Stanislaus Regional Water Authority

Infiltration Gallery Testing Project

Initial Study/Mitigated Negative Declaration

SRWA
STANISLAUS REGIONAL WATER AUTHORITY

August 2017

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

NOTICE OF INTENT TO ADOPT A MITIGATED NEGATIVE DECLARATION FOR THE INFILTRATION GALLERY TESTING PROJECT

NOTICE IS HEREBY GIVEN that the Initial Study/Mitigated Negative Declaration (IS/MND) for the Infiltration Gallery Testing Project has been completed and is available for public review. The public may review the IS/MND and all documents referenced in the IS/MND during normal operating hours at the Stanislaus Regional Water Authority (SRWA) office, 156 South Broadway, Suite 270, Turlock, CA 95380. The IS/MND is also available on the SRWA website at: http://stanrwa.org/documents

The public may request a CD of the IS/MND by contacting Tish Foley at (209) 668-5590, ext. 4490, or by email at tfoley@turlock.ca.us.

The IS/MND 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: Infiltration Gallery Testing Project

Project Sponsor and CEQA Lead Agency: Stanislaus Regional Water Authority, 156 South Broadway, Suite 270, Turlock, CA 95380; phone (209) 538-5758

Project Description: SRWA, a joint powers authority whose member agencies consist of the Cities of Ceres and Turlock, proposes to test the condition and operation of an existing infiltration gallery owned by the Turlock Irrigation District, construct a wet well, and install temporary pumping facilities to ascertain if it is feasible to proceed with the Surface Water Supply Project, a separate water supply project being considered by SRWA. The Proposed Project would include excavation of an area to access the infiltration gallery pipes; construction of a wet well and associated facilities adjacent to and connecting with the existing infiltration gallery; air purging and test pumping of the gallery pipes to dislodge sediment; pumping of river water through the gallery and into settling basins to inspect and test infiltration gallery and pump capacity and water quality; and disposal of the water, once any entrained sediment has settled out.

Project Location: The proposed project is located west of the Geer Road Bridge at river mile 26 on the Tuolumne River.

Public Review and Comment Period: In accordance with the time limits provided for by state law, the public review period will extend from **August 7, 2017, through September 6, 2017**. Comments must be received by 5:00 p.m. on **September 6, 2017**. Comments may be sent in hard copy or via email to:

Michael Brinton, Interim General Manager
Stanislaus Regional Water Authority
156 South Broadway, Suite 270
Turlock, CA 95380
Email: Michael.Brinton@ci.ceres.ca.us

Stanislaus Regional Water Authority

Infiltration Gallery Testing Project

Initial Study/Mitigated Negative Declaration

Prepared for: **Stanislaus Regional Water Authority**
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Turlock, CA 95380

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August 2017

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Acronyms and Abbreviations

A

AADT	annual average daily traffic
AB	Assembly Bill
ADT	annual daily traffic
AGR	agricultural supply (beneficial use designation)
APE	area of potential effect
AST	aboveground storage tank
ATCM	Airborne Toxic Control Measure

B

BAU	business as usual
BMP	best management practice
BPS	Best Performance Standards

C

CAA	Clean Air Act
CalARP	California Accidental Release Prevention
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
CBC	California Building Standards Code
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
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
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
CMP	Congestion Management Process
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
CWA	Clean Water Act
cy	cubic yards

D

dB	decibel
dBA	A-weighted decibel
dbh	diameter at breast height
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

E

EO	Executive Order
ESA	Endangered Species Act
ESU	Evolutionarily Significant Unit

F

F&G Code	California Fish and Game Code
FC	federal candidate (for listing)
FD	federally delisted
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
FP	federally protected
fps	feet per second
FR	Federal Register
FSA	FERC Settlement Agreement
FT	federally listed as threatened
FTA	Federal Transit Administration

G

g	a unit of acceleration due to Earth's gravity
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

HAP	hazardous air pollutant
HCP	habitat conservation plan
hp	horsepower
HUC	hydrologic unit code
Hz	Hertz

I

IND	industrial service supply (beneficial use designation)
in/sec	inches per second
IPaC	Information, Planning, and Conservation System
IS/MND	initial study/mitigated negative declaration

