor vehicle emissions by reducing vehicle trips and vehicle miles traveled and increasing average vehicle ridership.

City of Ceres

The *City of Ceres 2015 Urban Water Management Plan* (2016) identifies water conservation-related goals and policies that would contribute to reduced GHG emissions by conserving water resources and reducing related energy use for water supply/distribution activities.

The *City of Ceres General Plan* (1997) contains the following goals and policies relating to greenhouse gases and energy that also apply to this project:

Goal 6.F. To protect and improve air quality in the Ceres area.

Policy 6.F.5. The City shall require project-level environmental review to include identification of potential air quality impacts and designation of design and other appropriate mitigation measures or offset fees to reduce impacts.

Policy 6.F.6. The City shall encourage development to be located and designed to minimize direct and indirect air pollutants.

Policy 6.F.7. In reviewing project applications, the City shall consider alternatives or amendments that reduce emissions of air pollutants.

City of Turlock

The *City of Turlock General Plan* (2012) contains the following policies regarding energy and climate change that may be relevant to the proposed project:

> **Policy 8.2-a. Reduce Greenhouse Gas Emissions.** Reduce greenhouse gas emissions to support statewide GHG reduction goals under the California Global Warming Solutions Act (AB 32).
>
> **Policy 8.2-n. Wastewater and Water System Efficiency.** Maximize the efficiency of City-operated wastewater treatment, water treatment, pumping, and distribution equipment. This measure may be part of the GHG Emissions Reduction Plan described in 8.2-f.
>
> **Policy 8.2-s. Require Energy Efficiency for Projects Receiving Public Assistance.** Require that projects receiving assistance from the City of Turlock, including but not limited to infrastructure projects and affordable housing, include energy efficiency measures beyond the minimum standards of Title 24.

City of Hughson

The Conservation and Open Space Element of the *City of Hughson General Plan* (2005) contains the following goals and policies that may be relevant to the proposed project:

Goal COS-5. Minimize the consumption of energy, water and non-renewable resources.

> **Policy COS-5.2.** The City will encourage the use of water conservation technology to reduce water consumption by irrigation, domestic and industrial uses.

3.7.3 Environmental Setting

Greenhouse Gas Emissions

Climate change is caused, in part, from accumulation in the atmosphere of GHGs, which are produced primarily by the burning of fossil fuels for energy. Because GHGs (carbon dioxide [CO_2], methane [CH_4], and NO_2) persist and mix in the atmosphere, emissions anywhere in the world affect the climate everywhere in the world. GHG emissions are typically reported in terms of carbon dioxide equivalents (CO_2e) which converts all GHGs to an equivalent basis taking into account their global warming potential compared to CO_2.

Global climate change is already affecting ecosystems and societies throughout the world. Climate change adaptation refers to the efforts undertaken by societies and ecosystems to adjust to and prepare for current and future climate change, thereby reducing vulnerability to those changes. Human adaptation has occurred naturally over history; people move to more suitable living locations, adjust food sources, and more recently, change energy sources. Similarly, plant and animal species also adapt over time to changing conditions; they migrate or alter behaviors in accordance with changing climates, food sources, and predators.

In 2015, total California GHG emissions were 440.4 million tons of carbon dioxide equivalents (MMT CO_2e) (CARB 2017c). This represents a reduction in total GHG emissions from 2012, which had the first emissions increase since 2007. The 2012 increase was driven primarily by strong economic growth in the state, the unexpected closure of the San Onofre Nuclear Generating Station, and drought conditions that limited in-state hydropower generation. Overall GHG emissions in the state reached a peak in 2004 and have since decreased by 9.9 percent. In 2015, the transportation sector of the California economy was the largest source of emissions, accounting for approximately 39 percent of the total emissions. On-road vehicles accounted for roughly 90 percent of emissions in the transportation sector.

A baseline inventory was conducted of GHG emissions in Stanislaus County, including the nine cities within the county, during 2005 (ICF International 2013). Total 2005 GHG emissions from the Stanislaus County region were approximately 6.042 MMT CO_2e (specifically, 6,042,232 MT CO_2e), which does not include stationary-source emissions (658,692 MT CO_2e). Stationary sources, including landfills, were not included because they are regulated by separate federal and state regulations. The greatest regional GHG emission sources were building energy (a combined electricity and natural gas contribution of 40 percent), on-road transportation (27 percent), and agriculture (24 percent). Water-related emissions were approximately 0.5 percent. Per capita GHG emissions for Stanislaus County were 10.2 MT CO_2e, which was less than the 2005 statewide per capita GHG emission rate (12.5 MT CO_2e) but similar to the per capita emission rate of several other counties (e.g., Sacramento County, 11.0 MT CO_2e; San Diego County, 10.0 MT CO_2e) (ICF International 2013).

Energy Resources and Consumption

TID provides electricity services to the cities of Turlock, Ceres, and Hughson in addition to water services (TID 2017a). Approximately 21 percent of the power provided comes from renewable sources, while the remaining 79 percent comes from a mixture of coal, large hydroelectric, natural gas, and unspecified sources of power (California Energy Commission 2017). **Table 3.7-1** provides a more detailed breakdown of TID's energy resources. As mentioned in Section 3.7.2, California's RPS requires electricity suppliers to increase the amount of electricity generated from renewable sources to 33 percent by 2020 and to 50 percent by 2030, which will decrease the GHG intensity of the electricity the proposed project would utilize in the future.

TID in conjunction with Modesto Irrigation District owns and operates the Don Pedro Dam, providing up to 203 megawatts of hydroelectric power to customers throughout the area. Of the 203 megawatts produced by this dam, 139 megawatts go to TID and the remaining 64 megawatts go to MID (TID 2015).

Table 3.7-1. Summary of Energy Sources for the Turlock Irrigation District

Energy Resources	TID Power Mix (%)
Eligible Renewable	21
Coal	10
Large Hydroelectric	14
Natural Gas	36
Nuclear	0
Unspecified Power*	19
Total	100

*Unspecified sources of power are defined as electricity from transactions that are not traceable to specific generation sources.

Source: TID 2017b

3.7.4 Environmental Impacts and Mitigation

Methodology

Construction-related and operation-related GHG emissions and energy use impacts were evaluated qualitatively by considering the proposed project's potential sources of GHG emissions, including fossil-fueled or electric energy-consuming equipment and vehicles, along with potential frequency and duration of emissions. Given that specific construction-related and operation-related details would be determined during the final design process, impacts were conservatively judged to be significant, and prescriptive mitigation measures were developed to minimize significant impacts.

Projected changes in climate associated with global warming may have related effects on other resources in the future, including effects on the proposed project (such as changes in weather patterns). Anticipated potential worldwide climate change effects include coastal erosion, sea level rise, melting glaciers, atmospheric temperature warming, increased wildfire risk, ocean warming, food production issues (e.g., decreased crop yields), effects on terrestrial and marine ecosystems, flooding and/or drought conditions, and altered hydrologic patterns such as changes in river flows or lake levels (Intergovernmental Panel on Climate Change 2014). California-specific climate change effects and indicators of climate change are similar to those that may be experienced globally and are discussed in *Indicators of Climate Change in California*, a report prepared by the California Environmental Protection Agency's Office of Environmental Health Hazard Assessment (OEHHA 2013). The evaluation of such effects on the proposed project is beyond the scope of this GHG analysis.

Significance Criteria

The proposed project would result in a significant impact on greenhouse gas emissions if it would:

- Generate a substantial amount of GHG emissions;

- Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing emissions of GHGs;
- Cause wasteful, inefficient, and unnecessary consumption of energy during construction, operation, and/or maintenance; or
- Cause a substantial increase in energy demand and the need for additional energy resources.

With regard to the first criterion, the SJVAPCD has adopted a BMP threshold for GHG emissions based on an achievable-in-practice analysis of improvement over a BAU scenario or 29 percent improvement. However, at this time there is not an approved BMP for this type of project, and suitable data to establish a BAU scenario has not been provided by the SJVAPCD. The SJVAPCD threshold has also not been updated to reflect the SB 32 2030 goal, which needs to be considered given the timeline of the project construction activities. Therefore, the published mass emissions thresholds of other California air districts were reviewed and considered in developing an appropriate threshold. The applicable threshold for the proposed project's construction and operational emissions was determined to be 10,000 MT per year, which is the threshold for industrial sources used by the Santa Barbara County Air Pollution Control District (SBCAPCD) (SBCAPCD 2015) and the South Coast Air Quality Management District (SCAQMD) (SCAQMD 2008). Although quantitative construction-specific thresholds have not been determined by the SCAQMD, the SBCAPCD recommends amortizing construction emissions over the life of the project (defined as 30 years) and adding it to the operational emissions (SCAQMD 2008). In addition, where construction-specific quantitative significance thresholds have not been defined, operational significance thresholds are typically applied or construction emissions are amortized and considered along with operational emissions to determine a project's overall significance. Therefore, for the proposed project, GHG emissions have been considered less than significant if the generated GHG emissions are less than the operational threshold of 10,000 MT CO_2e/year.

With regard to the second criterion of consistency with applicable plans and policies, the following impact analysis evaluates the project's operational-related emissions for consistency with CARB's Scoping Plan and updates, which outline the strategies that will need to be implemented for the state to meet the goals of AB 32, SB 32, and Executive Order S-3-05. Specifically, if a proposed component would not conflict with CARB's GHG emission reduction policies, it would have a less-than-significant impact.

The last two significance criteria were considered qualitatively for the proposed project.

Impact Analysis

Impact GHG-1: Generate a Substantial Amount of GHG Emissions (Significant and Unavoidable)

Construction Impacts

Construction of the raw water pump station, WTP, and pipelines would generate GHG emissions from construction equipment exhaust, including exhaust from haul or equipment trucks and worker commutes. Specific data about the amount, use, and locations of these equipment are not available at this time, nor are specific data about the construction periods for each individual component. In the absence of such information, it has been conservatively assumed that construction activities for the proposed project could exceed the significance threshold of 10,000 MT CO_2e emissions. This would be a potentially significant impact.

Implementation of **Mitigation Measure AQ-1 (Prepare Quantitative Analysis of Construction-related Air Quality and GHG Emissions, and Implement Measures to Cap Emissions)** would quantify and, if necessary, reduce GHG emissions from construction of the proposed project. However, it is still possible that these emissions would not be reduced below the applicable significance threshold of 10,000 MT CO_2e; therefore, the proposed project would result in a **significant and unavoidable** impact.

Operational Impacts

The proposed project would generate GHG emissions, indirectly and directly, through operation of the infiltration gallery and raw water pump station, WTP, and terminal tank and offset water facilities; use of new or larger emergency electrical generators; and employee vehicle and delivery truck trips for operation and maintenance of future facilities. Employee trips would be slightly greater (an increase of approximately 10-16 workers) than SRWA's existing activities. Emissions for emergency electrical generators would be infrequent and would not be substantial. Operation of new pumps at pump stations as well as the increased capacity and improved level of water distribution could increase GHG emissions over the applicable significance threshold of 10,000 MT CO_2e; the Cities would also operate their groundwater wells less once the project is operational, which may provide some offset of electrical use. Therefore, this impact would be potentially significant. Implementation of **Mitigation Measure AQ-2 (Prepare Quantitative Analysis of Operation-related Air Quality and GHG Emissions, and Implement Measures to Cap Emissions)** would reduce GHG emissions from project operations. However, it is still possible that these emissions would not be able to be reduced below the applicable significance threshold of 10,000 MT CO_2e and would result in a **significant and unavoidable** impact.

Conclusion

On the whole, because specific details regarding the proposed project are not yet available, construction and operation impacts of the project have been conservatively and qualitatively determined to generate GHG emissions that are substantial. Implementation of Mitigation Measures AQ-1 and AQ-2 would reduce these effects; however, these measures may not fully reduce the project's GHG emissions below the applicable threshold of 10,000 MT CO_2e.

Therefore, the proposed project's impact on increased GHG emissions would be **significant and unavoidable**.

Impact GHG-2: Conflict with an Applicable Plan, Policy, or Regulation Adopted for the Purpose of Reducing Emissions of GHGs (Significant and Unavoidable)

Consistency with strategies outlined in CARB's Scoping Plan and future updates are used to ensure that the state goals of AB 32, SB 32 and Executive Order S-3-05 will be met. The RPS would reduce GHG emissions compared to the existing mix of energy sources and would likely result in the components having a considerable percentage reduction by at least 2030. This is consistent with the emissions reductions goal of AB 32 and SB 32, as well as the policies and actions described in CARB's Scoping Plan.

With implementation of Mitigation Measures AQ-1 and AQ-2, the proposed project would minimize GHG emissions to the maximum extent feasible. Therefore, the project would comply with all applicable plans, policies, and regulations, including AB 32 and SB 32, and as well as the policies and actions described in CARB's Scoping Plan. However, at this time the state is still developing strategies that will be needed to fully reach the goals of SB 32 and Executive Order S-3-05, and new strategies may be developed that are inconsistent with the proposed project. In addition, as described in Impact GHG-1 above, GHG emissions for the proposed project may be significant and, as such, may impede the state from reaching the goals of AB 32 and SB 32, and Executive Order S-3-05, to reduce GHG emissions within California. Mitigation Measures AQ-1 and AQ-2 would reduce this impact, but not necessarily to less-than-significant levels, and may not be consistent in the future with new strategies. Therefore, this impact would be **significant and unavoidable**.

Impact GHG-3: Cause Wasteful, Inefficient, and Unnecessary Consumption of Energy During Construction, Operation, and/or Maintenance (Less than Significant with Mitigation)

Construction Impacts

Construction activities would require the consumption of energy (fossil fuels) for construction equipment, worker vehicles, and truck trips. The energy consumption during construction is necessary to improve the water treatment, conveyance, and storage system for SRWA's service area to meet future water needs. These temporary construction activities would not cause wasteful, inefficient, or unnecessary consumption of energy, cause a substantial increase in energy demand, or increase the need for additional energy resources. Although no mitigation is necessary to reduce this impact to a less-than-significant level, implementation of Mitigation Measure AQ-1 would further reduce the proposed project's effect by requiring minimization of idling times and requiring that all equipment be maintained and tuned properly, by requiring the implementation of less-polluting equipment (e.g., Tier 3 engines), low-emission diesel products, or alternative fuels. The proposed project's effects on energy resources would be **less than significant**.

Operational Impacts

The operational activities associated with the infiltration gallery, raw water pump station, WTP, and terminal tank facilities would require the consumption of energy, including fossil fuels, natural gas, and electricity. Fossil fuel use would include worker vehicle and truck trips

to and from the WTP and other project locations (terminal facilities and the raw water pump station) for operation and/or maintenance activities. In addition, emergency generators would use diesel fuel. These operational activities would not cause wasteful, inefficient, or unnecessary consumption of energy, cause a substantial increase in energy demand, or increase the need for additional energy resources. Therefore, this impact would be less than significant. Although no mitigation is necessary to reduce this impact to a less-than-significant level, implementation of Mitigation Measure AQ-2 would further reduce the proposed project's effect by requiring the use of alternatively fueled vehicles and equipment to the extent feasible, and improved pump efficiency designs. The proposed project's effects on energy resources would be **less than significant**.

Conclusion

Considering the proposed project as a whole, construction and operation impacts would not cause wasteful, inefficient, or unnecessary consumption of energy, cause a substantial increase in energy demand, or increase the need for additional energy resources. Although construction activities and operation of the project facilities could result in additional consumption of energy, implementation of Mitigation Measures AQ-1 and AQ-2 would reduce the proposed project's effects. In conclusion, the proposed project's effect on energy resources would be **less than significant with mitigation**.

Impact GHG-4: Cause a Substantial Increase in Energy Demand and the Need for Additional Energy Resources (Less than Significant)

It is not anticipated that substantial quantities of fossil fuel would be required for the proposed project since maintenance and operation vehicle trips would not increase substantially from existing conditions based on the addition of approximately 10-16 new staffing positions. Construction activities would require some fossil fuel use for construction equipment, material hauling, and worker commuting. However, the amount of fossil fuel use would not result in the need for additional fossil fuel energy resources beyond what would be available with existing resources.

The various pumps, terminal tanks, and WTP facilities would require electrical power and would likely increase energy use as the proposed project is completed. The amount of electricity required would not be substantial compared to the projected available electricity supply from TID, however, and it is not anticipated that any new sources of electricity generation would be required to meet this demand. Since there would not be a substantial increase in energy demand or the need for additional energy resources, this impact would be **less than significant.**

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3.8 Hazards and Hazardous Materials

3.8.1 Introduction

Hazardous materials are chemical and non-chemical substances that can pose a threat to the environment or human health if misused or released. Hazardous materials occur in various forms and can cause death, serious injury, and long-lasting health effects, as well as damage to buildings, homes, and other property. Hazardous materials can include explosives, flammable and combustible substances, poisons, radioactive materials, pesticides, petroleum products, and other materials defined as hazardous under the Resource Conservation and Recovery Act of 1976 (RCRA) (40 CFR 261) and other hazardous materials/waste laws. CEQA also considers hazards from proximity of projects to airports and schools, and hazards from wildfire. This section evaluates the proposed project's potential impacts related to hazards and hazardous materials.

3.8.2 Regulatory Setting

Hazardous materials and hazardous wastes are subject to extensive federal, state, and local regulations to protect public health and the environment. These regulations provide definitions of hazardous materials; establish reporting requirements; set guidelines for handling, storage, transport, and disposal of hazardous wastes; and establish health and safety provisions for workers and the public. Federal agencies that regulate hazardous materials include USEPA and OSHA. The California Department of Toxic Substances Control (DTSC) has primary state regulatory responsibility, but may delegate enforcement authority to local jurisdictions that enter into agreements with the state agency. Other state and regional agencies include the California Environmental Protection Agency (CalEPA), Cal/OSHA, California Emergency Management Agency (Cal EMA), California Governor's Office of Emergency Services (Cal OES), SWRCB, Central Valley RWQCB, and SJVAPCD. State and local agencies often have rules that are either parallel to or more stringent than those of federal agencies.

Federal Laws, Regulations, and Policies

Comprehensive Environmental Response, Compensation, and Liability Act – Superfund Act

The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA, also called the Superfund Act; 42 USC Section 9601 et seq.) is intended to protect the public and the environment from the effects of past hazardous waste disposal activities and new hazardous material spills. Under CERCLA, USEPA has the authority to seek the parties responsible for hazardous materials releases and to ensure their cooperation in site remediation. CERCLA also provides federal funding (through the "Superfund") for the remediation of hazardous materials contamination. The Superfund Amendments and Reauthorization Act of 1986 (Public Law 99-499) amends some provisions of CERCLA and provides for a Community Right-to-Know program.

Resource Conservation and Recovery Act of 1976

The Resource Conservation and Recovery Act of 1976 (RCRA; 42 USC Section 6901 et seq.), as amended by the Hazardous and Solid Waste Amendments of 1984, is the primary federal law for the regulation of solid waste and hazardous waste in the United States. These laws provide for the "cradle-to-grave" regulation of hazardous wastes, including generation, transport, treatment, storage, and disposal. Any business, institution, or other entity that generates hazardous waste is required to identify and track its hazardous waste from the point of generation until it is recycled, reused, or disposed of.

USEPA has primary responsibility for implementing RCRA, but individual states are encouraged to seek authorization to implement some or all RCRA provisions. California was delegated authority to implement the RCRA program in August 1992. DTSC is responsible for implementing the RCRA program in California, in addition to California's own hazardous waste laws, which are collectively known as the Hazardous Waste Control Law.

Spill Prevention, Control, and Countermeasure Rule

USEPA's Spill Prevention, Control, and Countermeasure (SPCC) Rule (40 CFR Part 112) applies to facilities that contain a single aboveground storage tank (AST) with a storage capacity greater than 660 gallons, or multiple tanks with a combined capacity greater than 1,320 gallons. The rule includes requirements for oil spill prevention, preparedness, and response to prevent oil discharges to navigable waters and adjoining shorelines. The rule requires specific types of facilities to prepare, amend, and implement SPCC plans.

Worker Safety Regulations

OSHA is responsible at the federal level for ensuring worker safety. The agency sets federal standards for implementation of workplace training, exposure limits, and safety procedures for the handling of hazardous substances (as well as other hazards). OSHA also establishes criteria by which each state can implement its own health and safety program.

State Laws, Regulations, and Policies

The Unified Program

The Unified Program consolidates, coordinates, and makes consistent the administrative requirements, permits, inspections, and enforcement activities of six environmental and emergency response programs. Statewide, DTSC has primary regulatory responsibility for management of hazardous materials, and it works with other state agencies and delegates its authority to local jurisdictions that enter into agreements with the state. Local agencies administer these laws and regulations. DTSC, CalEPA, and other state agencies set the standards for their programs while local governments implement the standards. These local implementing agencies, the Certified Unified Program Agencies (CUPAs), regulate and oversee the following for each county:

- Hazardous materials business plans;
- California accidental release prevention plans or federal risk management plans (RMPs);

- The operation of underground storage tanks (USTs) and ASTs;
- Universal waste and hazardous waste generators and handlers;
- On-site hazardous waste treatment;
- Inspections, permitting, and enforcement;
- Proposition 65 reporting (described below); and
- Emergency response.

Hazardous Materials Business Plans

Hazardous materials business plans are required for businesses that handle hazardous materials in quantities equal to or greater than 55 gallons of a liquid, 500 pounds of a solid, or 200 cubic feet of compressed gas, or extremely hazardous substances above the specified threshold planning quantity (40 CFR Part 355, Appendix A; Cal OES 2014). Business plans are required to include an inventory of the hazardous materials used and stored by the business, a site map, an emergency plan, and a training program for employees. In addition, business plan information is provided electronically to a statewide information management system, verified by the applicable CUPA, and transmitted to agencies responsible for the protection of public health and safety (i.e., local fire department, hazardous material response team, and local environmental regulatory groups).

Safe Drinking Water and Toxic Enforcement Act of 1986 – Proposition 65

The Safe Drinking Water and Toxic Enforcement Act of 1986, more commonly known as Proposition 65, protects the state's drinking water sources from contamination with chemicals known to cause cancer, birth defects, or other reproductive harm. Proposition 65 also requires businesses to inform the public about exposure to such chemicals in the products they purchase, in their homes or workplaces, or that are released into the environment. In accordance with Proposition 65, the California Governor's Office publishes, at least annually, a list of such chemicals. The Office of Environmental Health Hazard Assessment (OEHHA), an agency under CalEPA, is the lead agency for implementation of the Proposition 65 program. Proposition 65 is enforced through the California Attorney General's Office; however, district attorneys, city attorneys, and any individual acting in the public interest may also file a lawsuit against a business alleged to be in violation of Proposition 65 regulations.

California Occupational Safety and Health Administration

Cal/OSHA assumes primary responsibility for developing and enforcing workplace safety regulations in California. Cal/OSHA regulations pertaining to the use of hazardous materials in the workplace (CCR Title 8) include requirements for safety training, availability of safety equipment, accident and illness prevention programs, warnings about exposure to hazardous substances, and preparation of emergency action and fire prevention plans. Hazard communication program regulations that are enforced by Cal/OSHA require workplaces to maintain procedures for identifying and labeling hazardous substances, inform workers about the hazards associated with hazardous substances and their handling, and prepare health and safety plans to protect workers at hazardous waste sites. Employers also must

make material safety data sheets available to employees and document employee information and training programs.

California Accidental Release Prevention

The purpose of the California Accidental Release Prevention (CalARP) program is to prevent accidental releases of substances that can cause serious harm to the public and the environment, to minimize the damage if releases do occur, and to satisfy community right-to-know laws. In accordance with this program, businesses that handle more than a specified threshold quantity of a regulated substance are required to develop an RMP. This RMP must provide a detailed analysis of potential risk factors and identify associated mitigation measures that can be implemented to reduce accident potential. CUPAs implement the CalARP program through review of RMPs, facility inspections, and public access to information that is not confidential or classified as trade secret.

CAL FIRE Wildland Fire Management

The Office of the State Fire Marshal and the California Department of Forestry and Fire Protection (CAL FIRE) administer state policies regarding wildland fire safety. Construction contractors must comply with the following requirements in the Public Resources Code during construction activities at any sites with forest-, brush-, or grass-covered land:

- Earthmoving and portable equipment with internal combustion engines must be equipped with a spark arrestor to reduce the potential for igniting a wildland fire (Pub. Res. Code Section 4442).
- Appropriate fire-suppression equipment must be maintained from April 1 to December 1, the highest-danger period for fires (Pub. Res. Code Section 4428).
- On days when a burning permit is required, flammable materials must be removed to a distance of 10 feet from any equipment that could produce a spark, fire, or flame, and the construction contractor must maintain the appropriate fire-suppression equipment (Pub. Res. Code Section 4427).
- On days when a burning permit is required, portable tools powered by gasoline-fueled internal combustion engines must not be used within 25 feet of any flammable materials (Pub. Res. Code Section 4431).

Local Laws, Regulations, and Policies

Stanislaus County General Plan

The *Stanislaus County General Plan* guides land use and development in unincorporated Stanislaus County (Stanislaus County 2015). The Safety Element of the general plan emphasizes the protection of the community from any unreasonable risks associated with natural disasters and wildland and urban fires. Goals and policies in the general plan related to hazards and hazardous materials include the following:

Safety Element

Goal Two. Minimize the effects of hazardous conditions that might cause loss of life and property.

Policy Seven. Adequate fire and sheriff protection shall be provided.

Policy Eight. Roads shall be maintained for the safety of travelers.

Policy Thirteen. The Department of Environmental Resources shall continue to coordinate efforts to identify locations of hazardous materials and prepare and implement plans for management of spilled hazardous materials as required.

Multi-Jurisdictional Hazard Mitigation Plan

Stanislaus County and the Stanislaus Consolidated Fire Protection District have prepared a countywide Multi-Jurisdictional Hazard Mitigation Plan that identifies risks posed by disasters and ways to minimize damage from those disasters (Stanislaus Consolidated Fire Protection District 2011). The plan creates a decision tool for hazard management, promotes compliance with state and federal program requirements, enhances local policies for hazard mitigation capability, and provides for inter-jurisdictional coordination. Stanislaus County is currently in the process of updating the plan.

City of Ceres General Plan

The *City of Ceres General Plan* (City of Ceres 1997) guides growth and development in the City of Ceres. Goals and policies in the General Plan related to hazards and the proposed project include the following:

Goal 7.F. To minimize the risk of loss of life, injury, serious illness, damage to property, and economic and social dislocations resulting from the use, transport, treatment, and disposal of hazardous materials and hazardous materials wastes.

Policy 7.F.1. The City shall ensure that the use and disposal of hazardous materials in the city complies with local, state, and federal safety standards.

Policy 7.F.5. The City, in conjunction with the County, shall strictly regulate the storage of hazardous materials and wastes.

Policy 7.F.6. The City shall require secondary containment and periodic examination for storage of large quantities of toxic materials.

City of Turlock General Plan

The *City of Turlock General Plan* (City of Turlock 2012) guides land use and development in the City of Turlock. Goals and policies in the General Plan related to hazards and hazardous materials potentially relevant to the proposed project include the following:

Conservation Element

Policy 10.1-a. Protect Lives and Property. Prevent loss of lives, injury, illness, and property damage due to hazardous materials and wastes.

Policy 10.1-b. Protect Natural Resources. Protect soils, surface water, and groundwater from contamination from hazardous materials.

Policy 10.1-c. Protect Natural Resources. Protect soils, surface water, and groundwater from contamination from hazardous materials.

Policy 10.1-e. Implement Countywide Integrated Waste Management Plan. Implement measures specified in the Household Hazardous Waste Element of the Countywide Integrated Waste Management Plan (CIWMP).

Policy 10.1-l. Maintain Land Use Separation Between Hazardous Waste Handling Sites and Incompatible Uses. Ensure compatibility between hazardous material users and surrounding land use through the development review process. Separate hazardous waste facilities from incompatible uses including, but not limited to, schools, daycares, hospitals, public gathering areas, and high-density residential housing through development standards and the review process.

Policy 10.1-m. Require Hazardous Materials Studies When Appropriate. Ensure that the proponents of new development projects address applicable hazardous materials concerns through the preparation of Phase I or Phase II hazardous materials studies, as necessary, for each identified site as part of the design phase for each project. Require projects to implement federal or State cleanup standards outlined in the studies during construction.

Policy 10.1-m. Require Safe Design and Construction of Storage Tanks. Require that all fuel and chemical storage tanks are appropriately constructed; include spill containment areas to prevent seismic damage, leakage, fire and explosion; and are structurally or spatially separated from sensitive land uses.

Policy 10.2-h. Require Erosion Control Plans. Require new development to include grading and erosion control plans prepared by a qualified engineer or land surveyor.

Policy 10.3-b. Cooperate in Multi-Jurisdictional Hazard Mitigation Plan. Continue to cooperate with the County and appropriate State and federal agencies in preparing and implementing the Multi-Jurisdictional Hazard Mitigation Plan.

Policy 10.4-a. Protect from Hazards. Continue to protect people and property from natural and manmade hazards.

City of Hughson General Plan

The *Hughson General Plan* (City of Hughson 2005) guides land use and development in the City of Hughson. Pertinent goals and policies in the General Plan related to the proposed project and hazards and hazardous materials:

Conservation and Open Space Element

Goal COS-6. Maintain Hughson's ground and surface water quality.

Policy COS-6.2. The dumping of hazardous materials and other pollutants into waterways, storm drains and recharge areas will be prohibited.

Policy COS-7.6. New sources of toxic air pollutants shall prepare a Health Risk Assessment as required under the Air Toxics "Hot Spots" Act and, based on the results

of the Assessment, establish appropriate land use buffer zones around those areas posing substantial health risks.

Safety Element

Goal S-3. Protect the community from risks associated with hazardous materials.

Policy S-3.1. The City will limit the location of hazardous material producers and users to areas in the community that will not negatively impact residential areas.

Policy S-3.2. Producers and users of hazardous materials in Hughson shall conform to all State and federal regulations regarding the production, disposal and transportation of these materials.

Stanislaus County Airport Land Use Commission Plan

The *Stanislaus County Airport Land Use Commission Plan* (Stanislaus County 2004) identifies compatible land uses in proximity to airports in Stanislaus County. This plan establishes compatible land uses and prevents obstructions to navigation, such as towers, trees, and utility poles, that may threaten the safe operation of an airport or create hazards endangering public safety. The plan divides airport planning areas into four categories, as follows:

1. Airport Building Areas – includes the terminal area, fixed base operator buildings, hangers, tie-down areas, parking areas, and areas planned for such future uses.

2. Other Airport Property – land owned by the airport but not in use nor planned for use as building areas.

3. Approach and Transitional Surfaces – that area under the approach and take-off extensions and transitional surfaces as defined by the flight paths in use at the airport and Federal regulations. This area is primarily concerned with safety, but, by virtue of its location, noise can be a consideration.

4. Other Land Within the Planning Area – lands within the planning areas with possible height and or noise problems envisioned in the future.

3.8.3 Environmental Setting

As described in Chapter 2, *Project Description*, the proposed project would be located in Stanislaus County. The potentially affected area, for the purposes of this hazards and hazardous materials impacts evaluation, includes all areas where proposed project activities would occur.

Existing Hazards and Hazardous Materials

A records search was conducted of government databases compiled pursuant to Government Code Section 65962.5 to identify any government-listed hazardous materials or waste sites located on or within a 1-mile radius of the project area (SWRCB 2017). Numerous hazardous materials sites exist within the Proposed Project vicinity, as shown in **Figure 3.8-1**. Most of these sites are "closed," indicating that cleanup efforts have been completed; sites classified as "open" indicate ongoing clean-up or regulatory efforts. Hazardous materials

contamination is most often connected with past land uses such as gas stations; agricultural, commercial, and industrial facilities with underground storage tanks; or other sites that commonly use or store chemicals or hazardous materials.

A former Stanislaus County municipal landfill, the Geer Road Landfill, is located on the north side of the Tuolumne River west of Geer Road, within 1 mile of the proposed infiltration gallery. The landfill served the City of Modesto and surrounding communities from 1972 to 1990 before being decommissioned (SRWCB 2017). Following closure, the former landfill was capped and a gas extraction system was installed. However, the former landfill is unlined, and volatile organic compounds (VOCs) have been detected in the groundwater underlying the site. Evidence suggests that groundwater from the former landfill site flows in a southwesterly direction toward the Tuolumne River and is likely in hydraulic connectivity with the shallow groundwater zone and the river, especially during seasonally wet periods (Central Valley RWQCB 2011). Stanislaus County is monitoring the groundwater and implementing corrective actions (i.e., groundwater pumping and treatment).

Sensitive Receptors

Sensitive receptors are areas where the occupants may be more susceptible to the adverse effects of exposure to toxic chemicals, hazardous materials, pesticides, or other pollutants. Extra care must be taken when dealing with contaminants and pollutants near these locations. Sensitive receptors may include, but are not limited to, hospitals, schools, daycare facilities, and elderly housing/facilities.

A records search was conducted to identify potential sensitive receptors within a 0.25-mile radius of the project area (California Department of Education 2017). No sensitive receptors are located near proposed project facilities adjacent to Geer Road and Fox Grove Regional Park (i.e., raw water pump station and WTP). Hughson Christian School (1519 Tully Road, Hughson) is within a 0.25-mile radius of the Ceres treated water transmission main alignment along East Hatch Road.

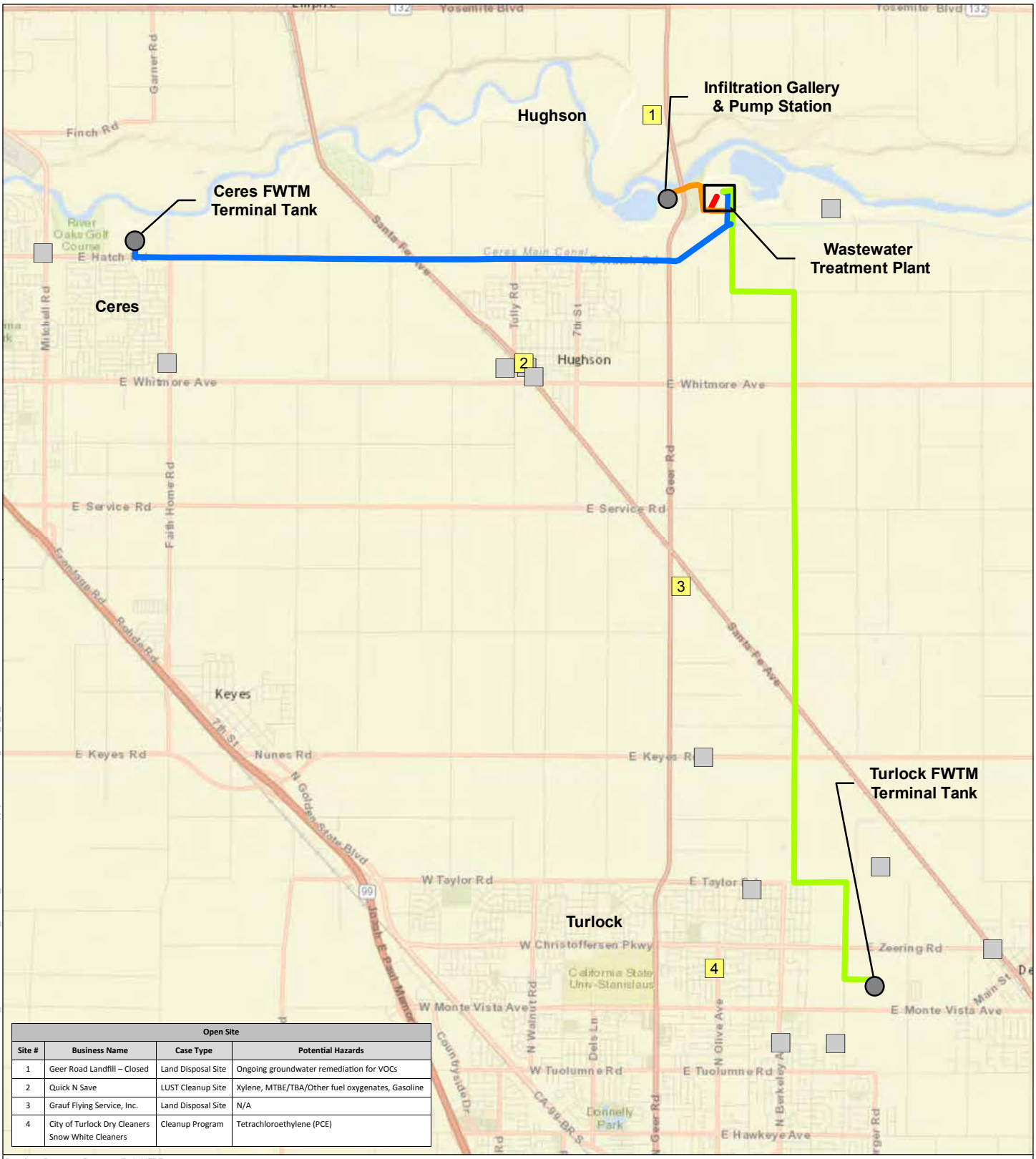
Airports and Private Strips

The Modesto City-County Airport is located at 617 Airport Way approximately 0.9 mile northwest of the proposed project. The Ceres terminal tank and water transmission main would be located in within the airport planning boundary, an area identified as having height restrictions and a higher Community Noise Equivalent Level.

Wildfire Hazards

The proposed project area consists primarily of agricultural land with limited potential for wildfire hazards. The project area is not located within a fire hazard severity zone (CAL FIRE 2007). Fire protection and response are provided by Stanislaus Consolidated Fire Protection District and the applicable city (i.e., Ceres, Hughson, Turlock, and Denair) fire departments. The nearest fire stations to the project area are as follows:

- Stanislaus Consolidated Fire, 7737 Yosemite Boulevard, Modesto;
- Hughson Fire Department, 2315 Charles Street, Hughson;
- Ceres Fire Department, 3101 Fowler Road, Ceres;
- City of Turlock Fire Station #3, 501 East Monte Vista Avenue, Turlock; and
- Denair Fire Department, 3918 North Gratton Road, Denair.



Open Site			
Site #	Business Name	Case Type	Potential Hazards
1	Geer Road Landfill – Closed	Land Disposal Site	Ongoing groundwater remediation for VOCs
2	Quick N Save	LUST Cleanup Site	Xylene, MTBE/TBA/Other fuel oxygenates, Gasoline
3	Grauf Flying Service, Inc.	Land Disposal Site	N/A
4	City of Turlock Dry Cleaners Snow White Cleaners	Cleanup Program	Tetrachloroethylene (PCE)

Basebap Sources: Sources: Esri, HERE, DeLorme, USGS, Intermap, INCREMENT P,

N

0 0.55 1.1

Miles

Hazardous Materials Sites

- Open
- Closed
- Ceres Finished Water Transmission Main
- Raw Water Transmission Main
- Turlock Finished Water Transmission Main
- WTP pipeline

Source: GeoTracker 2017

Figure 3.8-1
Documented Hazardous Material Sites within 1 Mile of the Proposed Project

Surface Water Supply Project

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3.8.4 Environmental Impacts and Mitigation

Methodology

Potential impacts of the proposed project related to hazards and hazardous materials were evaluated qualitatively by considering aspects of the project in relation to the CEQA significance criteria.

Significance Criteria

Based on Appendix G of the State CEQA Guidelines, the proposed project would result in a significant impact on hazards and hazardous materials if it would:

- Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials;
- Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment;
- Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school;
- Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment;
- For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area;
- For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area;
- Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan; or
- Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands.

Impact Analysis

Impact HAZ-1: Create a Significant Hazard to the Public or the Environment Through the Routine Transport, Use, or Disposal of Hazardous Materials (Less than Significant with Mitigation)

Construction activities for the proposed project would require handling of hazardous materials, such as fuels, lubricating fluids, and solvents for use with construction equipment on the project sites. Accidental spills or improper use, storage, transport, or disposal of these

hazardous materials could result in a public hazard or the transport of hazardous materials (particularly during storm events) to the underlying soils and groundwater.

Although these hazardous materials could pose a hazard, project activities would be required to comply with extensive regulations so that substantial risks would not result. All storage, handling, and disposal of these materials would be handled in accordance with regulations established by DTSC, USEPA, OSHA, Cal OES, CUPA, and Cal/OSHA. In addition, as described in Section 3.9, *Hydrology and Water Quality*, SRWA or its contractor(s) would be required to prepare a SWPPP as part of its compliance with applicable NPDES permits under Section 402 of the CWA; the SWPPP would include spill prevention measures for stationary-source equipment and immediate spill cleanup. However, the potential for the proposed project to involve placement of hazardous materials in a flood hazard area would be a significant impact. This potential for adverse impacts would be minimized through the implementation of **Mitigation Measure HYD/WQ-1 (Construct Structures Outside of the FEMA 100-Year Flood Hazard Area or Conduct Flood Flow Study and Provide Mitigation to Reduce the Project's Effects on Flood Flows).**

During operation, proposed project facilities would use a combination of electric and/or diesel/gas-powered pumps. Facility maintenance activities would involve small quantities of lubricating fluids and solvents. Operation of the WTP could involve larger quantities of various chemicals, as listed in **Table 3.8-1**.

Table 3.8-1. Chemicals Potentially Used in WTP Operations

Chemical	Volume (gallons)
Ferric Chloride	75,000
Aluminum Sulfate	75,000
Polyaluminum Chloride	75,000
Hydrogen Peroxide	3,000
Sodium Hydroxide	60,000
Sodium Bisulfite	12,000
Sodium Hypochlorite	30,000
Phosphoric Acid	7,000
Anionic Polymer	1,000
Cationic Polymer	500
Nonionic Polymer	3,000
Calcium Hydroxide (Lime)	60,000
Potassium Permanganate	10,000
Liquid Oxygen	6,000

Source: Information provided by West Yost Associates in 2017

Compliance with standard federal and state hazardous materials handling and storage regulations and the SWPPP prepared for the proposed project would reduce hazards to the public or the environment associated with routine transport, use, disposal, and/or accidental release of such materials during project operation. However, the potential remains for significant impacts from such activities, and this would be a significant impact.

The *TID Spill Cleanup Guidelines* (amended 2015) outline preventive measures, proper personal protective equipment, handling and transportation requirements, hazardous material identification and spill response procedures, emergency contingency and response plans, post-emergency equipment maintenance, and reporting requirements that would also be implemented during construction and operation of the proposed project elements at the infiltration gallery, including the wet well and raw water pump station (TID 2015). These guidelines, along with other compliance documents for other applicable federal and state hazardous materials regulations, may be used in part or in whole to support development of **Mitigation Measure HAZ-1 (Prepare and Implement a Hazardous Materials and Waste Management Plan for Construction and Operation).** Following compliance with standard federal and state hazardous materials regulations (including implementation of a SWPPP under the NPDES) and with implementation of Mitigation Measures HYD/WQ-1 and HAZ-1, the proposed project would avoid the creation of a significant hazard to the public or the environment associated with the routine transport, use, disposal, and/or accidental release of hazardous materials or waste. This impact would be **less than significant with mitigation**.

Mitigation Measure HAZ-1. Prepare and Implement a Hazardous Materials and Waste Management Plan for Construction and Operation.

SRWA or its contractor(s) shall prepare and implement a Hazardous Materials and Waste Management Plan (HMWMP). The HMWMP shall specify hazardous materials handling and spill response procedures applicable to construction activities and to operation of the project sites, including the following information:

- A list of hazardous materials present on site during construction and operation, to be updated as needed along with product Safety Data Sheets and other information regarding storage, application, transportation, and disposal requirements;
- A Hazardous Materials Communication (i.e., HAZCOM) Plan;
- Assignments and responsibilities of proposed project hazardous materials handling and spill response roles;
- Standards for any secondary containment and countermeasures that will be required for any hazardous materials spill;
- Spill response procedures based on product and quantity, which shall include materials to be used, location of such materials within the proposed project area, and disposal protocols; and
- Protocols for the management, testing, reporting, and disposal of potentially contaminated soils or groundwater observed or discovered during construction, which will address possible termination of work within the area of suspected contamination, sampling by an OSHA trained individual, and testing at a certified laboratory.

Impact HAZ-2: 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 (Less than Significant with Mitigation)

As described in Impact HAZ-1 above, construction and operation of the proposed project could result in upset or accident conditions involving the release of hazardous materials into

the environment, which would be a significant impact. Implementation of Mitigation Measures HYD/WQ-1 and HAZ-1, along with compliance with standard federal and state hazardous materials regulations (including implementation of a SWPPP under the NDPES), would reduce the potential for accidental release of hazardous materials to the public or the environment to a level that is **less than significant with mitigation**.

Impact HAZ-3: Emit Hazardous Emissions or Involve Handling of Hazardous or Acutely Hazardous Materials, Substances, or Waste Within One-Quarter Mile of an Existing or Proposed School (Less than Significant)

Hughson Christian School is within a 0.25-mile radius of the proposed location of the Ceres treated water transmission main along East Hatch Road, near Tully Road in Ceres. Project-related activities near this location would involve the use of heavy equipment or trenching and installation of a 30-inch-diameter water main parallel to East Hatch Road and the Ceres Main Canal. Likewise, potential installation of a pipeline on Mountain View Road in Turlock as part of offset water facilities at Well 38 could affect access to John H. Pitman High School for a brief period. However, construction activities at these locations would be limited to the road/canal ROW and would be temporary in nature as crews installed the pipeline along the alignments. Hazardous materials would be limited to fuels, lubricating fluids, and solvents for use with construction equipment and would pose a minimal risk to adjacent sensitive receptors and the existing school. Therefore, use and emission of hazards emissions or materials would be **less than significant**.