K

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
LOS	level of service

M

MBTA	Migratory Bird Treaty Act
MLD	Most Likely Descendent
MRZ	Mineral Resources Zone
MS4	municipal separate storm sewer systems
msl	above mean sea level
MT CO_2e	million tons of carbon dioxide equivalents
MUN	municipal and domestic supply (beneficial use designation)

N

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
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

O

O_3	ozone
OEHHA	California Office of Environmental Health Hazard Assessment
OSHA	Occupational Safety and Health Administration

P

PGA	peak ground acceleration
$PM_{2.5}$	particulate matter of aerodynamic radius of 2.5 micrometers or less
PM_{10}	particulate matter of aerodynamic radius of 10 micrometers or less
POW	power (beneficial use designation)
ppm	parts per million
PPV	peak particle velocity
PROC	industrial process supply (beneficial use designation)
Proposed Project	Infiltration Gallery Development and Testing Project
psi	pounds per square inch
PST	Pacific Standard Time
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-3	non-contact water recreation (beneficial use designation)
RF	radiofrequency
RHA	Rivers and Harbors Act
RM	river mile
RMP	risk management plan
RST	Regional Sustainability Toolbox
RWQCB	Regional Water Quality Control Board
RWQCF	Regional Water Quality Control Facility

S

SCFPD	Stanislaus Consolidated Fire Protection District
SCSD	Stanislaus County Sheriff's Department
SE	state listed as endangered
SGMA	Sustainable Groundwater Management Act
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
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
SSC	species of special concern
ST	state listed as threatened
StanCOG	Stanislaus Council of Governments
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
TSS	total suspended solids

U

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

V

VdB	vibration velocity in decibels
VELB	valley elderberry longhorn beetle
VOC	volatile organic compounds
vpd	vehicles per day

W

WARM	warm freshwater habitat (beneficial use designation)
WILD	wildlife habitat (beneficial use designation)
WPT	western pond turtle
WTP	water treatment plant
WWTP	wastewater treatment plant

°F	degrees Fahrenheit
$\mu g/m^3$	micrograms per cubic meter

Chapter 1
INTRODUCTION

The Stanislaus Regional Water Authority (SRWA) has prepared this Initial Study/Mitigated Negative Declaration (IS/MND) to provide the public, responsible agencies, and trustee agencies with information about the potential environmental effects of the proposed Infiltration Gallery Testing Project (Proposed Project). This document has been prepared in accordance with the requirements of the California Environmental Quality Act of 1970, as amended (CEQA) (Public Resources Code [Pub. Res. Code] Section 21000 et seq.) and the State CEQA Guidelines (Title 14 California Code of Regulations [CCR] Section 15000 et seq.).

1.1 Introduction and Purpose

SRWA is a joint powers authority whose member agencies consist of the Cities of Ceres and Turlock (Cities). The Cities currently rely solely on groundwater to serve municipal and industrial water demand within their service areas. Given the recent historic drought conditions in California, gradual degradation of groundwater quality, and declining groundwater levels in the area, SRWA has determined that the establishment of a safe, reliable, and high-quality surface water supply is important to meet the long-term drinking water demands of the Cities. SRWA is interested in developing a project to design, construct, operate, and maintain facilities to divert and treat water from the Tuolumne River and deliver it for use by the Cities (the Surface Water Supply Project). The Surface Water Supply Project has been in development for approximately 30 years by SRWA, its member agencies (prior to the formation of SRWA), and the Turlock Irrigation District (TID) as an approach to serve municipal and industrial customers within the Cities' respective service areas. The Surface Water Supply Project, if approved, would utilize TID's existing infiltration gallery (i.e., a subsurface river water intake) in the Tuolumne River west of the Geer Road Bridge.

If SRWA pursues the Surface Water Supply Project, SRWA plans to use TID's existing infiltration gallery (subject to the results of the testing discussed in this IS/MND) as the river water intake facility for the Surface Water Supply Project. If it is approved, the Surface Water Supply Project would include raw water pipelines connecting the infiltration gallery to both TID's existing, nearby Ceres Main Canal (for use within the TID irrigation water system) and a proposed new water treatment plant (for treatment and delivery to the Cities).

SRWA released a Notice of Preparation of a Draft Environmental Impact Report for the Surface Water Supply Project on March 1, 2017. SRWA proposes to test the condition and operation of TID's existing infiltration gallery, construct a wet well, and install temporary pumping facilities to ascertain if it is feasible to proceed with the Surface Water Supply Project. This research and testing is essential to determine whether and how the infiltration gallery can be utilized as part of the Surface Water Supply Project. If it chooses to pursue the Surface Water Supply Project, SRWA would use the information and data collected from pumping and water quality testing at the infiltration gallery to plan and preliminarily design a surface water treatment plant and other facilities that would comprise the future Surface Water Supply Project.

1.2 Intent and Scope of this Document

This IS/MND has been prepared in accordance with CEQA, under which the Proposed Project is evaluated at a project level (State CEQA Guidelines Section 15378). SRWA, as the lead agency under CEQA, will consider the Proposed Project's potential environmental impacts when considering whether to approve the project. This IS/MND is an informational document to be used in the planning and decision-making process for the Proposed Project and does not recommend approval or denial of the Proposed Project.

This IS/MND describes the Proposed Project; its environmental setting, including existing conditions and regulatory setting, as necessary; and the potential environmental impacts of the Proposed Project on or with regard to the following topics:

- Aesthetics
- Agriculture/Forestry Resources
- Air Quality
- Biological Resources
- Cultural Resources
- Geology, Soils, and Seismicity
- Greenhouse Gas Emissions
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Land Use and Planning
- Mineral Resources
- Noise
- Population and Housing
- Public Services
- Recreation
- Tribal Cultural Resources
- Transportation and Traffic
- Utilities and Service Systems

1.3 Public Involvement Process

Public disclosure and dialogue are priorities under CEQA. State CEQA Guidelines Sections 15073 and 15105(b) require that the lead agency designate a period during the IS/MND process when agencies and the public can provide comments on the potential impacts of the Proposed Project. Accordingly, SRWA is now circulating this document for a 30-day public and agency review period.

Comments on this IS/MND can be submitted by mail or email to the following contact:

Michael Brinton, Interim General Manager
Stanislaus Regional Water Authority
156 South Broadway, Suite 270
Turlock, CA 95380
Email: Michael.Brinton@ci.ceres.ca.us

All comments received before 5:00 p.m. on the date identified for closure of the public comment period in the Notice of Intent will be considered by SRWA during its deliberations on whether to approve the Proposed Project.

1.4 Organization of this Document

This IS/MND contains the following components:

Chapter 1, *Introduction*, provides a brief description of the intent and scope of this IS/MND, the public involvement process under CEQA, the organization of the document, and terminology used in this IS/MND.

Chapter 2, *Project Description*, describes the Proposed Project, including its purpose and goals, the project site where the Proposed Project would be constructed and operated, construction methods, operation-related activities, and related permits and approvals.

Chapter 3, *Environmental Checklist*, presents the environmental checklist used to assess the Proposed Project's potential environmental effects, which is based on the model provided in Appendix G of the State CEQA Guidelines. This chapter includes brief regulatory environmental setting descriptions for each resource topic, evaluates the Proposed Project's anticipated environmental impacts, and identifies mitigation measures that would be required to reduce potentially significant impacts to a less-than-significant level.

Chapter 4, *Report Preparers,* identifies the individuals who prepared portions of this document.

Chapter 5, *References*, provides a bibliography of printed references, websites, and personal communications used in preparing this IS/MND.

Appendices

Appendix A. *Air Quality and Greenhouse Gas Appendix*
Appendix B. *Biological Resources Information*
Appendix C. *Cultural Resources Evaluation (Confidential)*
Appendix D. *Noise Calculations*
Appendix E. *Mitigation Monitoring and Reporting Program*

1.5 Impact Terminology

This IS/MND uses the following terminology to describe the 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 no substantial adverse change in the environment would result and that no mitigation is needed.
- An impact is considered *less than significant with mitigation* if the analysis concludes that no substantial adverse change in the environment would result with the implementation of the mitigation measures described.