Impact HAZ-4: 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, Create a Significant Hazard to the Public or the Environment (Less than Significant)

As indicated by the records search conducted for the proposed project, no listed hazardous materials or waste sites are located on or within a 1-mile radius of the project sites (SWRCB 2017). Therefore, the proposed project would not be located on a site included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5, and would not create a significant hazard to the public or environment associated with any such sites.

The closed Geer Road Landfill north of the project facilities at Geer Road is known to have contributed VOCs and other hazardous materials to the groundwater beneath the landfill site (SRWCB 2017, USEPA 1992). Contaminants from this site have migrated into the underlying shallow aquifer and resulted in the contamination and closure of two private wells east of Geer Road and north of the Tuolumne River. The extent of contamination downgradient of the landfill site is unknown. However, the Tuolumne River is expected to act as a barrier to groundwater flow and impede contaminants from migrating south of the river (USEPA 1992). Corrective measures have been implemented to address the groundwater contamination, including closure and capping of the landfill; installation of a gas extraction system; installation of a shallow zone groundwater extraction and treatment system at the southwestern edge of the landfill; and optimization of the existing groundwater extraction system. The Central Valley RWCQB, however, has declared the existing landfill gas and groundwater extraction systems inadequate to prevent migration of VOCs and inorganic constituents away from the site or into deeper groundwater zones (Central Valley RWQCB 2011). Past surface water sampling by Stanislaus County to determine the presence of hazardous materials in the river was discontinued due to non-detection; however, if

contaminants do reach the river, it is expected that they would be in small concentrations with considerable surface water dilution and would enter the river downstream of the infiltration gallery.

Due to these hydrologic conditions and dilution by considerable surface flow from the river itself, the likelihood of these contaminants being found in the river or groundwater in concentrations above environmental screening levels is low and does not pose as a health risk to people or the environment. As a result, the potential for contaminated groundwater to be pumped from the river by the proposed project is minimal. Therefore, potential health hazards to the public or the environment would be **less than significant**.

Impact HAZ-5: Located Within an Airport Land Use Plan Area or, Where Such a Plan Has Not Been Adopted, Within 2 Miles of a Private or Public Airport and Result in a Safety Hazard for People Residing or Working in the Project Area (Less than Significant)

Project components (i.e., the Ceres treated water transmission main and terminal tank facilities) are located approximately 0.9 mile southeast of the Modesto City-County Airport and within the airport planning boundary. The airport planning boundary is intended to safeguard the general welfare of inhabitants in the vicinity of the airport and the public in general by placing restrictions on structure height and occupancy usage in areas within identified flight approach/departure paths. The Ceres terminal tank facilities consist of a 2.0-mgd water storage tank and above- and below-ground operating systems and equipment. The tank dimensions have not yet been established – the tank height is anticipated to be 25-30 feet, with a corresponding diameter ranging from 107 feet (at a 30-foot height) to 117 feet (at a 25-foot height). Installation of the Ceres treated water transmission main and terminal facilities would not interfere with airport operations or height restrictions. During operation, facilities would not expose individuals to prolonged, elevated noise levels or require personnel to occupy structures. Therefore, the potential for the proposed project to result in a safety hazard for people residing or working in the project area is **less than significant**.

Impact HAZ-6: Impair Implementation of or Physically Interfere with an Adopted Emergency Response Plan or Emergency Evacuation Plan (Less than Significant with Mitigation)

Construction-related employee vehicle trips and truck trips would increase traffic and could result in traffic slowdowns on Geer Road and the public access road to Fox Grove Regional Park (0.3 mile) for the project components near the Tuolumne River; East Hatch Road (4.3 miles) during installation of the Ceres treated water transmission main and terminal tank facilities; and Aldrich Road (0.7 mile), John Fox Road (0.5 mile), Berkeley Road (4.8 miles), East Taylor Road (0.4 mile), and North Quincy Road (0.8 mile) during installation of the Turlock treated water transmission main and terminal tank facilities. An increase in traffic and temporary partial or total lane closures (if necessary) could impair the response times of emergency responders during the construction period. However, construction-related traffic would be temporary. Approximately an average of 57 worker vehicle round-trips and 53 truck round-trips to and from the site are anticipated daily during the construction period. Access to the project sites and surrounding properties for fire and emergency response vehicles would be maintained at all times; however, trucks traveling on narrow access roads or reduced lanes could temporarily impede access to Fox Grove Regional Park or the WTP

area for emergency vehicles, which would be a significant impact. There would be little potential for impact on emergency response or evacuation plans during project operation.

To minimize the potential for the proposed project to interfere with an adopted emergency response plan or emergency evacuation plan, SRWA or its contractor(s) would implement **Mitigation Measure TRANS-1 (Prepare and Implement a Construction Traffic Management Plan)**, described in Section 3.15, *Transportation and Traffic.* Mitigation Measure TRANS-1 would require preparation of a construction traffic management plan that would identify haul routes, traffic control measures, and procedures for public notification of traffic delays or detours. Therefore, impacts from construction-related activities associated with the proposed project would be **less than significant with mitigation**.

Impact HAZ-7: Expose People or Structures to a Significant Risk of Loss, Injury, or Death Involving Wildland Fires (Less than Significant)

The project site is located in central Stanislaus County adjacent to the Tuolumne River and in areas dominated by agriculture, and is not located within a wildland fire hazard area (CAL FIRE 2007). During project-related construction activities, the use of mechanized equipment and motorized hand tools could spark and pose a fire risk. However, the project area is relatively flat with limited vegetative cover and is readily accessible by emergency vehicles on County roads, the Fox Grove Regional Park access road or, if necessary and feasible, private agricultural roads. Furthermore, none of the facilities being proposed would be a likely source of a fire, and no facilities are proposed directly adjacent to existing residences or other structures. Therefore, the proposed project's potential to expose people or structures to a significant risk of loss, injury, or death involving wildland fires would be **less than significant.**

3.9 Hydrology and Water Quality

3.9.1 Introduction

This section evaluates the potential impacts of the proposed project on hydrology and water quality. Section 3.9.2 begins with a discussion of the existing laws and regulations related to hydrology and water quality that are potentially applicable to the proposed project. Section 3.9.3 describes the existing conditions of the physical environment as it relates to hydrology and water quality. Finally, Section 3.9.4 discusses the potential impacts of the proposed project in light of the CEQA significance criteria and the regulatory and environmental setting.

3.9.2 Regulatory Setting

Clean Water Act

The CWA is the primary federal law that protects the quality of the nation's surface waters, including lakes, rivers, and wetlands. The key sections pertaining to water quality regulation for the proposed project are Sections 303 (listing of impaired water bodies), 401 (water quality certification), and 402 (NPDES permits for stormwater discharge, including SWRCB's municipal stormwater permitting system and General Construction Stormwater Permit). Because of their importance for protection of aquatic wildlife and vegetation, CWA Sections 401 and 402, as well as Section 404 (discharge of dredged and fill materials into waters of the United States), are discussed in Section 3.4, *Biological Resources.*

Section 303(d)—Listing of Impaired Water Bodies

Under Section 303(d) of the CWA, states are required to identify "impaired water bodies" (i.e., those water bodies not meeting established water quality standards); identify the pollutants causing the impairment; establish priority rankings for waters on the list; and develop a schedule for adoption of control plans to improve water quality. USEPA then approves or modifies the state's recommended list of impaired waters. USEPA also reviews and approves the control plan developed for each pollutant, known as the total maximum daily load (TMDL). Section 303(d), Category 5 water body segments are segments in which at least one beneficial use is not supported and a TMDL is needed.

Wild and Scenic Rivers Act

In 1968, Congress created the Wild and Scenic Rivers Act to designate and preserve certain rivers in a free-flowing condition for the enjoyment of present and future generations. Designated wild and scenic rivers have outstanding natural, cultural, and recreational values. Protections for these water bodies are administered by a federal or state agency. The Tuolumne River above Don Pedro Dam is designated as a Wild and Scenic River, but below the dam it is not (National Wild and Scenic Rivers System 2017). The site of the proposed project is below the dam.

National Flood Insurance Program

Congress established the National Flood Insurance Program (NFIP) to provide property owners with access to federally backed flood insurance protection and to reduce the destructive consequences of flooding. FEMA administers the NFIP and works closely with state and local officials to identify flood hazard areas and flood risks. FEMA's Flood Insurance Rate Maps (FIRMs) show the extent of areas within the 100-year floodplain (i.e., areas that would be inundated by the 1-percent annual chance flood), providing the basis of the NFIP regulations and flood insurance requirements (FEMA 2017).

State Laws, Regulations, and Policies

Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act of 1969, known as the Porter-Cologne Act, regulates and coordinates California's water quality protection activities in coordination with USEPA under the CWA (see discussion above). It established the SWRCB and divided the state into nine regions, each overseen by a RWQCB. The SWRCB is the primary state agency responsible for protecting the quality of the state's surface water and groundwater supplies. However, much of the SWRCB's daily implementation authority is delegated to the RWQCBs, which also are responsible for implementing CWA Sections 401, 402, and 303(d).

The Porter-Cologne Act requires the RWQCBs to develop water quality control plans, also known as Basin Plans, which designate beneficial uses of California's major surface water bodies and groundwater basins. Basin Plan standards are primarily implemented by regulating waste discharges so that water quality objectives are met.

The proposed project is located within the planning area/jurisdiction of the Central Valley RWQCB. The *Water Quality Control Plan (Basin Plan) for the California Regional Water Quality Control Board, Central Valley Region* (Central Valley RWQCB 2016) establishes beneficial uses for the Tuolumne River and the downstream water bodies to which it is tributary, as shown in **Table 3.9-1**.

As shown in Table 3.9-1, the segment of the Tuolumne River from Don Pedro Dam downstream to its confluence with the San Joaquin River, including the proposed project area, is designated for the following existing beneficial uses: irrigation, stock watering, contact recreation, canoeing and rafting, other non-contact recreation, warm- and cold-water freshwater habitat, cold-water migration, warm- and cold-water spawning, and wildlife habitat. Municipal and domestic supply is listed as a potential beneficial use.

Division of Safety of Dams

The California Department of Water Resources (DWR) Division of Safety of Dams (DSOD) oversees dam construction, maintenance, and operation. DSOD reviews design plans for new dams, imposes requirements related to inspections and maintenance of dams, and, if necessary, steps in to employ any remedial means necessary to protect life and property if the condition of a dam is dangerous or if passing or imminent floods threaten the safety of any dam or reservoir (DSOD n.d.).

1 **Table 3.9-1.** Beneficial Uses for Water Bodies Potentially Affected by the Proposed Project

			AGRICULTURE		INDUSTRY			RECREATION			FRESHWATER HABITAT		MIGRATION		SPAWNING			
		MUN	AGR		PROC	IND	POW	REC-1		REC-2	WARM	COLD	MIGR		SPWN		WILD	NAV
Water Bodies	HUC No.	Municipal and Domestic Supply	Irrigation	Stock Watering	Process	Service Supply	Power	Contact	Canoeing and Rafting	Other Non-Contact	Warm	Cold	Warm	Cold	Warm	Cold	Wildlife Habitat	Navigation
Tuolumne River																		
Don Pedro Reservoir	536.32	P					E	E		E	E	E					E	
Don Pedro Dam to San Joaquin River	535	P	E	E				E	E	E	E	E		E	E	E	E	
Sacramento–San Joaquin Delta																		
Sacramento–San Joaquin Delta	544	E	E	E	E	E		E		E	E	E	E	E	E		E	E

Notes: AGR = agricultural supply; COLD = cold freshwater habitat; HUC = hydrologic unit code; IND = industrial service supply; MUN = municipal and domestic supply; NAV = navigation; POW = power; PROC = industrial process supply; REC-1 = water contact recreation; REC-2 = non-contact water recreation; SPWN = spawning, reproduction, and/or early development; WARM = warm freshwater habitat; WILD= wildlife habitat.

Beneficial Use Status: E = existing beneficial uses; L = existing limited beneficial uses; P = potential beneficial uses.

2 *Source: Central Valley RWQCB 2016*

Sustainable Groundwater Management Act

The Sustainable Groundwater Management Act (SGMA) became law in 2015 and created a legal and policy framework to manage groundwater sustainably. The SGMA allows local agencies to customize groundwater sustainability plans to their regional economic and environmental conditions and needs, and establishes new governance structures, known as Groundwater Sustainability Agencies (GSAs). The SGMA is intended to prevent undesirable results from groundwater use, which are defined as the following:

- Chronic lowering of groundwater levels (not including overdraft during a drought if a basin is otherwise managed);
- Significant and unreasonable reduction of groundwater storage;
- Significant and unreasonable seawater intrusion;
- Significant and unreasonable degraded water quality, including the migration of contaminant plumes that impair water supplies;
- Significant and unreasonable land subsidence that substantially interferes with surface land uses; or
- Depletions of interconnected surface water that have significant and unreasonable adverse impacts on beneficial uses of the surface water.

The proposed project area is within the GSA jurisdiction of the West Turlock Subbasin Groundwater Sustainability Agency.

CASGEM Basin Prioritization

In 2009, the California State Legislature amended the CWC with SBx7-6, which mandates a statewide groundwater elevation monitoring program to track seasonal and long-term trends in groundwater elevations in California (DWR 2017a). Pursuant to this amendment, DWR established the California Statewide Groundwater Elevation Monitoring (CASGEM) Program. The CASGEM Program establishes the framework for regular, systematic, and locally managed monitoring in all of California's groundwater basins (DWR 2017a). To facilitate implementation of the CASGEM Program and focus limited resources, as required by the CWC, DWR ranked all of California's basins by priority (high, medium, low, and very low) based on the following factors (DWR 2017b):

1. Population overlying the basin;
2. Rate of current and projected growth of the population overlying the basin;
3. Number of public supply wells that draw from the basin;
4. Total number of wells that draw from the basin;
5. Irrigated acreage overlying the basin;
6. Degree to which persons overlying the basin rely on groundwater as their primary source of water;

7. Any documented impacts on the groundwater within the basin, including overdraft, subsidence, saline intrusion, and other water quality degradation; and

8. Any other information determined to be relevant by DWR.

DWR classifies the Turlock Subbasin, within which the proposed project would be located, as a high-priority basin, with noted groundwater overdraft (DWR 2014).

Central Valley Flood Protection Board

The Central Valley Flood Protection Board (CVFPB) is responsible for ensuring that appropriate standards are met for the construction, maintenance, and protection of the Central Valley's flood control system. In general, CVFPB requires a permit for proposed work that is located within the State Plan of Flood Control, within 300 feet of a Designated Floodway that has been adopted by CVFPB, or within 30 feet from the banks of a CVFPB-designated Regulated Stream (CVFPB 2017). CVFPB identifies a Designated Floodway along the Tuolumne River downstream of Don Pedro Dam, including the area of the infiltration gallery and proposed raw water pump station.

Local Laws, Regulations, and Policies

Stanislaus County

The *Stanislaus County General Plan* guides land use and development in the unincorporated area of Stanislaus County (Stanislaus County 2015). Goals and policies in the general plan related to hydrology and water quality include the following:

Conservation and Open Space Element

Goal Two. Conserve water resources and protect water quality in the County.

> **Policy Five.** Protect groundwater aquifers and recharge areas, particularly those critical for the replenishment of reservoirs and aquifers.

Goal Five. Reserve, as open space, lands subject to natural disaster in order to minimize loss of life and property of residents of Stanislaus County.

> **Policy Sixteen.** Discourage development on lands that are subject to flooding, landslide, faulting, or any natural disaster to minimize loss of life and property.

Safety Element

Goal One. Prevent loss of life and reduce property damage as a result of natural disasters.

> **Policy Two.** Development should not be allowed in areas that are within the designated floodway or any areas that are known to be susceptible to being inundated by water from any source.

Agriculture Element

Goal Three. Protect the natural resources that sustain our agricultural industry.

Policy 3.5. The County will continue to protect the quality of water necessary for crop production and marketing.

Policy 3.6. The County will continue to protect local groundwater for agricultural, rural domestic, and urban use in Stanislaus County.

City of Ceres

The *City of Ceres General Plan* (City of Ceres 1997) contains the following goals and policies relevant to hydrology and water quality and the proposed project:

Public Facilities and Services

Goal 4.E. To collect and dispose of stormwater in a manner that minimizes inconvenience to the public, minimizes potential water-related damage, and enhances the environment.

Policy 4.E.1. The City shall require new development to adequately mitigate increases in stormwater peak flows and/or volume. Mitigation measures should take into consideration impacts on adjoining lands in the city and immediately adjacent to the city in unincorporated Stanislaus County.

Policy 4.E.2. All drainage designs shall be in accordance with the accepted principles of civil engineering, the Stanislaus County *Storm Drainage Design Manual,* and City improvement standards.

Policy 4.E.3. The City shall encourage project designs that minimize drainage concentrations and impervious coverage.

Agricultural and Natural Resources

Goal 6.B. To protect and enhance the natural qualities of the Ceres area's rivers, creeks, and groundwater.

Policy 6.B.1. The City shall cooperate with other agencies in the conservation of the Tuolumne River for the protection of its water resources and its open space qualities.

Policy 6.B.2. The City shall cooperate with other jurisdictions to jointly study the potential for using surface water sources to balance the groundwater supply to protect against aquifer overdrafts and water quality degradation.

City of Turlock

The proposed project is described generally in Chapter 3, "New Growth Areas and Infrastructure," of the *Turlock General Plan* (City of Turlock 2012). The general plan contains the following guiding policies related to hydrology and water quality and the proposed project:

New Growth Areas and Infrastructure

Guiding Principle 3.3-a. Protect water quality and supply. Continue efforts to safeguard the quality and availability of Turlock's water supply.

City of Hughson

The *Hughson General Plan* (City of Hughson 2005) contains the following goals and policies related to hydrology and the proposed project:

Conservation and Open Space

Goal COS-6. Maintain Hughson's ground and surface water quality.

Policy COS-6.1. New development proposals shall be designed and constructed using Best Management Practices (BMPs) to avoid negative impacts to water quality.

Policy COS-6.3. The City will enforce project design and construction regulations that limit amounts of impervious surfaces and control erosion to minimize associated runoff and ground water pollution.

3.9.3 Environmental Setting

Surface Water Hydrology

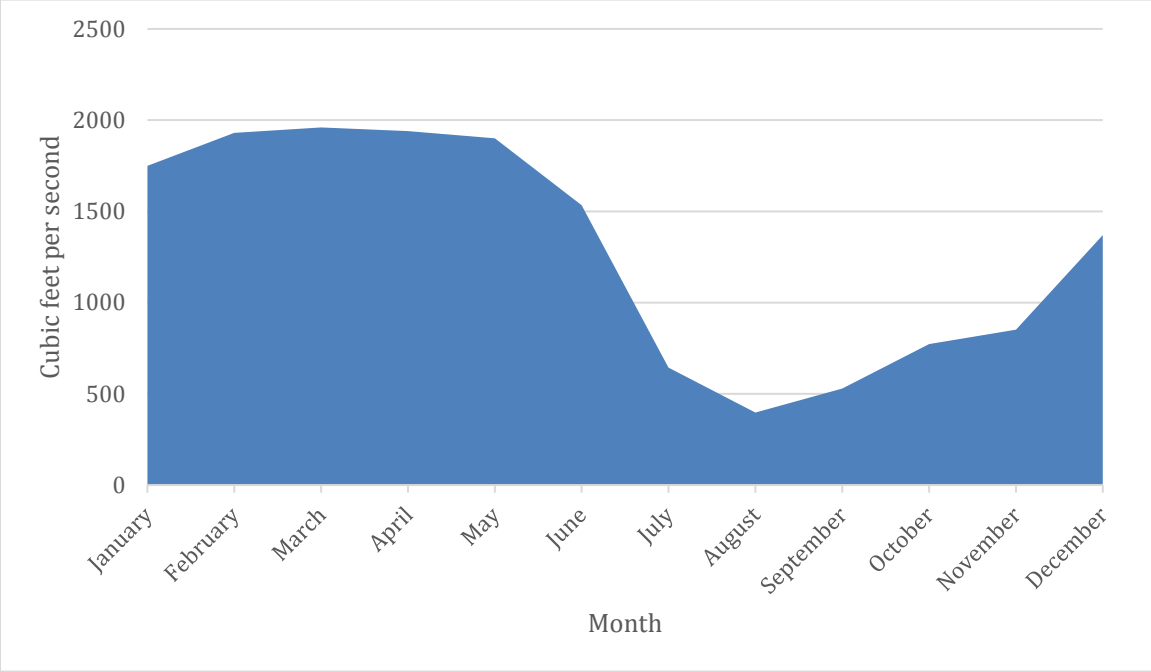
The Tuolumne River, the largest of the three main tributaries to the San Joaquin River, originates in the Sierra Nevada. Draining about 1,900 square miles of west-sloping mountains, the river flows southwesterly between the Merced River watershed to the south and the Stanislaus River watershed to the north.

Being located in Northern California, the Tuolumne River watershed is subject to a Mediterranean climate and seasonal precipitation pattern, with most precipitation falling from November through April. Summers in the project area are typically hot and dry. Flows in the Tuolumne River generally follow the precipitation pattern, with higher flows in the winter months and lower flows in summer and early fall. Snowmelt contributes substantially to flows in the river during spring.

As described further under "Geomorphology" below, peak flows in the Tuolumne River have been reduced substantially since construction of the Old and New Don Pedro Dams. Levee construction, land use conversion, and mining activities have also altered the flow regime. **Figure 3.9-1** shows mean monthly discharge over the period from Water Year 1940 to Water Year 2016 on the Tuolumne River near Modesto.

As shown in Figure 3.9-1, flows in the river at Modesto (approximately 10.5 river miles downstream of the project site) are highest from February to May, when they average nearly 2,000 cfs, and are lowest from July to September, when they average around 500 cfs.

Figure 3.9-1. Mean Monthly Discharge at USGS Gage 11290000 (Tuolumne River at Modesto, CA), Water Years 1940-2016



Source: USGS 2017

Discharges from TID's Canal Facilities

TID operates a network of irrigation canals within the greater Turlock area, including in the proposed project area, which "spill" to the Tuolumne, San Joaquin, and Merced Rivers. **Figure 3.9-2** shows TID's canal system.

As shown in Figure 3.9-2, the Hickman, Faith Home, and Lateral 1 Spills discharge to the Tuolumne River. Only the Faith Home Spill, however, contributes substantial amounts of water to the river. Data showing the volume of water spilled from the Faith Home Spill is shown in **Table 3.9-2**.

Discharges from TID's canal system into the Tuolumne River vary from year to year. In an average year, approximately 450-750 acre-feet are discharged per month for a total of approximately 4,700 acre-feet per year.

Water Quality

Water quality in the Lower Tuolumne River is affected by surrounding agricultural land uses and other activities. The segment of the river from Don Pedro Reservoir to the San Joaquin River is identified as impaired for various contaminants on SWRCB's Section 303(d) list, as shown in **Table 3.9-3**.

Table 3.9-2. Water Spilled to the Tuolumne River from Faith Home Spill in Acre-Feet, 2000-2016

Year	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Total
2000	-	-	1,144	1,871	2,083	2,265	1,298	1,683	10,344
2001	111	1,382	710	981	844	577	811	556	5,972
2002	531	416	500	716	538	486	401	266	3,854
2003	313	318	739	901	571	1,174	748	761	5,525
2004	838	2,465	1,613	1,512	1,300	985	1,100	1,818	11,630
2005	-	990	2,062	1,141	1,238	1,218	1.954	1,024	9,631
2006	-	2,670	1,044	649	775	556	600	566	6,860
2007	759	508	289	482	244	64	72	70	2,489
2008	43	19	17	10	15	20	20	6	148
2009	-	4	12	20	35	39	49	15	174
2010	200	1,137	888	1,000	1,501	1,382	1,172	1,124	8,405
2011	1,604	1,143	1,555	2,018	591	299	566	760	8,606
2012	99	368	247	116	258	216	145	83	1,532
2013	405	248	393	244	358	285	326	112	2,369
2014	-	184	113	94	62	79	50	35	617
2015	-	76	46	114	46	53	37	32	403
2016	-	110	157	235	275	100	208	214	1,299
Average	**490**	**752**	**678**	**712**	**631**	**576**	**447**	**537**	**4,698**

Source: Data provided by TID in 2017.

Table 3.9-3. Section 303(d), Category 5 Listings for Water Body Segments Potentially Affected by the Proposed Project

Water Body	Watershed CalWater / USGS HUC	Contaminant	Source	First Listed	TMDL Status[1]	Completion Date[2]
Don Pedro Reservoir	53632010 / 18040009	Mercury	Unknown	2002	5A	2020
Tuolumne River, Lower (Don Pedro Reservoir to San Joaquin River)	53550000 / 18040002	Chlorpyrifos	Unknown	2012	5A	2021
		Diazinon	Unknown	2002	5A	2010
		Group A Pesticides	Unknown	2006	5A	2011
		Mercury	Unknown	2010	5A	2021
		Temperature, water	Unknown	2010	5A	2021
		Unknown Toxicity	Unknown	2006	5A	2022
San Joaquin River (Tuolumne River to Stanislaus River)	53530000 / 18040002	Chlorpyrifos	Unknown	2006	5B	2007
		DDT (Dichlorodiphenyl-trichloroethane)	Unknown	2006	5A	2011
		Diazinon	Unknown	2006	5B	2007
		Electrical Conductivity	Unknown	1998	5A	2021
		Group A Pesticides	Unknown	1994	5A	2011

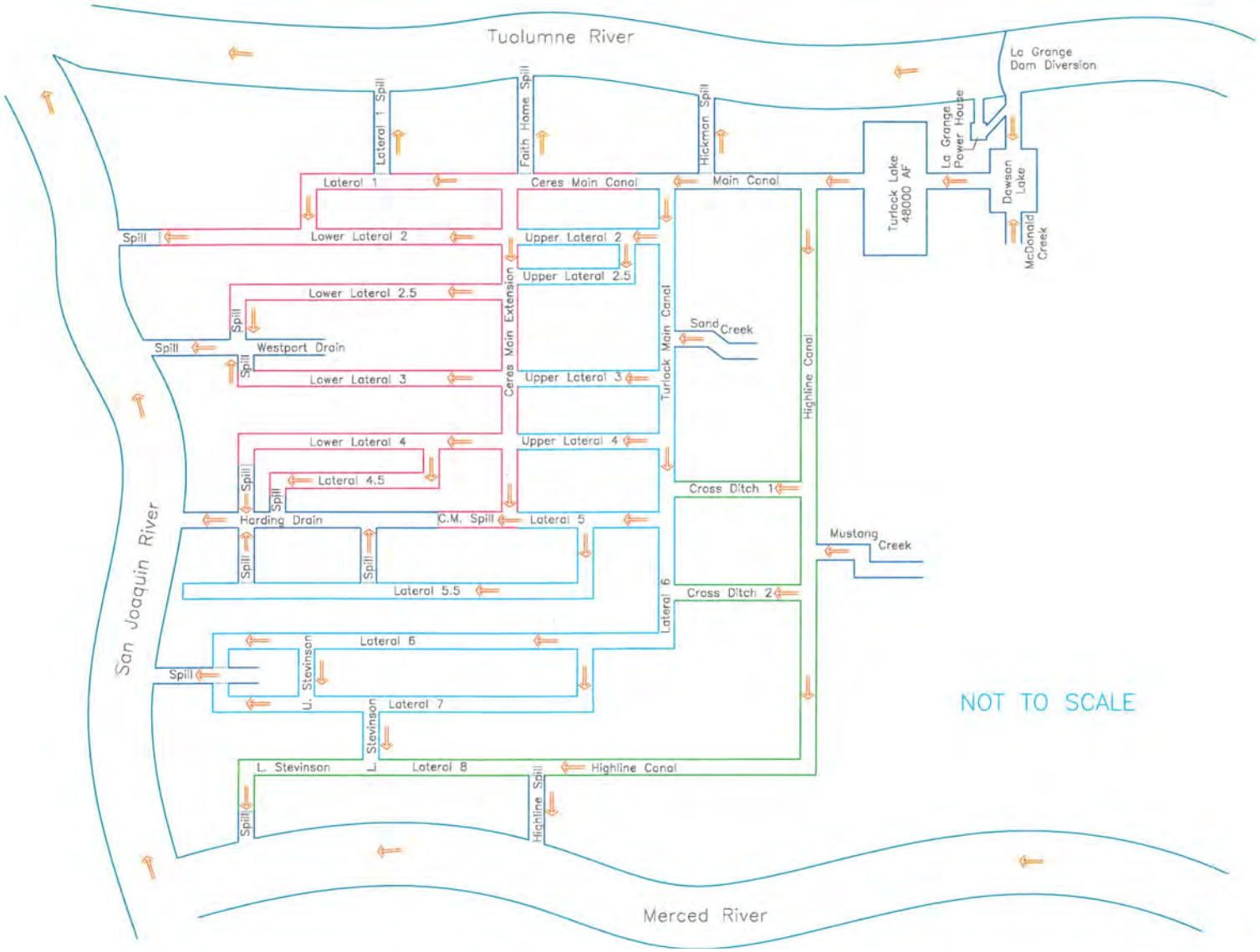
		Mercury	Unknown	2006	5A	2012
		Temperature, water	Unknown	2010	5A	2021
		Unknown Toxicity	Unknown	1994	5A	2019
San Joaquin River (Stanislaus River to Delta Boundary)	54400000 / 18040002	Chlorpyrifos	Unknown	2006	5B	2007
		DDE (Dichlorodiphenyl-dichloroethylene)	Unknown	2010	5A	2011
		DDT (Dichlorodiphenyl-trichloroethane)	Unknown	2006	5A	2011
		Diuron	Unknown	2010	5A	2021
		Electrical Conductivity	Unknown	2006	5B	2007
		Escherichia coli (*E. coli*)	Unknown	2010	5A	2021
		Group A Pesticides	Unknown	2006	5A	2011
		Mercury	Unknown	2006	5A	2012
		Temperature, water	Unknown	2010	5A	2021
		Toxaphene	Unknown	2006	5A	2019
		Unknown Toxicity	Unknown	2006	5A	2019

Notes: HUC = hydrologic unit code; TMDL = total maximum daily load.

[1] TMDL requirement status definitions: A = TMDL still required; B = being addressed by USEPA-approved TMDL. Category 5 = water body segments in which at least one beneficial use is not supported and a TMDL is needed.

[2] Completion date relates to the TMDL requirement status; a date for A = TMDL scheduled completion date; B = date USEPA approved TMDL.

Source: SWRCB 2012



Source: Diagram provided by TID in 2017.

Figure 3.9-2.TID's Canal System and Spill Locations

Prepared by:

Horizon WATER and ENVIRONMENT

Surface Water Supply Project

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Geomorphology

The Tuolumne River and its floodplain have an extensive history of flow regulation and diversion, gold and aggregate mining, levee construction, and land use conversion. Combined, these activities have altered large-scale physical and ecological processes in the lower river (i.e., downstream of the La Grange Dam), as well as channel and floodplain form.

Since 1893, the La Grange Dam (followed by the Old and New Don Pedro Dams) has intercepted the supply of coarse sediment from the upper watershed, producing sediment-depleted conditions downstream. Coarse sediment supply downstream of the La Grange Dam is currently limited to contributions from two small tributaries and sediments stored in contemporary channel, floodplain, and terrace deposits (McBain and Trush 2000).

In addition, the Old and New Don Pedro Dams have reduced the magnitude of peak flow events in the lower river. For example, the 2-year recurrence interval flow has been reduced from 21,000 cfs to 4,000 cfs. In response to reduced peak flows and elimination of coarse sediment supply, the Tuolumne River channel downstream of the La Grange Dam has narrowed and the bed has become armored and immobile. Peak flows sufficient to initiate bed movement occur periodically under the current regulated hydrologic regime, but the magnitude remains insufficient to initiate bed scour and redeposition (McBain and Trush 2000).

From the 1850s to the 1950s, placer and dredger mining for gold occurred within the gravel-bedded reach upstream of Roberts Ferry (RM 39.3, approximately 14 miles upstream of the proposed project area). Much of the dredger spoils (tailings) were removed in the late 1960s to construct the New Don Pedro Dam. Large-scale aggregate extraction (sand and gravel) began in the 1930s, first with instream aggregate extraction leaving large pits within the active mainstem channel. These Special Run Pools (SRPs) transformed fast-flowing reaches into slow-moving, deep pools that trap bedload transported from upstream reaches. This further starves the reaches downstream of the SRP sites.

Gravel extraction continues today by excavating large off-channel pits in former floodplains and terraces. These pits are separated from the mainstem by narrow dikes constructed of aggregate and/or topsoil, and are frequently breached during flood events larger than 8,000 cfs. Dynamic floodplain habitat is scarce or nonexistent.

Groundwater

The proposed project area is located within the San Joaquin Valley Groundwater Basin, Turlock Subbasin. This subbasin lies between the Tuolumne and Merced Rivers and is bounded on the west by the San Joaquin River and on the east by crystalline basement rock of the Sierra Nevada foothills. The primary hydrogeologic units in the Turlock Subbasin are consolidated and unconsolidated sedimentary deposits of varying ages and compositions. These deposits make up three groundwater bodies: the unconfined water body; the semi-

confined and confined water body in the consolidated rocks; and the confined water body beneath the E-clay[1] in the western portion of the subbasin (DWR 2006).

Groundwater is used to supply water needed by both agricultural and urban users within the subbasin. The Turlock Groundwater Basin Association (TGBA), formed in 1995, has prepared a groundwater management plan for the subbasin, which provides basinwide management objectives and goals to guide groundwater management decisions. Between 1997 and 2006, it is estimated that an average of 457,000 acre-feet per year (AFY) was pumped from the subbasin by agricultural and urban agencies, small domestic water systems, and private property owners (TGBA 2008). On average, groundwater levels declined by nearly 7 feet within the subbasin from 1970 through 2000 (DWR 2006), although levels stabilized during the 1990s (TGBA 2008). More recent observed reductions in groundwater storage from 2002 to 2006 suggest that the subbasin may no longer be in the equilibrium state it achieved in the 1990s (TGBA 2008). Moving forward, the West Turlock Subbasin Groundwater Sustainability Agency will prepare and implement a new groundwater sustainability plan under SGMA.

Floodplain and Dam Inundation Area

Because of their location adjacent to the Tuolumne River, some portions of the project area may be located within the 100-year floodplain, as mapped by FEMA (2008). Additionally, much of the project area would be within the dam inundation area for Don Pedro Reservoir (Stanislaus County 2015). The County's dam inundation map shows that a failure of the Don Pedro Dam would inundate large swaths of land extending outward several miles in each direction from the Tuolumne River, including portions of Hughson, Waterford, and Modesto.

3.9.4 Environmental Impacts and Mitigation

Methodology

Impacts were evaluated qualitatively and quantitatively, considering ways in which the proposed project could affect hydrology and water quality, as identified by the CEQA Appendix G significance criteria. If a potentially significant impact was identified, then feasible mitigation measures were considered and applied, if reasonable and effective in mitigating the impact.

For impacts on groundwater, a modeling effort was conducted to determine the years in which surface water shortages would have occurred over a 115-year period of record (1901 to 2015), and the volume of water that SRWA would have been required to (1) provide as offset water to TID, and (2) make up for shortages from TID using SRWA's own supplies to meet demands. As a worst-case scenario, it was assumed that all offset water and shortage-recovery water would be provided by pumping groundwater.

[1] "E-clay" is a term used to describe a clay layer, also known as the Corcoran clay, underlying the western half of the Turlock Subbasin. This clay layer is present at depths ranging between 50 and 200 feet below ground surface, and establishes an effective barrier to water movement between the confined and unconfined water bodies (DWR 2006).

Significance Criteria

Based on Appendix G of the State CEQA Guidelines, the proposed project would have a significant impact if it would:

- Violate any water quality standards or waste discharge requirements;
- Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted);
- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site;
- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site;
- 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;
- Otherwise substantially degrade water quality;
- Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map;
- Place within a 100-year flood hazard area structures which would impede or redirect flood flows; or
- Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam; or
- Expose people or structures to a significant risk of loss, injury or death involving inundation by seiche, tsunami, or mudflow.

Criteria Dismissed from Detailed Consideration

The seventh criterion above, "Place housing within a 100-year flood hazard area," is dismissed from detailed analysis because the proposed project would not include any housing. Therefore, the proposed project would have no potential to place housing within a 100-year flood hazard area.

The tenth criterion above, regarding inundation by seiche, tsunami, or mudflow, also is dismissed from detailed consideration because the proposed project area is located in the Central Valley, and in a flat area far from any large standing bodies of water or the ocean. Therefore, it would have no potential to subject people or structures to inundation by seiche, tsunami, or mudflow.

Impact Analysis

Impact HYD/WQ-1: Violate Water Quality Standards or Waste Discharge Requirements, or Otherwise Substantially Degrade Water Quality (Less than Significant)

Construction

During construction, ground disturbance and use of heavy construction equipment would have the potential to adversely affect water quality. Trenching for installation of the raw water transmission main connecting the infiltration gallery and raw water pump station to the WTP could expose loose, erodible soils that could be washed off site and into the Tuolumne River. Likewise, site preparation and earthwork for construction of the WTP could result in erosion and discharge of fine particles to the river. Use of heavy equipment could lead to leaks or spills of hazardous materials contained in the equipment (e.g., fuel, oil, lubricants), which could then be washed off site in a rain event and discharged to a water body. Installation of the treated water transmission mains from the WTP to the Cities of Ceres and Turlock could potentially result in discharge of materials to one of TID's irrigation canals, which could then be transported to the Tuolumne or San Joaquin River.

The types of impacts described above are a common concern for nearly all ground-disturbing construction projects. Because the proposed project would disturb greater than 1 acre of land, it would be subject to the NPDES General Construction Permit. As described in Section 3.4, *Biological Resources*, this permit would require preparation of a SWPPP, which would include measures to minimize potential for release of contaminants and possible transport of contaminants off site. The SWPPP would include good housekeeping measures for vehicle storage and maintenance (e.g., place all equipment or vehicles that are to be fueled in a designated area fitted with appropriate BMPs), as well as a spill response element to ensure that equipment and materials for cleanup of spills are available on site. The SWPPP also would include BMPs to provide effective erosion and sediment discharge control (e.g., soil cover for exposed slopes, perimeter controls, stabilized construction entrances and exits).

Compliance with the NPDES General Construction Permit and implementation of the SWPPP would prevent adverse impacts on water quality from project construction activities. Therefore, construction-related impacts on water quality would be less than significant.

Operation

Potential water quality impacts could result from purging the infiltration gallery of sediment (i.e., backflushing), which could result in mobilization of sediment in the water column. Backflushing consists of pumping air in reverse through the pipes of the infiltration gallery, into the river, to loosen and remove entrained sediment that may have collected in the pipes during operation. The section of the Tuolumne River from Don Pedro Reservoir to the San Joaquin River is not designated as impaired for sediment, but is designated as impaired for a number of other contaminants (see Table 3.9-3). Under the proposed project, maintenance backflushing could occur for approximately 5 days twice a year, with seasonal restrictions limiting the backflushing to April 1-September 30. Because no new sediment would be deposited into the river through this process (rather, sediment deposited into the pipes by

river flow would be resuspended) and the effects would be temporary, this impact would be less than significant.

The proposed project also would discharge water to TID irrigation canals through the offset water arrangement described in Chapter 2, *Project Description.* Offset water could be recycled water, groundwater, or a combination of both, and would be provided from SRWA to TID via a direct discharge at one or more locations in Ceres and/or Turlock (see Section 2.4.7, "Offset Water Facilities," in Chapter 2 for the possible locations). The amount of offset water that SRWA would be required to provide to TID beyond the minimum 2,000 acre-feet would depend on the level of water allocation in a given year:

- if there is no reduction in water allocation to SRWA (i.e., the full 30,000 acre-feet is provided), then no offset water beyond the minimum 2,000 acre-feet would be required;
- if the water allocation to SRWA is reduced (i.e., less than the full 30,000 acre-feet is provided), then a corresponding volume of offset water would be required up to a maximum of 15,000 acre-feet.

Refer to Chapter 2, *Project Description* and Impact HYD/WQ-2 for additional discussion of offset water. Discharge of offset water to the TID canal system would be subject to applicable federal and state water quality regulations, which may require a waste discharge permit from the Central Valley RWQCB issued pursuant to the NPDES program. This type of permit would include requirements to prevent adverse impacts on receiving water bodies, such as effluent limitations, recycled water treatment requirements, and receiving water limitations (i.e., narrative and numerical water quality standards for receiving water to meet beneficial uses). Therefore, this impact would be less than significant.

The proposed project also would add impervious surfaces, which could increase the volume of stormwater discharges and introduce discharges of polluted runoff into surface water bodies. Because final design of the facilities is not complete, this analysis assumes that the entire area at the WTP site and each terminal tank site would be impervious. The WTP site is estimated to cover half or more of the site's approximately 48 acres; conservatively, this analysis estimates the full acreage to be impervious. The Ceres tank site is 1.3 acres, and the Turlock tank site is 6.14 acres. Thus, the maximum total area of impervious surfaces resulting from the proposed project would be approximately 56 acres. However, the proposed project would include stormwater management features, including a stormwater retention basin, that would capture stormwater generated on site and would adhere to existing laws and regulations pertaining to hazardous materials to prevent and/or contain accidental spills or releases (see Section 3.8, *Hazards and Hazardous Materials,* for more information). These measures would prevent substantial discharges of polluted runoff from leaving the project site. Potential impacts associated with increased stormwater volumes are evaluated further in Impact HYD/WQ-4.

Therefore, the proposed project's effects on water quality during project operation would be less than significant.

Conclusion

Overall, the proposed project's effects on water quality during construction and operation would be **less than significant.**

Impact HYD/WQ-2: Substantially Deplete Groundwater Supplies or Interfere Substantially with Groundwater Recharge (Beneficial)

Construction

The proposed project would not use large amounts of groundwater during construction. It is likely that construction water demand (e.g., for dust control) would be met using water trucks, whose supplies may derive from groundwater. This demand during construction would not substantially deplete groundwater supplies, and water sprayed for dust control would for the most part flow back into the soil. Therefore, the impact of the proposed project on groundwater during construction would be less than significant.

Groundwater Use during Project Operation

During operation, the proposed project may use groundwater supplies for provision of offset water, as well as to make up for any shortages in the surface water allocation from TID. As described above and in Chapter 2, *Project Description,* SRWA's agreement with TID stipulates that, in years when TID's water allocation to SRWA is reduced due to shortages in TID's water supply system, SRWA must provide offset water to TID at an amount proportional to the reduction, but not to exceed 50 percent of its annual demand. However, in all years, the City of Turlock, on behalf of SRWA, is to provide a base 2,000 AF of recycled water to TID, which, during dry years, would count towards SRWA's total off-set water requirements. SRWA's supply source for offset water above the baseline 2,000 AF recycled water amount may come from recycled water, groundwater, or a combination of both. For the purposes of this analysis, it is conservatively assumed that all offset water above the 2,000 AF baseline amount would be sourced entirely from groundwater, as this would have the greatest potential for groundwater impacts.

In addition to providing offset water to TID, SRWA also would need to obtain water from an alternative source to make up for any shortages in water allocation from TID (e.g., if its annual allocation is reduced in a given year by 50 percent, it may need to obtain 50 percent of its allocation/annual demand from another source). Since no other source currently exists besides groundwater, this analysis also assumes that this supply would be obtained from groundwater.

To determine the impacts of groundwater use under the proposed project, a modeling exercise was undertaken. The modeling considered TID shortages to municipal and industrial customers (i.e., SRWA) using hydrologic data over the period 1901-2015. The level of groundwater pumping modeled under the proposed project was compared to SRWA's current level of water demand, which is met entirely with groundwater. As described in greater detail in Section 3.17, *Utilities and Service Systems,* the City of Turlock currently supplies 7,094 million gallons (21,771 acre-feet) of water to its customers, and the City of Ceres currently supplies 2,294 million gallons (7,041 acre-feet) to its customers. Collectively, the two agencies supply approximately 28,812 acre-feet to their customers. This number is

projected to rise in the future but is considered the baseline condition for the purposes of this analysis.

Table 3.9-4 shows the summary results of the modeling exercise. Two scenarios were considered: one in which TID would supply SRWA with 30,000 AFY (i.e., the initial phase of the project), and one in which TID would supply SRWA with 42,000 AFY (the second phase, at buildout) to meet future increased demands.

As shown in Table 3.9-4, in an average (i.e., mean) year under the 30,000 AFY scenario, the proposed project would reduce groundwater pumping by 27,821 acre-feet; SRWA would receive a 3-percent reduction in its water allocation of 30,000 acre-feet from TID and its off-set water requirements would be met by the City of Turlock's annual 2,000 acre-feet baseline recycled water delivery to TID. To make up for the 3-percent reduction in its allocation, SRWA would obtain 991 acre-feet from groundwater. Subtracting the shortage recovery water from SRWA's annual demand of 28,812 (which is currently supplied entirely by groundwater) shows a net reduction in groundwater pumping of 27,821 AFY on average.

The minimum water shortage occurrence under the 30,000 AFY scenario (0 acre-foot shortage or full 30,000 acre-foot allocation) would result in a net reduction in groundwater use of 28,812 acre-feet from the proposed project compared to existing conditions, as SRWA would obtain 100 percent of its supplies from surface water. It should be noted that this minimum shortage occurrence was extremely common during the period of record studied in this analysis. Out of the 115 years studied in the analysis, 100 years (87 percent of years) showed no shortage in water allocation to SRWA, and, consequently, there would have been no required offset water above the baseline recycled water amount provided by City of Turlock or groundwater pumping to make up for shortages.