- An impact is considered *significant* or *potentially significant* if the analysis concludes that a substantial effect on the environment could result.
- Mitigation refers to specific measures or activities that would be adopted by the lead agency to avoid, minimize, rectify, reduce, eliminate, or compensate for an otherwise significant impact.
- A cumulative impact refers to one that can result when a change in the environment would result from the incremental impacts of a project along with other related past, present, or reasonably foreseeable future projects. Significant cumulative impacts might result from impacts that are individually minor but collectively significant. The cumulative impact analysis in this IS/MND focuses on whether the Proposed Project's incremental contribution to significant cumulative impacts caused by the project in combination with past, present, or probable future projects is cumulatively considerable.
- Because the term "significant" has a specific usage in evaluating the impacts under CEQA, it is used to describe only the significance of impacts and is not used in other contexts within this document. Synonyms such as "substantial" are used when not discussing the significance of an environmental impact.

Chapter 2
PROJECT DESCRIPTION

2.1 Project Purpose and Objectives

The purpose of the Proposed Project is to conduct research, testing, and temporary operation of TID's existing infiltration gallery and to develop and collect baseline water quality data and information for water withdrawn through the infiltration gallery. The Proposed Project would help SRWA to ascertain if it is feasible to proceed with the Surface Water Supply Project, which would be considered in a future EIR if SRWA chooses to pursue that project. Specific project objectives are as follows:

- Test the condition and capacity of the existing infiltration gallery and piping to confirm whether it can be incorporated into the Surface Water Supply Project;
- Test the existing infiltration gallery to confirm pumping rates and characterize water quality;
- Dispose of testing water in an efficient and environmentally protective way; and
- Use the information acquired through testing of the infiltration gallery to inform SRWA's decision to pursue the Surface Water Supply Project and develop the project description for the Surface Water Supply Project, which would establish a safe, reliable, and high-quality surface water supply to meet the long-term drinking water demands of the Cities.

2.2 Project Location and Setting

The Proposed Project would be located in Stanislaus County, at approximately River Mile 26 on the Tuolumne River west of Geer Road, adjacent to Fox Grove Regional Park in Hughson (**Figure 2-1**). As part of the Proposed Project, SRWA would excavate and construct a wet well and install temporary pumping facilities adjacent to TID's existing infiltration gallery on an approximately 3-acre site on the south bank of the Tuolumne River, approximately 400 feet downstream (west) of the Geer Road Bridge (***Figure 2-2***). Access to the project site would be provided by using the existing, paved access road from Geer Road to the Fox Grove Regional Park parking lot; an existing, unimproved road would be improved to provide all-weather access extending west from the parking lot under the Geer Road Bridge to the infiltration gallery site. The access road would extend approximately 1,170 feet from the Fox Grove parking lot to the infiltration gallery site, covering approximately 0.5 acre. An additional 3 acres immediately south of the site, on private property owned by the Nazareno family, would be placed under a temporary construction easement for construction and temporary use of a settling basin and irrigation pipeline.

The project site is bounded on the south by the Nazareno property, on the east by Fox Grove Regional Park (operated by the Stanislaus County Department of Parks and Recreation but owned by the California Wildlife Conservation Board), on the west by open space, and on the north by the Tuolumne River. Designated land uses at the project site and in the surrounding area are Agriculture (AG), including the area of Fox Grove Regional Park (Stanislaus County 2016). Zoning at and adjacent to the project site is General Agriculture 40 Acre (A-2-40) (Stanislaus County 2016).

Existing land cover in the project area is primarily riparian habitat (along the river) and agriculture (orchards), along with existing paved roads, open space, and the river. Topography in the project area is relatively level, generally sloping down toward the river, with the exception of the elevated levee/ embankment that parallels the river. Elevations in the project area range from approximately 60 to 90 feet above mean sea level.