The maximum water shortage occurrence under the 30,000 AFY scenario (22,080 acre-foot shortage or 74-percent reduction from the full 30,000 acre-foot allocation) resulted in a net reduction in groundwater use of 812 acre-feet from the proposed project compared to existing conditions. This maximum observed water shortage occurred in 2015, which was one of the driest years on record in California. Additionally, it should be noted that, due to the structure of the WSA between SRWA and TID (i.e., the amount of required offset water cannot exceed the amount of water transferred to SRWA), 28,000 acre-feet is the maximum amount of groundwater pumping that could occur under this scenario. Therefore, a net reduction in groundwater pumping of 812 acre-feet in a given year is the minimum reduction that could occur under the 30,000 AFY scenario compared to existing conditions.

Table 3.9-4. Summary Results of Modeling of Offset Water Provision and Groundwater Pumping under the Proposed Project (1901-2015)

Scenario	Calendar Year Water Shortage (AF)	Percent Reduction in Allocation to SRWA (%)	Offset Water Required[1] (AF)	SRWA Groundwater Pumping to Make up Shortage (AF)	Total Groundwater Pumping by SRWA[2] (AF)	Difference in Groundwater Use (Proposed Project Compared to Existing Conditions[3]) (AF)
30,000 AFY Scenario						
Mean	991	3	2,000	991	991	-27,821
Minimum	0	0	2,000	0	0	-28,812
Maximum	22,080	74	7,920	22,080	28,000	-812
42,000 AFY Scenario						
Mean	1,629	4	3,132	1,629	2,761	-26,051
Minimum	0	0	2,000	0	0	-28,812
Maximum	31,821	76	10,179	31,821	40,000	+11,188

Notes: AF = acre-feet; AFY = acre-feet per year

[1] The City of Turlock, on behalf of SRWA, would provide a base yearly 2,000 AF of recycled water, which would count towards SRWA's off-set water requirements.

[2] It is assumed that any off-set water above the 2,000 AF base recycled water amount would be provided with groundwater. Therefore, the total amount of groundwater pumping by SRWA is assumed to be the calendar year water shortage amount (to be made up with groundwater pumping) plus the total amount of off-set water required minus the 2,000 AF base recycled water amount.

[3] As noted in the discussion above, SRWA currently supplies approximately 28,812 acre-feet of water to its customers, all of which is supplied by groundwater.

Source: Modeling conducted by Horizon in 2017 based on SRWA/TID data for 1901-2015

Modeling the 42,000 AFY scenario showed similar results: in an average (i.e., mean) year, SRWA would receive a 4-percent reduction in its allocation from TID, requiring that it provide 3,132 acre-feet of offset water to TID (2,000 acre-feet of which would be supplied by recycled water) and pump 1,629 acre-feet to make up for the shortage, all resulting in a total groundwater extraction of 2,761 acre-feet, or an annual reduction of 26,051 acre-feet compared to existing conditions. Under the minimum water shortage occurrence, the proposed project would reduce groundwater extraction by 28,812 acre-feet compared to existing conditions. Under the maximum shortage occurrence, the proposed project would increase groundwater extraction 11,188 acre-feet compared to existing conditions, largely due to increases in overall water demand within SRWA's service area under the 42,000 AFY scenario. Again, this maximum shortage occurred in the extremely dry year of 2015; in 99 out of the 115 years (86 percent of years) modeled there would have been no water shortage at all.

Overall, the modeling exercise shows a substantial beneficial effect of the proposed project with respect to groundwater use. On average, groundwater pumping in the basin would be reduced in the range of 26,000 to nearly 27,000 AFY as a result of the proposed project, depending on the annual allocation amount. Over the life of the proposed project, this would equate to substantial savings in groundwater supplies and would contribute to an increase in aquifer storage and groundwater elevations compared to baseline conditions in the area. Additionally, the proposed project would aid the West Turlock Subbasin Groundwater Sustainability Agency in its future preparation and implementation of a groundwater sustainability plan for the area. Therefore, this impact would be beneficial.

Reduction in Groundwater Recharge Due to Addition of Impervious Area

The addition of impervious surface area associated with the WTP and terminal storage tanks (conservatively estimated to be approximately 56 acres in total) could reduce groundwater recharge to some degree by preventing seepage of rainfall into the soil and groundwater below. The raw and treated water pipelines would be buried underground and would not increase impervious surface area; therefore, they would not affect existing groundwater recharge rates. The WTP would include stormwater management features, including a stormwater retention basin that would capture stormwater, potentially allowing it to infiltrate into soil and groundwater. This would minimize impacts on groundwater recharge, as it would still allow for water falling on the site as precipitation to recharge groundwater. As such, this impact would be less than significant.

Conclusion

Overall, the proposed project would substantially reduce SRWA's reliance on groundwater sources for water supply and would continue to allow groundwater recharge in the project area. This impact would be **beneficial.**

Impact HYD/WQ-3: Substantially Alter the Existing Drainage Pattern of the Site or Area, Resulting in Erosion, Siltation, or Flooding On or Off Site (Less than Significant)

The proposed project would alter the existing drainage pattern of the Tuolumne River in the sense that it would introduce a substantial point of rediversion (i.e., the infiltration gallery), which would divert up to 100 cfs for primarily municipal uses in the Cities of Ceres and Turlock. As described previously, however, the water that would be diverted through the

infiltration gallery would be intentionally released from storage; therefore, it would not decrease natural streamflow. Rather, the proposed project would extend the diversion point for this water from the reservoir itself to the location of the infiltration gallery, 27 miles downstream, benefitting the flow regime along that reach of the river in the process.

Operation of the infiltration gallery could potentially result in localized erosion or siltation in the immediate area of the gallery structures during occasional maintenance backflushing. It is anticipated that sediment would accumulate in the gallery structures, such that the structures might need to be purged approximately 2 times per year for approximately 5 days, while complying with seasonal restrictions. Although unlikely, it is also conceivable that withdrawal of water from this point in the river could affect flows and currents in the immediate area such that the streambed and banks in the immediate area could be eroded, or that geomorphological processes could otherwise be affected. In general, these localized effects would not be substantial such as to present substantial risks to life or property.

Addition of impervious surfaces associated with the WTP and terminal storage tanks also could alter existing drainage patterns. As described further in Impact HYD/WQ-4, addition of impervious surfaces typically increases the volume and velocity of runoff in an area, which, if not captured or mitigated, could potentially cause erosion, siltation, and/or flooding off site. The proposed project would include stormwater management features, including a stormwater retention basin that would capture stormwater generated on site. Additionally, the proposed project would be required to comply with applicable NPDES permitting requirements, which would require that the project site not release substantial stormwater flows such as to result in substantial erosion, siltation, or flooding off-site. As a result, this impact would be **less than significant.**

Impact HYD/WQ-4: Create or Contribute Runoff Water Such as to Exceed the Capacity of Existing or Planned Stormwater Drainage Systems or Provide Substantial Additional Sources of Polluted Runoff (Less than Significant)

As described in previous impact discussions, the proposed project would add impervious surfaces associated with the WTP and terminal storage tanks. Although final design of these facilities has not been completed, this impervious area is estimated to total approximately 56 acres. Impervious surfaces increase the volume and velocity of runoff water compared to natural ground surfaces. If the impervious surfaces are connected to an existing stormwater drainage system, this additional runoff volume could potentially exceed the capacity of the system. Additionally, if land uses involving hazardous materials or other potential sources of pollution are introduced, it could contribute polluted runoff to an area.

The proposed WTP would include a stormwater management system, including a stormwater retention basin that would capture stormwater generated on site. Because the proposed WTP and related facilities would be located in a rural area with no existing municipal stormwater collection and drainage system, the stormwater discharged from the WTP site would be discharged to adjacent pervious land surfaces, where it may flow overland toward the Tuolumne River or infiltrate into the soil and percolate to groundwater below. The impervious area associated with the proposed terminal storage tank sites would be smaller (1.3 acres in Ceres, 6.14 acres in Turlock) and would not generate substantial volumes of runoff water.

Operation of the proposed WTP would involve the use of relatively small quantities of hazardous materials (e.g., fuel for backup generators, lubricants for moving parts in treatment systems). Use and management of these hazardous materials is further described and evaluated in Section 3.8, *Hazards and Hazardous Materials.* In summary, adherence to existing laws and regulations related to hazardous materials would prevent substantial discharges of pollutants through accidental spills or routine use or storage of materials. Therefore, runoff water from the treatment plant area would not be expected to contain substantial contaminants. As a result, this impact would be **less than significant.**

Impact HYD/WQ-5: Place Within a 100-year Flood Hazard Area Structures That Would Impede or Redirect Flood Flows (Less than Significant with Mitigation)

A portion of the proposed WTP parcel is within the 100-year flood hazard area mapped by FEMA. Structures included as part of the WTP that are located in this flood hazard area could restrict or redirect flood flows. This could increase flood hazards to nearby properties, such as Fox Grove Regional Park, Stanislaus Wildlife Care Center, and residential and commercial properties surrounding the WTP site, which would be a significant impact.

To avoid or reduce this impact to a level that is less than significant, SRWA would implement **Mitigation Measure HYD/WQ-1 (Construct Structures Outside of the FEMA 100-Year Flood Hazard Area or Conduct Floodflow Study and Implement Measures to Reduce the Project's Effects on Flood Flows).** This mitigation measure would require SRWA or its contractor(s) to construct proposed structures associated with the WTP outside of the 100-year flood hazard area, if feasible. If placing structures outside of the flood hazard area is not feasible, SRWA would commission a floodflow study to determine how the proposed structures may restrict or redirect flows, including any changes in flood elevations caused by the proposed project at adjacent properties, and develop and implement measures to reduce those effects. With implementation of this measure, the proposed project would not substantially affect flood flows. As a result, this impact would be **less than significant with mitigation.**

> **Mitigation Measure HYD/WQ-1. Construct Structures Outside of the FEMA 100-Year Flood Hazard Area or Conduct Floodflow Study and Implement Measures to Reduce the Project's Effects on Flood Flows.**
>
> Prior to final design of the WTP, SRWA or its contractor(s) shall determine if proposed structures associated with the WTP would be located within the 100-year flood hazard area mapped by FEMA. If proposed structures would be located within the flood hazard area, SRWA or its contractor(s) shall modify the design, if feasible, to construct such structures outside of the flood hazard area.
>
> If it is not feasible to construct such structures outside of the flood hazard area, then SRWA or its contractor(s) shall conduct or commission a floodflow study to determine the effects of WTP structures on water surface elevations and flow velocities in the project area and at adjacent properties. This study may be part of the permit application/coordination process with the CVFPB. If the floodflow study determines that the proposed project would increase average water surface elevations at the project site or adjacent properties, SRWA or its contractor shall develop and install flood protection infrastructure to protect existing structures and assets on adjacent properties from inundation during the 100-year flood event. Such infrastructure may include floodwalls, weirs, levees, or similar works.

Impact HYD/WQ-6: Expose People or Structures to a Significant Risk of Loss, Injury, or Death Involving Flooding, Including Flooding as a Result of the Failure of a Levee or Dam (Less than Significant)

The proposed WTP and raw water pump station would be located within the mapped dam inundation area for Don Pedro Reservoir. Portions of the proposed raw and treated water pipeline alignments also would be within this inundation area, but they would be buried underground and would not be substantially affected by inundation from dam failure. The Don Pedro Dam is routinely evaluated for seismic stability and safety by DSOD and others to ensure the integrity of the structures. Because the dam is regularly and thoroughly inspected and repaired when needed and the probability of dam failure is extremely low, impacts related to potential flooding due to failure of a dam would be **less than significant.**

3.10 Land Use and Planning

3.10.1 Introduction

This section describes the potential impacts of the proposed project related to land use and planning. It describes the regulatory and environmental setting of the proposed project, evaluates the significance of impacts under CEQA, and identifies mitigation measures to reduce any significant impacts to a less-than-significant level.

3.10.2 Regulatory Setting

Federal Plans, Policies, and Regulations

There are no federal laws, regulations, and/or policies relating to land use and planning that regulate the proposed project.

State Laws, Regulations, and Policies

There are no state laws, regulations, and/or policies relating to land use and planning that regulate the proposed project, except for state laws concerning review for consistency with applicable general plans. Government Code Section 65402(b) provides that:

> "a city shall not acquire real property … nor construct or authorize a public building or structure, in another city or in unincorporated territory … until the location, purpose and extent of such acquisition, disposition, or such public building or structure have been submitted to and reported upon by the planning agency having jurisdiction, as to conformity with said adopted general plan or part thereof."

This law applies to SRWA because it is a joint powers authority created by the participating Cities. Section 65402(b) gives the county or city with jurisdiction in the area only the right to report and comment on county or city general plan compliance. It does not require SRWA to comply with the general plan. SRWA also is exempt from complying with county and city zoning and building ordinances. Nevertheless, whether the proposed project may conflict with an applicable county or city land use plan or regulation may be relevant in determining whether the proposed project may have a significant effect on the environment.

Local Laws, Regulations, and Policies

Stanislaus County

<u>Stanislaus County General Plan</u>

The *Stanislaus County General Plan* Land Use Element contains several policy measures that are applicable to the project site and any activities associated with it (Stanislaus County 2016a):

Goal One. Provide for diverse land use needs by designating patterns which are responsive to the physical characteristics of the land as well as to environmental, economic, and social concerns of the residents of Stanislaus County.

> **Policy Seven.** Riparian habitat along the rivers and natural waterways of Stanislaus County shall, to the extent possible, be protected.

Goal Two. Ensure compatibility between land uses.

> **Policy Sixteen.** Outdoor lighting shall be designed to be compatible with other uses.

Goal Five. Complement the general plans of cities within the County.

> **Policy Twenty-seven.** Development which requires discretionary approval and is outside the sphere of influence of cities, but located within one mile of a city's adopted sphere of influence, and within a City's adopted general plan area, shall be referred out to the city for consideration. However, the County reserves the right for final discretionary action.

Stanislaus County Zoning Ordinance

The Stanislaus County Zoning Ordinance (Title 21 of the Stanislaus County Code) was developed "[t]o assist in providing a general plan of development for the county, and to guide, control and regulate the future growth of the county in accordance with the county general plan." Chapter 21.20 addresses the purpose and uses allowed in the General Agriculture District (A-2). Section 21.20.020 lists permitted uses in the A-2 district, including the following (Stanislaus County 2016b):

> I. Detached accessory buildings, the uses of which are incidental to, and reasonably related to, a main building on the same lot or to the primary use of the property.

City of Ceres

The *City of Ceres General Plan* (1997) outlines the policies, standards and programs regarding population density and building intensity for land use designations. The City's planning area is bounded on the north by the Tuolumne River, on the east by Washington Road, on the south by Grayson Road, and on the west by Carpenter Road. There are five land use categories outlined in the Land Use and Community Design chapter of the general plan. These categories are: Residential, Commercial Land Use and Development, Industrial Land Use and Development, Other, and Reserve Area. Within each of these categories are specific land use designations that outline their own set of goals and policies. The following goals and policies are applicable to the proposed project:

Goal 1.B. To grow in an orderly pattern consistent with economic, social and environmental needs, maintaining Ceres' small-town character and preserving surrounding agricultural lands.

> **Policy 1.B.12.** The City shall, providing reciprocal agreements are reached with the City of Hughson and Stanislaus County, establish a permanent urban growth boundary on the eastern boundary of the Urban Growth Area to permanently limit urban development and preserve agricultural lands east of the city. This permanent

urban growth boundary will also include buffers to minimize the impacts of urban development on the immediately adjacent agricultural lands.

Goal 1.G. To designate adequate land for and promote development of industrial uses to meet the present and future needs of Ceres residents for jobs and to maintain economic vitality.

Policy 1.G.6. If demand for wet industry is indicated, the City shall accommodate such industries in industrially-designated areas in the southwestern part of the Planning Area, if it is economically feasible to provide water and treat and dispose of the wastes generated by such industries with a separate industrial wastewater treatment plant.

Goal 1.H. To regulate future development near the airport to provide for protection of public health and safety.

Policy 1.H.4. The City shall limit building heights for airspace protection in accordance with Federal Aviation Regulations Part 77.

City of Turlock

The Land Use and Economic Development chapter of the *City of Turlock General Plan* (2012) provides policies aimed at establishing the general location and extent of land use categories similar to those of the City of Ceres, as well as helping to manage growth and inter-jurisdictional relationships within the City. In addition to the City's planning area, the general plan has also identified a smaller Study Area, which defines the outer limit of the area where urban development may take place over the next 20 years. The following policies are applicable to the proposed project:

Policy 2.9-c: Encourage infill and more compact development to protect farmland. Relieve pressures to convert valuable agricultural lands to urban uses by encouraging infill development.

Policy 2.9-h: Cooperate at the City/County line. Seek Stanislaus County cooperation in designating unincorporated land for uses compatible with adjacent City lands.

City of Hughson

The proposed project would be located less than 1 mile outside the boundary of Hughson. According to Policy 27 of the *Stanislaus County General Plan* Land Use Element, the City of Hughson would be responsible to consider whether the proposed project would be consistent with the city's adopted general plan area. The following policies provided in the *City of Hughson General Plan* may be applicable to the proposed project (City of Hughson 2005):

Goal LU-3. Ensure that new development preserves and enhances Hughson's unique small-town character.

Policy LU-3.1. New development should be compatible with physical site characteristics, surrounding land uses and available public infrastructure.

Policy LU-3.2. New development should provide a visually interesting appearance through variations of site and building design and building placement and orientation.

Policy LU-3.6. New development should preserve views of the surrounding agricultural lands through building orientation and design.

Policy LU-3.12. Lighting on private and public property should be designed to provide safe and adequate lighting while minimizing light spillage to adjacent properties.

3.10.3 Environmental Setting

The proposed project is located primarily on unincorporated Stanislaus County land, with portions of the Ceres and Turlock treated water transmission main alignments crossing into the planning areas of the Cities of Ceres, Hughson, and Turlock. Figure 2-2 in Chapter 2, *Project Description,* shows the location of the proposed project features in relation to city and county boundaries. **Table 3.10-1** identifies land uses on and adjacent to proposed project features.

The vast majority of the land surrounding the proposed project sites is currently used for agriculture, with open space, rural residential, and suburban uses comprising the adjacent land uses within the city boundaries of Ceres, Hughson, and Turlock.

Table 3.10-1. Land Uses in the Proposed Project Area

Project Feature	Jurisdiction	General Plan Designation	Existing Uses	Surrounding Uses
Raw Water Pump Station and access road	Stanislaus County, within City of Hughson sphere of influence	General AG 40 Acre	TID infiltration gallery, Fox Grove Regional Park and access, levee	Tuolumne River, Geer Road Landfill, agriculture (north); orchards, residence (south); open space (west); Fox Grove Regional Park and access, Stanislaus Wildlife Care Center, agriculture (east)
Raw Water Transmission Pipeline	Stanislaus County, within City of Hughson sphere of influence	General AG 40 Acre	TID infiltration gallery, Fox Grove Regional Park and access, levee, orchards	Fox Grove Regional Park, Tuolumne River, agriculture (north); orchards, residence (south); open space (west); Stanislaus Wildlife Care Center, agriculture (south/west), residence, agriculture
Water Treatment Plant	Stanislaus County, within City of Hughson sphere of influence	General AG 40 Acre	Orchards	Fox Grove Regional Park (north); Ceres Main Canal (south), residence, agriculture
Ceres Treated Water Transmission Main	Stanislaus County, City of Ceres, City of Hughson	General AG 40 Acre	ROW adjacent to Ceres Main Canal, East Hatch Road ROW	Multiple rural residences and businesses
Ceres Terminal Facilities	City of Ceres	Unspecified, used for recreational parkland	Undeveloped, open space	Ceres River Bluff Regional Park and parking area, agriculture

Project Feature	Jurisdiction	General Plan Designation	Existing Uses	Surrounding Uses
Turlock Treated Water Transmission Main	Stanislaus County, City of Turlock	General AG 40 Acre	ROW for Aldrich Road, John Fox Road, Berkeley Avenue, East Taylor Road, North Quincy Avenue	Multiple rural residences and businesses
Turlock Terminal Facilities	City of Turlock	General AG 40 Acre	Orchards	Business, church, multiple rural residences

Notes: *ROW = right-of-way*

Raw Water Pump Station and Raw Water Pipeline Alignment

The raw water pump station site is adjacent to the Tuolumne River. Surrounding land uses consist of orchards and agricultural land to the west and park, agricultural, and rural land to the east, including Fox Grove Regional Park, a 64-acre park with fishing access and parking on the Tuolumne River. Geer Road and the Geer Road Bridge are directly east of the pump station site. The existing infiltration gallery on the site was constructed in 2002-2003 on the same parcel, although the gallery is located underground and is not visible. A wet well would connect to the infiltration gallery and would serve as the base of the proposed pump station. The raw water pipeline alignment extends from the pump station through the park to a TID-owned parcel southeast of the parking lot, where the WTP would be located.

Some of the agricultural land surrounding the pump station site to the north (across the Tuolumne River), south, and east beyond the park is under Williamson Act contract (DOC 2010); for the most part, this land has few residential or commercial structures, aside from agricultural outbuildings. The Stanislaus Wildlife Care Center, a 3-acre facility that cares for injured and orphaned wild animals, is located adjacent to the east side of the park; the center houses an interpretive center and several fenced enclosures for deer, coyotes, birds, and other wildlife.

Water Treatment Plant

The WTP would be located on land that is zoned General Agriculture District (A-2-40) (Stanislaus County 2006a). This parcel is owned by TID but is in agricultural use as almond orchards. Surrounding land uses are Fox Grove Regional Park and the Stanislaus Wildlife Care Center to the northeast, separated by a levee/berm; residences and orchards to the north, east, and west; and the Ceres Main Canal and a residence to the south.

Ceres Treated Water Transmission Main Alignment

The first portion of the Ceres treated water transmission main alignment would be constructed along one of two possible routes—alongside the Ceres Main Canal from Aldrich Road to Geer Road or across agricultural land that is zoned as General Agriculture District (A-2-40)—and would terminate at the corner of Geer Road and East Hatch Road (Stanislaus County 2006b). The land on both sides of the pipeline route is under a Williamson Act contract as prime agricultural land (DOC 2010). The pipeline would then travel for approximately 2.85 miles west toward Ceres, where it would connect to the proposed Ceres terminal tank adjacent to Ceres River Bluff Regional Park. Land uses along East Hatch Road are rural residential or vacant and disturbed land (DOC 2014). The tank would be constructed on land that is designated as parkland (City of Ceres 2013) and is adjacent to the park, which consists of approximately 38 acres of sports fields, concession stands, restroom facilities, and a large parking lot.

Turlock Treated Water Transmission Main Alignment

The Turlock treated water transmission main alignment is proposed to be built along sections of Aldrich Road, John Fox Road, Berkeley Avenue, East Taylor Road, North Quincy Road, and an unpaved access road north of Monte Vista Avenue. The land uses for the area surrounding the alignment are predominantly farmland, zoned General Agricultural District (A-2-40). The terminal tank facilities would be located on General Agricultural District land within the city's

designated planning area. A 16-acre farm is located approximately 1 mile south of the Berkeley Avenue/John Fox Road intersection along the alignment path, classified as confined animal agriculture land (DOC 2014). The remainder of the alignment travels through farmland with rural residences.

Offset Water Facilities

As described in Chapter 2, *Project Description,* most of the potential locations for offset water facilities are existing well sites in Ceres or Turlock, and their uses would not change. The possible well site at Dianne Drive and West Canal Drive in Turlock is a stormwater detention pond surrounded by residential, agricultural, and industrial business park uses. Possible use of Well 38 in Turlock, and installation of a new pipeline from Well 38 to TID Upper Lateral 3, would involve trenching of Mountain View Road between Christoffersen Parkway and the canal. Land uses along the alignment include residences along Mountain View Road, John H. Pitman High School, Brad Bates Park, and the Turlock Regional Sports Complex. No location has been identified for a possible nonpotable water supply well, although it would be located within TID's service area.

3.10.4 Environmental Impacts and Mitigation

Methodology

The analysis of land use and planning impacts is qualitative in nature and involved comparing aspects of the proposed project to the significance criteria described below. The land use plans, policies, and regulations, described in Section 3.10.2, "Regulatory Setting," as well as existing land uses and mitigation obligations described in Section 3.10.3, "Environmental Setting," were considered in the impacts analysis.

Significance Criteria

Based on Appendix G of the State CEQA Guidelines, the proposed project would result in a significant impact on land use and planning if it would:

- Physically divide an established community;
- Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including a general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect; or
- Conflict with any applicable habitat conservation plan or natural community conservation plan.

Impact Analysis

Impact LU-1: Physically Divide an Established Community (Less than Significant)

Raw Water Pump Station and Raw Water Pipeline Alignment

The raw water pump station site and pipeline alignment would be located on unincorporated county land that is surrounded by agricultural land and is zoned General Agricultural District. Construction of the pipeline would result in some temporary disruption of access at Fox

Grove Regional Park and its parking lot, but this would not limit or preclude access to any existing community in the area. Following construction, the pipeline would be buried. As a result, this portion of the proposed project site would not divide an established community.

Water Treatment Plant

The WTP parcel would be constructed on approximately half, and possibly more, of a 48-acre parcel of agricultural land that does not contain any dwelling units. Construction of the WTP, the pipelines running to and from the facility, and the access route would take place within the parcel, which is owned by TID. Operation of the plant would not create a barrier to access for nearby residents because plant operations would be contained within the TID parcel and access would continue to be available on Aldrich Road for the surrounding community. As a result, this portion of the proposed project site would not physically divide an established community.

Ceres Treated Water Transmission Main Alignment

Two alternative alignments are being considered for the eastern portion of the Ceres treated water transmission main. The first alternative would begin from the southernmost point of the WTP parcel and travel along the Ceres Main Canal westward towards the intersection of East Hatch Road and Geer Road. The second alternative would travel along the same path as its counterpart, but would deviate from the canal path approximately 1,000 feet from the East Hatch Road/Geer Road intersection and travel along the perimeter of the TID substation at the intersection corner.

From this point, the alignment would then travel along East Hatch Road toward the City of Ceres for approximately 2.85 miles, where it would run parallel to the Ceres Main Canal and in the vicinity of residential neighborhoods that border the Ceres Main Canal and East Hatch Road. However, the alignment would be constructed on the south side of the canal and on the south side of East Hatch Road, which would provide a buffer from homes. In addition, the pipeline would be buried underground. Based on these conditions, the alignment would not physically divide the community.

Turlock Treated Water Transmission Main Alignment

The Turlock treated water transmission main alignment would be constructed along portions of Aldrich Road, John Fox Road, Berkeley Avenue, East Taylor Road, North Quincy Road, and an unpaved access road approximately 650 feet north of East Monte Vista Avenue where it would connect to the Turlock terminal tank. The surrounding land uses near this alignment are agriculture and rural residential. The pipeline would be buried and, therefore, would not physically divide any potentially established communities.

Offset Water Facilities

The identified offset water facilities are, for the most part, existing well sites in Ceres or Turlock. None of the identified well sites would involve construction or operational aspects that could divide an established community.

Conclusion

Overall, construction and operation of the various elements of the proposed project would not divide an established community. Construction activities would be short term, and pipelines would be buried and would not affect connections between communities. Therefore, this impact would be **less than significant.**

Impact LU-2: Conflict with Land Use Plans, Policies, or Regulations (Less than Significant)

Unincorporated Stanislaus County

The proposed project would not conflict with any goals or policies from the Stanislaus County General Plan's land use element that are applicable to the project. Compliance with specific environmental land use policies is addressed in Sections 3.1 through 3.9 and Sections 3.11 through 3.17 of this DEIR. With regard to Policy 27 of the *Stanislaus County General Plan* regarding projects within 1 mile of other jurisdictions' spheres of influence, the proposed project would be referred to the Cities of Ceres, Hughson, and Turlock for consideration through review of this DEIR.

City of Ceres

The proposed project would not conflict with any applicable goals or policies of the City's general plan. As established in Section 77.17, Obstruction Standards, of Federal Aviation Regulations (FAR) Part 77, the height of an object within 3 miles of an airport with its longest runway more than 3,200 feet in actual length must not be greater than 200 feet above ground level (Caltrans 2017). The Modesto City-County Airport's runway length is approximately 5,900 feet and is located approximately 2.1 road miles northwest of the Ceres terminal tank (FAA 2017). The height of the Ceres terminal tank would be 25-30 feet in height and therefore does not conflict with Policy 1.H.4 of the Ceres General Plan or FAR Part 77.

City of Turlock

The proposed project would comply with Policy 2.9-h of the City's general plan because SRWA would coordinate with Stanislaus County on alignment sections that would pass through unincorporated lands.

City of Hughson

The proposed project would comply with Goal LU-3 and the applicable policies of the *City of Hughson General Plan*. Compliance with specific environmental land use policies related to lighting and views are addressed in Section 3.1, *Aesthetics,* of this DEIR.

Conclusion

As a result, none of the proposed project activities would conflict with applicable plans, policies, or regulations adopted for the purpose of avoiding or mitigating an environmental effect. Therefore, the proposed project would have a **less-than-significant impact**.

Impact LU-3: Conflict with Any Habitat Conservation Plan or Natural Community Conservation Plan (No Impact)

The proposed project is within the boundaries of the Pacific Gas and Electric Company's (PG&E's) San Joaquin Valley Operation and Maintenance Habitat Conservation Plan (HCP) (CDFW 2015). The purpose of this HCP is to enable PG&E to conduct current and future operation and maintenance activities within the San Joaquin Valley. It primarily addresses small-scale temporary effects from PG&E's project-related activities that are dispersed over a large geographic area. Because this HCP is specifically tailored to maximize and benefit PG&E solely, it is not applicable to the proposed project, which is not being conducted by PG&E. There are no other habitat conservation plans or natural community conservation plans within the project area. A more detailed discussion of HCPs and natural community conservation plans is provided in Section 3.4, *Biological Resources*. As a result, there would be **no impact.**

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3.11 Noise and Vibration

3.11.1 Introduction

This section describes the existing noise environment in the vicinity of the proposed project area, presents relevant noise and vibration regulations, identifies sensitive noise and vibration receptors that could be affected by the proposed project, and evaluates the potential noise and vibration impacts of the proposed project. Mitigation measures to avoid or reduce impacts are identified as appropriate.

Noise

In the CEQA context, noise can be defined as unwanted sound. Sound is characterized by various parameters, including the rate of oscillation of sound waves (frequency), the speed of propagation, and the pressure level or energy content (amplitude). In particular, the sound pressure level is the most common descriptor used to characterize the loudness of an ambient sound level, or sound intensity. The decibel (dB) scale is used to quantify sound intensity. Because sound pressure can vary enormously within the range of human hearing, a logarithmic scale is used to keep sound intensity numbers at a convenient and manageable level. The human ear is not equally sensitive to all frequencies in the spectrum, so noise measurements are weighted more heavily for frequencies to which humans are sensitive, creating the A-weighted decibel (dBA) scale.

The selection of a proper noise descriptor for a specific source depends on the spatial and temporal distribution, duration, and fluctuation of the noise. The noise descriptors most often encountered when dealing with traffic, community, and environmental noise are defined below (California Department of Transportation [Caltrans] 2011).

- **L_{max} (maximum noise level):** The maximum instantaneous noise level during a specific period of time. The L_{max} may also be referred to as the "peak (noise) level."

- **L_{min} (minimum noise level):** The minimum instantaneous noise level during a specific period of time.

- **L_n (Statistical Descriptor):** The noise level exceeded n percent of a specific period of time, generally accepted as an hourly statistic. An L_{10} would be the noise level exceeded 10 percent of the measurement period.

- **L_{eq} (equivalent noise level):** The energy mean (or average) noise level. The instantaneous noise levels during a specific period of time in dBA are converted to relative energy values. From the sum of the relative energy values, an average energy value is calculated, which is then converted back to dBA to determine the L_{eq}. In noise environments that are determined by major noise events, such as aircraft overflights, the L_{eq} value is heavily influenced by the magnitude and number of single events that produce the high noise levels.

- **L_{dn} (day-night average noise level):** The 24-hour L_{eq} with a 10-dBA "penalty" for noise events that occur during the noise-sensitive hours between 10:00 p.m. and 7:00 a.m. In other words, 10 dBA is "added" to noise events that occur in the nighttime

hours, and this generates a higher reported noise level when determining compliance with noise standards. The L_{dn} attempts to account for the fact that noise during this specific period of time is a potential source of disturbance with respect to normal sleeping hours.

- **CNEL (Community Noise Equivalent Level):** Similar to the L_{dn} described above, but with an additional 5-dBA "penalty" added to noise events that occur during the noise-sensitive hours between 7:00 p.m. and 10:00 p.m., which are typically reserved for relaxation, conversation, reading, and television. When the same 24-hour noise data are used, the reported CNEL is typically approximately 0.5 dBA higher than the L_{dn}.

- **SENL (single-event [impulsive] noise level):** A receiver's cumulative noise exposure from a single impulsive noise event, which is defined as an acoustical event of short duration and involves a change in sound pressure above some reference value. SENLs typically represent the noise events used to calculate the L_{eq}, L_{dn}, and CNEL.

Community noise is commonly described in terms of the ambient noise level, which is defined as the all-encompassing noise level associated with a given noise environment. A common statistical tool to measure the ambient noise level is the average, or equivalent, sound level, L_{eq}, which corresponds to a steady-state A-weighted sound level containing the same total energy as a time-varying signal over a given period (usually 1 hour). The L_{eq} is the foundation of composite noise descriptors such as L_{dn} and CNEL, as defined above, and correlates well with community response to noise.

In general, human sound perception is such that a change in sound level of 3 dB is barely noticeable, a change of 5 dB is clearly noticeable, and a change of 10 dB is perceived as doubling or halving the sound level. **Table 3.11-1** presents approximate noise levels for common noise sources, measured adjacent to the source.

Table 3.11-1. Examples of Common Noise Levels

Common Outdoor Activities	Noise Level (dBA)
Jet flyover at 1,000 feet	110
Gas lawnmower at 3 feet	100
Diesel truck at 50 feet traveling 50 miles per hour	90
Noisy urban area, daytime	80
Gas lawnmower at 100 feet, commercial area	70
Heavy traffic at 300 feet	60
Quiet urban area, daytime	50
Quiet urban area, nighttime	40
Quiet suburban area, nighttime	30
Quiet rural area, nighttime	20

Source: Caltrans 2009

Vibration

Vibration is the periodic oscillation of a medium or object. The rumbling sound caused by the vibration of room surfaces is called structure-borne noise. Sources of groundborne vibrations include natural phenomena (e.g., earthquakes, volcanic eruptions, sea waves, landslides) or human-made causes (e.g., explosions, machinery, traffic, trains, construction equipment). Vibration sources may be continuous, such as operating factory machinery, or transient, such as explosions. As is the case with airborne sound, groundborne vibrations may be described by amplitude and frequency.

Vibration amplitudes are usually expressed in peak particle velocity (PPV) or root mean square (RMS), as in RMS vibration velocity. PPV is defined as the maximum instantaneous positive or negative peak of a vibration signal. PPV is often used in monitoring of blasting vibration because it is related to the stresses that are experienced by buildings (Federal Transit Administration [FTA] 2006). PPV and RMS are normally described in inches per second (in/sec).

Human and structural response to different vibration levels is influenced by various factors, including ground type, distance between source and receptor, duration, and the number of perceived vibration events. **Table 3.11-2**, developed by Caltrans, shows the vibration levels that would normally be required to result in damage to structures.

Although PPV is appropriate for evaluating the potential for building damage, it is not always suitable for evaluating human response. It takes some time for the human body to respond to vibration signals. In a sense, the human body responds to average vibration amplitude. The RMS of a signal is the average of the squared amplitude of the signal, typically calculated over a period of 1 second. Like airborne sound, the RMS velocity is often expressed in decibel notation, as vibration decibels (VdB), which serves to compress the range of numbers required to describe vibration (FTA 2006). This is based on a reference value of 1 micro-inch per second (µin/sec).

The background vibration-velocity level in residential areas is usually approximately 50 VdB. Groundborne vibration is normally perceptible to humans at approximately 65 VdB. For most people, a vibration-velocity level of 75 VdB is the approximate dividing line between barely perceptible and distinctly perceptible levels (FTA 2006).

Typical outdoor sources of perceptible groundborne vibration are construction equipment, steel-wheeled trains, and traffic on rough roads. If a roadway is smooth, the groundborne vibration is rarely perceptible. The range of interest is from approximately 50 VdB, which is the typical background vibration-velocity level, to 100 VdB, which is the general threshold where minor damage can occur in fragile buildings. Construction activities can generate groundborne vibrations, which can pose a risk to nearby structures. Constant or transient vibrations can weaken structures, crack façades, and disturb occupants (FTA 2006).

Table 3.11-2. Effects of Various Vibration Levels on People and Buildings

Peak Particle Velocity		Human Reaction	Effect on Buildings
inches/ second	mm/ second		
0.006-0.019	0.15-0.30	Threshold of perception; possibility of intrusion	Vibrations unlikely to cause damage of any type
0.08	2.0	Vibrations readily perceptible	Recommended upper level to which ruins and ancient monuments should be subjected
0.10	2.5	Level at which continuous vibrations begin to annoy people	Virtually no risk of architectural damage to normal buildings
0.20	5.0	Vibrations annoying to people in buildings	Threshold at which there is a risk of architectural damage to normal dwelling – houses with plastered walls and ceilings
0.4-0.6	10-15	Vibrations considered unpleasant by people subjected to continuous vibrations and unacceptable to some people walking on bridges	Vibrations at a greater level than normally expected from traffic, but would cause architectural damage and possibly minor structural damage

Notes: in/sec=inches per second; mm/sec= millimeters per second; PPV=peak particle velocity

Source: Caltrans 2013

Construction vibrations can be transient, random, or continuous. Transient construction vibrations are generated by blasting, impact pile driving, and wrecking balls. Continuous vibrations result from vibratory pile drivers, large pumps, horizontal directional drilling, and compressors. Random vibration can result from jackhammers, pavement breakers, and heavy construction equipment. **Table 3.11-3** describes the general human response to different levels of groundborne vibration-velocity levels.

Table 3.11-3. Human Response to Groundborne Vibration Levels

Vibration Velocity (Vibration Decibels)	Human Response
65	Approximate threshold of perception for many humans
75	Approximate dividing line between barely perceptible and distinctly perceptible
85	Vibration acceptable only for a small number of events per day

Source: FTA 2006

3.11.2 Regulatory Setting

Federal Plans, Policies, and Regulations

USEPA's Office of Noise Abatement and Control was originally established to coordinate federal noise control activities. After its inception, the Office of Noise Abatement and Control issued the Federal Noise Control Act of 1972, establishing programs and guidelines to identify and address the effects of noise on public health, welfare, and the environment. In 1981, USEPA administrators determined that subjective issues such as noise would be better addressed at lower levels of government. Consequently, in 1982 responsibilities for regulating noise control policies were transferred to state and local governments. However, noise control guidelines and regulations contained in USEPA rulings before 1982 remain in place as promulgated by designated federal agencies, thereby allowing more individualized control for specific issues by designated federal, state, and local government agencies. FTA's *Guidelines for Construction Vibration in Transit Noise and Vibration Impact Assessment* state that for evaluating daytime construction noise impacts in outdoor areas, a noise threshold of 90 dBA L_{eq} should be used for residential areas (FTA 2006).

To address the human response to groundborne vibration, FTA (a division of the U.S. Department of Transportation) has set forth guidelines for maximum acceptable vibration criteria for different types of land uses. These include 65 VdB referenced to 1 µin/sec and based on RMS velocity amplitude for land uses where low ambient vibration is essential for interior operations (e.g., hospitals, high-tech manufacturing, laboratory facilities); 80 VdB for residential uses and buildings where people normally sleep; and 83 VdB for institutional land uses with primarily daytime operations (e.g., schools, churches, clinics, offices) (FTA 2006).

Standards have also been established to address the potential for groundborne vibration to cause structural damage to buildings. These standards were developed by the Committee of Hearing, Bio Acoustics, and Bio Mechanics (CHABA) at the request of USEPA. For fragile structures, CHABA recommends a maximum limit of 0.25 in/sec PPV (FTA 2006).

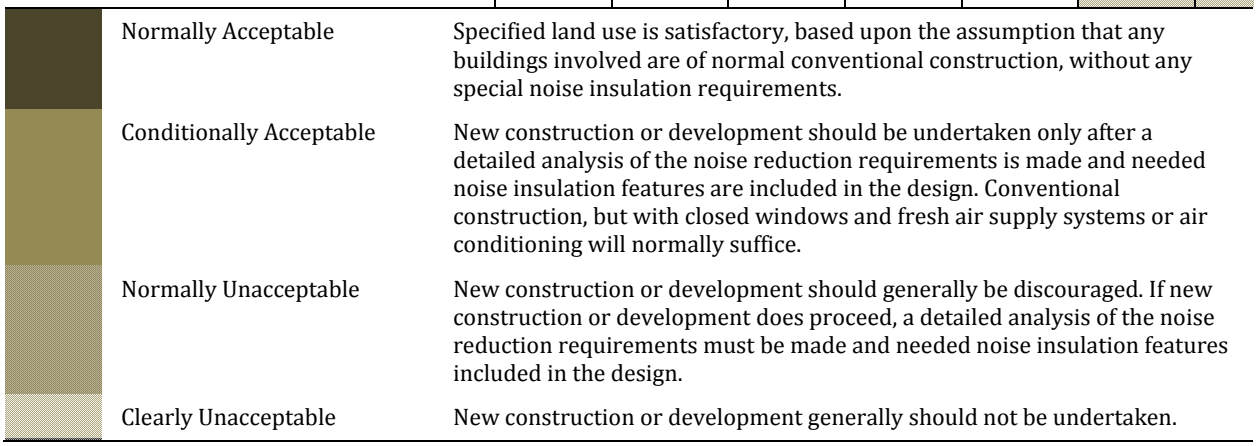
State Laws, Regulations, and Policies

Governor's Office of Planning and Research

The Governor's Office of Planning and Research (OPR) published the *State of California General Plan Guidelines* (OPR 2017), which provide guidance for the acceptability of projects within specific L_{dn} contours. **Table 3.11-4** summarizes acceptable and unacceptable CNEL criteria for various land use categories. Generally, residential uses (e.g., homes, mobile homes) are considered to be acceptable in areas where exterior noise levels do not exceed 60 dBA L_{dn}. Residential uses are normally unacceptable in areas exceeding 70 dBA L_{dn} and conditionally acceptable within 55–70 dBA L_{dn}. Schools are normally acceptable in areas up to 70 dBA L_{dn} and normally unacceptable in areas exceeding 70 dBA L_{dn}. Commercial uses are normally acceptable in areas up to 70 dBA CNEL. Between 67.5 and 77.5 dBA L_{dn}, commercial uses are conditionally acceptable, depending on the noise insulation features and the noise reduction requirements.

Table 3.11-4. State Land Use Compatibility Standards for Community Noise Environment

Land Use Category	Community Noise Exposure – L_{dn} or CNEL (dB)						
	50	55	60	65	70	75	80
Residential – Low Density Single Family, Duplex, Mobile Homes							
Residential - Multi-Family							
Transient Lodging – Motels, Hotels							
Schools, Libraries, Churches, Hospitals, Nursing Homes							
Auditoriums, Concert Halls, Amphitheaters							
Sports Arenas, Outdoor Spectator Sports							
Playgrounds, Neighborhood Parks							
Golf Courses, Riding Stables, Water Recreation, Cemeteries							
Office Buildings, Business Commercial and Professional							
Industrial, Manufacturing, Utilities, Agriculture							



Normally Acceptable	Specified land use is satisfactory, based upon 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 will normally suffice.
Normally Unacceptable	New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design.
Clearly Unacceptable	New construction or development generally should not be undertaken.

Notes: CNEL = community noise equivalent level; dB = decibel; L_{dn} = day-night noise level.

Source: California Governor's Office of Planning and Research 2017.

The OPR guidelines also present adjustment factors that may be used to arrive at noise acceptability standards reflecting the noise control goals of the community, the particular community's sensitivity to noise, and the community's assessment of the relative importance of noise pollution. In addition, Title 24 of the California Code of Regulations establishes standards governing interior noise levels that apply to all new single-family and multifamily residential units in California. These standards require that acoustical studies be performed before construction at building locations where the existing L_{dn} exceeds 60 dBA. Such acoustical studies must establish mitigation measures that will limit maximum noise levels to 45 dBA L_{dn} in any habitable room. Although there are no generally applicable interior noise standards pertinent to all uses, many communities in California have adopted 45 dBA L_{dn} as an upper limit on interior noise in all residential units.

California Department of Transportation

For the protection of fragile, historic, and residential structures, Caltrans recommends a threshold of 0.2 in/sec PPV for normal residential buildings and 0.08 in/sec PPV for old or historically significant structures (Caltrans 2013). These standards are more stringent than the federal standard established by CHABA, presented above.

Local Laws, Regulations and Policies

Stanislaus County

Stanislaus County General Plan

The Noise Element of the *Stanislaus County General Plan 2015* (Stanislaus County 2016) utilizes noise exposure information to identify existing and potential noise conflicts through the Land Use Planning and Project Review processes. The Noise Element establishes exterior noise level standards and maximum allowable noise exposure from stationary noise sources at noise-sensitive land uses.

Goal Two. Protect the citizens of Stanislaus County from the harmful effects of exposure to excessive noise.

> **Policy Two.** It is the policy of Stanislaus County to develop and implement effective measures to abate and avoid excessive noise exposure in the unincorporated areas of the County by requiring that effective noise mitigation measures be incorporated into the design of new noise generating and new noise sensitive land uses.
>
> > **Implementation Measure 1:** New development of noise-sensitive land uses will not be permitted in noise-impacted areas unless effective mitigation measures are incorporated into the project design to reduce noise levels to the following levels:
> >
> > a) For transportation noise sources such as traffic on public roadways, railroads, and airports, 60 [dBA] Ldn (or CNEL) or less in outdoor activity areas of single family residences, 65 [dBA] Ldn (or CNEL) or less in community outdoor space for multi-family residences, and 45 [dBA] Ldn (or CNEL) or less within noise sensitive interior spaces. Where it is not possible to reduce exterior noise due to these sources to the

prescribed level using a practical application of the best available noise-reduction technology, an exterior noise level of up to 65 Ldn (or CNEL) will be allowed. Under no circumstances will interior noise levels be allowed to exceed 45 Ldn (or CNEL) with the windows and doors closed in residential uses.

b) For other noise sources such as local industries or other stationary noise sources, noise levels shall not exceed the performance standards contained within Table IV-24 [reprinted as **Table 3.11-5** below].

Implementation Measure 2: New development of industrial, commercial or other noise generating land uses will not be permitted if resulting noise levels will exceed 60 [dBA] Ldn (or CNEL) in noise-sensitive areas. Additionally, the development of new noise-generating land uses which are not preempted from local noise regulation will not be permitted if resulting noise levels will exceed the performance standards contained within Table IV-24 [reproduced as Table 3.11-5 below] in areas containing residential or other noise sensitive land uses.

Table 3.11-5. Maximum Allowable Noise Exposure from Stationary Noise Sources

	Daytime 7 a.m. to 10 p.m.	Nighttime 10 p.m. to 7 a.m.
Hourly L_{eq}, dBA	55	45
Maximum level, dBA	75	65

Notes: dBA = A-weighted decibel; Leq = equivalent noise level

Each of the noise level standards specified in [General Plan] Table IV-24 [as reproduced here] shall be reduced by five (5) dBA for pure tone noises, noise consisting primarily of speech or music, or for recurring impulsive noises. The standards in this table should be applied at a residential or other noise-sensitive land use and not on the property of a noise-generating land use. Where measured ambient noise levels exceed the standards, the standards shall be increased to the ambient levels.

Source: Stanislaus County 2016, Table IV-24

Policy Three: It is the objective of Stanislaus County to protect areas of the County where noise-sensitive land uses are located.

Implementation Measure 1: Require the evaluation of mitigation measures for projects that would cause the Ldn at noise-sensitive uses to increase by 3 dBA or more and exceed the "normally acceptable" level, cause the Ldn at noise-sensitive uses to increase 5 dBA or more and remain normally acceptable, or cause new noise levels to exceed the noise ordinance limits (after adoption).

Stanislaus County Municipal Code

Noise generating sources in Stanislaus County are also regulated under the Municipal Code, Chapter 10.46 (Noise Control). Property line and construction noise limits are established in this ordinance. Property line noise limits apply to noise generation from one property to an adjacent property with the existence of a sensitive receptor (if no receptor, an exception or

variance to the standards may be appropriate). These standards do not apply to construction noise that occurs between 7 a.m. and 7 p.m. The following are the applicable portions of the Stanislaus County Noise Control Ordinance, and **Tables 3.11-6 and 3.11-7** (reprinting Tables A and B of the ordinance) highlight the applicable noise limits.

Section 10.46.050 Exterior Noise Level Standards

A. It is unlawful for any person at any location within the unincorporated area of the county to create any noise or to allow the creation of any noise which causes the exterior noise level when measured at any property situated in either the incorporated or unincorporated area of the county to exceed the noise level standards as set forth below:

1. Unless otherwise provided herein, the following exterior noise level standards shall apply to all properties within the designated noise zone:

Table 3.11-6. Exterior Noise Level Standards

Land Use Zone	Maximum A-Weighted Sound Level as Measured on a Sound Level Meter (L_{max})	
	7:00 a.m. to 9:59 p.m.	10:00 p.m. to 6:59 a.m.
Noise Sensitive	45	45
Residential	50	45
Commercial	60	55
Industrial	75	75

Source: Stanislaus County Code, Chapter 10, Table A.

2. Exterior noise levels shall not exceed the following cumulative duration allowance standards:

Table 3.11-7. Cumulative Duration Allowance Standards

Cumulative Duration	Allowance Decibels
Equal to or greater than 30 minutes per hour	Table 6 plus 0 dBA
Equal to or greater than 15 minutes per hour	Table 6 plus 5 dBA
Equal to or greater than 5 minutes per hour	Table 6 plus 10 dBA
Equal to or greater than 1 minute per hour	Table 6 plus 15 dBA
Less than 1 minute per hour	Table 6 plus 20 dBA

3. Source: Stanislaus County Code, Chapter 10, Table B.

4. Pure Tone Noise, Speech and Music. The exterior noise level standards set forth in Table A [reprinted here as Table 3.11-6] shall be reduced by five dB(A) for pure

tone noises, noises consisting primarily of speech or music, or reoccurring impulsive noise.

5. In the event the measured ambient noise level exceeds the applicable noise level standard above, the ambient noise level shall become the applicable exterior noise level standard.

Section 10.46.060 Specific Noise Source Standards

E. Construction Equipment. No person shall operate any construction equipment so as to cause at or beyond the property line of any property upon which a dwelling unit is located an average sound level greater than seventy-five decibels between the hours of seven p.m. and seven a.m.

Section 10.46.070 Vibration. Operating or permitting the operation of any device that creates vibration that is above the vibration perception threshold of any individual at or beyond the property boundary of the source if on private property, or at one hundred fifty feet from the source if on a public space or public right-of-way is prohibited. For the purpose of this section, "vibration perception threshold" means the minimum ground-borne or structure-borne vibration motion necessary to cause a reasonable person to be aware of the vibration by such direct means as, but not limited to, sensation by touch or visual observation of moving objects, or a measured motion velocity of 0.01 in/sec over the range of one to one hundred Hertz.

Section 10.46.080 Exemptions. The following sources are exempt from the provisions of this chapter:

J. Public Entity or Public Utility Activity. This chapter shall not apply to construction or maintenance activities performed by or at the direction of any public entity or public utility.

City of Ceres

City of Ceres General Plan

The *City of Ceres General Plan* (1997) contains the following goals and policies relating to noise:

Goal 7.H. To protect Ceres residents from the harmful and annoying effects of exposure to excessive noise.

Policy 7.H.1. The City shall prohibit new development of noise-sensitive uses where the interior noise level due to non-transportation noise sources will exceed the noise level standards of Table 7-1 [reprinted as **Table 3.11-8** below].as measured at the property line of the new development, unless effective noise mitigation measures have been incorporated into the development design to achieve the standards specified in Table 7-1.

Policy 7.H.2. The City shall require that noise created by new proposed non-transportation sources be mitigated so as not to exceed the noise level standards of

Table 7-1 [reprinted as Table 3.11-8 below]as measured at the property line of lands designated for noise-sensitive uses.

Table 3.11-8. Noise Level Performance Standards for New Projects Affected by or Including Non-Transportation Sources

Noise Level Descriptor	Daytime (7a.m. to 10 p.m.)	Nighttime (10 p.m. to 7 a.m.)
Hourly L_{eq}, dB	55	45
Maximum level, dB	75	65

Note: Each of the noise levels specified above shall be lowered by five dB for simple tone noises, noises consisting primarily of speech or music, or for recurring impulsive noises. These noise level standards do not apply to residential units established in conjunction with industrial or commercial uses (e.g., caretaker dwellings)

Source: City of Ceres 1997, Table 7-1.

Policy 7.H.3. The City shall not subject existing dwellings and new dwellings to the standards presented in Table 7-1 [reprinted here as Table 3.11-8] if feasible mitigation measures are not available to meet the requirements in Table 7-1 [reprinted here as Table 3.11-8]. As a consequence, such dwellings may be located in areas where noise levels exceed the standards and it shall not be the responsibility of City to ensure that such dwellings meet the standards of this section of the General Plan or the noise standards imposed by lending agencies such as HUD, FHA and Cal Vet. In conjunction with approval of new residential projects, the City shall require recordation of notice that the noise levels may exceed these standards. If homes are located and constructed in accordance with these policies and standards, it is expected that the resulting exterior and interior noise levels will conform to the HUD/ FHA/Cal Vet noise standards.

Policy 7.H.4. Where proposed non-residential land uses are likely to produce noise levels exceeding the performance standards of Table 7-1 [reprinted here as Table 3.11-8] at existing or planned noise-sensitive uses, the City shall require an acoustical analysis as part of the environmental review process so that noise mitigation may be included in the project design. The acoustical analysis shall meet the following requirements:

a. It shall be the financial responsibility of the applicant.

b. It shall be prepared by a qualified person experienced in the fields of environmental noise assessment and architectural acoustics.

c. It shall include representative noise level measurements with sufficient sampling periods and locations to adequately describe local conditions and the predominant noise sources.

d. It shall include estimates of existing and projected cumulative (20 years) noise levels in terms of Lc1n or CNEL and/ or the standards of Table 7-1 [reprinted here

as Table 3.11-8], and compare those levels to the adopted policies of the General Plan.

e. It shall recommend appropriate mitigation to achieve compliance with the adopted policies and standards of the noise section of the General Plan, giving preference to proper site planning and design over mitigation measures which require the construction of noise barriers or structural modifications to buildings which contain noise-sensitive land uses. Where the noise source in question consists of intermittent single events, the report must address the effects of maximum noise levels in sleeping rooms in terms of possible sleep disturbance.

f. It shall include estimates of noise exposure after the prescribed mitigation measures have been implemented.

g. It shall describe a post-project assessment program which could be used to evaluate the effectiveness of the proposed mitigation measures

City of Ceres Noise Ordinance

The City of Ceres noise ordinance (City of Ceres 2017) establishes the following restrictions related to construction activities and use of machinery:

9.36.020. Unnecessary Noises. The following acts, among others, are declared to be loud, disturbing and unnecessary noises in violation of the provisions of this Chapter, but the enumeration shall not be deemed to be exclusive, namely:

E. Construction or Repairing of Buildings: The erection (including excavating), demolition, alteration or repair of any building other than between the hours of seven o'clock (7:00) A.M. and eight o'clock (8:00) P.M., except that, by special permit issued by the Building Inspector or City Engineer, as the case may be, upon a determination that the public health and safety will not be impaired thereby, the erection, demolition, alteration or repair of any building or the excavation of streets and highways may be permitted within the hours of eight o'clock (8:00) P.M. and seven o'clock (7:00) A.M.;

G. Machinery: Operation between the hours of eight o'clock (8:00) P.M. and seven o'clock (7:00) A.M. of any machinery or appliance, use of which is attended by loud or unusual noise

City of Turlock

City of Turlock Noise Element

The Noise Element in the City of Turlock's General Plan (2012) contains the following standards and policies that may be applicable to the proposed project:

Policy 9.4-b. Prevent Degradation of Noise Environment. Protect public health and welfare by eliminating existing noise problems where feasible, maintaining an acceptable indoor and outdoor acoustic environment, and preventing significant degradation of the acoustic environment.

Policy 9.4-c. Protect Residential Areas and Sensitive Uses. Minimize excessive noise exposure in residential areas and in the vicinity of such uses as schools, hospitals, and senior care facilities.

Table 9-3 of the General Plan (adapted as **Table 3.11-9** below) outlines allowable noise exposure levels for non-transportation noise sources.

Table 3.11-9. Noise Level Performance Standards for Non-Transportation Sources

Noise Level Descriptor	Daytime (7 a.m. - 10 p.m.)	Nighttime (10 p.m. - 7 a.m.)
Hourly Leq, dB	55	45
Maximum Level, dB	75	65

Note: Each of the noise levels specified above shall be lowered by 5 dB for simple tone noises, noises consisting primarily of speech or music, or for recurring impulsive noises.

Source: Adapted from City of Turlock 2012, Table 9-3.

City of Turlock Noise Standards

The City of Turlock Noise Standards (Chapter 5-28) contain policies, limits, and exemptions relating to noise (City of Turlock 2017). Applicable standards are included in **Table 3.11-10** below.

Table 3.11-10. Exterior Noise Limits for City of Turlock

Receiving Land Use Category	Time Period	Maximum Noise Level (dBA)
Residential		
One- and Two-Family	10:00 p.m. – 7:00 a.m.	50
	7:00 a.m. – 10:00 p.m.	60
Multiple Dwelling	10:00 p.m. – 7:00 a.m.	55
	7:00 a.m. – 10:00 p.m.	60
Public Space	7:00 a.m. – 10:00 p.m.	65
Limited Commercial		
Motels/Hotels, Hospitals, Nursing Homes, Schools, Libraries, Museums, Churches	10:00 p.m. – 7:00 a.m.	55
	7:00 a.m. – 10:00 p.m.	60

Receiving Land Use Category	Time Period	Maximum Noise Level (dBA)
All Other Commercial	10:00 p.m. – 7:00 a.m.	60
	7:00 a.m. – 10:00 p.m.	65
Light Industrial	Any Time	70
Heavy Industrial	Any Time	75

Note: These levels are not to be exceeded more than 30 Minutes in any hour.

Source: City of Turlock 2017, Chapter 5-28

5-28-110. Prohibited acts.

(1) Hours of operation. Operation or causing the operation of any tools or equipment used in construction, drilling, repair, alteration, or demolition work between weekday hours of 7:00 p.m. and 7:00 a.m. (or 8:00 p.m. and 9:00 a.m. on weekends or holidays) such that the sound therefrom creates a noise disturbance across a residential or commercial real property line, except for emergency work or public service utilities or by variance issued by the Noise Control Officer; and

(2) Noise restrictions at affected properties. Where technically and economically feasible, construction activities shall be conducted in such a manner that the maximum sound levels at affected properties will not exceed those listed in the following schedule:

(i) Mobile equipment. Maximum sound levels for nonscheduled, intermittent, short term operation (less than ten (10) days per month) of mobile equipment:

Mobile Construction Equipment			
Time Interval	One- and Two-Family Residential (dBA)	Multiple-Family Residential (dBA)	Commercial and Industrial (dBA)
Daily 7:00 a.m. – 7:00 p.m.	75	75	85
Weekends/Holidays 9:00 a.m. – 8:00 p.m.	70	70	85

(ii) Stationary equipment. Maximum sound levels for repetitively scheduled and relatively long-term operation (periods of ten (10) days or more per month) of stationary equipment:

Stationary Equipment			
Time Interval	One- and Two-Family Residential (dBA)	Multiple-Family Residential (dBA)	Commercial and Industrial (dBA)
Daily			
7:00 a.m. – 7:00 p.m.	70	70	85
Weekends/Holidays			
9:00 a.m. – 8:00 p.m.	60	65	85

City of Hughson

City of Hughson Noise Element

The *City of Hughson General Plan* Noise Element contains the following goals and policies that may be applicable to the proposed project (City of Hughson 2005):

Goal N-1. Minimize the exposure of community residents to excessive noise.

> **Policy N-1.4.** The City should require new development deemed to be noise generators to minimize noise at the source through site design, building design, landscaping, hours of operation and other techniques.
>
> **Policy N-1.5.** During all phases of construction activity, the City will require project developers to incorporate mitigation measures that minimize the exposure of neighboring properties to excessive noise levels.

City of Hughson Noise Ordinance

Subsections of the City of Hughson's Noise Ordinance, Section 9.30, Regulation of Noise (2017), that may be applicable to the proposed project are summarized below:

> **9.30.030. Prohibitions.** It shall be unlawful for any person to make or continue, or cause, or permit to be made or continued, any unnecessary or unusual noise which unreasonably disturbs the peace and quiet of any zone classified R-A, R-1, R-2, R-3, C-1, C-2 or C-3 or which causes discomfort or annoyance to any reasonable person of normal sensitivities located in any such zone, and may be heard, without further amplification, 50 feet or more from the source of the noise. (Ord. 90-02 § 1, 1990)
>
> **9.30.050. Hours of enforcement.** The hours for enforcement shall be between the hours of 10:00 p.m. through 7:00 a.m., Monday through Friday and 10:00 p.m. through 8:00 a.m., Saturday and Sunday and legal holidays as that term is defined in California Government Code Section 6700 as it now exists or shall be amended. (Ord. 90-02 § 1, 1990)

3.11.3 Environmental Setting

The proposed project area includes an infiltration gallery and raw water pump station, raw water transmission main, WTP, and treated water transmission pipelines to Ceres and Turlock. The infiltration gallery, raw water pump station, transmission main, and WTP are located in a rural area in unincorporated Stanislaus County near a two-lane arterial roadway (Geer Road), agricultural areas, natural areas (the Tuolumne River), and recreational areas (Fox Grove Regional Park). Additional land uses near the raw water pump station and WTP area include the Stanislaus Wildlife Care Center and several nearby residences. Ambient noise in the area is influenced by noise from vehicular traffic on Geer Road and nearby recreational and agricultural activities (e.g., agricultural equipment operation, delivery vehicles, people talking, parking lot vehicle movements, and car doors closing). More distant noise sources from the treatment plant site may include vehicular traffic on State Route 132 and Hatch Road, and construction material processing activities (Calaveras Materials property).

The Ceres treated water transmission main alignment would run along East Hatch Road through agricultural and residential areas of Hughson and Ceres. The pipeline route would also pass close to a Sikh temple, a church, a school, a regional park, and a golf course. The Ceres terminal tank facility would be located in the City of Ceres near agricultural, recreational, and residential areas. Ambient noise at this tank site would be influenced by traffic from Hatch Road and the surrounding land uses.

The Turlock treated water transmission main alignment would run along parts of Aldrich Road, John Fox Road, Berkeley Avenue, Taylor Road, and North Quincy Road, traveling through a primarily agricultural area before passing through a residential area and additional agricultural land in northeastern Turlock. The Turlock terminal tank facility would be located in unincorporated Stanislaus County, adjacent to agricultural lands and some residential and commercial uses. Ambient noise at this site would be influenced by traffic on North Quincy Road and East Monte Vista Avenue, and the surrounding land uses.

According to the Stanislaus County General Plan EIR, the nearest long-term monitoring location to the proposed project's WTP and raw water pump station site (Santa Fe Avenue near Leedom Road) measured daytime noise levels of approximately 68-75 dBA and nighttime noise levels of approximately 60-76 dBA (Stanislaus County 2016). These noise levels were recorded over two separate monitoring events that each had a monitoring duration of 24-48 hours and reflect both vehicular- and railroad-related noise. The L_{dn} at the nearest monitoring station ranged from 76 to 78 dBA (Stanislaus County 2016). These measurements are similar to the projected 2030 noise levels for Geer Road (75 dBA L_{dn} or greater) near the WTP and raw water pump station site, based on anticipated traffic levels (Stanislaus County 2016).

Sensitive Receptors

Infiltration Gallery/Raw Water Pump Station Site and Raw Water Pipeline

Noise-sensitive receptors in this project area are Fox Grove Regional Park, Stanislaus Wildlife Care Center, a farm residence east of Geer Road, and a farm residence west of Geer Road (along Hatch Road). For the purposes of noise calculations, the edge of these properties would be located approximately 520, 1,010, 1,200, and 1,900 feet, respectively, from the center of

this portion of the project area, just east of Geer Road and the project site and south of the Tuolumne River.

Water Treatment Plant Site

Given their proximity, the sensitive receptors at this site are similar to those discussed above. The distances from the center of the WTP site to the wildlife center and the farm residence would be approximately 740 and 750 feet, respectively. The edge of the WTP could be as close as 100 feet from the wildlife care center and the regional park, and 140 and 1,800 feet from the nearest residences.

Ceres Treated Water Transmission Main and Terminal Tank Facility

This pipeline alignment would largely follow the route of the Ceres Main Canal along Hatch Road and would pass within approximately 60 feet of some residences in Hughson along Hatch Road, 130 feet of Church of Christ and Hughson Christian School on Tully Road, 90 feet of the Jehovah's Witnesses church on Santa Fe Avenue, and 150 feet of the Gurdwara Sahib Modesto Sikh Temple on Santa Fe Avenue. The Ceres terminal tank facility would be located adjacent to the Ceres River Bluff Regional Park's parking lot and several agricultural parcels. Residences would be located within approximately 550 feet southwest of the nearest boundary of the Ceres terminal tank site.

Turlock Treated Water Transmission Main and Turlock Terminal Tank Facility

The Turlock treated water transmission alignment would pass within approximately 50 feet of multiple residences along Berkeley Avenue, approximately 120 feet of homes south of Taylor Road, and within approximately 40-60 feet near homes along North Quincy Road. The boundary of the Turlock terminal tank facility would be located within approximately 500 feet of a residence along East Monte Vista Avenue

Offset Water Facilities

As described in Chapter 2, *Project Description,* most of the potential locations for the production of offset water are existing well sites in Ceres or Turlock. The two exceptions are two possible, future well locations. One of these wells could be located in the vicinity of Dianne Drive and West Canal Drive in Turlock, next to a stormwater detention pond. This site is surrounded by agricultural and commercial/industrial uses; and has approximately six residences located within 1,225 feet of this site on Dianne Drive. The other potential future well site could be located anywhere within TID's service area that has an existing supply deficiency. Potential use of existing Well 38 at the intersection of Mountain View Road and Christoffersen Parkway in Turlock would require installation of a new pipeline in Mountain View Road from the well to TID Upper Lateral 3. This area contains residences, a high school, a park, and the Turlock Regional Sports Complex.

3.11.4 Environmental Impacts and Mitigation

Methodology

The following impact analysis used a combination of qualitative and quantitative approaches to analyze impacts associated with the Proposed Project. Both the qualitative analyses and the quantitative analyses, described below, use distances to sensitive receptors, general project design information, and information provided by SRWA staff and contractors.

Operational impacts of all project features were determined using a qualitative approach because details of operation equipment types and duration of use, and project design were not yet available.

Construction-related impacts of project features were analyzed quantitatively with consideration of the loudest anticipated equipment types and duration of use, and construction phasing. These impacts were assessed by applying the FTA's *Transit Noise and Vibration Impact Assessment* methodology (FTA 2006). This methodology assumes that the two loudest pieces of construction equipment (using the construction equipment list included in Section 2.5.2, *Construction Equipment*, of Chapter 2, *Project Description*) would operate simultaneously at the same location under full power, assuming the following:

- full power operation for a full 1-hour period,
- there are no obstructions to the noise travel paths,
- typical noise levels from construction equipment, and
- both pieces of equipment operate at the edge of the project site.

Using these assumptions, the noise levels at specific distances can be obtained using the following equation:

$$L_{eq}(equip) = EL_{50ft} - 20log_{10}(D/50)$$

Where:

L_{eq} (equip) = the noise emission level at the receiver at distance D over 1 hour

EL_{50ft} = noise emission level of a particular piece of equipment at a reference distance of 50 feet

D = the distance from the receiver to the piece of equipment in feet

To add the two loudest pieces of equipment together, the following equation applies:

$$L_{total} = 10\ log_{10}(10^{\frac{L1}{10}} + 10^{\frac{L2}{10}})$$

Where:

L_{total} = the noise emission level of two pieces of equipment combined

L_1 = the noise emission level of equipment type 1

L_2 = the noise emission level of equipment type 2

Noise levels at the proposed project's nearest sensitive receptors generated by construction equipment were estimated by using the FTA reference guide (FTA 2006).

Significance Criteria

The proposed project would result in a significant impact on noise and vibration if it would:

- Expose persons to or generate noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies;
- Expose persons to or generate excessive groundborne vibration or groundborne noise levels;
- Substantially permanently increase ambient noise levels in the project vicinity above levels existing without the project;
- Substantially temporarily or periodically increase ambient noise levels in the project vicinity above levels existing without the project;
- For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, expose people residing or working in the project area to excessive noise levels; or
- For a project within the vicinity of a private airstrip, expose people residing or working in the project area to excessive noise levels.

The last criterion has been dismissed from this analysis because the proposed project does not include any features within the vicinity of a private airstrip; therefore, no impact would occur and this topic is not discussed further.

Generally, a project may have a significant effect on the environment if it would substantially increase the ambient noise levels for adjoining areas or expose people to severe noise levels. In practice, more specific professional standards have been implemented. These standards state that a noise impact would be significant if it would generate noise that would conflict with local planning criteria or ordinances or substantially increase noise levels at noise-sensitive land uses.

For the proposed project, the significance of anticipated noise effects is based on a comparison between predicted noise levels and applicable noise criteria defined by Stanislaus County, the City of Hughson, the City of Ceres, and the City of Turlock. For the proposed project, noise impacts would be significant if existing or proposed noise-sensitive land uses would be exposed to noise levels in excess of the applicable noise standards at that project feature's location (i.e., the County of Stanislaus General Plan Noise Element, Stanislaus County Municipal Code standards, City of Hughson General Plan Noise Element, the City of Hughson Noise Ordinance, the City of Ceres General Plan Noise Element, the City of Ceres Noise Ordinance, the City of Turlock Municipal Code Noise Standards, or the City of Turlock General Plan Noise Element described in Section 3.11.2, "Regulatory Setting") or if implementing the proposed project would increase ambient noise levels at noise-sensitive land uses in excess of those described above.

The following considerations apply to the first four significance criteria:

- **Noise impacts from operation of proposed project facilities:** For all affected noise-sensitive uses, noise that would be generated by operation of proposed project

facilities would be significant if it would cause the overall exterior noise level to exceed the "normally acceptable" noise standard compatible with exterior land uses or if it would result in an increase of ambient noise levels by 3 dBA.

- **Noise impacts from increased daily traffic:** For all affected noise-sensitive uses, noise generated by an increase in daily traffic volumes caused by the proposed project would be significant if it would cause the overall exterior noise level to exceed the "normally acceptable" noise standard compatible with exterior land uses, exceed the interior noise standard, or result in an increase of ambient noise levels by 3 dBA.

- **Exposure of sensitive receptors to, or generation of, excessive vibration levels:** Short- and long-term vibration impacts would be significant if project construction or operation would result in the exposure of sensitive receptors to, or would generate, vibration levels that exceed Caltrans' recommended standard of 0.2-0.3 in/sec PPV for the prevention of structural damage to non-engineered timber and masonry or engineered concrete and masonry buildings or the FTA's vibration standards of 72 VdB regarding human response for residential uses (i.e., annoyance), or 65 VdB for human perception, at any nearby existing sensitive land uses.

- **Temporary, short-term noise impacts from construction:** Temporary, short-term noise impacts caused by daytime construction activities are exempt from noise ordinances described in the Stanislaus County Municipal Code Specific Noise Source Standards Subsection E (Section 10.46.060, "Construction Equipment"), the City of Ceres Noise Ordinance (Chapter 9.36, "Noise"), the City of Hughson Noise Ordinance (Section 9.30, "Regulation of Noise"), and the City of Turlock Municipal Code Noise Standards (Chapter 5-28, "Noise Standards"), since they would be conducted by a public agency and conducted within the permissible daytime hours. Construction noise levels greater than the FTA significance threshold of 90 dBA at residential and noise-sensitive land uses would be considered to have a temporary noise impact from construction.

Impact Analysis

Impact NOI-1: Potential to Expose Persons to Noise Levels in Excess of Standards Established in a Local General Plan or Noise Ordinance or in the Applicable Standards of Other Agencies (Less than Significant with Mitigation)

Construction

As described in Chapter 2, *Project Description,* construction activities would generally occur Monday through Friday between 7:00 a.m. and 7:00 p.m. Construction is not planned on weekends, nights, or holidays; if necessary, possible work activities during those times would require prior approval by SRWA and other jurisdictions with authority. Nonetheless, since the construction timeframes and schedules for each individual project feature have not yet been finalized, future construction activities have potential to expose people (particularly residential receptors) to noise levels outside the above-listed timeframe and exceeding other standards in the local general plan and ordinances. This impact would be potentially significant.

Construction of all project features would be required to follow applicable county and local laws and SRWA and its contractor(s) would be required to adjust the times of construction accordingly. Municipal codes for Stanislaus County and the City of Hughson, City of Turlock, and City of Ceres contain some exemptions for noise from construction and maintenance activities performed by, or for, public agencies and facilities. With implementation of **Mitigation Measure NOI-1 (Limit Nighttime Construction Noise)**, SRWA and its contractor(s) would be required to ensure that construction activities occur in a manner consistent with local noise standards when operating during allowable daytime hours outlined above. Therefore, this impact would be less significant with mitigation.

Operations

Once construction is complete, proposed pipelines would not generate excess noise levels. Operation of proposed tanks, wells, pump stations, the WTP, and emergency generators would generate ongoing noise levels in areas that could expose people to noise levels in excess of established noise levels without mitigation.

The proposed project would include various types of equipment at the WTP as well as wells, emergency generators, a pump station, and offset water facilities in rural areas in or around Ceres, Hughson, and Turlock and in unincorporated Stanislaus County, and the operation of these facilities would generate noise. As stated in Chapter 2, *Project Description*, the raw water pump station would be designed with noise suppression; however, the specific methods for suppressing noise are not yet known. Likely noise suppression techniques would include sound-attenuated generator enclosures and enclosing the pump motors and air compressors within a building. The pump stations associated with the Ceres and Turlock terminal tank facilities may also generate noise. Currently, the level of design detail for the project's facilities is not sufficient to conduct a quantitative noise analysis; thus, operational noise impacts are conservatively considered to be potentially significant.

As the proposed project is further defined to a level where operational noise levels can be estimated, and prior to finalizing design, SRWA would implement **Mitigation Measure NOI-2 (Prepare Detailed Noise Analysis for Proposed Project Operations)**. This mitigation measure requires that, during design of the proposed project (wells, emergency generators, WTP, pump stations, offset water facilities), a detailed noise study will be conducted to show that generated noise levels are less than the applicable noise thresholds (CNEL exterior noise levels shown in Table 3.11-5 for all project features except those in Ceres, and Table 3.11-8 for the Ceres terminal tank and possibly offset water facilities, or a 3-dB increase if existing levels are above the ambient noise level). If not, the mitigation would require SRWA to identify and implement appropriate measures to reduce noise levels to less than the CNEL exterior noise level or a 3-dB increase in residential areas., which could include any combination of those described in the mitigation measure, to ensure that the CNEL exterior noise level or 3-dB increase threshold is reached. With implementation of Mitigation Measure NOI-2, operation of the proposed project features would not expose persons to noise levels in excess of the standards established in the applicable noise ordinances.

Conclusion

Noise impacts from construction and operation of the proposed project would be potentially significant. While construction-related noise impacts can be reduced to a less-than-significant level with implementation of Mitigation Measure NOI-1, design details for some

project features (e.g., wells, emergency generators, WTP, pump stations, offset water facilities) have not yet been developed such that a quantitative operational noise analysis can be conducted at this time. Implementation of Mitigation Measure NOI-2 would ensure that a detailed noise analysis is completed for project features and that noise-reducing design measures are incorporated in their design. In conclusion, implementation of Mitigation Measures NOI-1 and NOI-2 would reduce noise levels associated with the proposed project's construction and operation, and the resulting noise levels would not be in excess of standards established in the relevant noise ordinances and policies. Therefore, this impact would be **less than significant with mitigation**.

Mitigation Measure NOI-1. Limit Nighttime Construction Noise.

SRWA and its contractor(s) shall ensure that no construction activities are conducted in close proximity to a residence outside the hours of 7:00 a.m.–7:00 p.m. on weekdays and 9:00 a.m.–7:00 p.m. on Saturdays, Sundays, and state or federal holidays unless the project has received a variance or special permit, following procedures outlined in the applicable noise ordinance, to operate outside of these hours.

Mitigation Measure NOI-2. Prepare Detailed Noise Analysis for Proposed Project Operations.

As the proposed project is further designed to a level where operational noise levels can be estimated, and prior to commencing operation, SRWA and/or its contractor(s) shall prepare a noise analysis for proposed project operation. The noise study will identify appropriate measures that can be implemented to reduce noise levels to the relevant CNEL exterior noise level required by the applicable jurisdictions (Table 3.11-5 for all project features except those located in Ceres, and Table 3.11-8 for the Ceres terminal tank and possibly offset water facilities), or a 3-dB increase if existing levels are above the ambient noise level at the property line. If the analysis demonstrates that significant operational noise impacts are likely to occur, measures shall be implemented to achieve the required noise reduction. Example measures may include, but are not limited to, the following:

- locating stationary equipment as far as practical from noise-sensitive land uses;
- using electrified or otherwise quieter equipment when practical;
- using sound-control devices on equipment that are more effective than devices originally provided on the equipment;
- installing permanent barriers between noise sources and noise-sensitive land uses, or taking advantage of existing barrier features (terrain and structures) to block sound transmission;
- limiting operations and maintenance-related trucking to specific routes, times, or speeds that minimize adverse effects on sensitive land uses such as schools and residential areas; and
- using sound attenuation enclosures designed to achieve noise reductions sufficient to comply with City and County standards for noise-generating elements of the operation, when no other feasible control method is available.

Impact NOI-2: Potential to Expose Persons to Excessive Groundborne Vibration or Groundborne Noise Levels (Significant and Unavoidable)

Construction activities associated with the operation of heavy equipment may generate localized groundborne vibration. Vibration from non-impact construction activity is typically below the threshold of perception when the activity is more than about 50 feet from the receptor. Impact construction activity, including the use of pile drivers, boring machines, and similar equipment, may be perceived hundreds of feet away and can cause damage to susceptible buildings located over 100 feet away. The proposed project is not anticipated to use pile drivers; however, jack-and-bore methods of trenchless pipeline construction may be used at railroad and irrigation canal crossings and at some intersections (see Table 2-4 in Chapter 2, *Project Description).* Jack-and-bore methods would generate vibration above the annoyance and human perception thresholds at distances up to approximately 79 and 135 feet, respectively. Loaded trucks, a substantial source of construction-related vibration, would likely be used during construction of some proposed project features (e.g., WTP, raw water pump station, pipelines), which would involve travel along residential roads in Ceres, Turlock, Hughson, and outlying areas. These trucks can generate vibration above the annoyance and human perception thresholds at distances up to 73 and 125 feet, respectively.

As a result, vibration and groundborne vibration effects on sensitive receptors would be significant. Implementation of **Mitigation Measure NOI-3 (Implement Vibration Reduction Measures)** would reduce construction-related impacts from vibration to a less-than-significant level.

Operational noise would be generated from mechanical equipment such as pumps, WTP equipment, emergency generators, and maintenance vehicle trips. These types of activity are anticipated to generate vibration levels that are much lower than those generated during construction. Because of the distance between the operating equipment and the nearby sensitive receivers, vibration levels are expected to result in a less-than-significant impact during operation.

While vibration resulting from construction activities would be temporary, and the implementation of Mitigation Measure NOI-3 would reduce impacts, there may still be some noise vibrations that would exceed applicable thresholds that could be felt by nearby sensitive receptors, in particular during trenching of pipelines that are in close proximity to sensitive receptors. Therefore, this impact has been conservatively determined to be **significant and unavoidable.**

Mitigation Measure NOI-3. Implement Vibration Reduction Measures.

SRWA and/or its contractor(s) shall implement the following vibration-reducing measures during all construction activities, unless specified below, to minimize impacts on nearby sensitive receptors:

- Ensure proper tuning of vibration-causing equipment.
- Use vibration-damping devices to the extent feasible.
- Limit use of vibratory equipment to the extent feasible and do not overlap use of multiple pieces of vibratory equipment. Where possible, maintain a distance of 15 feet or more from buildings.

- Require contractor(s) to ensure that impact tools (e.g., jack hammers, pavement breakers, and rock drills) used for construction be hydraulically or electrically powered wherever possible to avoid noise associated with compressed air exhaust from pneumatically powered tools. However, where use of pneumatic tools is unavoidable, require use of an exhaust muffler on the compressed air exhaust; this muffler can lower noise levels from the exhaust by up to about 10 dBA. External jackets on the tools themselves shall be used where feasible, and this could achieve a reduction of 5 dBA. Quieter procedures shall be used, such as drills rather than impact equipment, whenever feasible.

- Use electric stationary equipment (e.g., generators) where feasible.

- Implement noise and/or vibration shields, such as sound aprons or temporary enclosures with sound-absorbing material, on or around construction equipment, particularly if construction activities are conducted after 7:00 p.m. For all construction activities occurring within 60 feet of residences at any time of day, install a temporary noise and vibration barrier between the project site and the nearest sensitive receptors. Following the completion of construction activities within that distance, the barrier will be removed.

Impact NOI-3: Potential for Project Operations to Permanently Increase Ambient Noise Levels Above Levels Existing Without the Project (Less than Significant with Mitigation)

Operation of proposed tanks, wells, pipelines, pump stations, the WTP, and emergency generators could expose people to noise levels in excess of established noise levels without mitigation. Operation of the proposed project features near residences in unincorporated Stanislaus County and the cities of Ceres, Hughson, and Turlock would generate noise. Currently, the level of design detail for these features is not sufficient to conduct a quantitative noise analysis; thus, operational noise impacts are conservatively determined to be significant. Mitigation Measure NOI-2 requires that, as the project is further designed to a level where operational noise levels can be estimated, prior to commencing operation, SRWA would prepare a quantitative noise analysis for the project. If the analysis shows that relevant thresholds (CNEL exterior noise levels shown in Table 3.11-5 for all project features except those located in Ceres, and Table 3.11-8 for the Ceres terminal tank and possibly offset water facilities, or 3-dB increase if existing levels are above the ambient noise level) would be exceeded, measures would be identified and implemented to reduce operational noise to achieve the CNEL exterior noise level or 3-dB increase threshold.

Project operational impacts on ambient noise levels would be potentially significant. Implementation of Mitigation Measure NOI-2 would ensure that operation of new facilities would comply with applicable noise standards. The proposed project's effects on ambient noise levels would be **less than significant with mitigation**.

Impact NOI-4: Substantial Temporary or Periodic Increase in Ambient Noise Levels in the Project Vicinity Above Levels Existing Without the Proposed Project (Significant and Unavoidable)

Temporary increases in noise levels associated with construction activities, as well as short-term increases in noise associated with operations, such as periodic maintenance activities and truck traffic, would increase ambient noise levels above the levels existing without the proposed project.

With respect to operations, given that truck traffic for maintenance activities would be infrequent and would not substantially differ from existing traffic, these ambient noise increases would not be considered substantial. The same is true of temporary increases in noise associated with periodic maintenance activities at the terminal tank facilities, pump stations, and/or pipeline locations.

With respect to construction, the proposed project includes the construction of a water treatment plant, raw water pump station, the Ceres and Turlock Terminal Facilities, offset water facilities, and the installation of approximately 13 miles of pipeline, some of which passes through or adjacent to residential areas of Ceres, Hughson, and Turlock. In order to more accurately analyze the noise impacts of construction of the proposed project, the noise evaluation was divided into the following sub-projects based on the project component and locations:

- Infiltration gallery and raw water pump station site
- Raw water transmission pipeline
- WTP site
- Ceres treated water transmission main
- Ceres terminal tank facility
- Turlock treated water transmission main
- Turlock terminal tank facility
- Offset water facilities

Following the methodology discussed in Section 3.11.4, the two loudest pieces of equipment were used to model noise levels during construction. The two loudest pieces of equipment for each site were assumed to be a paver and a loaded truck, as shown in **Appendix D**. For each project component, **Table 3.11-11** provides information on the sound levels at 50 feet, distance to noise thresholds, and noise levels at the nearest sensitive receptors.

Table 3.11-11. Proposed Project Construction Noise Levels

Project Component	Distance (ft) to Nearest Sensitive Receptor and Nearest Residential Receptor (if not the same)	dBA at Nearest Sensitive Receptor and Nearest Residential Receptor (if not the same)
Infiltration Gallery and Raw Water Pump Station Site	520 (Fox Grove Regional Park) 1,200 (Residence)	71.2 (Fox Grove Regional Park) 63.9 (Residence east of Geer Rd.)
Water Treatment Plant Site and Raw Water Pipeline	100 (Wildlife Care Center + Fox Grove Park) 140 (Residence)	85.5 (Wildlife Care Center + Fox Grove Park) 82.6 (Residence east of Geer Rd.)
Ceres Pipeline	60 (Residences along Hatch Road in Hughson)	**90.0** (Residences along Hatch Road in Hughson)
Ceres Terminal Tank	550 (Residences southwest of tank)	70.7 (Residences southwest of tank)
Turlock Pipeline	40 (Residences along North Quincy Road)	**93.5** (Residences along North Quincy Road)
Turlock Terminal Tank	500 (Residence along East Monte Vista Ave.)	71.5 (Residence along East Monte Vista Ave.)
Offset Water Facilities	165 (Residences on Dianne Drive)	81.2 (Residences on Dianne Drive)

Notes: Modeling assumes that two loudest pieces of construction equipment are loaded truck and paver; distance to 90-dBA contour is 60 feet for all locations. FTA recommends a daytime threshold of 90 dBA for residential areas.
Bold, shaded cells indicates exceedance of 90-dBA threshold.

Source: Modeling conducted by Horizon in 2017 (Appendix D).

Based on the modeling, construction activities would exceed noise thresholds at individual sensitive receptors along the Ceres and Turlock pipeline routes. For these two components, construction activities would raise ambient noise levels above 90 dB, the FTA significance threshold at residential and noise-sensitive land uses, for the nearest residences. These noise levels may be disruptive to nearby sensitive receptors because noise levels would likely exceed existing ambient noise levels, depending on the proximity to traffic-related noise or other noise sources. This impact would be significant.

Implementation of **Mitigation Measure NOI-4 (Employ Noise-reducing Construction and Maintenance Practices)**, which includes several construction noise-reducing measures, would help reduce short-term noise impacts. However, this measure may not fully reduce construction noise impacts for all sensitive receptors located near individual project features, particularly the Ceres and Turlock pipelines. Thus, because feasible measures to reduce impacts below the threshold may not exist, the proposed project's temporary impacts related to increases in ambient noise levels has been determined to be **significant and unavoidable**.

Mitigation Measure NOI-4. Employ Noise-reducing Construction and Maintenance Practices.

The following measures shall be implemented by SRWA, the Cities, and/or their contractor(s) to reduce adverse effects from construction and maintenance noise:

- locating stationary equipment as far as practical from noise-sensitive land uses,

- using electrified or otherwise quieter equipment when practical,
- using sound-control devices on equipment that are more effective than devices originally provided on the equipment,
- using noise-reducing enclosures around noise-generating equipment,
- installing temporary barriers between noise sources and noise-sensitive land uses, or taking advantage of existing barrier features (terrain and structures) to block sound transmission, and
- limiting construction-related trucking to specific routes, times, and speeds that minimize adverse effects to sensitive receptors.

Impact NOI-5: Expose People Residing or Working in the Project Area to Excessive Noise Levels Associated with a Public Airport (No Impact)

The Ceres treated water transmission main and Ceres terminal tank facility would be located within 1 mile of the Modesto City-County Airport's boundary. The Modesto City-County Airport's safety zones overlap portions of the Ceres transmission pipeline and terminal tank facility (Stanislaus County 2016). However, these project features would not be located within areas affected by airport-related noise (i.e., the CNEL noise zones policy areas shown in the Noise Zones Policy Map for Modesto City-County Airport [Stanislaus County 2016]). Therefore, since the proposed project would not be located in the airport noise impact zones, there would be **no impact.**

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3.12 Population and Housing

3.12.1 Introduction

This section presents an overview of population and housing in and adjacent to the proposed project area and summarizes the state and local regulatory framework related to population and housing. It identifies thresholds of significance and analyzes the potential impacts of the proposed project on population and housing.

3.12.2 Regulatory Setting

There are no federal or state laws, regulations, or policies applicable to population and housing in relation to the proposed project.

Local Plans, Policies, and Regulations

Stanislaus County

The *Stanislaus County General Plan* includes a 2015-2023 Housing Element Update (Stanislaus County 2016). Its purpose is to reassess housing needs of existing and future residents of the unincorporated area of Stanislaus County based on the most current data available; propose specific goals, objectives, policies, and programs to meet those needs, and comply with the requirements of state law. The following goals or policies are applicable to unincorporated areas of the county and the proposed project:

Goal Four. Designate sufficient sites for all types of residential development required to meet projected housing needs.

> **Policy 4A.** The County shall identify unincorporated areas with adequate infrastructure and limited environmental concerns that are most suited for housing, especially lower-cost and higher-density housing.

> **Policy 4D.** The County shall identify specific methods and provide assistance to improve infrastructure in residential areas.

City of Ceres

The following policies from the *City of Ceres General Plan* (1997) related to population and housing are listed below.

Goal 1.B. To grow in an orderly pattern consistent with economic, social and environmental needs, maintaining Ceres' small-town character and preserving surrounding agricultural lands.

> **Policy 1.B.3.** The City shall ensure that future development occurs in an orderly sequence based on the logical extension of public facilities and services.

The City of Ceres 2014-2023 Housing Element (City of Ceres 2016) was adopted in 2016 as part of the City's General Plan. The purpose of the housing element is to identify the community's housing needs, state the community's goals and objectives with regard to

housing production, rehabilitation, and conservation to meet those needs, and define the policies and programs that the community will implement to achieve the stated goals and objectives. The following goal, policy, and program are applicable to the City of Ceres and the proposed project:

Goal HE-1. To provide for the City's regional fair share of new housing for all economic segments of the community.

> **Policy 1.16.** The City shall continue to conserve water usage in the short-term and improve the City's water supply and storage capacity in the long-term.
>
> > **Program 1.14. Long-term Water Supply.** The City shall develop short and long-term contingency plans to ensure an adequate water supply for residents and businesses. The City shall continue to coordinate and develop long-term groundwater and surface water supply plans internally and with the Turlock Irrigation District.