2.3 Background and Need for the Project

The project site has been the subject of an extensive planning process that been underway since the mid-1980s (**Table 2-1**). In 2001, TID prepared and approved an IS/MND for the Special Run Pool 9 Mining Project (SRP 9), TID Year 2000 Channel Restoration Project (TID 2001). Phase I of that project included installation of horizontal well screens, air purge lines, and associated piping manifold as well as habitat restoration of a gravel mining pit adjacent to the Tuolumne River (which is now the pond on the Nazareno property); this phase was constructed in 2002-2003. Phase II of TID's previously proposed project would have included the installation of the wet well, raw water pump station, and pipelines to the Ceres Main Canal and a proposed water treatment plant (WTP); however, TID never completed Phase II of that project. Now, the installation of the wet well and various pipelines and testing of the infiltration gallery are being proposed by SRWA to help inform its decision to pursue the Surface Water Supply Project. Construction of SRWA's Proposed Project is estimated to begin in approximately 2019.

As identified above, the TID infiltration gallery was constructed in the Tuolumne River in 2002-2003 as part of the Tuolumne River Channel Restoration Project. The gallery was installed beneath the riverbed and fish habitat was restored in accordance with a Federal Energy Regulatory Commission Settlement Agreement for operation of Don Pedro Reservoir (FERC 1995). The gallery was intended to increase in-river flow to benefit salmonids and other fish species by allowing water to flow 26 miles through salmon spawning areas downstream of La Grange Dam before being diverted at the infiltration gallery site. Since it was constructed, the infiltration gallery has not been tested or operated.