City of Turlock

The *City of Turlock General Plan* Housing Element presents housing policies and actions for the years 2015-2023 (City of Turlock 2016). It builds on an assessment of Turlock's housing needs (including the Regional Housing Needs Allocation distributed by the State through the Stanislaus Council of Governments) and contains an evaluation of existing housing programs, available land, and constraints on housing production. The Turlock treated water transmission main alignment would be constructed within the City's planning boundary. The following goal and policy are applicable to the proposed project:

Goal 3. Provide and maintain an adequate supply of sites for the development of new affordable housing.

> **Policy 3-3-5.** Ensure that new residential development is adequately provided with necessary public infrastructure.

Goal 4. Preserve, rehabilitate, and enhance existing housing and neighborhoods.

> **Policy 4-1-1**. Protect existing stabilized residential neighborhoods from the encroachment of incompatible or potentially disruptive land uses and/or activities.

Objective 5-2. Reduce the incidence of displacement.

> **Policy 5-2-1.** In development of public projects, require an analysis of potential displacement of existing residences with an emphasis on minimizing both temporary displacement and relocation.

City of Hughson

The *City of Hughson General Plan* Housing Element Update (2009) contains the following goals and policies that are applicable to the City and the proposed project:

Goal 2. Remove Constraints. The goal of the Housing Element is to remove constraints that hinder the construction of housing, especially affordable housing.

Policy 2-4. Ensure there is an adequate supply of water to meet the City's population and housing growth.

3.12.3 Environmental Setting

Population

Overall, population in the portions of Stanislaus County affected or served by the proposed project is projected to grow by approximately 29.3 percent from 2015 to 2040, to a total population of 311,707 (**Table 3.12-1**).

Unincorporated Stanislaus County

As of January 1, 2015, the total Stanislaus County population was 532,297, of which the unincorporated areas accounted for 113,772 persons (Stanislaus County 2016). The population in the unincorporated areas is projected to reach over 140,000 by 2040, according to the Stanislaus Council of Governments (StanCOG 2016), which represents an approximately 24.5-percent increase from the county's 2015 population. Table 3.12-1 provides population estimates and future projections from 2015 through 2040 for Ceres, Turlock, Hughson, and unincorporated Stanislaus County.

Ceres

Ceres had an estimated population of 48,029 as of January 2015 (Stanislaus County 2016). The city's population in 2040 is estimated to be 64,628 persons, an increase of approximately 34.6 percent (StanCOG 2016).

Turlock

The total population of Turlock was 72,229 persons in 2015 (Stanislaus County 2016). In 2040, the population is estimated to be 95,564, an increase of approximately 32.3 percent (StanCOG 2016).

Hughson

Hughson had an estimated population of 7,080 in 2015 (Stanislaus County 2016). The city's population in 2040 is estimated to be 9,888 persons, an increase of approximately 39.6 percent (StanCOG 2016).

Housing

Housing in the portions of Stanislaus County affected or served by the proposed project is projected to grow by approximately 16.1 percent from 2015 to 2040, to an estimated 100,139 units (**Table 3.12-2**).

Table 3.12-1. Population Growth Trends for Ceres, Turlock, and Unincorporated Stanislaus County (2015-2040)

Jurisdiction	2015	2020	2030	2040	Change (2015–2040)		
					Net Increase	Overall Percent Increase	Average Annual Percent Increase
Ceres	48,029	51,049	57,879	64,628	+16,599	34.6	1.4
Turlock	72,229	76,475	86,077	95,564	+23,335	32.3	1.3
Hughson	7,080	7,591	8,746	9,888	+2,808	39.6	1.6
Unincorporated Stanislaus County*	113,772	117,807	125,879	141,627	+27,855	24.5	0.9
Totals	**241,110**	**252,922**	**278,581**	**311,707**	**70,597**	**29.3**	**1.2**

*Source: StanCOG 2016; *Stanislaus County 2016*

Table 3.12-2. Housing Unit Growth in Ceres, Turlock, and Unincorporated Stanislaus County (2015–2040)

City	2015	2020	2030	2040	Change (2015–2050)		
					Net Increase	Overall Percent Change	Average Annual Percent Change
Turlock	25,463	27,301	30,935	34,152	+8,689	34.1	+1.4
Ceres	14,256	15,355	17,530	19,455	+5,199	36.5	+1.5
Hughson	2,348	2,555	2,965	3,328	+980	41.7	+1.7
Unincorporated Stanislaus County	*37,226*	*38,098*	*40,567*	*[43,204]**	*+5,978*	*16.1*	*+0.6*
Totals	79,293	83,309	91,997	100,139	+20,846	26.3	+1.1

*Extrapolated from 2020-2030 data.

Source: StanCOG 2014, 2016

Unincorporated Stanislaus County

Housing availability within the unincorporated portions of Stanislaus County is limited. In 2015, the unincorporated area had an estimated 37,226 housing units (StanCOG 2016). The number of new units is projected to increase by 16 percent (0.6 percent per year), to 43,204 (extrapolated from 2020-2030 data) in 2040.

Ceres

For Ceres, housing units totaled 14,256 in 2015. By 2040, this number is estimated to increase by 36.5 percent (1.5 percent per year), to 19,455 (StanCOG 2016).

Turlock

Turlock had 25,463 housing units in 2015. Housing growth projections estimate an increase to 34,152, up 34.1 percent (1.4 percent per year) by 2040 (StanCOG 2016).

Hughson

Hughson had a total of 2,348 housing units in 2015. Housing growth projections estimate an increase to 3,328 by 2040, an increase of 41.7 percent (1.7 percent per year) (StanCOG 2016).

Workforce

Employment in Stanislaus County as a whole was estimated at 171,375 jobs in 2015 (Caltrans 2015). Job growth is projected to result in a total of 236,749 jobs by 2040. As of 2015, the unemployment rate was 10.4 percent. This rate is projected to decrease to 7.8 percent by 2020.

Unincorporated Stanislaus County

Total employment in the unincorporated portions of Stanislaus County was approximately 72,525 employees in 2015. Growth projections predict that employment numbers will continue to increase through 2040, reaching 94,721 by 2040. Based on these projections, the projected annual percent increase in employment is 2.8 percent (City of Modesto 2017a).

Ceres

Employment for Ceres is estimated at approximately 10,000 jobs in 2015, including the wider planning area (City of Ceres 2017). The number of jobs in Ceres and its planning area is projected to increase to 20,800 by 2035 (City of Ceres 2017); extrapolating this growth rate to 2040 provides an estimate of 23,500 jobs with an annual growth rate of 5.4 percent.

Turlock

The City of Turlock had approximately 28,300 jobs in 2010 (City of Turlock 2012). By 2030, employment is projected to be 60,300; extrapolating this growth rate to 2040 provides an estimate of 76,300 jobs at an annual growth rate of 3.9 percent.

3.12.4 Environmental Impacts and Mitigation

Methodology

The methods for this analysis included a review of relevant documents, statistics, and policies about the Cities of Ceres, Hughson, and Turlock as well as Stanislaus County's housing and employment data. The evaluation is based on the Proposed Project's potential effects on housing and population in these respective cities and Stanislaus County.

Significance Criteria

The Proposed Project would result in a significant impact with regard to population and housing if it would:

- Induce substantial population growth in an area, either directly (e.g., by proposing new homes and businesses) or indirectly (e.g., through extension of roads or other infrastructure);
- Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere; or
- Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere.

Impact Analysis

Impact PH-1: Induce Substantial Population Growth in an Area, Either Directly or Indirectly (Less than Significant)

The proposed project would involve construction and operation of a raw water pump station, raw water transmission main, water treatment plant, treated water transmission pipelines, terminal tank facilities, and offset water facilities. These improvements would be located in unincorporated Stanislaus County and in the Cities of Ceres, Turlock, and Hughson. As described in Chapter 2, *Project Description,* construction activities would take place in various locations over a period of approximately 4 years (2019-2022). The total number of construction workers is anticipated to be approximately 500-700 over the duration of the project, with an average of 100 workers on any given day and a peak of 200. The pipelines may have 5-15 workers at a time depending on the number of crews a contractor opts to use. The WTP construction is expected to employ approximately 100 tradespeople at a time. Based on employment information for the local jurisdictions as described in Section 3.12.3, "Environmental Setting," the labor force in the area would be sufficient to accommodate a construction project of this size without the need to recruit workers from long distances who would require temporary relocation.

Operation of the infiltration gallery and raw water pump station, WTP, and terminal tank facilities would require the hiring of approximately 10-16 new employees by SRWA. Given the population of the surrounding area, the ease of access to the project area from surrounding communities, and the pool of available workers, it is unlikely that new employees would be recruited to relocate from outside areas.

Therefore, the proposed project would not, through construction or operation, either directly or indirectly induce substantial population growth. As a result, this impact would be **less than significant.**

Impact PH-2: Displace Substantial Numbers of Existing Housing or People, Necessitating the Construction of Replacement Housing Elsewhere (Less than Significant with Mitigation)

The proposed raw water pump station site would be located alongside the existing TID infiltration gallery on agricultural land adjacent to the Tuolumne River; one rural residence is located approximately 1,200 feet southeast of the site. The WTP would be constructed on property that is owned by TID and is currently in agricultural production; two residences are located 500 feet west. The Ceres terminal tank facility would be located adjacent to Ceres River Bluff Regional Park, approximately 920 feet from the nearest residence, and the Turlock terminal tank facility would be located approximately 720 feet from the nearest residence. Offset water facilities would be located primarily at existing well sites. None of these facilities would require displacement of housing or people to construct or operate.

The raw water transmission main from the pump station to the WTP would be installed in the facility access road, cross the Fox Grove Regional Park parking lot, and travel through the WTP property. Although one residence is located adjacent to the parking lot, the transmission main would not cross this property.

The treated water transmission main from the WTP to Ceres would be installed in the ROW for East Hatch Road along the TID Main Canal. Access to residences along this alignment could be affected for brief periods, as construction would progress at a rate of 200-500 feet per day; this would be a potentially significant impact. However, SRWA would implement **Mitigation Measure TRANS-1 (Prepare and Implement a Construction Traffic Management Plan)** to ensure that access to these residences would be maintained during construction. Similarly, access would be maintained to residences along the alignment of the Turlock transmission pipeline on Geer Road, Aldrich Road, John Fox Road, Berkeley Avenue, Taylor Road, and North Quincy Road.

For these reasons, construction and operation of the proposed project would not affect existing housing or residents, either in the long or short term. As a result, this impact would be **less than significant with mitigation.**

Impact PH-3: Long-term Inducement of Substantial Population Growth, Both Directly and Indirectly (Significant and Unavoidable)

As noted above, the proposed project includes construction of a new water treatment, storage, and distribution system to improve the reliability and amount of water supply to the Cities of Ceres and Turlock. The proposed project would not directly induce growth, as it does not entail construction of new housing. However, by upgrading the treated water distribution system to deliver more water, it would remove an obstacle to planned development that would support population growth in the participating jurisdictions. Although this growth would be consistent with projected growth evaluated in adopted general plans, such growth could not occur without the proposed water system improvements addressed in this EIR.

As summarized in the setting above, between 2015 and 2040, the population of Ceres is projected to grow from 48,029 to 64,628 with an annual average growth rate of 1.4 percent (StanCOG 2016). The population in Turlock is estimated to grow from 72, 229 to 95,564, an average growth rate of 1.3 percent. The two cities anticipate an increase of 39,934 persons by 2040.

Chapter 2, *Project Description,* explains that Ceres and Turlock are supplied with water that is exclusively provided from groundwater. Section 3.9, *Hydrology and Water Quality,* describes the condition of the local groundwater aquifer and concerns about potential overdraft. As a result, the Cities and SRWA have proposed to withdraw surface water from the Tuolumne River to provide both a more stable water supply and an additional source of water to accommodate growth.

New growth in Ceres and Turlock facilitated by the proposed project would result in associated physical environmental impacts; this could include aesthetic effects, conversion of farmland, air pollutant and greenhouse gas emissions, conversion of habitat, impacts on cultural or tribal cultural resources, increased point source or nonpoint source water pollution, use and possible releases of hazardous materials, noise, traffic, additional demands for public services and utilities such as police protection, fire protection, schools, parks, wastewater treatment, solid waste disposal, and energy.

Growth-inducing and secondary impacts are addressed by the policies of general plans of Stanislaus County, Turlock, and Ceres. These policies ensure that development within the planned growth areas would occur as demand arises and services are available, and that utilities would be sized appropriately to serve such development. The general plans mitigate for impacts through advance planning and the implementation of growth management strategies, the provision of adequate public services and utilities such as treated water distribution, wastewater collection, and the protection of open space and habitat areas.

In conclusion, proposed development of SRWA's water treatment, storage, and distribution system would remove an obstacle to urban development and population growth within the Ceres-Turlock service area. This development would occur in accordance with the Cities' general plans and thus would not result in unplanned or disorderly growth. Nevertheless, the proposed project would remain growth-inducing; the impacts of growth inducement, and the secondary environmental effects of induced growth, are considered significant.

Although the policies contained in general plans would reduce the secondary effects of growth, they would not necessarily reduce secondary environmental effects to a less-than significant level. Individual development projects facilitated by the increased water supply would be required to comply with CEQA, which may result in additional mitigation for growth and its effects; however, such mitigation measures cannot be guaranteed at this time. It would be speculative to forecast potential significant impacts and effectiveness of potential mitigation measures associated with future development projects that may be served by the proposed project. For these reasons, this impact would be **significant and unavoidable**.

3.13 Public Services

3.13.1 Introduction

This section evaluates potential impacts of the proposed project on public services (e.g., fire, police, schools, and parks). Section 3.13.2 discusses the relevant federal, state, and local laws related to public services and the proposed project. Section 3.13.3 describes the existing public service providers that could be affected by the proposed project. Section 3.13.4 evaluates the potential impacts of the proposed project as dictated by the CEQA significance criteria and taking into account the existing regulatory and environmental settings.

3.13.2 Regulatory Setting

Federal Plans, Policies, and Regulations

No federal plans, policies, or regulations related to public services and the proposed project were identified.

State Laws, Regulations, and Policies

California Fire Code

The California Fire Code (24 CCR Part 9) establishes minimum requirements to safeguard the public health, safety, and general welfare from the hazards of fire, explosion, or dangerous conditions in new and existing buildings, structures, and premises. Chapter 33 of the code contains the following requirements for fire safety during construction and demolition:

> **3304.4. Spontaneous ignition.** Materials susceptible to spontaneous ignition, such as oily rags, shall be stored in a listed disposal container.
>
> **3308.1. Program superintendent.** The owner shall designate a person to be the fire prevention program superintendent who shall be responsible for the fire prevention program and ensure that it is carried out through completion of the project. The fire prevention program superintendent shall have the authority to enforce the provisions of this chapter and other provisions as necessary to secure the intent of this chapter. Where guard service is provided, the superintendent shall be responsible for the guard service.
>
> **3308.2. Prefire plans.** The fire prevention program superintendent shall develop and maintain an approved prefire plan in cooperation with the fire chief. The fire chief and the fire code official shall be notified of changes affecting the utilization of information contained in such prefire plans.
>
> **3310.1. Required access.** Approved vehicle access for firefighting shall be provided to all construction or demolition sites. Vehicle access shall be provided by either temporary or permanent roads, capable of support vehicle loading under all weather conditions. Vehicle access shall be maintained until permanent fire apparatus access roads are available.

3316.1. Conditions of use. Internal-combustion-powered construction equipment shall be used in accordance with all of the following conditions:

1. Equipment shall be located so that exhausts do not discharge against combustible material.

2. Equipment shall not be refueled while in operation.

3. Fuel for equipment shall be stored in an approved area.

Local Laws, Regulations, and Policies

Stanislaus County

The *Stanislaus County General Plan* (2015) guides land use and development in the unincorporated portions of Stanislaus County. The following goals, policies, and implementation measures in the General Plan Safety Element relate to public services and the proposed project:

Goal Two. Minimize the effects of hazardous conditions that might cause loss of life and property.

Policy Seven. Adequate fire and sheriff protection shall be provided.

City of Ceres

The following goals and policies in the *City of Ceres General Plan* Public Facilities and Services Element (1997) relate to public services and the proposed project.

Goal 4.G. To provide adequate police services to deter crime and to meet the growing demand for services associated with increasing population and commercial/industrial development in the city.

Policy 4.G.1. The City shall, through adequate staffing and patrol arrangements, endeavor to maintain the minimum feasible response times for police calls. The City shall strive to achieve a maximum four-minute response time for life-threatening events.

Goal 4.H. To protect residents of and visitors to Ceres from injury and loss of life and to protect property from fires.

Policy 4.H.2. The City shall, through adequate staffing and facilities, endeavor to maintain the minimum feasible response times for fire calls. To this end, the City shall attempt to maintain a response time of two minutes or less for emergency medical response and six minutes or less for fire suppression calls.

Goal 4.I. To provide for educational needs for all Ceres residents.

Goal 4.J. To ensure that adequate school facilities are available and appropriately located to meet the needs of Ceres residents.

Goal 4.K. To ensure that library facilities are available to all current and future Ceres residents.

City of Turlock

The following guiding policies in the *Turlock General Plan* (2012) relate to public services and the proposed project.

Safety

Guiding Policy 10.4-b. Provide High-Quality Public Safety Services. Continue to provide a level of service standard that meets or exceeds the national average in response to police protection and fire protection/prevention through efficient organization, administration and annual funding.

Implementing Policy 10.4-i. Meet Response Time Standard throughout Study Area. Adequately distribute fire-fighting equipment and personnel throughout the Sphere of Influence to ensure quick response time (strive to achieve 5 minute response time to all calls within the primary service are of each fire station, 90% of the time). Critical factors that affect response times are station locations and road circulation patterns.

Parks, Schools, and Community Facilities

Guiding Policy 4.1-a. High Quality Park System. Develop a high quality, diversified public park system that provides a variety of recreational opportunities for all City residents.

Guiding Policy 4.2-a. Facilities to Serve Community Needs. Support the development of community facilities to enhance the City's identity and meet the civic and social needs of the community.

Guiding Policy 4.3-a. School Facility Planning. Plan educational facilities with sufficient permanent capacity to meet the needs of current and projected future enrollment.

City of Hughson

The following goals and policies in the *Hughson General Plan* Public Facilities and Services Element (2005) relate to public services and the proposed project.

Goal PSF-1. Maintain a safe environment in Hughson through enforcement of the law, prevention of crime and the creation of community partnerships.

Goal PSF-2. Minimize loss of life and property from fires, medical emergencies and public emergencies.

Goal PSF-3. Provide educational facilities sufficient to meet the demands of existing and new development.

Goal PSF-4. Provide sufficient library service to meet the informational, cultural, and educational needs of the population of Hughson.

3.13.3 Environmental Setting

Fire Protection

Most of the proposed project area is served by the Stanislaus Consolidated Fire Protection District (SCFPD). Established in 1995, SCFPD provides fire protection services to unincorporated sections of East Modesto; the Cities of Riverbank and Waterford; and the communities of Empire, La Grange, and Hickman. Currently, SCFPD employs 81 trained staff members at its nine fire stations. In 2015, SCFPD responded to 8,224 incidents (SCFPD 2017).

In addition to structural and wildland firefighting, SCFPD provides hazardous material mitigation, emergency medical services, and technical rescue services. The nearest SCFPD stations to the proposed project location are Station 32 in Empire (approximately 3.5 miles northwest of the project site) and Station 34 in Waterford (approximately 5 miles northeast of the project site).

Other portions of the project area are served by the City of Ceres Fire Department, City of Turlock Fire Department, and Hughson Fire Protection District.

Police Protection

The Stanislaus County Sheriff's Department (SCSD) provides law enforcement services to unincorporated Stanislaus County, including most of the proposed project area. SCSD also provides law enforcement services under contract for the Cities of Riverbank, Patterson, Waterford, and Hughson. In 2014, SCSD received 72,440 calls for service, maintaining an average response time of 7 minutes 13 seconds (Stanislaus County 2014).

Other portions of the project area are served by the City of Ceres Police Department, City of Turlock Police Department, and the Hughson Police Department.

Schools

The nearest school districts to the proposed project are the Hughson Unified School District, Waterford Unified School District, Ceres Unified School District, and Turlock Unified School District. Nearby schools are Hughson Elementary and High Schools, Fox Road Elementary School, and Hughson Community Day School, all in Hughson; La Rosa Elementary School and Whitmore Charter High School near Ceres; Dennis Earl Elementary School and Turlock Christian Schools in Turlock; and Denair Middle School in Denair. The potential offset water pipeline from Well 38 to TID Upper Lateral 3 in Turlock would be located on Mountain View Road adjacent to John H. Pitman High School.

Parks

Stanislaus County has five main regional parks, 12 neighborhood parks, 10 community parks, and two off-highway vehicle parks (Stanislaus County 2017). Fox Grove Regional Park is directly adjacent to the wet well and WTP portions of the project area and includes a boat ramp and areas for fishing, swimming, parking, and picnicking. Various neighborhood and

community parks are located in the City of Ceres, Hughson, and City of Turlock. Ceres River Bluff Regional Park is located adjacent to the proposed Ceres terminal tank facility and includes sports fields, playgrounds, picnicking, and parking. The potential offset water pipeline from Well 38 to TID Upper Lateral 3 in Turlock would be located on Mountain View Road adjacent to Brad Bates Park.

Other Public Facilities

The nearest hospitals to the proposed project area are located in Modesto and Turlock.

Libraries in the project area are the Empire, Hughson, Ceres, Keyes, Denair, and Turlock Public Libraries.

3.13.4 Environmental Impacts and Mitigation

This section evaluates the potential impacts on public services that could occur from the proposed project. This evaluation builds off of the information presented in Sections 3.13.1 and 3.13.2. The methodology used for the evaluation and significance criteria applied are described below, followed by the impact analysis.

Methodology

Potential impacts on public services are evaluated qualitatively, considering the ways in which the proposed project could result in exceedance of any of the significance criteria described below.

Significance Criteria

Based on Appendix G of the State CEQA Guidelines, the proposed project would result in a significant impact if it would:

- Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:
  i. Fire protection
  ii. Police protection
  iii. Schools
  iv. Parks
  v. Other public facilities

Impact Analysis

Impact PS-1: Result in Substantial Adverse Physical Impacts Associated with the Provision of, or Need for New or Physically Altered Fire Protection Facilities (Less than Significant)

The proposed project would not directly cause or result in unplanned population growth not accounted for in the applicable jurisdictions' general plans (see Section 3.12, *Population and*

Housing, for detailed discussion). The proposed project would add several structures/facilities, but these would be constructed of metal and other non-flammable materials and would not be anticipated to cause or be subject to fire. Therefore, the proposed project would not substantially increase demand for fire services over the long term.

During construction, the proposed project would involve the use of internal-combustion-engine construction equipment and the use and storage of flammable materials (e.g., fuel, oil), which could potentially provide an ignition source. If construction activities were to ignite a fire, it could require a response from SCFPD, City of Ceres Fire Department, Hughson Fire Protection District, and/or City of Turlock Fire Department, depending on the location of the blaze. As described in Section 3.13.2, the California Fire Code establishes minimum requirements for fire safety during construction, such as requiring that internal-combustion equipment be used in such a way that exhaust does not discharge onto combustible materials, and that fuel is stored in an approved area. Additionally, adequate vehicle access for firefighting must be maintained at the construction site at all times.

Adherence to the requirements contained in the California Fire Code would substantially reduce the proposed project's potential to ignite a fire. Additionally, the land cover types in the project area that would be disturbed by construction activities (primarily agriculture and road ROW) would not be especially conducive to fire. For these reasons, any increased fire risk from project construction activities would not be substantial and would not result in a substantial increase in calls for service that could require or result in construction of new or expanded fire protection facilities. Therefore, this impact would be **less than significant.**

Impact PS-2: Result in Substantial Adverse Physical Impacts Associated with the Provision of, or Need for New or Physically Altered Police Protection Facilities (Less than Significant)

As discussed in Impact PS-1 and in Section 3.12, *Population and Housing,* the proposed project would not result in substantial unplanned population growth not accounted for in the applicable jurisdictions' general plans. The proposed project would add structures and facilities to the area that could potentially be vandalized or subject to other property-related crime, but this potential increase in demand for police protection services would not result in the need for new or expanded police protection facilities.

During construction, trenching activities on the road shoulder or within the roadway could lead to traffic incidents that may require a police response. Construction equipment and storage also could be subject to theft, potentially leading to a police response or investigation. The likelihood of these events is relatively remote, however, and even if they were to transpire, it would not place a substantial additional demand on police resources. Any calls for service that may arise from the proposed project during construction would not, on their own, result in the need for new or expanded police protection facilities. Therefore, this impact would be **less than significant.**

Impact PS-3: Result in Substantial Adverse Physical Impacts Associated with the Provision of, or Need for New or Physically Altered School Facilities (Less than Significant)

The proposed project would not directly result in substantial unplanned population growth not accounted for in the applicable jurisdictions' general plans. Therefore, it would not add

any student-age children to the area who may attend local schools and thereby affect student-to-teacher ratios or other performance objectives. Likewise, proposed project operation would not adversely affect access to any existing schools.

Potential installation of a pipeline on Mountain View Road as part of offset water facilities at Well 38 could affect access to John H. Pitman High School for a brief period. A construction crew can typically install 200-400 feet of pipeline in a day, and the high school frontage on Mountain View Road is approximately 700 feet. Thus, if Well 38 is used to provide offset water, pipeline construction could affect access to the high school for 2-3 days, and the main entrance to the school would not be affected. Other than this location, proposed project construction activities would not affect access to any existing schools. Therefore, this impact would be **less than significant**.

Impact PS-4: Result in Substantial Adverse Physical Impacts Associated with the Provision of, or Need for New or Physically Altered Park Facilities (Less than Significant)

The proposed project would not directly result in unplanned population growth not accounted for in the applicable jurisdictions' general plans. Therefore, it would not increase demand for park facilities in the area over the long term. During construction, there may be disturbances to Fox Grove Regional Park, which is located directly adjacent (to the west) of the proposed water treatment plant site. The raw water pipeline alignment would be routed through Fox Grove Regional Park, so trenching for installation of the pipeline would temporarily reduce access to the park. Additionally, Fox Grove Access Road would be used to move equipment and materials into and out of the construction site. Although these disturbances could lead to people using other parks in the area in lieu of Fox Grove Regional Park, this effect would not likely be substantial considering that attendance to Fox Grove Regional Park is relatively low (see Section 3.14, *Recreation,* for detailed discussion).

Potential installation of a pipeline on Mountain View Road as part of offset water facilities at Well 38 could affect activities at Brad Bates Park for a brief period. A construction crew can typically install 200-400 feet of pipeline in a day, and the alignment would cross approximately 600 feet of land between the park and the Turlock Regional Sports Complex. Thus, if Well 38 is used to provide offset water, pipeline construction could affect the park for 2-3 days, although access to the park would not be affected.

Therefore, it is unlikely that any increased use of parks in Stanislaus County or the applicable jurisdictions caused by the proposed project would result in the need to construct new or altered park facilities. As such, this impact would be **less than significant.**

Impact PS-5: Result in Substantial Adverse Physical Impacts Associated with the Provision of, or Need for New or Physically Altered Other Public Facilities (No Impact)

As described in previous impact discussions and in Section 3.12, *Population and Housing,* the proposed project would not directly result in unplanned population growth not addressed in the applicable jurisdictions' general plans. Therefore, it would not increase demand for libraries, hospitals, or other public facilities. Project construction would not adversely affect any libraries, hospitals, or other public facilities. **No impact** would occur.

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3.14 Recreation

3.14.1 Introduction

This section summarizes the environmental and regulatory settings related to recreation, the usage of recreational facilities and parks, and their locations relative to the proposed project. The section presents impact analysis methodology and thresholds and, on this basis, evaluates the potential recreational impacts associated with the proposed project.

3.14.2 Regulatory Setting

Federal Plans, Policies, and Regulations

No federal laws, regulations, or policies related to recreation apply to the proposed project.

State Laws, Regulations, and Policies

California Department of Parks and Recreation

The California Department of Parks and Recreation (CDPR) is responsible for managing 280 park units throughout the state of California (CDPR 2017). Within Stanislaus County, the department manages the Turlock State Recreational Area, which is located approximately 14 miles from the project site. Fox Grove Regional Park is owned by the California Wildlife Conservation Board and operated by the Stanislaus County Department of Parks and Recreation. Therefore, state park operation-related regulations do not apply to this park.

Local Plans, Policies, and Regulations

Stanislaus County

Stanislaus County General Plan

The *Stanislaus County General Plan* provides an emphasis on the conservation and management of the county's natural resources in the Conservation/Open Element chapter. It also emphasizes the preservation of open space lands, which is defined as any parcel or area of essentially unimproved land or water. This element focuses on five main objectives (Stanislaus County 2015):

1. Promote the protection, maintenance, and use of the County's natural resources, with special emphasis on scarce resources and those that require special control and management;

2. Prevent wasteful exploitation, destruction, and neglect of natural resources;

3. Recognize the need for natural resources to be maintained for their ecological values as well as for their direct benefit to people;

4. Preserve open space lands for outdoor recreation including scenic, historic and cultural areas; and

5. Preserve open space for public health and safety including areas subject to landslides, flooding, and high fire risk and areas required for the protection of water and air quality.

Based on these objectives, the Conservation/Open Space Element provides the following goals and policies that are applicable to the proposed project:

Goal One. Encourage the protection and preservation of natural and scenic areas throughout the County.

Policy Two. Assure compatibility between natural areas and development.

Implementation Measure 1. Review zoning regulations and landscaping requirement for compatibility between proposed development and natural areas, including protection from invasive plants.

Goal Four. Provide for the open-space recreational needs of the residents of the County.

Policy Twelve. Provide a system of local and regional parks which will serve the residents of the County.

Implementation Measure 4. The County shall encourage the interconnection of recreational areas, open spaces and parks that are oriented to pedestrian and bicycle travel along public highway rights-of-way, while protecting private property and river corridors, to the greatest extent possible.

Policy Fourteen. Provide for diverse recreational opportunities such as horseback riding trails, hiking trails, and bikeways.

Stanislaus County Parks Master Plan

The *Stanislaus County Parks Master Plan* was developed in 1994 to provide a comprehensive overview of the county's recreational resources and future plans (Stanislaus County 2017a). The plan addresses future recreational projects that involve Fox Grove Regional Park that may directly affect project-related activities.

Regarding Fox Grove Regional Park, the master plan proposes a number of enhancements that include a possible new swimming hole within the sheltered cove, a new informal play area, additional picnic tables, and a nature trail. The goal would be to increase the number of amenities available for family outings that take place at the park. It is unclear when these enhancements would occur (Stanislaus County 2017a).

City of Ceres

City of Ceres General Plan

The goals, policies, and programs in Chapter 5: Recreational and Cultural Resources of the *City of Ceres General Plan* articulate the City of Ceres' strong commitment to ensuring high-quality recreational opportunities for Ceres residents and visitors. The general plan envisions development of new community parks and a system of neighborhood parks. In addition, the

general plan promotes the development of commercial recreation activities (e.g., a golf course, arcades) in the southern part of the planning area (City of Ceres 1997).

Goal 5.A. To establish and maintain a public park system and recreational facilities suited to the needs of Ceres residents, employees, and visitors.

> **Policy 5.A.6.** The City shall investigate the potential public use of canal rights-of-way and the reservation of selected adjacent sites for use as greenbelts or recreation corridors.

City of Ceres Parks and Recreation Master Plan

The *City of Ceres Parks and Recreation Master Plan* provides an analysis of the context and inventory of Ceres park facilities and identifies opportunities for future expansion based on its assessment of existing facilities. The master plan outlines community input and suggestions that were gathered and then develops recommendations based on this information. Finally, the master plan provides an outline for implementation of these recommendations and identifies potential funding mechanisms and opportunities (City of Ceres 2016).

Chapter 5 of the master plan provides best practices that are designed to establish healthy trends and standards for the City's parks. Chapter 6 provides recommendations for maintaining these parks as well.

City of Turlock

Chapter 4, "Parks, Schools, and Community Facilities," of the *City of Turlock General Plan* describes Turlock's existing parks and contains policies to guide the development of future parks and recreational links and corridors. The City's park system is comprised of community parks, neighborhood-serving city parks, neighborhood school parks, and recreation corridors. In total, these parks combine for approximately 250 acres of park lands (City of Turlock 2012). The following policy is applicable to the proposed project:

> **Policy 4.1-w. Shared Rights-of-Way**. In cooperation with the Turlock Irrigation District, complete a linear recreation corridor in or adjacent to the irrigation canal rights-of-way along East Canal Drive, and with the west extension of Canal Drive in the Westside Industrial Specific Plan area.

City of Hughson

According to the *City of Hughson General Plan,* the Park/Open Space designation provides for current and future locations for publicly owned parks of all sizes in the city. In addition, privately owned land that provides recreational opportunities is also included in the Park/Open Space designation. The Conservation and Open Space Element provides a detailed description of the various types of parks existing and planned for Hughson, as well as privately owned parks, drainage basins, and the Hughson Botanical Gardens. The following goal and action are applicable to the proposed project (City of Hughson 2005):

Goal PSF-8. Collect, store and dispose of stormwater in ways that are safe, sanitary, environmentally acceptable and financially sound while maintaining the highest standards required to enhance the quality of life for existing and future residents.

Action PSF-8.2. Develop and adopt design standards for detention facilities that provide for both stormwater detention and other beneficial uses, such as recreation or habitat.

3.14.3 Environmental Setting

Multiple regional and local parks are located near portions of the proposed project area. A list of parks and recreational facilities in the project area is provided in **Table 3.14-1**. The distances for each park/facility have been determined based on how far away they are from the nearest portion of the proposed project area.

Table 3.14-1. Parks and Recreational Facilities in the Project Area

Park/Facility Name	Ownership	Distance from Proposed Project Site (road miles)	Features
Fox Grove Regional Park	California Wildlife Protection Board (leased by Stanislaus County)	Directly adjacent, east of infiltration gallery/ raw water pump station	Boating, picnicking, swimming, fishing; Stanislaus Wildlife Care Center (adjacent private facility)
Starn Park	City of Hughson	0.4 mile south of Ceres alignment	Baseball fields, playground, gazebos, BBQ grills, trails
Senior Community Center	City of Hughson	0.8 mile south of Ceres alignment	Kitchen, multipurpose rooms
Ceres River Bluff Regional Park	City of Ceres	0.1 mile north of Ceres alignment	Soccer fields, softball fields, basketball court, volleyball courts, picnicking, playgrounds, hiking/biking, boating
Donnelly Park	City of Turlock	2.8 miles southwest of Turlock alignment	Picnicking, BBQ grills, playgrounds, basketball court, pond
Christoffersen Park	City of Turlock	1.3 miles southwest of Turlock alignment	Playgrounds, picnicking, BBQ grills
Smyrna Community Park	City of Ceres	1.7 miles southwest of Ceres alignment	Picnic tables, rose garden, skate park, volleyball courts, playground, softball fields
Markley Park	City of Turlock	0.6 mile west of Turlock alignment	Basketball court, playground, covered area
Bristol Park	City of Turlock	1.0 mile south of Turlock alignment	Basketball court, playground
Dale Pinkney Park	City of Turlock	0.5 mile southwest of Turlock alignment	Playground, covered picnic area, BBQ grills
Brad Bates Park	City of Turlock	Adjacent to Well 38 pipeline (offset water facility)	Playground, covered picnic area

Sources: Stanislaus County 2017b; City of Ceres 2010a; City of Hughson 2016; City of Turlock 2017b.

3.14.4 Environmental Impacts and Mitigation

Methodology

This impact analysis describes the impacts on recreation associated with implementation of the proposed project. Impacts of the proposed project were evaluated qualitatively, based on the potential for the project to disrupt existing recreational facilities, access, and uses. Generally, construction activities may result in a short-term loss of recreational opportunities by disrupting use of or access to recreation areas or facilities. A long-term effect could occur if a recreational opportunity is eliminated as a result of implementation and/or operation of the proposed project. Both short-term and long-term impacts are analyzed below.

Significance Criteria

Based on Appendix G of the State CEQA Guidelines and professional expertise, the proposed project would result in a significant impact on recreation if it would:

- Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated, or
- Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical impact on the environment.

Impact Analysis

Impact REC-1: Increase Use of Existing Parks or Recreational Facilities, Resulting in Substantial Deterioration of Those Facilities (Less than Significant with Mitigation)

The proposed raw water pump station would be directly adjacent to Fox Grove Regional Park, which is operated by the Stanislaus County Department of Parks and Recreation on land owned by the California Wildlife Conservation Board. This portion of the site is also adjacent to the Tuolumne River, which is used for boating and fishing activities. Motorized boat access is difficult due to the shallow, moderately swift water, but a boating dock is located at Fox Grove Regional Park (Stanislaus County 2017b). The raw water pipeline alignment would begin at the pump station, constructed near the infiltration gallery, and would travel along the unpaved access road through the Fox Grove Regional Park parking lot and onto the parcel where the regional water treatment facility is located. Construction of this alignment would involve traffic and construction activities that may temporarily interfere with visitors' ability to access the Fox Grove parking lot entrance and the riverbank. Visitors may then decide to use another park or recreational facility to avoid this access difficulty.

The stretch of the Tuolumne River in the project area provides opportunities for fishing and boating, as well as picnicking and swimming. The *Stanislaus County Parks Master Plan* identifies several intended improvements to Fox Grove Regional Park; although none of these improvements are currently scheduled, project-related construction activities could interfere with the County's ability to install improvements or conduct routine maintenance activities at the park. The proposed project would involve construction of pipelines between the pump station west of the park and the proposed WTP east of the park, as well as subsequent operation of those facilities; construction activities would potentially affect access to the park

and boating dock. Construction activities could also generate noise that may disturb nearby fish and result in temporary adverse impacts on fishing locations, which would be a potentially significant impact. **Mitigation Measure TRANS-1 (Prepare and Implement a Construction Traffic Management Plan)**, described in Section 3.15, *Transportation and Traffic,* would address potential access delays in and around the proposed project site. Although the effect would be minimal, based on the relatively low attendance at Fox Grove Regional Park (Stanislaus County 2017a, 2017b), this circumstance could delay or preclude improvement of Fox Grove Regional Park and may lead to temporary increased use of nearby parks or recreational facilities.

Operation of the proposed project following construction would not create or attract substantial additional residents, visitors, or employees, and thus would not increase the use of existing parks or recreational facilities.

Construction activities at Fox Grove Regional Park could also affect the ability of the County to implement maintenance activities or planned improvements at the park, which would be a significant impact. Implementation of **Mitigation Measure REC-1 (Coordinate Construction Activities with Stanislaus County Parks and Recreation Department)** would reduce impacts on park access and maintenance or improvement of recreational facilities at Fox Grove Regional Park to a level that would be **less than significant with mitigation**.

Ceres River Bluff Regional Park is located adjacent to the proposed site for the Ceres terminal tank facility and, therefore, may be affected by construction activity for the Ceres treated water main alignment and tank facility. During construction, visitors to this park could decide to use another park or recreational facility to avoid any access issues. However, the Ceres alignment would access the tank site along an unpaved path approximately 200 feet east of the park entrance driveway. As a result, the proposed project would avoid interfering with the main park entrance and jeopardizing recreational access to the park. As a result, the impact on Ceres River Bluff Regional Park would be less than significant.

Potential installation of a pipeline on Mountain View Road as part of offset water facilities at Well 38 in Turlock could affect activities at Brad Bates Park for a brief period. A construction crew can typically install 200-400 feet of pipeline in a day, and the alignment would cross approximately 600 feet of land between the park and the Turlock Regional Sports Complex. Thus, if Well 38 is used to provide offset water, pipeline construction could affect activities the park for 2-3 days, although access to the park would not be affected. As a result, the impact on Brad Bates Park would be less than significant.

Overall, impacts on Ceres River Bluff Regional Park and Brad Bates Park would be less than significant; construction-related impacts on Fox Grove Regional Park would be potentially significant. Implementation of Mitigation Measures TRANS-1 and REC-1 would ensure continued access to and maintenance of Fox Grove Regional Park. Therefore, this impact would be **less than significant with mitigation.**

Mitigation Measure REC-1. Coordinate Construction Activities with Stanislaus County Parks and Recreation Department.

SRWA or its contractor shall coordinate construction activities with the Stanislaus County Parks and Recreation Department to ensure that reasonable access is maintained to the park to the extent practicable. SRWA or its contractor shall also

consult with the County to identify any potential conflicts with planned improvements/enhancements at Fox Grove Regional Park (Stanislaus County 2017a). If improvements are planned during the construction period for the proposed project, SRWA and the County shall coordinate their schedules such that project-related construction traffic would not prevent or unreasonably restrict the progress of the County improvements.

Impact REC-2: Require Creation of New or Altered Recreational Facilities (Less than Significant)

The proposed project would not result in or require the creation of new recreational facilities. While the proposed WTP would be located directly east of Fox Grove Park and would involve the construction of the raw water transmission main through a portion of Fox Grove Regional Park, operation of the project would not result in a need to create or alter recreational facilities in this area. The portion of the transmission main would travel through a portion of the Fox Grove parking lot and along an unpaved access road to the infiltration gallery. Furthermore, it would be installed underground using trenching methods that would result in only temporary access impacts during construction. These trenches would then be backfilled following the placement of the main. Therefore, the transmission main construction would not alter the actual park itself.

The 2.0-MG storage tank located adjacent to Ceres River Bluff Regional Park would border the eastern corner of park's parking lot on undeveloped land. Additionally, the area for the proposed tank has been gated off from the rest of the park's recreational facilities. Construction activities at Brad Bates Park in Turlock could take place along the eastern edge of the park, away from recreational facilities. Therefore, no recreational facilities would be altered during construction. As a result, this impact would be **less than significant.**

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3.15 Transportation and Traffic

3.15.1 Introduction

This section explains basic terminology related to transportation and traffic; summarizes the regulatory and environmental settings related to these topics; and presents impact analysis methodology and thresholds. On this basis, the section evaluates the potential traffic impacts associated with the proposed project.

Throughout this section, level of service (LOS) is a general way to measure traffic operating conditions where a letter grade ranging from A (free-flow traffic) to F (over capacity) is assigned to a given roadway area. LOS grades represent the following categories from the driver's perspective: comfort and convenience, speed, travel time, traffic interruptions, and freedom to maneuver (Stanislaus County 2015). Each roadway system's grade is determined according to methodologies presented in the *Highway Capacity Manual* (Transportation Research Board 2010). **Table 3.15-1** provides more detailed descriptions of each LOS grade.

Table 3.15-1. Level of Service Definitions

Level of Service	Description
A	Represents a free-flow travel with an excellent level of comfort and convenience and the freedom to maneuver.
B	Has stable operating conditions, but the presence of other road users causes a noticeable, though slight, reduction in comfort, convenience, and maneuvering freedom.
C	Has stable operating conditions, but the operation of individual users is substantially affected by the interaction with others in the traffic stream. LOS C is the desired level of operations for vehicles on roadways within the unincorporated county.
D	High-density but stable flow. Users may experience restrictions in speed and freedom of maneuverability, with poor comfort and convenience levels.
E	Operating conditions that are at or near their capacity. Reductions in speed drop to low but a relatively uniform value. The freedom to maneuver is difficult and users experience frustration and poor convenience and comfort. Frequent unstable operation occurs and minor disturbances in traffic flow may cause breakdown conditions.
F	Condition that occurs wherever the volume of traffic exceeds the capacity of the roadway, leading to long queues at bottleneck points which result in stop-and-go traffic.

Source: Stanislaus County 2015

3.15.2 Regulatory Setting

Federal Laws, Regulations, and Policies

No federal laws, regulations, or policies related to traffic and transportation regarding the proposed project were identified.

State Laws, Regulations, and Policies

California Department of Transportation

The California Department of Transportation (Caltrans) manages more than 50,000 miles of highway and freeway lanes throughout California and more than 12,000 highway bridges. Caltrans also administers technical assistance and grants to various regions throughout the state for local planning and projects (Caltrans 2015a).

The nearest state highways to the project site that are maintained by Caltrans are State Route (SR) 132, approximately 2 miles north of the Tuolumne River on Geer Road, and SR 99, which is approximately 2.8 miles west of the Ceres terminal tank site on East Hatch Road. As of January 2017, a proposed project to improve regional and interregional circulation along with alleviating traffic congestion along SR 132 is under review. That improvement project would create a four-lane freeway/expressway along a new alignment that connects SR 132 with Modesto. If approved, construction would begin in 2018 (Caltrans 2017).

Local Laws, Regulations, and Policies

Stanislaus County

Stanislaus Council of Governments – Regional Transportation Plan

The Stanislaus Council of Governments (StanCOG) Regional Transportation Plan/Sustainable Communities Strategies provides a strategy to accommodate the County's expected growth with a goal to promote economic vitality, provide more housing opportunity and options for transportation, promote healthy living and improve communities through an efficient and well-maintained transportation network (StanCOG 2014).

Stanislaus Council of Governments – 2009 Congestion Management Process

The Congestion Management Process (CMP) was developed to improve multimodal mobility and avoid creation of deficiencies throughout the County's roadways. The performance measures that the CMP supports are categorized as mobility, air quality, land use, and economic objectives. The policies published in the CMP were considered for inclusion in the County's Regional Transportation Plan (mentioned above). Objective Three of the CMP establishes policies aimed at preserving and enhancing environmental quality and includes a statement that "environmental impacts, both short-term and long-term, of transportation decisions shall be appropriately analyzed and considered, and adverse impacts mitigated wherever possible" (StanCOG 2010).

Stanislaus County General Plan

The *Stanislaus County General Plan* provides goals and policies regarding the upkeep and optimization of the County's transportation and roadway system (Stanislaus County 2015). Furthermore, the information provided ensures the compatibility between land use and infrastructure as well. The general plan contains two major elements that are relevant to transportation and traffic resources, the Land Use Element and the Circulation Element. The following goals, policies, and implementation measures may be applicable to the proposed project:

Land Use Element

Goal Four. Ensure that an effective level of public service is provided in unincorporated areas.

> **Policy Twenty-Five.** New development shall pay its fair share of the cost of cumulative impacts on circulation and transit systems.

Circulation Element

Goal One. Provide a system of roads and roads throughout the County that meets land use needs.

> **Policy One.** Development will be permitted only when facilities for circulation exist, or will exist as part of the development, to adequately handle increased traffic and safety needs for all modes of transportation.
>
> > **Implementation Measure Four.** The County shall ensure that new development pays its fair share of the costs of circulation improvements, including non-motorized modes, through a combination of public facility fees, transportation impact fees, and other funding mechanisms. The total cost of required improvements shall be paid for by new development.
> >
> > **Implementation Measure Seven.** To identify the potential impacts of new development on transportation service levels, the County many require the preparation of a transportation impact study at the sole expense of the developer.
>
> **Policy Two.** Circulation systems shall be designed and maintained to promote safety and minimize traffic congestion.
>
> > **Implementation Measure One.** The County shall maintain LOS C or better for all County roadways and intersections, except, within the sphere of influence of a city that has adopted a lower level of service standard, the City standard shall apply. The County may adopt either a higher or lower level of service standard for roadways and intersections within urban areas such as Community Plan areas, but in no cases shall the adopted LOS fall below LOS D.

City of Ceres

The *Ceres General Plan* (City of Ceres 1997) addresses several transportation issues that are critical to continued development of Ceres. The Circulation Diagram depicts the proposed circulation system to support development under the Land Use Diagram. This circulation system is represented on the diagram as a set of roadway classifications that have been developed to guide Ceres' long-range planning and programming. The proposed circulation system includes development of an expressway system consisting of Faith Home Road with a new bridge across the river, Hatch Road, and Service Road. The plan also promotes the potential for expansion of transit systems, a bikeway system, and maintenance of goods movement (via truck and rail) and air transportation.

The overall emphasis of the policies and programs under these headings is the establishment and maintenance of a well-rounded transportation network that includes fully connected and intersecting streets, pedestrian paths, and bike paths.

Transportation and Circulation

Goal 2.A. To provide for the long-range planning and development of the city's roadway system to ensure the safe and efficient movement of people and goods.

> **Policy 2.A.2.** The City shall develop and manage its roadway system to maintain Level-of-Service of at least C on secondary collectors and local streets and Level-of-Service D on primary collectors, arterials, expressways, and freeways. Exceptions to these level of service standards may be allowed in infill areas where the City finds that the improvements or other measures required to achieve the LOS standards are unacceptable because of right-of-way limitations, physical impacts on surrounding properties, and/or the visual aesthetics of the required improvement and its impact on community identity and character.

> **Policy 2.A.4.** The City shall require an analysis of the effects of traffic from major development projects (generally those that would generate 100 or more peak-hour trips per day). Each such project shall construct or fund improvements necessary to mitigate the effects of traffic from the project. Such improvements may include a fair share of improvements that provide benefits to others.

> **Policy 2.A.6.** The City shall assess fees on new development sufficient to cover the fair share portion of that development's cumulative impacts on the local and regional transportation system. Exceptions may be made when new development generates significant public benefits (e.g., low income housing, primary wage earner employment) and alternative sources of funding for the improvements can be obtained to offset foregone revenues.

Goal 2.B. To maintain acceptable traffic flow along Ceres' major corridors.

> **Policy 2.B.1.** The City shall seek to maintain acceptable traffic flow conditions along Ceres' major corridors while allowing for new development along these corridors. To this end, the City shall require site plans for new development along Hatch Road, Mitchell Road, and Whitmore Avenue.

City of Turlock

The *Turlock General Plan* Circulation Element provides a framework to guide the growth of Turlock's transportation-related infrastructure over the next 20 years (City of Turlock 2012). The Circulation Element sets forth a circulation plan that strengthens Turlock's transportation network, provides more choice of travel modes, identifies needed improvements in both new and existing parts of the city, and works in tandem with land use changes. The following policies are applicable to the proposed project:

> **Guiding Policy 5.2-h. Circulation system enhancements.** Maintain projected levels of service where possible, and ensure that future development and the circulation system are in balance. Improve the circulation system as necessary, in accordance with the circulation diagram and spacing/access standards, to support multimodal travel of all users and goods.

> **Guiding Policy 5.2-i. Funding for improvements.** Ensure that new development pays its fair share of the costs of transportation facilities. Require development in adjacent unincorporated areas to pay its fair share of impacts on city transportation infrastructure.

City of Hughson

The *City of Hughson General Plan* Circulation Element provides the policy framework for regulation and development of the circulation system in Hughson (City of Hughson 2005). This element balances the need to provide safe ways to move people from one place to another with the goal of preserving the character of the community. The transportation system should accommodate the needs of Hughson, minimize environmental degradation, and complement regional transportation and land use plans.

Goal C-1. Provide a safe circulation system consistent with the Land Use Element to provide access and mobility for all of Hughson's residents and businesses while maintaining the quality of life for residents.

> **Policy C-1.2.** The City shall strive to maintain a LOS of D on major streets and intersections. The City will strive to maintain this LOS during peak traffic hours, but recognizes that this may not always be feasible due to constraints associated with the built environment. Because seasonal traffic volume variation due to agricultural activities will represent a reduced percentage of the overall traffic as the County develops with urban uses, and is limited to a few months a year, the policy is to maintain LOS D under "typical" or "average annual" conditions versus during the peak agricultural harvest season.

> **Policy C-1.12.** Public roadways should be maintained in good condition to minimize the potential for automobile accidents and reduce wear and tear on vehicles.

Goal C-2. Minimize the negative effects of new development on the existing and planned circulation system.

> **Policy C-2.2.** New development shall provide all improvements necessary to adequately serve the development's traffic access and circulation needs, such as roadway improvements, dedications of rights-of-way and reciprocal easements.

Policy C-2.3. Between identification of the need for improvement and the completion of major projects, the City recognizes that the LOS may fall below the City's standard for short time periods while funding is being assembled.

Policy C-2.5. Until the Street Master Plan is completed, all new development adjacent to existing railroad crossings or proposed relocated crossing locations will be reviewed with the cooperation of the PUC and Burlington Northern/Santa Fe Railroad to determine if there is a need to reserve right-of-way for future improvements to the railroad crossing.

3.15.3 Environmental Setting

Traffic volumes in and around the project area are known to fluctuate throughout the year based on the level of agricultural activity. According to data obtained from the Stanislaus County Department of Public Works for Hughson, traffic volumes observed during the late summer months of July, August, and September are typically much greater than traffic volumes observed during the winter months (City of Hughson 2005). In fact, County data suggest that traffic volumes observed in July could be up to 68 percent higher than volumes counted in the month of December. For the Cities of Ceres and Turlock, traffic volumes

SR 132 is one of the primary east-west routes in the county, traveling the width of the county from Interstate (I-) 580 and I-5 just west of the San Joaquin County line to Coulterville in Mariposa County. SR 132 passes through downtown Modesto, Empire, Waterford, and La Grange. The SR 132/Geer Road (Albers Road) intersection is 2 miles north of the northern end of the project site, the proposed raw water pump station at the south bank of the Tuolumne River.

SR 99 is a six-lane freeway facility in Stanislaus County that connects the largest urban areas in the county to other metropolitan areas in the San Joaquin Valley. SR 99 is 7.5 miles west of the western end of the project site, the proposed Ceres terminal tank site on Hatch Road, but could be a main travel route for construction traffic to all portions of the project area.

East Hatch Road is a two-lane arterial that runs through the northern side of Hughson and parallels the Ceres Main Canal. The City of Ceres has developed plans to expand the road from its intersection with Mitchell Road to Geer Road to a four-lane Limited Access Principal Arterial within a 100-foot limited ROW due to the Ceres Main Canal restrictions (Stanislaus County 2016). The proposed Ceres treated water transmission main alignment follows East Hatch Road from Geer Road south of the proposed WTP to the proposed tank facility adjacent to Ceres River Bluff Regional Park. Based on 2004 data from the *City of Hughson General Plan*, the stretch of Hatch Road between 7th Street and Geer Road had an average daily traffic volume (ADT) of 5,725 vehicles averaging 55 miles per hour (mph) (City of Hughson 2005).

Geer Road (which becomes Albers Road at SR 132), also designated County Route J14, is a two-lane arterial that runs through Hughson and north to SR 132. A plan to expand the road to four lanes is proposed (City of Hughson 2005). This principal arterial, which functions to move high volumes of people and goods between urban areas within the County at higher speeds while still providing access to properties, intersects with SR 132 approximately 2 miles north of the Tuolumne River (Stanislaus County 2016). Traffic volumes regarding this intersection are summarized in **Table 3.15-2**. Several other important intersections with Geer Road are south of the river in Hughson. These intersections are Geer Road/Hatch Road,

which is located 0.5 mile south, and Geer Road/Whitmore Avenue just 1.25 miles south. Both intersections are signalized. Traffic volumes measured at the intersection of Geer Road and Hatch Road in 2004 were an ADT of 11,805 vehicles averaging 45 mph (City of Hughson 2005).

Table 3.15-2. Annual Average Daily Traffic Volumes at Project Area Interchanges

Intersection	Back Peak Hour	Back Peak Month	Back AADT	Ahead Peak Hour	Ahead Peak Month	Ahead AADT
SR 132 at Geer/Albers Roads	640	8,300	7,800	780	10,500	9,700
SR 99 at Mitchell Road	9,500	104,000	101,500	8,300	97,000	94,000
SR 99 at Keyes Road	8,300	83,000	82,000	8,600	114,000	108,000
SR 99 at Taylor Road	7,400	74,000	69,000	8,300	83,000	82,000

Note: AADT = Annual Average Daily Traffic; defined as the total traffic volume for the year divided by 365 days. Peak Month ADT is defined as the average daily traffic for the month of heaviest traffic flow. Peak Hour estimates the amount of congestion experienced for one hour near the maximum of the year.

Back – represents traffic south or west of the count location.

Ahead – represents traffic north or east of the count location.

Source: Caltrans 2015b

Santa Fe Avenue is a two-lane arterial that runs diagonally through Hughson from northwest to southeast, where it intersects with 7th Street. This roadway serves as a major route of travel within the city, where it is designed to gather traffic from the collector system and provide major connections between the neighboring cities of Empire and Denair, as well as to SR 99 (City of Hughson 2005). The arterial runs adjacent to the BNSF railroad, which complicates circulation patterns by skewing all of the intersections along the road while also limiting improvements due to the presence of the adjoining railroad crossing and canals (City of Hughson 2005).

The majority of this arterial operates at LOS C or better, with the exception that Hatch Road between Tully Road and Santa Fe Avenue, which operates at LOS D (13,700 ADT at two lanes, 30,200 ADT at four lanes) due to congestion buildup at the Santa Fe Avenue/Hatch Road intersection (City of Hughson 2005). Hatch Road and the Santa Fe Avenue/Hatch Road intersection were improved in mid- to late 2016 to increase its capacity and improve the crossing of the Ceres Main Canal and the railroad. The Ceres treated water transmission main alignment would be constructed along this portion of Hatch Road and would pass through the Santa Fe Avenue/Hatch Road intersection.

Mitchell Road is a major corridor in Ceres and provides direct access to the Modesto City-County Airport located north of the Tuolumne River (City of Ceres 1995). This corridor supports a wide range of land uses including old strip commercial areas and new or planned commercial centers and intersects with East Hatch Road approximately 0.7 miles west of the proposed Ceres terminal tank site.

Berkeley Road is a two-lane roadway that extends from the Tuolumne River on the north to East Taylor Road on the south.

East Taylor Road is an east-west collector street in Turlock that extends from Geer Road to the city limits to TID's Upper Lateral No. 3 canal. Collectors serve as connectors between local and arterial streets and provide direct access to parcels. Collectors carry two lanes of traffic within 60-foot right-of-way, either with or without bicycle lanes within an additional 10 feet of right-of-way. This collector is also designated in the general plan as a possible expressway by 2030.

North Quincy Road is a north-south collector street in Turlock. It connects East Taylor Road on the north to East Christoffersen Parkway (which becomes East Zeering Road) to the south and extends south to East Monte Vista Avenue and the east side of Turlock.

Traffic Count Data

According to the Stanislaus County General Plan EIR (Stanislaus County 2016), ADT on Geer Road south of the Tuolumne River in 2014 ranged from 10,800 to 11,100 vehicles per day. ADT on SR 132 from Triangle Ranch Road to Albers Road (Geer Road) was 9,800 vehicles per day. LOS on each of these segments was within the acceptable range. Based on the 2035 projections for the general plan EIR, the project area roadways are expected to see minor changes in LOS over that period. The only roadways that are expected to change LOS determinations are portions of Geer Road and SR 99. **Table 3.15-3** shows traffic volumes and LOS on roadways in the proposed project area.

Table 3.15-3. Traffic Volumes on Project Area Roadways

Roadway	Cross Street 1	Cross Street 2	2014		2035	
			Volume	LOS	Volume	LOS
Geer Road	Santa Fe Avenue	Grayson Road	10,800	A	10,900	B
Geer Road	Keyes Road	Barnhart Road	11,100	B	11,300	B
Yosemite Boulevard (SR 132)	Triangle Ranch Road	Albers Road	9,800	B	11,900	B
Santa Fe Avenue	Hatch Road	Leedom Road	7,700	A	7,900	A
Santa Fe Avenue	Geer Road	Redwood Road	2,600	A	4,200	A
East Keyes Road	Geer Road	Berkeley Avenue	2,700	A	2,900	A

Source: Stanislaus County 2016

3.15.4 Environmental Impacts and Mitigation

Methodology

Potential impacts on transportation and traffic were evaluated qualitatively based on consideration of the ways in which construction and operation of the proposed project improvements could affect existing roadway operations and LOS. Because a schedule for construction of the proposed project has not yet been established, it was not possible to determine how the construction activities and number of vehicle trips for the proposed project might interact with other planned roadway improvements. As a result, additional analysis may be required in some instances, as indicated in the impact analysis below.

Significance Criteria

Based on Appendix G of the State CEQA Guidelines, the proposed project would result in a significant impact on transportation and traffic if it would:

- Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit;
- Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways;
- Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks;
- Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment);
- Result in inadequate emergency access; or
- Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such features.

Impact Analysis

Impact TRANS-1: Conflict with Applicable Circulation Plans, Ordinances, Policies, or Congestion Management Programs During Construction (Less than Significant with Mitigation)

Stanislaus County

The proposed project would involve construction activities along roadways within the proposed project area, including Geer Road, Aldrich Road, John Fox Road, and Berkeley Road. Based on available information, the baseline LOS for all roadways that would potentially be affected by the proposed project during construction would not be lower than LOS B. Portions of Geer Road between Barnhart Road and Santa Fe Avenue traveling toward the raw water pump station and WTP site operate at LOS A or B. SR 132 at the Geer Road intersection operates at LOS A (Stanislaus County 2016). Under 2035 conditions, these roadways would be expected to continue to operate at LOS B, according to the general plan EIR. Construction of the WTP could involve traffic to accommodate an average of 100 workers per day, with a maximum of 200 workers per day. In addition, the number of construction truck trips would not be determined until the final design phase for the WTP. Construction activities associated with the treated water transmission mains could also temporarily reduce LOS on affected roadways from A/B to D or lower. The resulting reduction in traffic conditions would be a significant impact. Implementation of **Mitigation Measure TRANS-1 (Prepare and Implement a Construction Traffic Management Plan)** would reduce this impact to a less-than-significant level.

Ceres

The Ceres treated water transmission main alignment would be constructed along Hatch Road and would pass through the Santa Fe Avenue/Hatch Road intersection. Planned improvements on Santa Fe Avenue would likely be completed before construction activities begin on the Ceres treated water transmission main, and so it is unlikely that traffic impairments generated those improvements would coincide with construction traffic and/or construction of the Ceres transmission main. Therefore, proposed project construction activities could adversely affect traffic conditions along East Hatch Road.

Long-term traffic volumes along East Hatch Road are expected to be kept to an acceptable LOS as the stretch from Mitchell Road to Geer Road is planned to expand to a 4-lane Limited Access Arterial within a 100-foot limited right-of-way (Stanislaus County 2015). Major construction activity is expected along this road from the intersection of Geer Road and the Ceres Main Canal to the Ceres River Bluff Regional Park parking lot area. As a result, proposed project construction activities along East Hatch Road may overlap with planned roadway improvements and could reduce LOS to an unacceptable level during construction. Construction of the WTP could involve traffic to accommodate an average of 100 workers per day, with a maximum of 200 workers per day. In addition, the number of construction truck trips would not be determined until the final design phase for the WTP. Construction activities associated with the Ceres treated water transmission main could temporarily reduce LOS on affected roadways from A/B to D or lower. The resulting reduction in traffic conditions would be a significant impact. Implementation of Mitigation Measure TRANS-1 would reduce this impact to a less-than-significant level.

Turlock

The Turlock treated water transmission main would be constructed in county road ROWs on Aldrich Road, John Fox Road, Berkeley Road, East Taylor Road, and North Quincy Road. East Taylor Road and North Quincy Road are arterial or collector roadways in Turlock. Construction of the WTP could involve traffic to accommodate an average of 100 workers per day, with a maximum of 200 workers per day. In addition, the number of construction truck trips would not be determined until the final design phase for the WTP. Construction activities on narrow roads associated with the Turlock treated water transmission main could require temporary partial or total lane closures, which could temporarily reduce LOS on affected roadways from A/B to D or lower. The resulting reduction in traffic conditions would be a significant impact. Implementation of Mitigation Measure TRANS-1 would reduce this impact to a less-than-significant level.

Hughson

The Ceres treated water transmission main would be constructed in ROW on East Hatch Road through Hughson. Construction of the WTP could involve traffic to accommodate an average of 100 workers per day, with a maximum of 200 workers per day. In addition, the number of construction truck trips would not be determined until the final design phase for the WTP. Construction activities associated with the treated water transmission mains could temporarily reduce LOS on affected roadways from A/B to D or lower. The resulting reduction in traffic conditions would be a significant impact. Implementation of Mitigation Measure TRANS-1 would reduce this impact to a less-than-significant level.

Conclusion

As discussed above, construction traffic to and from the WTP and construction activities associated with treated water transmission mains could temporarily reduce LOS on affected roadways from A/B to D or lower. The resulting reduction in traffic conditions would be a significant impact. Implementation of Mitigation Measure TRANS-1 would reduce this impact to a level that is **less than significant with mitigation**.

Mitigation Measure TRANS-1. Prepare and Implement a Construction Traffic Management Plan.

SRWA shall require that the contractor(s) prepare and implement a construction traffic management plan to manage traffic flow during construction, reduce potential interference with local emergency response plans, reduce potential traffic safety hazards, and ensure adequate access for emergency responders. Development and implementation of this plan shall be coordinated with Stanislaus County, the City of Ceres, the City of Turlock, and the City of Hughson. SRWA, the Cities, and/or the construction contractor(s) shall ensure that the plan is implemented during construction. The plan shall include, but will not be limited to, the following measures:

- Identify construction truck haul routes and timing to limit conflicts between truck and automobile traffic on nearby roads. The identified routes will be designed to minimize impacts on vehicular and pedestrian traffic, circulation, and safety.

- Implement comprehensive traffic control measures, including scheduling of major truck trips and deliveries to avoid peak traffic hours, warning and detour signs (if required), lane closure procedures (if required), and traffic cones for drivers indicating potential road hazards or detours (if required).

- Coordinate construction activities to ensure that one lane of traffic in each direction remains open at all times on East Hatch Road and Berkeley Road, unless flaggers or temporary traffic controls are in place, to provide emergency access.

- Evaluate the need to provide flaggers or temporary traffic control on East Hatch Road and Berkeley Road or at key intersections along the construction route during all or some portion of the construction period.

- Notify affected adjacent property owners and public safety personnel regarding timing of major deliveries, detours, and lane closures.

- Develop a process for responding to and tracking issues pertaining to construction activity impacts on traffic, including identification of an on-site traffic manager. Post 24-hour contact information for the traffic manager on all construction sites.

- Document road pavement conditions for all routes that would be used by construction vehicles before and after project construction. Make provisions

to monitor the condition of roads used for haul routes so that any damage or debris attributable to haul trucks can be identified and corrected. Roads damaged by construction vehicles shall be repaired to their preconstruction condition.

Impact TRANS-2: Conflict with Applicable Circulation Plans, Ordinances, Policies, or Congestion Management Programs During Operations (Less than Significant)

As described in Chapter 2, *Project Description,* operation of the WTP is estimated to involve the hiring of approximately 11-17 employees; delivery of materials to the plant would take place several times per week. Operation of the raw water pump station would require occasional maintenance visits. Operation of the Ceres and Turlock terminal tank facilities would involve visits by 1-2 employees on a daily basis. The WTP would operate 24 hours a day, with 2-17 employees present during work days and a smaller staff at night. As a result, no portion of the proposed project operations would result in a meaningful increase in traffic. Therefore, operation of the various elements of the proposed project would not be expected to conflict with circulation plans, ordinances, policies, or CMPs of the applicable jurisdictions. This impact would be **less than significant.**

Impact TRANS-3: Change in Air Traffic Patterns (No Impact)

The proposed project area is subject to occasional aircraft flyovers from the Modesto City-County Airport and private airfields. However, the project would not generate any population or change in air traffic patterns such as restrictions on local airspace. Construction and operation of the proposed raw water pump station, raw water transmission pipeline, WTP, treated water transmission mains, and terminal tank facilities would not be located near an airport or be tall enough to affect air traffic. As the result, the proposed project would have **no impact** with regard to air traffic patterns**.**

Impact TRANS-4: Increase Hazards Due to Design Features (Less than Significant with Mitigation)

Construction of the proposed project would involve trenching and installation of pipelines along East Hatch Road during construction of the Ceres treated water transmission main and along Aldrich Road, John Fox Road, Berkeley Road, East Taylor Road, and North Quincy Avenue, potentially requiring temporary partial or total lane closures on these narrow roads, during construction of the Turlock treated water transmission main. In addition, construction vehicles would enter and leave the site of the raw water pump station and raw water pipeline alignment by using the park access road at Fox Grove Regional Park, which is also used by visitors to the park. This could result in traffic hazards that would be a significant impact without mitigation. In addition, work along Aldrich Road just north of the Ceres Main Canal may pose increased hazards to drivers who may access this portion of the road. This portion consists of one lane with no dividers to keeps vehicles to one side of the road. Construction vehicles are likely to access this road approximately 500 feet north of the canal along this street to construct sections of the raw water pipeline alignment. As a result, construction activities for the proposed project could increase hazards for drivers on project area roadways. This impact would be significant without mitigation.

Construction of the Turlock treated water transmission main on East Hatch Road and Berkeley Road would involve a crossing of TID's Upper Lateral No. 2½ canal and BNSF ROW

near the intersection of Santa Fe Avenue and Berkeley Road, north of Turlock. This crossing would be designed as a trenchless crossing and, as a result, would not impede vehicular or rail traffic during construction.

As described in Impact TRANS-2, operation of the proposed project would result in a relatively small number of new trips on project area roadways. The impact during operation would be less than significant.

Implementation of Mitigation Measure TRANS-1 would require preparation of a construction traffic management plan that would identify haul routes, traffic control measures, and procedures for public notification of traffic delays or detours. With implementation of Mitigation Measure TRANS-1, the potential for increases in hazards from the proposed project would be **less than significant with mitigation.**

Impact TRANS-5: Result in Inadequate Emergency Access (Less than Significant with Mitigation)

Traffic could be delayed and lanes temporarily closed when construction material or vehicles are being moved on and off the proposed project sites, especially at high-volume intersections or during construction of the treated water transmission mains on East Hatch Road and Berkeley Road. This could interfere with emergency access, creating a potentially significant impact. However, implementation of Mitigation Measure TRANS-1 would provide traffic control at the project access road that could allow emergency vehicles access to the site. Therefore, this impact would be **less than significant with mitigation**.

Impact TRANS-6: Conflict with Alternative Transportation Policies, Plans, or Programs (Less than Significant)

The Ceres treated water transmission main would be constructed along portions of East Hatch Road where bikeways have been proposed (StanCOG 2013). A class 1 bicycle path is also proposed along portions of East Taylor Road and North Quincy Road in Turlock that are proposed for future bike paths and bike lanes. The intersection of Geer Road and East Hatch Road is also proposed to have a Class 3 – Bicycle Route (StanCOG 2013). Class 1 bikeways provide a completely separated right-of-way for the exclusive use of bicycles and pedestrians with cross flow, while class 2 bikeways are separately striped and class 3 bikeways provide for shared use with motor vehicle traffic. Because these bikeways are proposed but not yet planned, funded, or constructed, the proposed project would not conflict with them. This impact would be **less than significant.**

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3.16 Tribal Cultural Resources

3.16.1 Introduction

This section describes potential impacts of the proposed project related to tribal cultural resources (TCRs). TCRs are features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe. Archaeological sites and burial sites can also be TCRs.

3.16.2 Regulatory Setting

Federal Plans, Policies, and Regulations

Federal law does not address TCRs, as these resources are defined in the California Pub. Res. Code (Pub. Res. Code). However, similar resources, called traditional cultural properties (TCPs), fall under the purview of Section 106 of the National Historic Preservation Act (NHPA), which is discussed in Section 3.5, *Cultural Resources*. TCPs are locations of cultural value that are historic properties. A place of cultural value is eligible as a TCP "because of its association with cultural practices or beliefs of a living community that (a) are rooted in that community's history, and (b) are important in maintaining the continuing cultural identity of the community" (Parker and King 1990, rev. 1998). A TCP must be a tangible property, meaning that it must be a place with a referenced location, and it must have been continually a part of the community's cultural practices and beliefs for the past 50 years or more. Unlike TCRs, TCPs can be associated with communities other than Native American tribes, although the resources are usually associated with tribes. By definition, TCPs are historic properties; that is, they meet the eligibility criteria as a historic property for listing in the National Register of Historic Places (NRHP). Therefore, as historic properties, TCPs must be treated according to the implementing regulations found under 36 CFR Section 800, as amended in 2001.

State Laws, Regulations, and Policies

CEQA and State CEQA Guidelines

AB 52, which was approved in September 2014 and became effective on July 1, 2015, requires that state lead agencies consult with a California Native American tribe that is traditionally and culturally affiliated with the geographic area of a proposed project, if so requested by the tribe. The bill, chaptered in Pub. Res. Code Section 21084.2, also specifies that a project with an effect that may cause a substantial adverse change in the significance of a TCR is a project that may have a significant effect on the environment.

As defined in Pub. Res. Code Section 21074(a, b, and c), TCRs are:

(A.1) Sites, features, places, cultural landscapes, sacred places and objects with cultural value to a California Native American tribe that are either of the following:

a. Included or determined to be eligible for inclusion in the California Register of Historical Resources (CRHR); or

b. Included in a local register of historical resources as defined in subdivision (k) of Section 5020.1.

(A.2) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Section 5024.1. In applying the criteria set forth in subdivision (c) of Section 5024.1 for the purposes of this paragraph, the lead agency shall consider the significance of the resource to a California Native American tribe.

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

(C) A historical resource described in Section 21084.1, a unique archaeological resource as defined in subdivision (g) of Section 21083.2, or a "nonunique archaeological resource" as defined in subdivision (h) of Section 21083.2 may also be a tribal cultural resource if it conforms to the criteria of subdivision (a).

Mitigation measures for TCRs must be developed in consultation with the affected California Native American tribe pursuant to newly chaptered Section 21080.3.2, or according to Section 21084.3. Section 21084.3 identifies mitigation measures that include avoidance and preservation of TCRs and treating TCRs with culturally appropriate dignity, taking into account the tribal cultural values and meaning of the resource.

Local Laws, Regulations, and Policies

Neither Stanislaus County nor the Cities of Ceres, Turlock, or Hughson have any local regulations or policies relating to TCRs.

3.16.3 Environmental Setting

Ethnography

An ethnographic overview of the Northern Valley Yokuts, the indigenous population who lived in the project region prior to colonization, is presented in Section 3.5, *Cultural Resources*.

Native American Consultation

As discussed in Section 3.5, *Cultural Resources,* the proposed project is within the traditional ancestral territory of the Northern Valley Yokuts. None of the Native American tribes in the project area have submitted letters of interest to SRWA pursuant to Pub. Res. Code Section 21080.3.1(b)(1); however, in the spirit of full compliance with Pub. Res. Code Section 21080.3.1, SRWA notified local tribes identified by the NAHC as having a traditional and cultural association with the project area about the project in letters dated February 14, 2017 (Table TCR-1). SRWA did not receive requests for formal consultation under Pub. Res. Code Section 21080.3.1(b)(2) from any of those contacted. Follow-up phone calls were made to Chairpersons Perez and Martin on April 7, 2017, to confirm receipt of the notification letters. Table TCR-1 lists all those contacted and summarizes the results of the consultation. All

correspondence with tribes related to Pub. Res. Code Section 21080.3.1 is provided in the Appendix A portion of **Appendix C** of this DEIR.

Table 3.16-1. Native American Consultation

Organization/Tribe	Name of Contact	Letter Date	Comments
Ms. Katherine Erolinda Perez, Chairperson	North Valley Yokuts Tribe	February 14, 2017	A follow-up phone call was made on April 7, 2017; a message was left on Chairperson Perez's voicemail.
Ms. Lois Martin, Chairperson	Southern Sierra Miwuk Nation	February 14, 2017	A follow-up phone call was made on April 7, 2017. Chairperson Martin confirmed that her tribe did not want to consult on the project.

3.16.4 Environmental Impacts and Mitigation

Methodology

Consultation with tribes that have a traditional and cultural affiliation with the proposed project area followed the protocols outlined under Pub. Res. Code Sections 21080.3.1, 21080.3.2, and 21082.3 and guidelines provided the NAHC, the Governor's Office of Planning and Research, and the California Natural Resources Agency.

Significance Criteria

Based on Appendix G of the State CEQA Guidelines, the proposed project would result in a significant impact on TCRs if it would:

- Cause a substantial adverse change in the significance of a tribal cultural resource, defined in Pub. Res. Code Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:
  - Listed or eligible for listing in the CRHR, or in a local register of historical resources as defined in Pub. Res. Code Section 5020.1(k), or
  - 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 Pub. Res. Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Pub. Res. Code Section 5024.1 for the purposes of this

paragraph, the lead agency shall consider the significance of the resource to a California Native American tribe.

Impact Analysis

Impact TCR-1: Potential for a Substantial Adverse Impact on Tribal Cultural Resources from Project Construction (Less than Significant with Mitigation)

No TCRs were identified through consultations with tribes with a traditional and cultural affiliation with the proposed project area, pursuant to Pub. Res. Code Section 21080.3. Therefore, there would be **no impact** on TCRs as the result of project construction. If Native American archaeological remains or Native American human remains are identified during the course of construction that are subsequently determined to be TCRs, this would be a significant impact. These resources would be treated according to the standards described in **Mitigation Measure CUL-2** (for archaeological resources) and **Mitigation Measure CUL-4** (for human remains). Therefore, the impact would be **less than significant with mitigation**.

3.17 Utilities and Service Systems

3.17.1 Introduction

This section evaluates potential impacts of the proposed project related to utilities and service systems. It begins with a description of federal, state, and local laws, policies, and regulations potentially applicable to utilities and service systems and the proposed project. The section goes on to describe the existing utilities and service system providers (e.g., water, sewer, stormwater, energy) in the project vicinity that may be affected by the proposed project. Finally, the section evaluates and discusses the potential impacts of the proposed project, considering the existing regulatory and environmental settings and CEQA significance criteria.

3.17.2 Regulatory Setting

Federal Laws, Regulations, and Policies

No federal laws, regulations, or policies were identified related to utilities and service systems and the proposed project.

State Laws, Regulations, and Policies

California Water Right Law

California water right law is a mix of approaches that has evolved over the state's history in response to various drivers. The two primary types of water rights that exist under state law are riparian and appropriative (SWRCB 2017a). Riparian rights come from English common law and entitle landowners to use the water flowing past their property. Riparian rights usually come with owning a parcel of land that is adjacent to a source of water and do not require permits, licenses, or government approval. Riparian right holders are required to document their water use with SWRCB through submission of a "Statement of Diversion and Use" (SWRCB 2017a).

Appropriative water rights allow individuals or entities to use water that is not directly adjacent to their property. First established during the Gold Rush period of the mid-19th century, the appropriative water rights system is based on the principal, "first in time, first in right," where miners or other prospective water users staked their claims to the water and established their priority. Today, appropriative water rights are issued through a permit/license system administered by SWRCB. Water right permits identify the amount a permittee is allowed to divert, the place and purpose of use, point(s) of diversion (PODs), conditions of the authorized water diversion such as seasonal restrictions, and the construction timetable for the proposed water project (SWRCB 2017a).

When a project has been completed, the terms of the permit have been met, and the largest volume of water under the permit has been put to beneficial use, SWRCB confirms the terms and conditions and issues a license to the appropriator (SWRCB 2017a). The license remains effective as long as its conditions are fulfilled and beneficial use continues. In addition to new uses of water, any change in the purpose, place of use, or POD for an existing permit or license requires SWRCB approval (SWRCB 2017a). Permittees or licensees seeking to change a

component of their project must file a Petition for Change with SWRCB. The proposed change cannot initiate a new right or injure any other legal user of water.

California Integrated Waste Management Act of 1989

The California Integrated Waste Management Act of 1989 (CIWMA) (Pub. Res. Code Division 30), enacted through Assembly Bill 939 and modified by subsequent legislation, required all California cities and counties to implement programs to reduce, recycle, and compost at least 50 percent of wastes by 2000 (Pub. Res. Code Section 41780). A jurisdiction's diversion rate is calculated as the percentage of its total waste that is diverted from land disposal through reduction, reuse, and recycling programs.

The California Integrated Waste Management Board (CIWMB) is responsible for determining compliance with this mandate. Per capita disposal rates are used to determine if a jurisdiction's efforts are meeting the intent of the act.

Information was not available from the California Department of Resources Recycling and Recovery (CalRecycle) database on per capita disposal rates for unincorporated Stanislaus County or the City of Ceres, the City of Turlock, or the City of Hughson (CalRecycle 2017a).

California Code of Regulations, Title 8, Section 1541: Excavations

Title 8 CCR Section 1541 requires excavators to determine the approximate locations of subsurface installations, such as sewer, telephone, fuel, electric, and water lines, before opening an excavation.

Local Laws, Regulations, and Policies

Stanislaus County

The *Stanislaus County General Plan* (Stanislaus County 2015) guides land use and development in unincorporated Stanislaus County. The following goals and policies in the General Plan relate to utilities and service systems and the proposed project:

Conservation/Open Space Element

Goal Two. Conserve water resources and protect water quality in the County.

> **Policy Eight.** The County shall support efforts to develop and implement water management strategies.
>
> **Policy Nine.** The County will investigate additional sources of water for domestic use.

Goal Seven. Support efforts to minimize the disposal of solid waste through source reduction, reuse, recycle, composting, and transformation activities.

> **Policy Twenty-Two.** The County will support the solid waste management hierarchy established by the California Public Resources Code, Section 40051, and actively promote the goals and objectives specified in the Countywide Integrated Waste Management Plan.

City of Ceres

The following goals and policies in the *City of Ceres General Plan* (City of Ceres 1997) are potentially applicable to utilities and service systems and the proposed project.

Public Facilities and Services

Goal 4.C. To ensure a safe and reliable water supply sufficient to meet the future needs of the city.

Policy 4.C.1. The City shall continue to investigate the possibility of securing and using surface water supplies for domestic use within the Ceres area.

Policy 4.C.6. The City shall participate in a groundwater management program to preserve existing groundwater quality and quantity and to ensure future supplies.

Goal 4.D. To ensure adequate wastewater collection and treatment and the safe disposal of wastes.

Policy 4.D.4. The City shall investigate options for the reuse of treated wastewater.

City of Turlock

The following guiding policies in the *Turlock General Plan* (City of Turlock 2012) are related to utilities and service systems and the proposed project.

New Growth Areas and Infrastructure

Guiding Policy 3.3-a. Protect Water Quality and Supply. Continue efforts to safeguard the quality and availability of Turlock's water supply.

Guiding Policy 3.3-b. Use Groundwater at a Sustainable Rate. Undertake steps to ensure the use of groundwater does not exceed the sustainable supply by verifying the estimated sustainable supply of 24,550 acre-feet per year and limiting groundwater use to the sustainable supply.

Guiding Policy 3.3-c. Sustainable water supply. Ensure that a new system for potable water provision, either through implementation of the Regional Surface Water Supply Project or other means, is in place by the time that Turlock's projected annual potable water demand exceeds the sustainable annual groundwater supply level of 24,550 acre-feet, estimated to occur in 2020.

Guiding Policy 3.3-d. Meet projected needs. Promote the orderly and efficient expansion of public utilities and the storm drainage system to adequately meet projected needs, comply with current and future regulations, and maintain public health, safety, and welfare.

Guiding Policy 3.3-h. Meet State waste reduction goals. Reduce the generation of solid and hazardous waste and promote recycling in order to achieve the State's solid waste management goals.

City of Hughson

The following goals and policies in the *Hughson General Plan* (City of Hughson 2005) are related to utilities and service systems and the proposed project:

Public Services and Facilities Element

Goal PSF-6. Provide sufficient water supplies and facilities to serve the City in the most efficient and financially-sound manner, while maintaining the highest standards required to enhance the quality of life for existing and future residents.

> **Policy PSF-6.1.** The City will continue to expand its water treatment and distribution facilities to provide good quality drinking water to current and future residents and businesses. Expansion may include the construction of additional storage facilities and/or additional wells.

> **Policy PSF-6.5.** The City should consider exploring the possibility of creating a regional water supply partnership to identify alternative regional water supplies.

Goal PSF-7. Collect, treat and dispose of wastewater in ways that are safe, sanitary, environmentally acceptable and financially sound while maintaining the highest standards required to enhance the quality of life for existing and future residents.

Goal PSF-8. Collect, store and dispose of stormwater in ways that are safe, sanitary, environmentally acceptable and financially sound while maintaining the highest standards required to enhance the quality of life for existing and future residents.

> **Policy PSF-8.2.** The City will continue to discharge stormwater into Turlock Irrigation District (TID) facilities to the extent allowed by the TID, exploring and implementing methods to improve the quality of the stormwater run-off discharged into TID facilities.

Goal PSF-9. Collect, store, transport, recycle and dispose of solid waste in ways that are safe, sanitary and environmentally acceptable.

> **Policy PSF-9.2.** The City will seek to meet or exceed State requirements with regard to waste diversion, recycling and composting.

Goal PSF-10. Provide utilities in ways that are safe, environmentally acceptable and financially sound.

3.17.3 Environmental Setting

Water

Stanislaus Regional Water Authority

SRWA is a joint powers authority that comprises the Cities of Ceres and Turlock (Cities). As described in Chapter 2, *Project Description,* the Cities currently rely solely on groundwater to serve municipal and industrial water demand within their service areas.

Ceres

The City of Ceres provides water to approximately 47,000 residents through a system of 12 active wells and approximately 154 miles of water lines. In 2010, the City of Ceres delivered a total of 7,041 acre-feet, or approximately 2,294 million gallons, of water to its customers (City of Ceres 2016). **Table 3.17-1** shows current and projected water use within the City of Ceres service area.

Table 3.17-1. Current and Projected Water Use within the City of Ceres

	2015	2020	2025	2030	2035
Annual Potable Water Use (AFY)	6,500	9,600	12,500	15,100	17,900
Average Daily Water Use (mgd)	5.8	8.8	11.1	13.5	16.0

Notes: AFY = acre-feet per year; mgd = million gallons per day

Source: West Yost Associates 2016

As shown in Table 3.17-1, water use within the City is expected to nearly triple from 2015 to 2035.

Turlock

The City of Turlock provides water supply to a population of about 71,000 through a system of 17 active wells and 250 miles of distribution pipe. In 2010, the City of Turlock delivered approximately 7,094 million gallons of water to its customers (City of Turlock 2015). Current and projected water use within the City of Turlock service area are shown in **Table 3.17-2.**

Table 3.17-2. Current and Projected Water Use within the City of Turlock

	2015	2020	2025	2030	2035	2040
Annual Water Use (AFY)						
Raw and Potable Water	17,400	26,000	28,800	32,000	35,600	39,500
Recycled Water	1,100	1,600	2,000	2,400	2,400	2,400
Total	**18,500**	**27,600**	**30,800**	**34,400**	**38,000**	**41,900**
Average Daily Water Use (mgd)						
Raw and Potable Water	15.5	23.2	25.7	28.6	31.7	35.3
Recycled Water	1.0	1.4	1.8	2.2	2.2	2.2
Total	**16.5**	**24.6**	**27.5**	**30.8**	**33.9**	**37.5**

Notes: AFY = acre-feet per year; mgd = million gallons per day

Source: West Yost Associates 2016

According to the data presented in Table 3.17-2, water demand in the City of Turlock service area is projected to increase by approximately 104 percent from 2015 to 2035.

Turlock Irrigation District

TID provides irrigation water to agricultural lands in Stanislaus County and operates the New Don Pedro Reservoir. The New Don Pedro Dam impounds the Tuolumne River approximately 28 miles upstream of the proposed project site, providing 2.03 million acre-feet of storage. TID uses water stored in Don Pedro Reservoir to irrigate approximately 5,800 farms within its 307-square-mile irrigation service area (TID 2017).

TID jointly holds Water Right License 11058 with Modesto Irrigation District, which allows for diversion to storage of up to 1,046,800 AFY from the Tuolumne River at the New Don Pedro Dam. TID also holds several other water rights but these would not be affected by the proposed project. **Table 3.17-3** provides information on TID's Water Right License 11058.

Table 3.17-3. TID's Water Right License 11058 – Basic Information

Application Number	License Number	Date Established	Water Right Type	Water Source Name	Direct Diversion Amount (cfs)	Diversion to Storage Amount (AFY)	Season of Diversion
A014127	11058	January 16, 1951	Appropriative	Tuolumne River	0	1,046,800	November 1 to July 31

Source: SWRCB 2017b

Wastewater

The nearest wastewater treatment plant to the proposed project site is the Hughson Wastewater Treatment Facility, which is located approximately 1.25 miles northwest of the northern extent of the proposed project site at the Tuolumne River. Other nearby facilities are the Ceres Wastewater Treatment Plant or the Turlock Regional Water Quality Control Facility.

Stormwater

No stormwater facilities or infrastructure exist near the proposed raw water pump station and WTP sites. The raw water pump station site is adjacent to the Tuolumne River; stormwater at the site flows to the river. The WTP site is currently developed for agricultural use and covered with crops. Water that falls on this site as precipitation either infiltrates into the soil or flows overland to the Tuolumne River. Stormwater facilities that exist along the raw and treated water pipeline alignments may include drainage ditches along the side of the road or related features. In general, the proposed project features would be located in a rural, agricultural area and there is little existing stormwater infrastructure.

Solid Waste

During construction, solid waste could be generated by the proposed project in the form of domestic waste, cleared vegetation, excavation spoils, and sedimentation sludge from dewatering of the wet well excavation. Domestic waste, cleared vegetation, and any spoils/sludge that could not be reused on site would be hauled to the Fink Road Landfill. This landfill, approximately 30 miles southwest of the proposed water treatment plant site, is the only active solid waste landfill in Stanislaus County. The most recent data (from 2012) show that the landfill has a remaining capacity of approximately 8.2 million cy out of a total

maximum permitted capacity of 14.6 million cy (or approximately 56 percent remaining capacity). The landfill is projected to reach capacity and close in December 2023 (CalRecycle 2017b).

In lieu of using the landfill, contractors could take solid waste from the proposed project site to one of several large-volume transfer/processing facilities within the county, including Turlock Transfer; Covanta Stanislaus, Inc.; Gilton Resource Recovery/Transfer Facility; and Bertolotti Transfer and Recycling Center.

Solid waste generated by operation of the proposed project would result primarily from WTP operations. This would be primarily domestic waste generated by the 10-16 employees working at the site. Some chemical wastewater could also be generated by treatment processes at the plant. These materials would be hauled to the landfill.

Energy

The proposed project site is primarily within the electric service area of TID. TID provides electric service to the City of Turlock. Existing power lines run along Aldrich Road on the eastern edge of the proposed WTP site, as well as along East Hatch Road and Berkeley Road. Power for construction activities at the terminal tank sites and the raw water pump station would be provided by TID or PG&E; along the transmission main alignments, power would be provided by portable generators or generators that are integral to the equipment (e.g., pumps, air compressors) where necessary.

3.17.4 Environmental Impacts and Mitigation

This section evaluates the potential environmental impacts of the proposed project related to utilities and service systems, based on the information presented in Sections 3.17.1 and 3.17.2. The methodology used for the evaluation and significance criteria applied are described below, followed by the impacts analysis.

Methodology

Potential impacts on utilities and service systems were evaluated qualitatively and quantitatively, considering ways in which the proposed project could affect utilities and service systems, as identified by the significance criteria. If a potentially significant impact was identified, then feasible mitigation measures were considered and applied if reasonable and effective in mitigating the impact.

Significance Criteria

Based on Appendix G of the State CEQA Guidelines, the proposed project would have a significant impact on the environment if it would:

- Exceed wastewater treatment requirements of the applicable RWQCB;
- Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects;

- Require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects;
- Have insufficient water supplies available to serve the project from existing entitlements and resources, or require new or expanded entitlements;
- Result in a determination by the wastewater treatment provider that it has inadequate capacity to serve the project's projected demand in addition to the provider's existing commitments;
- Be served by a landfill with insufficient permitted capacity to accommodate the project's solid waste disposal needs; or
- Fail to comply with federal, state, and local statutes and regulations related to solid waste.

Impact Analysis

Impact UTL-1: Exceed Wastewater Treatment Requirements of the Applicable Regional Water Quality Control Board or Result in a Determination by the Wastewater Treatment Provider That It Has Inadequate Capacity to Serve the Project's Projected Demand (Less than Significant)

Construction and operation of the proposed project would generate minimal amounts of wastewater. During construction, workers would use portable sanitary restrooms; this wastewater would be managed by a third-party service according to industry standards. Minimal dewatering may be required for construction of the raw water transmission main because excavation depths would not reach shallow groundwater, except possibly in the immediate vicinity of the pump station.

The project would not be expected to generate substantial quantities of wastewater during operation. The WTP would have approximately 10-16 employees, and domestic wastewater generated during operation of the WTP would be treated in an on-site septic system. Chemical wastewater produced by treatment processes would not be suitable for domestic wastewater treatment and would be neutralized and hauled to an appropriate facility.

The proposed project would involve delivery of offset water to TID via direct discharge to TID's irrigation canal system. This water would be recycled water, groundwater, or a combination of the two. Discharge of this water to TID's canals would be subject to an NPDES permit, as described in Section 3.9, *Hydrology and Water Quality,* and would not have a substantial adverse effect on water quality. This impact would be **less than significant.**

Impact UTL-2: Require or Result in the Construction of New Water or Wastewater Treatment Facilities or Expansion of Existing Facilities (No Impact)

Treatment Facilities or Expansion of Existing Facilities (No Impact)

The proposed project itself is a water treatment facility. The effects of the proposed project are evaluated throughout this EIR, and therefore are not evaluated here.

No new or expanded existing water or wastewater treatment facilities would be necessary as a result of the proposed project. As described in Impact UTL-1, operation of the proposed project would generate minimal wastewater and would not create new demand for water or wastewater service. Therefore, **no impact** would occur.

Impact UTL-3: Have Insufficient Water Supplies Available to Serve the Project from Existing Entitlements and Resources, or Require New or Expanded Entitlements (No Impact)

The proposed project would involve transfer of up to 30,000 acre-feet per year of water from TID to SRWA via release from New Don Pedro Reservoir and later rediversion downstream. Between 2,000 AFY and 15,000 AFY of offset water would then be provided back to TID from SRWA via discharge of recycled water and/or groundwater to TID's irrigation canal system. TID already is entitled to the water that would be released from New Don Pedro Reservoir to be rediverted at the location of the infiltration gallery. As such, the proposed project would not require any new water supply entitlements.

While no new entitlements are needed, TID's existing water right (License 11085) would need to be amended to accommodate the changes contemplated under the proposed project. Specifically, TID would add a POD at the location of the infiltration gallery under the water right. This would be accomplished through a Petition for Change through SWRCB, in which the SWRCB would need to find that the proposed change would not adversely affect existing water right holders or instream beneficial uses. Because the project would increase flows in the reach between the reservoir and the infiltration gallery, as described in Impact BIO-3 in Section 3.4, *Biological Resources*, and result in no other changes upstream or downstream, there would be no potential for adverse impacts. In fact, these increased flows would have beneficial impacts on instream beneficial uses.

Overall, because no new water supply entitlements would be needed for the proposed project, there would be **no impact.**

Impact UTL-4: Be Served by a Landfill with Insufficient Permitted Capacity to Accommodate the Project's Solid Waste Disposal Needs (Less than Significant)

The proposed project would generate spoils and waste material during construction that may require disposal in the landfill. Site preparation, grading, and excavation for construction of the WTP would generate organic material during removal of orchard trees at the site and spoils during excavation of foundations. To the extent practicable, such material would be reused on site, depending on its characteristics and engineering properties. Trenching for installation of the raw and finished water pipelines would generate spoils material that might need to be transported to the landfill, depending on the excavation and trenching methods used. Because design of the project has not been completed, it is not possible to quantify the volume of spoils created.

The most recent estimates suggest that the Fink Road Landfill has a remaining capacity of 8.2 million cubic yards, or 56 percent of its total capacity and is projected to close in 2023. Spoils and organic material removed from the proposed project sites, if not retained on site, would most likely be trucked to this landfill for disposal. Depending on the timing of the proposed project construction (e.g., if the project were to be substantially delayed), this landfill could potentially close prior to construction of the project. In this instance, the contractor would be

able to take project spoils to one of the several large transfer stations within the county (see Section 3.17.3) or to a landfill in a neighboring county.

During operation, the proposed project would generate minimal amounts of solid waste (e.g., general office-related waste, spent filter media from treatment systems, and water treatment residuals consisting of particles removed from the raw water and added chemicals). This waste would not exceed the available landfill capacity.

Overall, this impact would be **less than significant.**

Impact UTL-5: Fail to Comply with Federal, State, and Local Statutes and Regulations Related to Solid Waste (Less than Significant)

As described in Impact UTL-4, much of the proposed project's construction waste could potentially be reused. During operation, the proposed project would generate minimal amounts of solid waste. Because information was not available regarding the existing diversion rate for unincorporated Stanislaus County, Ceres, Turlock, or Hughson, it is impossible to determine the current compliance status of these jurisdictions with respect to the CIWMA. Nevertheless, the volume of waste that may be generated by the proposed project, even if all of it were to be taken to the landfill, would not have an appreciable effect on the overall landfill diversion rate of any of these jurisdictions. In addition, SRWA and its contractors would be legally obligated to comply with all applicable statutes and regulations related to solid waste.

See Section 3.8, *Hazards and Hazardous Materials,* Impact HAZ-1 for a discussion of the proposed project's management and disposal of hazardous materials. The proposed project would use relatively minimal amounts of hazardous materials, and these materials would be disposed of in accordance with federal, state, and local laws governing hazardous wastes.

Therefore, this impact would be **less than significant.**

Chapter 4
OTHER STATUTORY CONSIDERATIONS

This chapter describes irreversible impacts, significant and unavoidable impacts, growth-inducing impacts, and cumulative impacts of the proposed project as required by the State CEQA Guidelines.

4.1 Irreversible Impacts

State CEQA Guidelines Section 15126.2(c) requires that an EIR must identify any irreversible impacts, also referred to as "irreversible environmental changes," which may be caused by a proposed project, including current or future commitments to using nonrenewable resources, and secondary, or growth-inducing, impacts that commit future generations to similar uses. Section 15126 of the State CEQA Guidelines states that significant irreversible environmental changes associated with a proposed project may include the following:

- uses of nonrenewable resources during the initial and continued phases of the project that may be irreversible because a large commitment of such resources makes removal or nonuse thereafter unlikely;
- primary impacts and, particularly, secondary impacts (such as highway improvements that provide access to a previously inaccessible area) that commit future generations to similar uses; and
- irreversible damage, which may result from environmental accidents associated with the project.

The irreversible commitment of nonrenewable resources would occur as a result of the proposed project. Construction activities would require the temporary use of heavy construction equipment, which would require the use of fossil fuels, and the permanent use of raw materials, including nonrenewable resources.

Operation of the proposed project would result in irreversible changes associated with energy consumption. Such an increase in energy demands would primarily be related to operation of the infiltration gallery, raw water pump station, and WTP.

4.2 Significant and Unavoidable Impacts

Section 15126.2(b) of the State CEQA Guidelines requires an EIR to describe any significant impacts that cannot be mitigated to a less-than-significant level. All of the impacts associated with the proposed project would be reduced to a less-than-significant level through the implementation of identified mitigation measures, with the exception of the impacts discussed below. The following impacts have been identified as significant and unavoidable:

- Impact AG-1: Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to Nonagricultural Use
- Impact AQ-1: Potential to Conflict with or Obstruct Implementation of an Applicable Air Quality Plan
- Impact AQ-2: Potential to Violate Any Air Quality Standard or Contribute Substantially to an Existing or Projected Air Quality Violation
- Impact AQ-3: Potential to Result in a Cumulatively Considerable Net Increase of Any Criteria Pollutant for Which the Project Region is in Non-Attainment Under an Applicable Federal or State Ambient Air Quality Standard
- Impact GHG-1: Generate a Substantial Amount of GHG Emissions
- Impact GHG-2: Conflict with an Applicable Plan, Policy, or Regulation Adopted for the Purpose of Reducing Emissions of GHGs
- Impact NOI-2: Potential to Expose Persons to Excessive Groundborne Vibration or Groundborne Noise Levels (Significant and Unavoidable)
- Impact NOI-4: Substantial Temporary or Periodic Increase in Ambient Noise Levels in the Project Vicinity Above Levels Existing Without the Proposed Project
- Impact PH-3: Long-term Inducement of Substantial Population Growth, Both Directly and Indirectly

4.3 Growth Inducement

Section 15126.2(d) of the State CEQA Guidelines requires an EIR to include a detailed statement of a proposed project's anticipated growth-inducing impacts. The analysis of growth-inducing impacts must discuss the ways in which a proposed project could foster economic or population growth or the construction of additional housing in the surrounding environment. The analysis must also address project-related actions that would remove existing obstacles to population growth, tax existing community service facilities and require construction of new facilities that would cause significant environmental effects, or encourage or facilitate other activities that could, individually or cumulatively, have a significant effect on the environment. A project would be considered growth inducing if it induces growth directly (through the construction of new housing or increasing population) or indirectly (by increasing employment opportunities or eliminating existing constraints on development). Under CEQA, growth is not assumed to be either beneficial or detrimental.

The proposed project would not involve new development that could directly induce substantial population growth in the project area. However, the proposed project would result in installation of additional water supply infrastructure that could indirectly induce population growth in the project area over an extended period of time due to an expansion of the service area for treated surface water and the removal of an obstacle to growth through that expansion. Construction-related jobs would increase in Stanislaus County in the short term but would be anticipated to draw from the existing work force. The proposed project would not displace any existing housing units or persons, or create any housing units. Minimal, if any, job growth would be associated with operation of the proposed project (estimated to be an additional 10-16 employees), and would not generate sufficient economic activity to result in substantial population growth.

Adequate water supply is one type of public service, though not the only type, that is needed to support additional growth in unincorporated Stanislaus County and the Cities of Ceres and Turlock. Other factors that influence residential, commercial or industrial growth in the region include the general plans and other policies of Stanislaus County and the Cities of Ceres, Turlock, and Hughson, as well as the availability of wastewater treatment and disposal capacity, public schools, and transportation services. Economic factors also affect development rates and locations of development.

In summary, by providing an additional source of water supply, the proposed project is expected to indirectly induce population growth.

4.4 Cumulative Impacts

The section evaluates the combination of the proposed project with other past, present, and probable future projects causing related impacts. Cumulative impacts can result from individually minor but collectively substantial projects taking place over time (State CEQA Guidelines Section 15355[b]). Under CEQA, an EIR must discuss the cumulative impacts of a project when the project's incremental contribution to the group effect is "cumulatively considerable." An EIR does not need to discuss cumulative impacts that do not result, at least in part, from the project evaluated in the EIR.

To meet the adequacy standard established by State CEQA Guidelines Section 15130, an analysis of cumulative impacts must contain the following elements:

- an analysis of related past, present, and reasonably foreseeable projects or planned development that would affect resources in the project area similar to those affected by the proposed project;
- a summary of the environmental effects expected to result from those projects with specific reference to additional information stating where that information is available; and
- a reasonable analysis of the combined (cumulative) impacts of the relevant projects.

The cumulative impacts analysis must evaluate a project's potential to contribute to the significant cumulative impacts identified, and it must discuss feasible options for mitigating or avoiding any contributions assessed as cumulatively considerable. The discussion of cumulative impacts is not required to provide as much detail as the discussion of the effects attributable to the project alone. Rather, the level of detail is to be guided by what is practical and reasonable.

4.4.1 Approach to Analysis: Combined Approach

The following analysis of cumulative impacts focuses on whether the impacts of the proposed project are cumulatively considerable within the context of impacts resulting from the proposed project and other past, present, or reasonably foreseeable future projects. The cumulative impact scenario considers both the proposed project and other projects proposed within the area defined for each resource that have the potential to contribute to cumulatively significant impacts.

State CEQA Guidelines Section 15130 provides the following two alternative approaches for analyzing and preparing an adequate discussion of significant cumulative impacts:

- the list approach, which involves listing past, existing, and probable future projects or activities that have or would produce related or cumulative impacts, including, if necessary, those projects outside the control of the lead agency; or
- the projection approach, which uses a summary of projections contained in an adopted local, regional or statewide plan, or related planning document, that describes or evaluates conditions and their contribution to the cumulative effect.

This discussion combines the projection approach and the list approach for the proposed project's cumulative impact analysis. Projects included in the cumulative analysis were determined using several factors, including the location and type of activity and the characteristics of the activity related to resources that could be affected by the proposed project. In addition, regional or global conditions that might lead to cumulative impacts (e.g., greenhouse gas [GHG] emissions) are also described.

Resource Topics Considered and Dismissed

The proposed project has been evaluated for its potential to make a considerable contribution to cumulative impacts related to the following resource topics: agricultural resources, air quality, biological resources, cultural resources, GHG and energy, noise and vibration, traffic and transportation, tribal cultural resources, and utilities and service systems. GHG emissions are inherently a cumulative issue and are already addressed in Section 3.7, *Greenhouse Gas Emissions and Energy Resources.* In addition, the proposed project's contribution to cumulative air quality impacts is addressed in Section 3.3, *Air Quality.* Therefore, these topics are not discussed further in this section. For several other resource topics, as shown in **Table 4-1**, either significant cumulative impacts do not exist, or the proposed project would not have the potential to make a considerable contribution to any significant cumulative impacts. These resource topics have been eliminated from consideration in the analysis of cumulative impacts and are not discussed further.

Note also that, while the proposed project would be growth inducing and the secondary effects of growth could contribute to significant cumulative impacts (as discussed in Section 3.12, *Population and Housing)*, such secondary effects are considered to be already captured in the cumulative setting. Therefore, the analysis of the proposed project's contributions to cumulative impacts focus on the impacts of the proposed project itself, and not such secondary effects.

Table 4-1. Resource Topics Eliminated from Further Consideration in the Analysis of Cumulative Impacts

Resource Topic	Rationale for Elimination from Cumulative Impact Analysis
Geology, Soils, Seismicity, and Mineral Resources	With the exception of brief periods of pipeline installation on Geer Road and East Hatch Road, there are no other cumulative projects that would be located within the same footprint as the proposed project. As described in Section 3.6, the proposed project would have less-than-significant impacts related to geologic, soil, seismic, and mineral resources issues because

Resource Topic	Rationale for Elimination from Cumulative Impact Analysis
	SRWA or its contractor(s) would comply with applicable regulations and policies. Other nearby cumulative construction projects, primarily the roadway improvement projects on Geer Road and East Hatch Road, would also be required to comply with such regulations and policies. Therefore, the potential for other nearby projects to contribute to cumulative impacts regarding geology, soils, seismicity, or mineral resources is low. When considering the proposed project along with other projects, there would not be a significant cumulative impact related to this topic.
Hazards and Hazardous Materials	The proposed project's effects related to hazards and hazardous materials would be site-specific, temporary, and mitigated to a level that is less than significant. As described in Section 3.8, implementation of Mitigation Measure HAZ-1 would require that SRWA or its contractor(s) prepare and implement a hazardous materials and waste management plan, which requires that proper measures are taken in the event of an accidental hazardous materials spill or in the event that contaminated soils are encountered during construction. Implementation of Mitigation Measure HYD/WQ-1 would ensure that project structures are located outside of the FEMA 100-year flood hazard area. Other nearby projects could have similar construction-related hazards and hazardous materials impacts, but these would also likely be site-specific and/or temporary. Similar to the proposed project, other projects would also be required to comply with the same regulations pertaining to safe use, storage, transport, and disposal of hazardous materials used during construction. Therefore, there would be no cumulatively significant impacts to which the proposed project could contribute, and this resource topic is dismissed from further analysis.
Land Use	As described in Section 3.10, *Land Use and Planning,* the proposed project would not divide an established community. The proposed project would also not conflict with local plans, such as the *Stanislaus County General Plan, City of Ceres General Plan, City of Turlock General Plan,* or *City of Hughson General Plan*. Similar to the proposed project, other projects are subject to planning, environmental review, and permitting processes. Through those processes, inconsistencies with relevant plans and policies would be resolved before project implementation. When considering the proposed project along with other projects, there would not be a significant cumulative impact to land use.
Public Services	While the proposed project would indirectly induce growth, which would increase demand for public services, Stanislaus County and the Cities would plan for and implement appropriate improvement to their public services (including associated facilities and infrastructure), such that cumulatively significant

Resource Topic	Rationale for Elimination from Cumulative Impact Analysis
	impacts related to public services would not occur. For this reason, no cumulatively significant impact exists to which the proposed project could contribute, and this topic has been dismissed from further analysis.
Recreation	Similar to the proposed project, other nearby projects – including the Tuolumne River Regional Park Master Plan (TRRPMP) Project and the Whitmore Ranch Specific Plan Project (described in detail in Table 4-3 below) – have the potential to affect recreational trails and/or parks in their respective project areas during construction. However, because these projects and the proposed project are in different stages of development, it is unlikely that they would be under construction simultaneously. When considering the proposed project along with other projects, there would not be a significant cumulative impact to recreation.
Tribal Cultural Resources	Information has not been found during the preparation of the DEIR to suggest that widespread loss or degradation of tribal cultural resources has occurred or would occur in the future in Stanislaus County or the project area as a result of the construction or operation of the proposed project and other projects. Rather, impacts on tribal cultural resources from other past, present, and probable future projects and programs would be localized and would affect only the immediate resources in question. For this reason, no cumulatively significant impact exists to which the proposed project could contribute, and this topic has been dismissed from further analysis.

Geographic Scope of Analysis

The level of detail of a cumulative impact analysis should consider a proposed project's geographic scope and other factors (e.g., a project's construction or operational activities, the nature of the environmental resource being examined) to ensure that the level of detail is practical and reasonable. The discussion focuses on the cumulative impacts of the proposed project for environmental resources that could be expected to be cumulatively affected by the proposed project in conjunction with other past, present, and reasonably foreseeable future projects. The specific geographic scope for each environmental resource topic analyzed in this EIR for cumulative impacts is provided in **Table 4-2**.

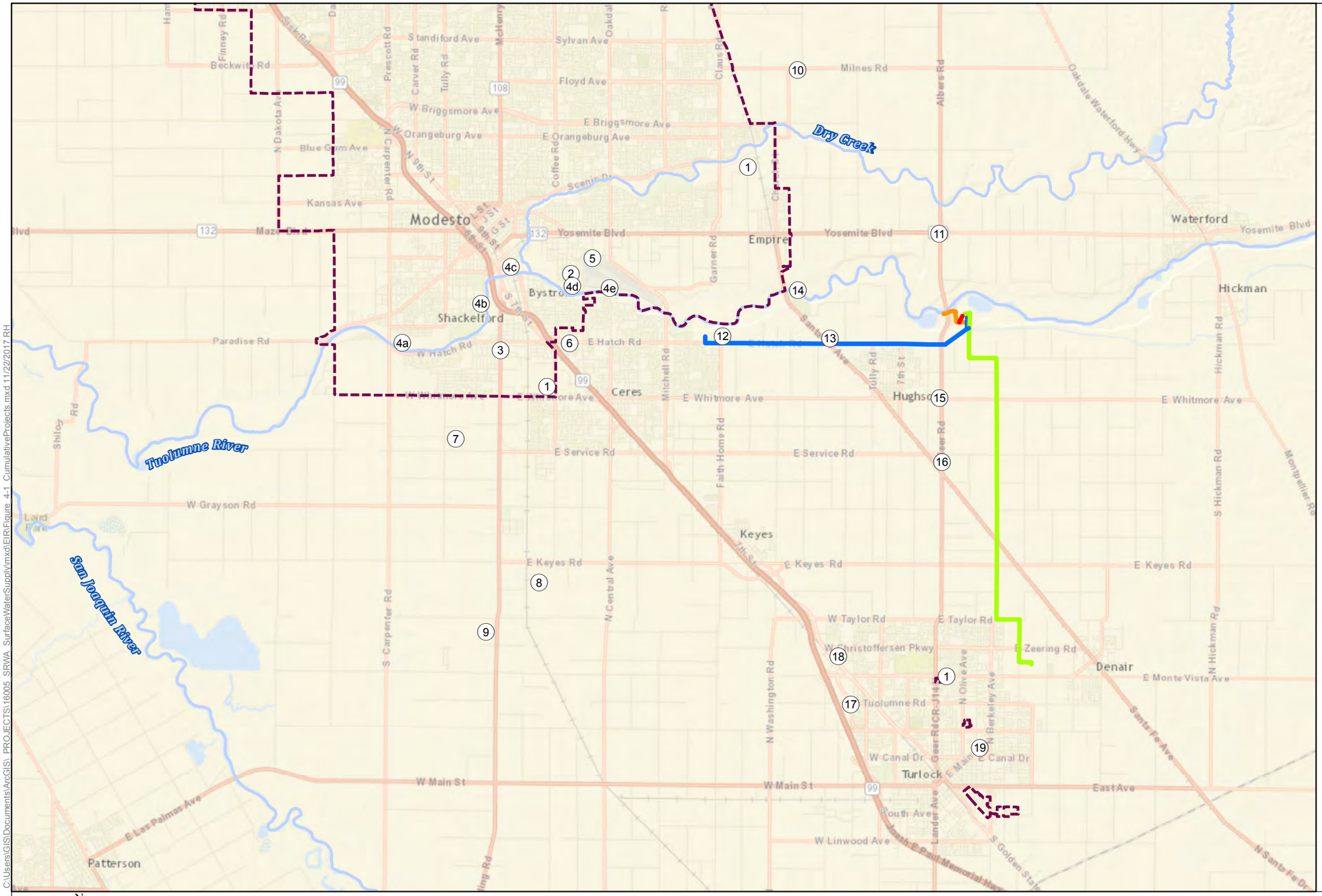
Table 4-2. Geographic Scope for Resources with Significant Cumulative Impacts Relevant to the Proposed Project

Resource	Geographic Scope	Explanation for the Geographic Scope
Aesthetics	General vicinity of the proposed project sites	Aesthetic impacts are limited to the general vicinity of the proposed project sites. Other projects in the vicinity of proposed above-ground components would contribute to cumulative

Resource	Geographic Scope	Explanation for the Geographic Scope
		aesthetic impacts and collectively affect the region's visual character.
Agriculture and Forestry Resources	Generally, agricultural land throughout the state; for the purposes of this analysis, focused on the proposed project area, as well as the remainder of Stanislaus County	While the proposed project's impacts on agriculture and forestry resources are limited to the footprint of the proposed components, agricultural resources are a valuable regional asset and an important part of the character of Stanislaus County and its surrounding area. Other projects in the project area that affect agricultural land, in combination with the proposed project, could result in cumulative effects.
Biological Resources	The project area, which encompasses the Tuolumne River, Ceres, Turlock, and the intervening portions of unincorporated Stanislaus County, particularly areas of sensitive biological resources value (e.g., riparian habitat)	Animals are able to migrate and plants may disperse long distances via seed carried by the wind or other mechanisms. The Tuolumne River provides habitat and a movement corridor for numerous fish and aquatic species. Additionally, biological resources are important regional assets. Therefore, the geographic scope for this analysis considers projects in the project area, as well as the Tuolumne River downstream of Don Pedro Reservoir.
Cultural and Paleontological Resources	Ceres, Turlock, and the surrounding portions of unincorporated Stanislaus County	Cultural and paleontological resource impacts from the proposed project would be limited to the immediate area or footprint of the proposed project. Other projects in the vicinity that would disturb the ground surface could affect cultural and paleontological resources in a similar manner to the proposed project, potentially leading to significant cumulative impacts.
Hydrology and Water Quality	Immediate vicinity of Ceres and Turlock and the outlying service areas, including adjacent reaches of the Tuolumne and San Joaquin Rivers	Contributions of the Proposed Program to cumulative impacts on hydrology and water quality (e.g., stormwater discharges from construction sites) would affect the immediate area of the proposed components and potentially areas downstream. Other projects that are constructed in this same area could affect hydrology and water quality in similar ways to the Proposed Program, potentially leading to cumulative impacts.
Noise and Vibration	Immediate vicinity (i.e., within approximately 0.25 mile) of proposed project sites in Ceres, Turlock, and	Noise impacts from the proposed project would be limited to the immediate area of the project sites. Cumulative impacts could result if other projects would be constructed or would operate at the same time as the proposed project features and in the same area (i.e.,

Resource	Geographic Scope	Explanation for the Geographic Scope
	unincorporated Stanislaus County	approximately 0.25 mile), such that ambient noise levels could increase.
Transportation and Traffic	Roadways providing access to the proposed project sites in Ceres, Turlock, and unincorporated Stanislaus County from SR 99 and from the surrounding area	The proposed project would not add substantial numbers of vehicle trips over the long term. Therefore, impacts on transportation and traffic would primarily be limited to construction-related effects (i.e., temporary closures of up to one lane of traffic for installation of pipelines). Cumulative impacts could result if other nearby projects were to be constructed at the same time as the proposed project features.
Utilities and Service Systems	SRWA's service area in Ceres and Turlock, project sites in unincorporated Stanislaus County, and regional landfills that may be used by the proposed project	The proposed project would provide additional water supply within the Cities and would not involve wastewater collection, conveyance, or treatment. Other projects that would affect water service to the same area could result in cumulative impacts on utilities and service systems. The proposed project may require disposal of excavated material at a local landfill. Other projects in the area that may require disposal of large volumes of waste at a landfill, in combination with the proposed project, could result in cumulative impacts on the capacity of landfill(s) in the area.

Figure 4-1 shows the locations of, and **Table 4-3** lists, projects planned in unincorporated Stanislaus County and the Cities of Modesto, Ceres, and Turlock that could affect resources that would also be affected by the proposed project. The list was developed by reviewing sources available on the County and City planning websites and referring to the Governor's Office of Planning and Research CEQAnet database. While it is unlikely that every cumulative project is listed, the list of cumulative projects is considered sufficiently comprehensive to be representative of the types of impacts that would be generated by other projects related to the proposed project. The evaluation of cumulative impacts assumes that the impacts of past and present projects are represented by baseline conditions, and that cumulative impacts are considered in the context of baseline conditions alongside reasonably foreseeable future projects.



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Cumulative Projects

Surface Water Supply Project
1, City of Modesto WMP/WWMP
2, Airport Neighborhood Sewer (Phase II)
3, Crows Landing Road Corridor Improvement Project
4a, TRRPMP - Carpenter Road Area
4b, TRRPMP - Golf Course Area
4c, TRRPMP - Gateway Parcel
4d, TRRPMP - Legion Park Area
4e, TRRPMP - Airport
5, Airport Neighborhood Sewer Improvements - Phase I
6, Whitmore Ranch Specific Plan
7, West Landing Specific Plan
8, Bronco Wine Co. 2016 Rezone Application
9, Trinkler Dairy Farms
10, Art Silva Dairy
11, Fruit Yard Amphitheater
12, Faith Home Road over Tuolumne River Bridge
13, Hatch Road at Santa Fe Avenue Intersection Upgrade
14, Santa Fe Avenue over Tuolumne River Bridge Replacement
15, Geer Road at Whitmore Avenue Intersection Signalization
16, Geer Road and Santa Fe Avenue Intersection Signalization
17, Northwest Triangle Specific Plan
18, Assyrian Pentecostal Church
19, Turlock Assisted Care Center

N

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Miles

Horizon WATER and ENVIRONMENT

Proposed Project Components

- Ceres Finished Water Transmission Main
- Raw Water Transmission Main
- Turlock Finished Water Transmission Main
- WTP pipeline
- WMP/WWMP Study Area
- (1) Cumulative Projects

Figure 4-1
Cumulative Projects

Surface Water Supply Project

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Table 4-3. Reasonably Foreseeable Future Projects that Might Cumulatively Affect Resources of Concern for the Proposed Project

No.	Project Title	Brief Project Description	Distance from Proposed Project Site(s)
1A	City of Modesto Water Master Plan area, tanks, and wells	The City of Modesto is in the process of developing a Water Master Plan and EIR to guide management of its water service system. The Water Master Plan would include various Capital Improvement Projects (CIPs) collectively intended for system-wide implementation to deliver safe and reliable water to the City's service area, which would effectively meet demand requirements under existing and future buildout conditions. The City proposes to construct and operate the following types of CIPs: new water storage tanks, groundwater wells, pump stations, and pipelines. These CIPs would be constructed within the City of Modesto and outlying service areas in Stanislaus County: Salida, North Ceres, Empire, and outlying service areas including Del Rio, Ceres (Walnut Manor), Grayson, and portions of Turlock.	Boundary of City water service is immediately north of the Ceres terminal tank; tanks would be 1.1 miles south of the Ceres terminal tank and 4.8 miles northwest of the WTP; well would be approximately adjacent to the Turlock terminal tank
1B	City of Modesto Wastewater Master Plan area, Sutter Plant, and Jennings Plant	The City of Modesto is in the process of updating and replacing its Wastewater Master Plan and EIR to guide management of its wastewater service system. The Wastewater Master Plan would include various Capital Improvement Projects collectively intended for system-wide implementation to increase sewer capacity, extend service to new development, replace and repair existing sewers, reduce infiltration and inflow of stormwater into the sanitary sewers, reduce flooding impacts at the Sutter Plant site, increase treatment process operational flexibility and efficiencies by constructing new primary treatment and solids handling facilities at the Jennings Plant, and removing primary treatment and handling facilities from the Sutter Plant. The City proposes to construct and operate numerous improvements to its collection system and upgrades to the Sutter and Jennings plants. These include collection system and treatment plant CIPs located throughout the City's service area and unincorporated Stanislaus County.	Boundary of City wastewater service is immediately north of the Ceres terminal tank
2	Airport Neighborhood Sewer (Phase II) (Stanislaus County)	Phase I of this project was constructed in 2014 and included installation of a gravity sewer system along Kerr Avenue. The County has developed improvement plans for Phase II, which is scheduled to end in fall 2017 and would include construction of a new gravity sanitary sewer system consisting of approximately 20,000 feet of sewer pipe. The completed project would provide approximately 362 sewer service connections to the residents of the Airport Neighborhood Sewer District (Stanislaus County N.D.-b).	Approximately 2 miles north of the Ceres terminal tank

No.	Project Title	Brief Project Description	Distance from Proposed Project Site(s)
3	Crows Landing Road Corridor Improvement Project (Stanislaus County)	This road improvement project is intended to improve safety, help illuminate the corridor, and make pedestrians and cyclists more visible to drivers. The project includes constructing raised medians, street lighting, and buffered bike lanes. Crows Landing Road would be resurfaced for buffered bike lanes. Existing signals would be modified and obsolete parts would be removed and salvaged (Stanislaus County N.D.-c).	Approximately 3.75 miles west of the Ceres terminal tank
4	Tuolumne River Regional Park Master Plan	The Tuolumne River Regional Park (TRRP) Master Plan envisions over 500 acres of parkland that would run along 7 river miles of the Tuolumne River. The regional park would extend from the Mitchell Road Bridge west to the Carpenter Road Bridge in Stanislaus County. Five major areas make up the TRRP: the Legion Park/Airport Area, the Gateway Parcel, Mancini Park, the Dryden Park Golf Course Area, and the Carpenter Road Area. The City is currently constructing recreational trails on the Gateway Parcel, which will establish a connection to the downtown corridor and existing pathways along the Tuolumne River (including those adjacent to Beardbrook Park and farther east toward the Modesto Airport). The new development on the Gateway Parcel includes a backwater channel, additional seating, an outdoor classroom, and a pedestrian bridge spanning the mouth of the channel on the bank of the Tuolumne River (Ortega pers. comm. 2017).	Various locations north and west of the Ceres terminal tank
5	Airport Neighborhood Sewer Improvement (Stanislaus County 2016)	The project proposes to construct new sewer laterals and improve the sewer system within the airport neighborhood of Modesto.	Approximately 2,000 feet north of the Ceres Terminal Tank
6	Whitmore Ranch Specific Plan	The project proposes to develop an environmental impact report that considers the development of approximately 94 acres of unincorporated land. Development would include residential, schools, park/open space, and new dwelling units (City of Ceres 2017).	Approximately 1 mile south of the Ceres Treated Water Transmission Main and terminal tank
7	West Landing Specific Plan	The project proposes to develop up to 1,992 single family homes and 1,667 multi-family units for a maximum of 3,659 dwelling units, and 171.1 acres of new commercial (regional, community and neighborhood), office, and business park uses. The plan also proposes to develop approximately 47 acres of parkland and 16 acres for two elementary schools (City of Ceres 2011).	Approximately 3.4 miles southwest of the Ceres Treated Water Transmission Main and terminal tank

No.	Project Title	Brief Project Description	Distance from Proposed Project Site(s)
8	Bronco Wine Co. 2016 Rezone Application (Stanislaus County)	The application requests Stanislaus County to rezone the entire 118-acre parcel to a new Planned Development, and to expand an existing wine manufacturing facility. The project includes 14 new buildings, totaling 1.4 million square feet, which includes warehousing, office and administrative buildings, and an employee center. The expansion also includes railroad access to the Union Pacific Railroad by constructing two rail spurs, which would minimize traffic impacts in surrounding areas. Access to the facility would be along Bystrum Road. Phase 1 is expected to occur within 5 years of project approval; future phases would be built based upon market demands. An initial study was circulated in March-April 2017 (Stanislaus County 2016b).	Approximately 5.5 miles southwest of the Ceres terminal tank
9	Trinkler Dairy Farms (Stanislaus County)	The project proposes to increase a dairy herd size from 3,150 to 5,175 animal units, consisting of 3,180 milk cows, 600 dry cows, and 1,395 heifers in the A-2-40 (General Agriculture) zoning district. Expansion would require the construction of a freestall barn, a milk parlor, a calf barn, a feed storage pad, and a wastewater storage pond (lagoon). The 220± acre parcel is located at 7251 Crows Landing Road, at the southwest corner of Crows Landing and West Taylor Roads, in the Ceres area. The Planning Commission adopted a Negative Declaration for this project on December 14, 2016. A Notice of Determination was received on February 27, 2017 (Stanislaus County 2017).	Approximately 6.1 miles southwest of the Ceres terminal tank
10	Art Silva Dairy (Stanislaus County)	Request to increase the milk/dry cows at this facility by 928 head. The facility currently houses 583 milk cows, 60 dry cows, and 390 heifers. With the increase, the totals would be 920 milk cows, 180 dry cows, and 861 heifers. The proposed increase would require construction of an approximately 53,000-square-foot freestall barn within an existing exercise pen area. As per the amended Waste Water Management Plan, the lagoons are sufficiently sized to contain the increased wastewater (Stanislaus County 2015a).	Approximately 3.6 miles from the WTP site
11	Fruit Yard Amphitheater	This project would expand an existing Planned Development with an outdoor, fenced, 3,500-person-capacity amphitheater event center, a 5,000-square-foot stage, a 5,000-square-foot roof structure, a 4,000-square-foot storage building, a parking lot to the rear of the stage, and an additional 1,302-space temporary parking area. A maximum of 12 amphitheater events are proposed to take place per year. This use permit also includes a covered seating area of approximately 4,800 square feet and a 1,600-square-foot gazebo in the eastern half of the park area, east of the outdoor amphitheater, and replacement of the existing pylon freestanding pole sign with an electronic reader board sign. An initial study was circulated in March 2017.	Approximately 1.4 miles north of the WTP site

No.	Project Title	Brief Project Description	Distance from Proposed Project Site(s)
12	Faith Home Road Bridge over Tuolumne River	The project is in the process of preparing environmental studies for project approval. If approved, it is estimated to be completed in 2019 (Stanislaus County N.D.-a).	Approximately 0.4 mile north of the Ceres Treated Water Transmission Main
13	Hatch Road at Santa Fe Avenue Intersection Upgrade	The project proposes to begin phase 3 of the Hatch Road and Santa Fe Avenue Intersection Widening Project. The project involves the construction of new traffic signals and intersection improvements that include the installation of new pavement, curb and gutter, traffic signals, street lights, and relocation of overhead utilities (Stanislaus County 2015b).	Directly along the Ceres Treated Water Transmission Main
14	Santa Fe Avenue over Tuolumne River Bridge Replacement	Federal funds and local Measure L transportation tax funds have been allocated to replace the Santa Fe Bridge over the Tuolumne River. Construction was scheduled to begin in August 2017 (Modesto Bee 2017).	Approximately 0.9 mile north of the Ceres Treated Water Transmission Main
15	Geer Road at Whitmore Avenue Intersection Signalization	The project proposes to signalize the Geer Road/Whitmore Avenue Intersection, which currently operates at a Level of Service “E” in peak hour. Project funding will be provided by a combination of Federal Congestion Mitigation and Air Quality (CMAQ) funds and County Public Facility Fees (PFF) funds (Stanislaus County N.D.-d).	Approximately 1.0 mile west of the Turlock Treated Water Transmission Main
16	Geer Road and Santa Fe Avenue Intersection Signalization	The project proposes to signalize the Geer Road/Santa Fe Avenue intersection, which currently operates at a Level of Service “E” in peak hour. Project funding will be provided by a combination of Federal CMAQ funds and County PFF funds (Stanislaus County N.D.-e).	Approximately 2,600 feet west of the Turlock Treated Water Transmission Main
17	Northwest Triangle Specific Plan	The Northwest Triangle Specific Plan was adopted in 1995 and was amended in 2004. This project would update the specific plan, which covers 800 acres, to re-designate six properties within the Specific Plan area. The General Plan designation will be amended for select parcels to Community Commercial from existing designations of Highway Commercial. For additional parcels, the designations will be changed from Community Commercial to Community Commercial/Medium Density Residential. Minor updates will also be made to the Specific Plan to ensure consistency with the updated 2012 General Plan policies and current regulation. An Initial Study was adopted and the project was approved in May 2017.	Approximately 3.8 miles west of the Turlock terminal tank site

No.	Project Title	Brief Project Description	Distance from Proposed Project Site(s)
18	Assyrian Pentecostal Church	The project involves construction of a 12,000-square-foot sanctuary building and a 13,000-square-foot multi-purpose building for the Assyrian Pentecostal Church. Many of the on-site improvements, such as the construction of the parking lot with 175 spaces, have already been installed as part a previously approved project. The new project would be developed in phases. The project would construct a smaller 9,854-square-foot multi-purpose building first, with the sanctuary to be constructed at a later date. Landscaping and other site improvements would be required in accordance with updated standards. An application for a time extension to a previously approved minor discretionary permit from the City of Turlock was received in August 2017.	Approximately 4.0 miles northwest of the Turlock terminal tank site
19	Turlock Assisted Care Center	The project is an approved licensed assisted living and memory care community, involving the construction of a two-story, 67,430-square-foot building that will include a total of 82 assisted living apartments. An existing oak tree will be retained and incorporated into the wandering garden. On-site and off-site improvements include landscaping, parking, commercial driveways, and two monument signs. A time extension for this project was granted in June 2017 by the City of Turlock.	Approximately 0.75 mile south of the Turlock terminal tank site

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Table 4-4 describes the planning documents containing projections used in the analysis.

Table 4-4. Planning Documents Considered for Cumulative Impact Analysis

Document	Summary
City of Modesto Urban Area General Plan 2008	The City of Modesto Urban Area General Plan guides land use and development within the City of Modesto. The goals and policies in the General Plan provide an outline for new growth and minimization of possible impacts, while the adopted land use diagram included in the General Plan identifies desired land use types in the City. Adopted in 2008, the City of Modesto Urban Area General Plan updates the previous iteration completed in 1995 and provides a planning horizon to 2025. The General Plan foresees the majority of future development occurring within an approximately 20,042-acre Planned Urbanizing Area (PUA), which is land within and outside the City's sphere of influence that is predominantly flat, vacant, and/or developed with agricultural uses, and minimally, if at all, served with urban services and infrastructure, including roads. The General Plan projects population within the Modesto General Plan boundary to ultimately reach 428,300. This population would not be expected to occur during the General Plan's time horizon, but rather at some undetermined time after 2025/2030 (City of Modesto 2008).
Stanislaus County General Plan	The Stanislaus County General Plan guides the physical development, preservation and conservation of areas within the unincorporated areas of the County. The General Plan was updated in 2015 to incorporate changes that had occurred in terms of legislation, code, and local standards since the previous version and to provide a planning horizon to 2035 (Stanislaus County 2016c). The Housing Element of the General Plan anticipates that most of the future residential growth in Stanislaus County to occur within the limits of the incorporated cities. Any concentrated growth in unincorporated Stanislaus County is anticipated to take place in the communities of Denair, Diablo Grande, Keyes, and Salida, which are guided by community or specific plans and are served by special districts which provide sewer and water, necessary to accommodate development. In 2010, the population of unincorporated Stanislaus County was 110,236. This number is projected to increase to 125,879 by 2030 (Stanislaus County 2016d).
City of Ceres General Plan Policy Document	The City of Ceres General Plan formalizes a long-term vision for the physical evolution of Ceres and outlines policies, standards, and programs to guide day-to-day decisions concerning Ceres' development through the year 2015 (City of Ceres 1997). The City's General Plan consists of two documents: the General Plan Policy Document and the General Plan Background Report. Part II of the Policy Document presents the City's formal statements of General Plan policy in the form of goals, policies, standards, and implementation programs. The General Plan designates land uses for and applies its policies and standards to an area defined as the City's Planning Area, which includes the City's Urban Growth Area. The Planning Area is bounded by the

Document	Summary
	Tuolumne River on the north, Carpenter Road on the east, Grayson Road on the south, and Washington Road on the west, encompassing approximately 14,700 acres (City of Ceres 1997). The Urban Growth Area encompasses all land envisioned for development as part of Ceres through the year 2015. This area is further divided into two phases of development to ensure orderly development and prevent premature conversion of agricultural lands.
City of Turlock General Plan	The City of Turlock General Plan (2012) governs all City actions relating to Turlock's growth and development. It is both a long-range vision and a guide to ongoing decision-making and near-term actions. The defined policies, maps, standards, and guidelines outline what actions must be implemented in order to accommodate population and employment growth over a 20-year time period. Guiding policies in each chapter are statements of vision and overall intent. There are approximately 8,730 acres in the current city limits (not including the County islands), and an additional 8,560 acres of land are contained within the Study Area outside of city limits. According to the General Plan Land Use designations, infill sites (those that are vacant or substantially underutilized) have a maximum capacity for approximately 5,000 new housing units. However, given site constraints, property owners' intentions, and other factors, it is likely that only a portion of these sites will actually develop over the next 20 years; an estimate is 60 percent (3,000 units). The remainder of the development needed to house Turlock's projected growth would be within new neighborhoods in master plan areas, several of which are outside of the current city limits. The WMP would affect North, Central, and South Turlock (see Figure 1-2), all of which are infill areas. Turlock has a number of unincorporated "County Islands," areas of unincorporated county land that are surrounded by incorporated Turlock on all sides. Generally, the county islands are not served by City infrastructure or services; some have no curb and gutter improvements and their roads are not maintained to City standards. Similarly, Stanislaus County is technically responsible for their public safety services. Turlock has an interest in incorporating the county islands and bringing their public infrastructure up to City standards, as this would help ameliorate public health and safety concerns. Turlock is in the process of negotiating a cost-sharing strategy with the County that would split the cost burden between the two jurisdictions.

4.4.2 Cumulative Impact Discussion

Impact CUM-1: Cumulative Impacts on Aesthetics (Not Cumulatively Considerable)

Several projects identified in Table 4-3 involve new development throughout Ceres, Turlock, and the surrounding unincorporated areas of Stanislaus County. For example, the Fruit Yard Amphitheater would be located just north of the WTP site on SR 132, and two specific plan projects are proposed for the area west of SR 99. Construction of the WTP and terminal tanks,

in combination with projects listed in Table 4-3 and other planned growth, would alter the project area's rural and open space landscape. Cumulative impacts on aesthetics would be significant and the project's contribution, if left unmitigated, would be considerable.

Implementation of **Mitigation Measures AES-1**, **AES-2**, and **AES-3** would require maintenance practices for construction areas, visual screening for the terminal tank sites, and a landscape plan for the WTP. **Mitigation Measure AES-4** would require that shielded lighting be used during any nighttime construction. These measures would reduce the project's contribution to this cumulative impact on the surrounding area's visual character. With this mitigation, and considering that the visual impacts of the proposed project would be short-term (during construction) or limited in extent (permanent above-ground facilities would be limited to facilities associated with the raw water pump station, the WTP, and terminal tanks), the proposed project's contribution to this cumulative impact would not be cumulatively considerable.

Impact CUM-2: Cumulative Impact on Agriculture and Forestry Resources (Cumulatively Considerable)

Several projects identified in Table 4-3 could result in conversion of agricultural land, including Prime Farmland, to non-agricultural uses. Additionally, buildout of the City of Modesto, Stanislaus County, City of Ceres, and City of Turlock General Plans would convert agricultural land to non-agricultural use. As described in Section 3.2, *Agriculture and Forestry Resources,* the proposed project would result in the conversion of Farmland to non-agricultural use associated with development of the WTP and the Turlock terminal tank.

Given the importance of agriculture to Stanislaus County and given that loss of Prime Farmland has been occurring in recent years and is an ongoing concern with increasing urban development in the region, the loss of Prime Farmland is a significant cumulative impact, and the proposed project's contribution would be considerable.

Implementation of **Mitigation Measures AG-1** and **AG-2** would require that topsoil is stockpiled for reuse at the WTP and Turlock terminal tank sites and that areas of Prime Farmland be replanted after construction where feasible. These measures would reduce the impacts of this conversion; however, this impact would remain significant and unavoidable at the project level, and would constitute a considerable contribution to significant cumulative impacts related to loss of Farmland. Therefore, the project's contribution to this cumulative impact would be **cumulatively considerable.**

Impact CUM-3: Cumulative Impacts on Biological Resources (Not Cumulatively Considerable)

Construction projects in the project area, such as those listed in Table 4-3, as well as elsewhere in Stanislaus County, would have the potential to affect biological resources. Ground-disturbing construction activities could directly injure or kill wildlife, while development of new areas may result in permanent loss of habitat. Given that many of the special-status species known to occur in Stanislaus County are found in riparian areas, this may be particularly true for projects that are located along the Tuolumne River. This is considered a cumulatively significant impact.

The proposed project would involve various construction activities that could affect wildlife, plants, and fish, which, left unmitigated, would be considered a considerable contribution to this cumulative impact.

However, implementation of **Mitigation Measures BIO-1** through **BIO-10** would avoid and/or minimize impacts. Considering that the proposed project would not convert large areas of sensitive habitat and would avoid or minimize temporary effects to the maximum extent practicable with implementation of the above-mentioned mitigation measures, its contribution to cumulative impacts on biological resources would not be considerable. Therefore, this impact would be **not cumulatively considerable.**

Impact CUM-4: Cumulative Impacts on Cultural and Paleontological Resources (Not Cumulatively Considerable)

While unlikely, it is possible that construction of the proposed project could affect buried cultural or archaeological resources. Any project that would disturb the ground surface would have the potential to disturb buried cultural, archaeological, or paleontological resources. Therefore, many of the projects listed in Table 4-3, as well as currently unknown projects that may be constructed in accordance with the City of Modesto, City of Ceres, City of Turlock, and Stanislaus County General Plans, could affect buried archaeological or paleontological resources. Therefore, cumulative impacts of these other projects on cultural and paleontological resources are considered significant.

If the proposed project were to affect a resource or group of resources that are also being affected by other projects, the proposed project's contribution to cumulative impacts, if left unmitigated, would be potentially considerable. However, the proposed project would implement **Mitigation Measures CUL-1** through **CUL-4** to avoid and/or minimize impacts on cultural resources. This would include requirements to conduct cultural resources studies prior to construction (Mitigation Measure CUL-1), and to halt construction and implement appropriate measures in the event that archaeological resources or human remains are discovered (Mitigation Measures CUL-2 and CUL-4). In addition, the proposed project would include requirements to suspend construction immediately if paleontological resources are discovered, and implement appropriate measures after assessing the significance of the resources (Mitigation Measure CUL-3).

Because the proposed project would not adversely affect any known historically significant cultural resources or significant paleontological resources, and with implementation of these mitigation measures, the proposed project would not substantially affect cultural and paleontological resources and would not contribute considerably to any cumulative impacts on cultural and paleontological resources in the project area or greater Stanislaus County. Therefore, this impact would be **not cumulatively considerable.**

Impact CUM-5: Cumulative Impacts on Hydrology and Water Quality (Not Cumulatively Considerable)

Projects listed in Table 4-3, and those that may be constructed in the future in accordance with the City of Modesto, City of Ceres, City of Turlock, and Stanislaus County General Plans, could adversely affect hydrology and water quality (e.g., via stormwater discharges from construction sites). This impact discussion first discusses water quality, then discusses flood hazards, and finally addresses groundwater.

With regard to water quality, projects located near the Tuolumne River would have potential to affect water quality in the river, which is already substantially compromised. The segment of the river from Don Pedro Reservoir to the San Joaquin River is identified as impaired for various contaminants on SWRCB's Section 303(d) list, including temperature, pesticides, mercury, *E. coli,* and unknown toxicity. The San Joaquin River, to which surface water in the region ultimately drains, has similar water quality impairments. The existing impairments to water quality in the region are considered to be a cumulatively significant impact. While the proposed project could result in discharges to surface water bodies, such impacts would be avoided and/or minimized through compliance with the NPDES General Construction Permit and preparation and implementation of a hazardous materials and waste management plan. These would ensure that the proposed project's contribution to significant cumulative water quality impacts would not be considerable.

Increases in impervious surfaces as a result of development projects in the region could increase the volume and timing of surface water runoff, which can exacerbate flooding hazards, a cumulatively significant impact. These impacts are addressed through municipal stormwater permit requirements and compliance with city and county drainage requirements. Potential impacts from flooding related to the proposed project would be minimized through implementation of **Mitigation Measure HYD/WQ-1**, requiring that SRWA locate above-ground facilities outside the flood hazard area for the Tuolumne River. With this mitigation measure, the proposed project's contribution to cumulative impacts associated with regional flooding would not be considerable.

The impact on groundwater development in the Turlock subbasin by other agencies or private entities could, in combination with SRWA's use of groundwater, result in overall groundwater pumping which exceeds the sustainable yield of the Turlock aquifer. Several of the projects listed in Table 4-3 could add impervious surface area to the region or require additional use of groundwater supplies. The new impervious surface area, concentrated largely within or near urban areas, would not substantially affect groundwater recharge because the majority of groundwater recharge within the Turlock subbasin occurs through percolation of irrigation water in the vast agricultural lands in the area. However, any additional groundwater use by the projects listed in Table 4-3 could contribute to declining groundwater levels and potential overdraft of the aquifer. The proposed project would substantially reduce SRWA's reliance on groundwater sources for water supply and would continue to allow groundwater recharge in the project area, which would have a beneficial effect on groundwater. Additionally, the proposed project would aid the West Turlock Subbasin Groundwater Sustainability Agency in its future preparation and implementation of a groundwater sustainability plan for the area. Because the proposed project's effects on groundwater would be beneficial, its contribution to cumulative impacts on groundwater would not be considerable.

Therefore, overall, the proposed project would not make a considerable contribution to impacts related to hydrology and water quality.

Impact CUM-6: Cumulative Impacts Related to Noise and Vibration (Not Cumulatively Considerable)

Other projects in the immediate area of the proposed project could add to, or exacerbate, noise and vibration generated by construction and/or operation of proposed project features. Several projects listed in Table 4-3 fit this description. Additionally, projects that may be

constructed in the future in accordance with applicable jurisdictions' general plans could be located near the project sites, potentially producing significant cumulative effects.

As described in Section 3.11, *Noise and Vibration,* proposed project construction could temporarily generate noise in excess of the significance criterion of 90 dBA, depending on the specific location. If receptors affected in these locations are also exposed to excessive noise from other projects, this would be considered a significant cumulative impact to which the proposed project could make a considerable contribution. **Mitigation Measures NOI-1** through **NOI-4** would reduce these effects through a variety of means. Because the proposed project's contributions to noise impacts would be short-term and reduced by these mitigation measures, the proposed project (after mitigation) would not make a considerable contribution to significant cumulative noise impacts.

Impact CUM-7: Cumulative Impacts Related to Transportation and Traffic (Not Cumulatively Considerable)

Depending on the timing of construction activities, other projects listed in Table 4-3 or included in general plans that are located in the immediate vicinity of the proposed project sites could overlap in duration with proposed project construction activities, exacerbating short-term effects on transportation and traffic. These other projects, as well as other projects that may be constructed in accordance with the City of Modesto, City of Ceres, City of Turlock, and Stanislaus County General Plans, could add substantial vehicle trips associated with residential and commercial uses, which could contribute to a long-term reduction in LOS and operating conditions on roads and highways in the area, creating a significant cumulative impact.

As described in Section 3.15, *Transportation and Traffic,* the proposed project would include trenching within roadway ROW for installation of new water lines, as well as off-hauling of construction debris and spoils to the landfill. These activities could create short-term congestion on local streets, which would be largely confined to the immediate area of the proposed project. Implementation of **Mitigation Measure TRANS-1** would ensure that SRWA, the Cities, and their contractor(s) implement a construction traffic management plan that would limit conflicts on truck haul routes, avoid peak traffic hours, provide traffic controls at key intersections, notify adjacent property owners and public safety personnel regarding timing of lane closures, and repair any roads damaged by construction vehicles.

Because proposed project operations would not add substantial vehicle trips over the long term and construction impacts on transportation and traffic would be temporary, and with implementation of Mitigation Measure TRANS-1, the proposed project would not make a considerable contribution to cumulative impacts on transportation and traffic.

Impact CUM-8: Cumulative Impacts on Utilities and Service Systems (Not Cumulatively Considerable)

During construction, coordination with service providers would ensure that SRWA, the Cities, and their contractor(s) would avoid any interruptions to utilities and service systems. Over the long term, the proposed project would not generate the need for additional stormwater or wastewater infrastructure or substantially increased solid waste disposal needs. Additionally, the proposed project would provide necessary water supply infrastructure to support planned development. As such, the proposed project is anticipated to be beneficial from the standpoint of cumulative impacts related to utilities and service systems, and would not make a considerable contribution to any cumulative impacts related to utilities and service systems.

Chapter 5
ALTERNATIVES

5.1 OVERVIEW

This chapter describes the CEQA requirements related to evaluation of alternatives in an EIR, presents the alternatives development process for the proposed project, describes the alternatives analyzed in detail and those considered but eliminated from detailed analysis, provides the environmental impact analysis of the alternatives considered, presents a comparison of alternatives, and identifies the environmentally superior alternative.

5.2 CEQA REQUIREMENTS

CEQA requires that an EIR evaluate a reasonable range of potentially feasible alternatives to the proposed project, including the No Project Alternative. The No Project Alternative allows decision makers to compare the impacts of approving an action against the impacts of not approving that action. Although no clear rule exists for determining a reasonable range of alternatives to a proposed project, the State CEQA Guidelines provide guidance that can be used to define the range of alternatives for consideration in the environmental document.

The alternatives described in an EIR must feasibly accomplish most of the basic project objectives, should avoid or substantially lessen one or more of the significant impacts of the proposed project, and must be potentially feasible (State CEQA Guidelines Section 15126.6[a]). In determining whether alternatives are potentially feasible, Lead Agencies are guided by the general definition of feasibility found in State CEQA Guidelines Section 15364: "capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social, and technological factors." In accordance with State CEQA Guidelines Section 15126.6(f), the Lead Agency should consider site suitability, economic viability, availability of infrastructure, general plan consistency, other regulatory limitations, and jurisdictional boundaries. An EIR must briefly describe the rationale for selection and rejection of alternatives and the information that the Lead Agency relied on in making the selection. It also should identify any alternatives that were considered by the Lead Agency but were rejected as infeasible during the scoping process and briefly explain the reason for their exclusion (State CEQA Guidelines Section 15126.6[c]).

An EIR's analysis of alternatives is required to identify the environmentally superior alternative among all those considered (State CEQA Guidelines Sections 15126.6[a], 15126.6[e][2]). If the No Project Alternative is identified as the environmentally superior alternative, then the EIR must also identify an environmentally superior alternative among the action alternatives.

These guidelines were used in developing and evaluating the alternatives to the proposed project, as described below.

5.3 ALTERNATIVES DEVELOPMENT PROCESS

The proposed project's purpose and objectives, as well as its significant environmental impacts identified in this DEIR, were considered while developing alternatives. In accordance with the requirements of CEQA, alternatives were developed to achieve most of the proposed project's basic objectives while avoiding or substantially lessening one or more of its significant adverse environmental impacts. Alternatives development was also based on potential feasibility. A reasonable range of potentially feasible alternatives is presented in Section 5.5, "Alternatives Analysis," describing their impacts as well as benefits.

5.3.1 PROJECT OBJECTIVES

As stated in Chapter 2, *Project Description,* the objectives of the proposed project are as follows:

- Provide the Cities of Ceres and Turlock with a reliable and supplementalsource of treated surface water;
- Meet existing and projected treated water demands of the Cities while reducing reliance on groundwater, thereby increasing overall water supply reliability;
- Improve the quality of drinking water in the Cities by blending high-quality, treated surface water with existing groundwater that has been gradually declining in quality;
- Allow for the conjunctive use of groundwater and surface water and for the in-lieu recharge of groundwater; improve the quality of wastewater discharges from the Cities by reducing the concentration of total dissolved solids (salts) in the wastewater, through a reduction in the concentration of total dissolved solids in the treated water supply;
- Provide a benefit to Tuolumne River fish and other aquatic resources by increasing seasonal releases from La Grange Dam to accommodate proposed project diversions downstream at TID's infiltration gallery northeast of Hughson;
- Construct and operate the various elements of the proposed project in a cost-effective manner that minimizes impacts on the environment;
- Allow for the participating cities of Ceres and Turlock and TID to manage and use the area's surface water, groundwater, and recycled water supplies in an improved and coordinated manner;
- Better enable the participating cities of Ceres and Turlock (and the subbasin groundwater sustainability agency) to manage the area's groundwater subbasin in a sustainable manner in accordance with the requirements of the Sustainable Groundwater Management Act; and
- Assist TID in implementing its water conservation and conjunctive water use programs.

5.3.2 SIGNIFICANT ENVIRONMENTAL IMPACTS OF THE PROPOSED PROJECT

A number of impacts have been identified as significant, but would be mitigated to a less-than-significant level through implementation of mitigation measures. These impacts are listed in Table ES-2 in the *Executive Summary* of this DEIR.

5.3.3 Significant and Unavoidable Environmental Impacts of the Proposed Project

The following impacts have been identified as significant and unavoidable:

- Impact AG-1: Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to Nonagricultural Use
- Impact AQ-1: Potential to Conflict with or Obstruct Implementation of an Applicable Air Quality Plan
- Impact AQ-2: Potential to Violate Any Air Quality Standard or Contribute Substantially to an Existing or Projected Air Quality Violation
- Impact AQ-3: Potential to Result in a Cumulatively Considerable Net Increase of Any Criteria Pollutant for Which the Project Region is in Non-Attainment Under an Applicable Federal or State Ambient Air Quality Standard
- Impact GHG-1: Generate a Substantial Amount of GHG Emissions
- Impact GHG-2: Conflict with an Applicable Plan, Policy, or Regulation Adopted for the Purpose of Reducing Emissions of GHGs
- Impact NOI-2: Potential to Expose Persons to Excessive Groundborne Vibration or Groundborne Noise Levels
- Impact NOI-4: Substantial Temporary or Periodic Increase in Ambient Noise Levels in the Project Vicinity Above Levels Existing Without the Proposed Project
- Impact PH-3: Long-term Inducement of Substantial Population Growth, Both Directly and Indirectly
- Impact CUM-2: Cumulative Impact on Agriculture and Forestry Resources

5.4 Alternatives Considered and Eliminated

During the lengthy history of planning and developing the proposed project, a wide range of options for addressing some or all of the project objectives have been considered during that period. In 1992, TID published the Drinking Water Study DEIR, which considered various options for providing additional drinking water supply to agencies interested in participating in a joint project. In 2006, TID prepared an EIR for the Regional Surface Water Supply Project, which dismissed some of the earlier alternatives and evaluated several potential locations for WTPs and pipeline alignments. In 2015, Carollo Engineers prepared an alternative evaluation report for SRWA that considered numerous conceptual projects to achieve the basic project goals, including demand reduction, transfer and exchange, recycled water, groundwater, stormwater capture/groundwater augmentation, and groundwater banking/conjunctive use projects.

During the process of developing the proposed project and the DEIR, the following alternatives were considered, but ultimately were eliminated from further analysis for one or more of the following reasons: (1) they would not sufficiently meet most of the proposed project objectives; (2) they were determined to be infeasible; or (3) they would not avoid or substantially lessen one or more significant impacts of the proposed project:

- **Alternate Diversion Sites:** TID's 1992 Drinking Water Study DEIR (TID 1992) evaluated several alternate locations for diversion points from the Tuolumne River to supply water for the WTP. That EIR considered diversions at Hickman, Ceres, TID's Main Canal, and smaller canals operated by TID, either individually or in combination. TID's 2006 Regional Surface Water Supply Project EIR reviewed the alternative of using a different diversion site. In both cases, TID eliminated the use of alternate diversions sites from further consideration because of higher cost and no offsetting advantages. Constructing a diversion other than the existing infiltration gallery would require duplication of costs and effort, result in additional ground and in-river disturbance, and fail to provide any meaningful benefit to SRWA over the proposed project. For these reasons, the use of alternative diversion sites was rejected for further consideration in this DEIR.

- **Turlock Lake Alternative:** TID's 1992 DEIR evaluated an alternative to divert surface water on or near Turlock Lake to a WTP constructed on the lake or on the TID Main Canal. TID's 2006 EIR also considered this alternative and eliminated it from further consideration because it would not increase seasonal flows in the Tuolumne River, require extensive additional pipeline construction, reduce operational flexibility in the TID irrigation delivery system, alter current recreational uses of Turlock Lake State Park, and result in no environmental advantages over the proposed project. For these reasons, which remain valid, the Turlock Lake Alternative was rejected for further consideration in this DEIR.

- **Reduced Diversion/Treatment Alternative:** TID's 2006 EIR considered an alternative project that would reduce the capacity of the proposed WTP to divert, treat, and deliver surface water supplies to the participating communities. Such an alternative could include an across-the-board reduction in water deliveries provided to the participating communities, target reductions for specific community requests, or eliminate one of the participating communities from the proposed project. This alternative would not result in demonstrable environmental advantage because facilities constructed for this alternative would not be substantially different from those constructed for the proposed project. Pipeline impacts would be reduced only in the case of eliminating one of the participating communities, but the environmental benefit of this reduction would be negligible because impacts of pipeline construction and operation would be less than significant with mitigation. The effectiveness of meeting the project objective to increase seasonal flows in the Tuolumne River would be reduced under this alternative. For these reasons, this alternative was rejected from further consideration in this DEIR.

- **Modesto Irrigation District (MID) Water Supply Alternative:** Under this alternative, water would be treated utilizing currently available unused treatment capacity at the recently expanded Modesto Regional Water Treatment Plant (MRWTP) and deliver this treated water to the SRWA member cities through a new pipeline connection that would tie into the MID transmission main serving the City of Modesto near Geer Road. From this new tie-in point, an approximately 2-mile-long, treated water main would be constructed running south along Geer Road, and eventually connecting to terminal facilities for each city (as currently planned in the proposed project). This alternative would require either a change in place of use for MID's water rights (which currently does not extend south of the Tuolumne River), or require an agreement between TID and MID to treat TID water at the MRWTP. This

alternative could provide surface water to SRWA on an interim basis while the RSWSP was being implemented, or possibly provide supplies in lieu of the RSWSP. The implementation of this alternative on an interim basis was dismissed from detailed analysis because it would not reduce or avoid any of the impacts of the proposed project, and would have additional impacts associated with its construction and operation. The implementation of this alternative on a long-term basis was dismissed from detailed analysis because ultimately, the unused treatment capacity at the MRWTP would be used by the City of Modesto, rendering it unavailable to SRWA. As such it would not meet the basic project objective of providing a long-term, secure source of surface water for SRWA. The use of this alternative in the long-term would also not meet the project objective of providing a benefit to Tuolumne River fish and other aquatic resources associated with use of infiltration gallery. Therefore, because this alternative would either not reduce any of the proposed project's environmental impacts, or would not sufficiently meet basic project objectives, it has been dismissed from detailed analysis.

5.5 ALTERNATIVES ANALYSIS

The following alternatives were considered for the proposed project:

- **No Project Alternative:** The proposed project would not be constructed, and SRWA would not provide additional treated surface water (15 mgd during Phase 1, up to 45 mgd in Phase 2) to the Cities. No change in seasonal flows in the Tuolumne River downstream of Don Pedro Reservoir would result. The Cities would continue to rely on groundwater to serve water demand. As growth continues in these areas and in the unincorporated area of Stanislaus County, groundwater withdrawals would likely increase.

- **Ceres WTP Site Alternative:** Under this alternative, first considered in TID's 1992 DEIR, SRWA would construct the WTP at a site in Ceres rather than the site near Hughson identified for the proposed project. The previously identified site has since been developed by the City of Ceres as Ceres River Bluff Regional Park; however, sufficient land remains at or adjacent to the 76-acre park to serve as a WTP site. Under this alternative, the pipeline alignments between Ceres and Turlock would remain as identified for the proposed project, but the WTP would be located adjacent to the Ceres terminal tank site. Raw water would be conveyed from the infiltration gallery to Ceres in a transmission main and treated water would be conveyed to Turlock in a second, treated water transmission main that could essentially follow the same alignment as the proposed project pipelines.

- **Stanislaus River Supply Alternative:** In its 2015 alternatives evaluation to SRWA, Carollo Engineers identified an alternative supply option under which SRWA would partner with the Oakdale Irrigation District (OID) and San Francisco Public Utilities Commission (SFPUC) on a proposed water supply project. OID would construct a new surface water treatment plant near Riverbank on the Stanislaus River; OID would sell treated water to SFPUC for 2-4 months each winter over a period of 10-12 years. By partnering in the project, SRWA could obtain treated water for 8-10 months each year.

These alternatives were identified in the context of the primary environmental concerns raised during EIR scoping and preparation, and the significant impacts of the proposed project. The discussion below evaluates the impacts of each alternative, and Section 5.5.4 summarizes the alternatives considered and compares them to the proposed project.

5.5.1 NO PROJECT ALTERNATIVE

Characteristics of this Alternative

Under this alternative, no new water supply infrastructure would be constructed or upgraded. Operation of the City's wells, pumping, storage, and conveyance infrastructure would continue similar to existing conditions. The existing storage tanks and booster pump stations, groundwater wells, and transmission/distribution pipeline network would continue to operate, but capacity issues would not be addressed and supply reliability and sustainability concerns would likely increase over time as the population of both cities continues to increase.

Under this alternative, the proposed project would not be constructed, and SRWA would not provide treated surface water (15 mgd during Phase 1, up to 45 mgd in subsequent phases) to the Cities. No change in seasonal flows in the Tuolumne River downstream of Don Pedro Reservoir would result. The Cities would continue to rely entirely on groundwater to serve water demand; as growth continues in these areas and the unincorporated area of Stanislaus County, groundwater withdrawals would likely increase. No offset water would be made available by SRWA to improve the quality of wastewater being discharged to the Tuolumne River by reducing the concentration of TDS in the drinking water supply.

Impact Analysis

Aesthetics

Under this alternative, because no construction or operation of facilities or pipelines would result, any impacts on scenic vistas, scenic resources, and light and glare would be avoided.

Agricultural Resources

Under this alternative, significant and unavoidable impacts of direct conversion of Important Farmland would be avoided. Because no construction or operation of facilities or pipelines would result, impacts on zoning for agricultural use or Williamson Act contracts would not occur.

Air Quality

Under this alternative, significant and unavoidable impacts of conflicts with applicable air quality plans, violation of air quality standards, and cumulatively considerable net increases in criteria pollutants would be avoided. Because no construction or operation of facilities or pipelines would result, potential impacts on sensitive receptors from pollutant concentrations and any increases in objectionable odors would not occur.

Biological Resources

Under this alternative, because no construction or operation of facilities or pipelines would result, impacts on biological resources would not occur. However, benefits to fish and aquatic species from increased flows in the Tuolumne River would also not occur.

Cultural and Paleontological Resources

Under this alternative, because no construction or operation of facilities or pipelines would result, potential impacts on previously undiscovered archaeological or paleontological resources or human remains would be avoided.

Geology, Soils, Seismicity, and Mineral Resources

Under this alternative, because no construction or operation of facilities or pipelines would result, no impacts related to geology, soils, seismicity, and mineral resources would occur.

Greenhouse Gas Emissions and Energy Resources

Under this alternative, because no construction or operation of facilities or pipelines would result, there would be no greenhouse gas emissions or consumption of energy.

Hazards and Hazardous Materials

Under this alternative, because no construction or operation of facilities or pipelines would result, there would be no impacts related to routine transport, use, or disposal of hazardous materials; upset and accident conditions; proximity of hazardous materials to schools; location on a hazardous materials site or in an airport land use plan; interference with an emergency response plan; or exposure to wildfire risk.

Hydrology and Water Quality

Under this alternative, because no construction or operation of facilities or pipelines would result, any impacts related to violation of water quality standards, drainage patterns, groundwater recharge, siltation, runoff, and flooding would be avoided. However, under this alternative, SRWA would continue to rely primarily on groundwater to serve customers in Ceres and Turlock; as growth continues in these areas and the adjacent unincorporated area of Stanislaus County, groundwater withdrawals would likely increase and could result in aquifer overdraft.

Land Use and Planning

Because no construction or operation of facilities or pipelines would result, the No Project Alternative would avoid any potential impacts related to land use and planning. It is assumed that the Cities would continue to use groundwater to serve planned development. As such, this alternative would not impede attainment of the Cities' land use plans and policies that rely upon the water supply that would be made available by the proposed project.

Noise and Vibration

Under this alternative, significant and unavoidable impacts related to ground-borne noise or vibration levels and ambient noise levels would be avoided. Because no construction or operation of facilities or pipelines would result, potential impacts related to increases in

ambient noise levels, groundborne noise or vibration levels, and other noise and vibration impacts would not occur.

Population and Housing

Under this alternative, population growth, and the secondary impacts of that growth, would still occur.

Transportation and Traffic

Under this alternative, because no construction or operation of facilities or pipelines would result, it would avoid any impacts related to effectiveness of the circulation system, congestion management programs, design hazards, emergency access, and alternative transportation.

Tribal Cultural Resources

Under this alternative, because no construction or operation of facilities or pipelines would result, any impacts related to tribal cultural resources would be avoided.

Utilities and Service Systems

Under this alternative, because no construction or operation of facilities or pipelines would result, potential impacts related to expansion of wastewater or stormwater drainage facilities, solid waste disposal, and need for additional permitted landfill capacity would not occur. The potential exists for increased impacts related to the need for new or expanded water supply or entitlements as a result of the No Project Alternative, if growth in population and housing proceeds in the absence of additional water supply; however, such growth would likely be supplied by groundwater.

5.5.2 Ceres WTP Site Alternative

Characteristics of this Alternative

Under this alternative, SRWA would construct the WTP at a site at or adjacent to the Ceres River Bluff Regional Park in Ceres rather than the site near Hughson identified for the proposed project. The pipeline alignments between Ceres and Turlock would remain as identified for the proposed project. Water would be withdrawn from the existing infiltration gallery, as under the proposed project, and would be pumped through a new raw water transmission main to the WTP site in Ceres. Treated water would then be conveyed from Ceres to Turlock in a second, treated water transmission main that could essentially follow the same alignment as the proposed project's Ceres-to-WTP and WTP-to-Turlock pipelines.

Impact Analysis

Aesthetics

Under this alternative, because construction of additional pipelines and similar operation of facilities would be implemented compared to the proposed project, impacts on scenic vistas, scenic resources, and light and glare would be greater.

Agricultural Resources

Under this alternative, significant and unavoidable impacts of direct conversion of Prime Farmland would be avoided because the WTP would be constructed at a site that is not designated as Prime Farmland. Because construction of additional pipelines and similar operation of facilities would be implemented compared to the proposed project, impacts on zoning for agricultural use or Williamson Act contracts would be similar but could affect more acreage overall.

Air Quality

Under this alternative, significant and unavoidable impacts related to conflicts with applicable air quality plans, violation of air quality standards, and cumulatively considerable net increases in criteria pollutants would remain. Because construction of additional pipelines and similar operation of facilities would be implemented compared to the proposed project, more impacts on sensitive receptors from pollutant concentrations and potential for increases in objectionable odors would likely occur.

Biological Resources

Under this alternative, because construction of additional pipelines and similar operation of facilities would be implemented compared to the proposed project, more impacts on biological resources would occur. Increased seasonal flows would be provided in the Tuolumne River, with benefits to fish and aquatic species.

Cultural and Paleontological Resources

Under this alternative, because construction of additional pipelines and similar operation of facilities would be implemented compared to the proposed project, more impacts on archaeological or paleontological resources or human remains would potentially occur.

Geology, Soils, Seismicity, and Mineral Resources

Under this alternative, because construction of additional pipelines and similar operation of facilities would be implemented compared to the proposed project, similar impacts related to geology, soils, seismicity, and mineral resources would occur.

Greenhouse Gas Emissions and Energy Resources

Under this alternative, significant and unavoidable impacts related to GHG emissions and conflicts with GHG reduction policies would result, similar to the proposed project. Because construction of additional pipelines and similar operation of facilities would be implemented compared to the proposed project, the potential exists for greater impacts related to wasteful, inefficient, and unnecessary consumption of energy and increases in energy demand to occur.

Hazards and Hazardous Materials

Under this alternative, because construction of additional pipelines and similar operation of facilities would be implemented compared to the proposed project, greater impacts related to routine transport, use, or disposal of hazardous materials; upset and accident conditions; proximity of hazardous materials to schools; location on a hazardous materials site or in an airport land use plan; interference with an emergency response plan; or exposure to wildfire would occur.

Hydrology and Water Quality

Under this alternative, because construction of additional pipelines and similar operation of facilities would be implemented compared to the proposed project, similar or greater impacts related to violation of water quality standards, drainage patterns, groundwater recharge, siltation, runoff, and flooding would occur. The location of the WTP in Ceres would potentially eliminate the need for mitigation to address construction of that facility in a flood hazard area.

Land Use and Planning

Under this alternative, because construction of additional pipelines and similar operation of facilities would be implemented compared to the proposed project, greater impacts related to land use and planning would occur. The location of the WTP in Ceres would potentially conflict with existing zoning of the site for recreation.

Noise and Vibration

Under this alternative, significant and unavoidable impacts related to ground-borne noise or vibration levels and ambient noise levels would remain as under the proposed project. Because construction of additional pipelines and similar operation of facilities would result, greater impacts related to other noise and vibration impacts would occur.

Population and Housing

Under this alternative, significant and unavoidable impacts of long-term inducement of substantial population growth, and related secondary impacts, would be similar to those under the proposed project. Because construction of additional pipelines and similar operation of facilities would result, similar impacts related to inducement of population growth and displacement of population would occur.

Transportation and Traffic

Under this alternative, because construction of additional pipelines and similar operation of facilities would be implemented compared to the proposed project, greater impacts related to effectiveness of the circulation system, congestion management programs, design hazards, emergency access, and alternative transportation would occur. Some temporary impacts related to congestion management during construction of the WTP may be reduced and others may be more severe compared to the proposed project because of truck traffic on different roadways; however, the overall impact would remain less than significant with mitigation.

Tribal Cultural Resources

Under this alternative, because construction of additional pipelines and similar operation of facilities would be implemented compared to the proposed project, similar or greater impacts related to tribal cultural resources would occur.

Utilities and Service Systems

Under this alternative, because construction of additional pipelines and similar operation of facilities would be implemented compared to the proposed project, similar impacts related

to expansion of wastewater or stormwater drainage facilities, solid waste disposal, and need for additional permitted landfill capacity would occur.

5.5.3 STANISLAUS RIVER SUPPLY ALTERNATIVE

Characteristics of this Alternative

Under this alternative, SRWA would partner with OID and SFPUC on a proposed water supply project. OID would construct a new surface water treatment plant near Riverbank on the Stanislaus River; OID would sell treated water to SFPUC for 2-4 months each winter over a period of 10-12 years while it rehabilitates its Mountain Tunnel, a part of the Hetch Hetchy water delivery system. By partnering in the project, SRWA could obtain treated water for 8-10 months each year, not meeting the project objective of providing a year-round supply, and would negotiate a long-term agreement that would continue after the Mountain Tunnel rehabilitation is complete.

Impact Analysis

Aesthetics

Under this alternative, because shared facilities and pipelines would be constructed and operated as under the proposed project, similar impacts on scenic vistas, scenic resources, and light and glare would occur. Because an additional 13-15 miles of pipeline would be required to connect SRWA's facilities to OID's new treatment plant, short-term aesthetic impacts during construction would have the potential to affect many more viewers.

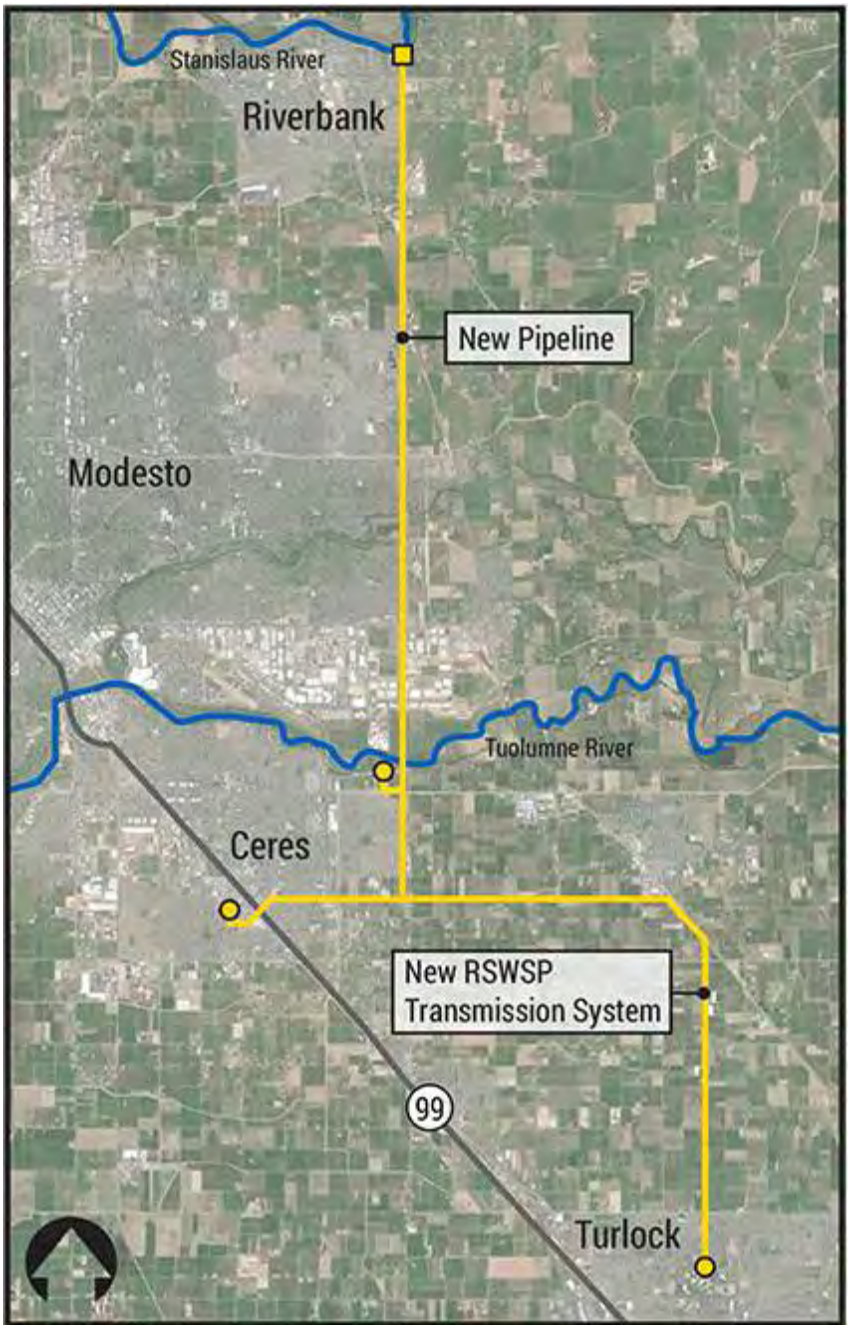
Agricultural Resources

Under this alternative, significant and unavoidable impacts of direct conversion of agricultural land would occur because the land identified for the WTP in Riverbank is also agricultural land. Because shared facilities and pipelines would be constructed and operated as under the proposed project, similar impacts on zoning for agricultural use or Williamson Act contracts would occur.

Air Quality

Under this alternative, significant and unavoidable impacts related to conflicts with applicable air quality plans, violation of air quality standards, and cumulatively considerable net increases in criteria pollutants would remain. Because shared facilities and pipelines would be constructed and operated as under the proposed project, similar impacts on sensitive receptors from pollutant concentrations and increases in objectionable odors would occur; however, the increased amount of pipeline construction would increase the overall amount of construction emissions.

Figure 5-1. Stanislaus River Supply Alternative



Source: RMC 2015

Biological Resources

Under this alternative, because shared facilities and pipelines would be constructed and operated as under the proposed project, similar impacts on biological resources would occur. This alternative would not result in increased seasonal flows in the Tuolumne River, with a consequent loss of benefits to fish and aquatic species.

Cultural and Paleontological Resources

Under this alternative, because shared facilities and pipelines would be constructed and operated as under the proposed project, impacts on archaeological or paleontological resources or human remains would be greater because of the increased extent of pipelines, which could encounter known or unknown resources.

Geology, Soils, Seismicity, and Mineral Resources

Under this alternative, because shared facilities and pipelines would be constructed and operated as under the proposed project, similar impacts related to geology, soils, seismicity, and mineral resources would occur.

Greenhouse Gas Emissions and Energy Resources

Under this alternative, significant and unavoidable impacts related to GHG emissions and conflicts with GHG reduction policies would result as for the proposed project; the increased amount of pipeline construction would increase the overall amount of construction emissions. Because shared facilities and pipelines would be constructed and operated as under the proposed project, similar impacts related to wasteful, inefficient, and unnecessary consumption of energy and increases in energy demand would occur.

Hazards and Hazardous Materials

Under this alternative, because shared facilities and pipelines would be constructed and operated as under the proposed project, similar impacts related to routine transport, use, or disposal of hazardous materials; upset and accident conditions; proximity of hazardous materials to schools; location on a hazardous materials site or in an airport land use plan; interference with an emergency response plan; or exposure to wildfire would occur.

Hydrology and Water Quality

Under this alternative, because shared facilities and pipelines would be constructed and operated as under the proposed project, similar impacts related to violation of water quality standards, drainage patterns, groundwater recharge, siltation, runoff, and flooding would occur. The location of OID's treatment plant in Riverbank would potentially eliminate the need for mitigation to address construction of that facility in a flood hazard area; however, the benefits of increased flows in the Tuolumne River from Don Pedro Reservoir releases would not result.

Land Use and Planning

Under this alternative, because shared facilities and pipelines would be constructed and operated as under the proposed project, similar impacts related to land use and planning would occur. The location of OID's treatment plant in Riverbank would potentially conflict with existing zoning of the site.

Noise and Vibration

Under this alternative, significant and unavoidable impacts related to ground-borne noise or vibration levels and ambient noise levels would remain as under the proposed project; the increased amount of pipeline construction would increase the overall number of sensitive receptors that could be affected. Because shared facilities and pipelines would be constructed

and operated as under the proposed project, similar impacts related to other noise and vibration impacts would occur; the increased amount of pipeline construction would increase the overall number of sensitive receptors that could be affected by noise and vibration impacts.

Population and Housing

Under this alternative, significant and unavoidable impacts of long-term inducement of substantial population growth, and related secondary impacts, would be similar to those under the proposed project. Because shared facilities and pipelines would be constructed and operated as under the proposed project, similar impacts related to inducement of population growth and displacement of population would occur.

Transportation and Traffic

Under this alternative, because shared facilities and pipelines would be constructed and operated as under the proposed project, similar impacts related to effectiveness of the circulation system, congestion management programs, design hazards, emergency access, and alternative transportation would occur. Some temporary impacts related to congestion management during construction of OID's WTP may be reduced and others may be more severe compared to the proposed project because of truck traffic on different roadways; however, the overall impact would remain less than significant with mitigation.

Tribal Cultural Resources

Under this alternative, because new construction and additional operation of facilities and pipelines would be implemented as under the proposed project, similar impacts related to tribal cultural resources would occur.

Utilities and Service Systems

Under this alternative, because shared facilities and pipelines would be constructed and operated as under the proposed project, similar impacts related to expansion of wastewater or stormwater drainage facilities, solid waste disposal, and need for additional permitted landfill capacity would occur.

5.5.4 COMPARISON OF ALTERNATIVES

Table 5-1 compares each of the alternatives analyzed above to the proposed project by environmental topic. For each topic, significant impacts of the proposed project are summarized; each alternative is noted as having less, similar, or greater impacts in comparison to the proposed project.

Table 5-1. Summary of Alternatives and Comparison to the Proposed Project

Impact Category	Proposed Project	No Project Alternative	Ceres WTP Site Alternative	Stanislaus River Supply Alternative
Aesthetics and Visual Resources	Short-term and long-term degradation of visual character or quality; substantial source of light and glare	Less	Greater	Greater
Agricultural Resources	Conversion of Important Farmland to nonagricultural uses	Less	Similar or Greater	Greater
Air Quality	Conflict with applicable air quality plans; violate air quality standards; cumulatively considerable net increase in criteria pollutants; expose sensitive receptors to substantial pollutant concentrations	Less	Greater	Same
Biological Resources	Impacts on special-status plants, vernal pool branchiopods, VELB, special-status fishes, western pond turtle, burrowing owl, raptors including special-status species, passerine species and birds protected under the MBTA, riparian habitat and other sensitive natural communities, federal protected wetlands, wildlife movement, local ordinances or policies	Less	Greater	Greater (no benefit to Tuolumne River fish and aquatic species)
Cultural and Paleontological Resources	Impacts on historical, archaeological, or paleontological resources or human remains	Less	Greater	Same
Geology, Soils, Seismicity, and Mineral Resources	No significant impacts	Less	Same	Same
Greenhouse Gas Emissions and Energy Resources	Substantial GHG emissions or conflict with applicable plan or policy	Less	Greater	Greater
Hazards and Hazardous Materials	Upset and accident conditions involving the release of hazardous materials	Less	Greater	Same

Impact Category	Proposed Project	No Project Alternative	Ceres WTP Site Alternative	Stanislaus River Supply Alternative
Hydrology and Water Quality	Violate water quality standards or otherwise degrade water quality; deplete groundwater supplies; alter drainage patterns; construct in flood hazard area	Less	Less (flood hazard only)	Greater (no improvement to water quality in Tuolumne River)
Land Use and Planning	No significant impacts	Less	Greater (conflict with recreational zoning)	Same or Greater (conflict with residential zoning)
Noise and Vibration	Violate noise standards; excessive groundborne vibration or noise; increase in ambient noise levels	Less	Greater	Greater
Population and Housing	Inducement of substantial population growth	Less	Same	Same
Transportation and Traffic	Design hazards, traffic hazards	Less	Greater	Greater
Tribal Cultural Resources	No significant impacts	Less	Similar or Greater	Similar or Greater
Utilities and Service Systems	No significant impacts	Less	Same	Same

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5.6 ENVIRONMENTALLY SUPERIOR ALTERNATIVE

Of the alternatives evaluated in detail above, the No Project Alternative is considered environmentally superior as, with one exception, it would reduce or avoid all impacts of the proposed project.

Under CEQA, if the "no project" alternative is identified as environmentally superior, the EIR shall also identify an environmentally superior alternative among the other alternatives. Of the other alternatives considered, the Ceres WTP Site Alternative is environmentally superior. This alternative would avoid impacts related to conversion of Prime Farmland and reduce impacts of construction in a flood hazard area; however, it would conflict with recreational zoning at the location where the WTP would be built under this alternative and would result in similar or greater extent of impacts in most other categories because of the greater amount of construction required for the additional pipeline. This alternative would meet the project objectives as stated in Section 5.3.1.

In contrast, the Stanislaus River Supply Alternative would not meet project objectives related to increased flows in the Tuolumne River and would have greater impacts related to fish and aquatic species and water quality improvement. In addition, the Stanislaus River Supply Alternative would only make treated water available for 8-10 months per year for the first 10-12 years, and the project would conflict with residential zoning at the site of the WTP under this alternative.

Note that the proposed project is considered environmentally superior to either of the action alternatives.

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Chapter 6
REPORT PREPARATION

Stanislaus Regional Water Authority

156 South Broadway, Suite 270
Turlock, CA 95380
(209) 538-5758

Michael Brinton	Interim General Manager

Technical Advisory Committee

Michael Cooke	City of Turlock
Garner Reynolds	City of Turlock
Stephen Fremming	City of Turlock
Toby Wells	City of Ceres
Jeremy Damas	City of Ceres
Daryl Jordan	City of Ceres
Tou Her	Turlock Irrigation District
Phil Govea	Turlock Irrigation District
Bill Penney	Turlock Irrigation District

West Yost Associates

2020 Research Park Drive, Suite 100
Davis, CA 95618
(530) 756-5905

Gerry Nakano	Program Manager
Lindsay Smith	Deputy Program Manager
Andy Smith	Predesign Lead

Horizon Water and Environment, LLC

266 Grand Ave, Suite 210
Oakland, CA 94610
(510) 986-1850

Michael Stevenson	Principal-in-Charge
Debra Lilly	Project Manager
Kevin Fisher	Director, Ecological Services
Janis Offermann	Cultural Resources Practice Leader
Megan Giglini	Senior Associate
Allison Chan	Senior Associate
Alison Stanton	Associate
Patrick Donaldson	Associate
Brian Piontek	Associate
Robin Hunter	Analyst
Johnnie Chamberlin	Analyst
Michael Lee	Analyst
Dean Martorana	Geographical Information Systems
Lorrie Jo Williams	Graphic Artist

Chapter 7
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