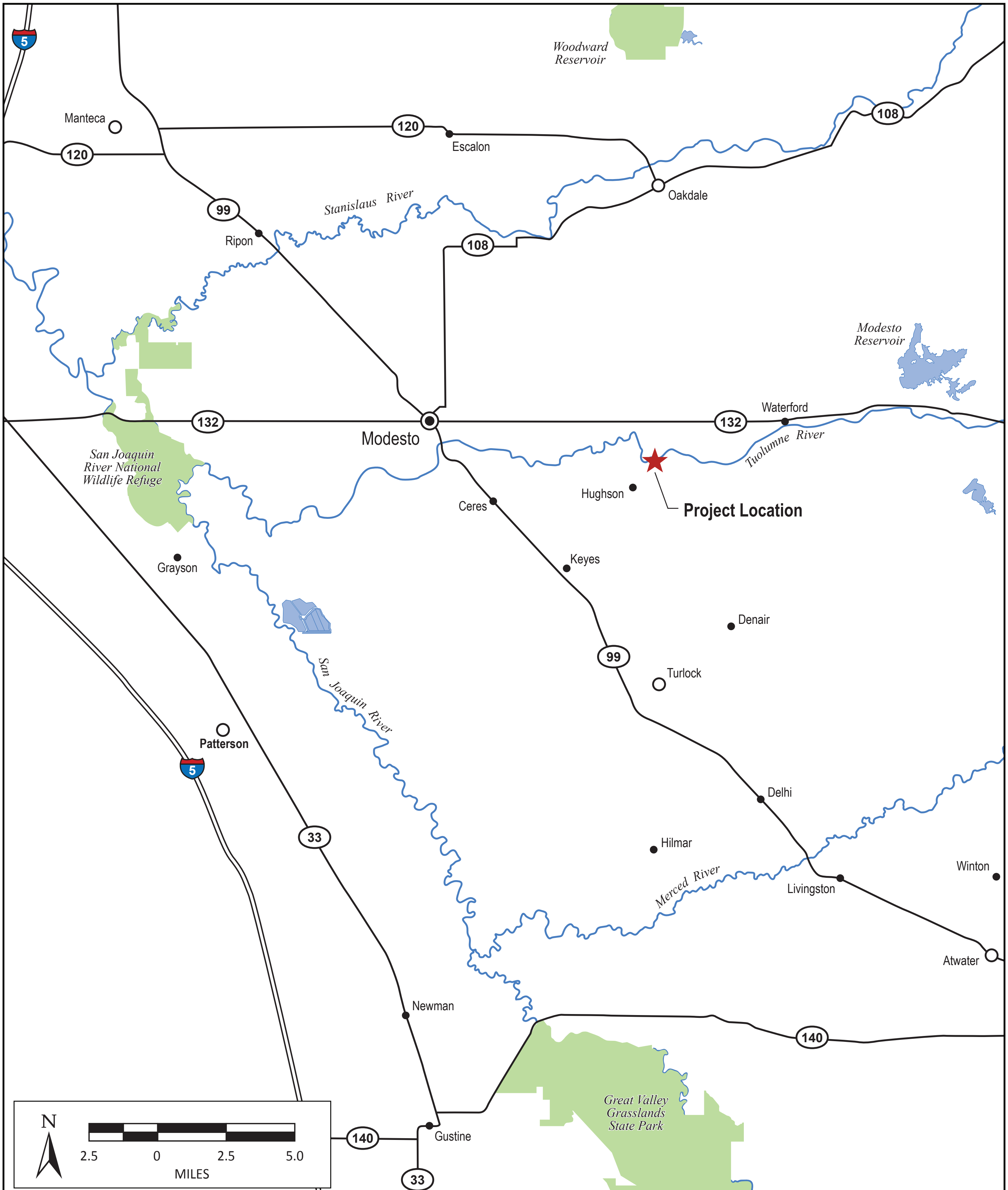

Figure 2-1. Regional Project Location

Prepared by:
Horizon WATER and ENVIRONMENT

Infiltration Gallery Testing Project

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Aerial Image: USGS Waterford and Denair Quads 2015

Prepared by:
Horizon WATER and ENVIRONMENT

Figure 2-2.
Project Location

Infiltration Gallery Testing Project

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Table 2-1. Timeline for Project Development and Implementation

1995	Federal Energy Regulatory Commission (FERC) Settlement Agreement requires TID to promote a plan to divert water for irrigation from a downstream location on the Tuolumne River as a condition to provide additional water in the river to improve fish habitat
1996	FEIR for the Reservoir Release Requirements for Fish and the New Don Pedro Project certified by FERC
1998	Tiered environmental assessment and IS/MND for the Gravel Mining Reach and Special Run Pools 9/10 Restoration and Mitigation Projects prepared by TID and U.S. Fish and Wildlife Service
2000	TID begins planning Regional Surface Water Supply Project for Cities of Turlock, Ceres, and Modesto and Keyes Community Services District
2001	TID approves IS/MND for Special Run Pool 9
2002-2003	TID constructs infiltration gallery
2006	TID certifies EIR for Regional Surface Water Supply Project
2008	Departure of Keyes Community Services District from Regional Surface Water Supply Project
2011	SRWA takes over planning for Regional Surface Water Supply Project
2015	Departure of Modesto from Regional Surface Water Supply Project
2015	SRWA enters into Water Sales Agreement with TID to purchase up to 30,000 acre-feet per year
2016-2017	SRWA prepares IS/MND for infiltration gallery testing project
2017	SRWA releases Notice of Preparation of a Draft Environmental Impact Report for the Surface Water Supply Project
2018-2019	SRWA to construct wet well and test existing infiltration gallery facilities (Proposed Project)
2019	If SRWA decides to pursue the Surface Water Supply Project, SRWA to begin design and construction of water treatment plant (WTP) and associated facilities
2023	If SRWA decides to pursue the Surface Water Supply Project, SRWA to complete construction of Phase 1 WTP (15 mgd total) and associated facilities
2023-2025	If SRWA decides to pursue the Surface Water Supply Project, SRWA to operate Phase 1 WTP
2025-2040	If SRWA decides to pursue the Surface Water Supply Project, SRWA to construct and operate Phase 2 WTP (with maximum expansion to 45 mgd total)

Note: Shaded items are proposed or in process

SRWA is proposing to test and temporarily operate the infiltration gallery for a brief period in spring or fall 2019 to evaluate and confirm its condition and allow research and testing of the facility's pumping capacity and the resulting water quality. Testing and data collection are essential prerequisites to determining if SRWA will pursue the Surface Water Supply Project. Depending on the outcome of the Proposed Project, and in a separate but related action, SRWA is considering development of the Surface Water Supply Project to provide surface water to the Cities; if that project is approved after completion and consideration of the Surface Water Supply Project EIR, the infiltration gallery would eventually be operated on a permanent basis. This initial study addresses only the construction and other impacts of temporarily operating the infiltration gallery for testing purposes; long-term operational impacts of the infiltration gallery as part of the Surface Water Supply Project would have to be evaluated in a later environmental impact report if SRWA chooses to pursue the Surface Water Supply Project.

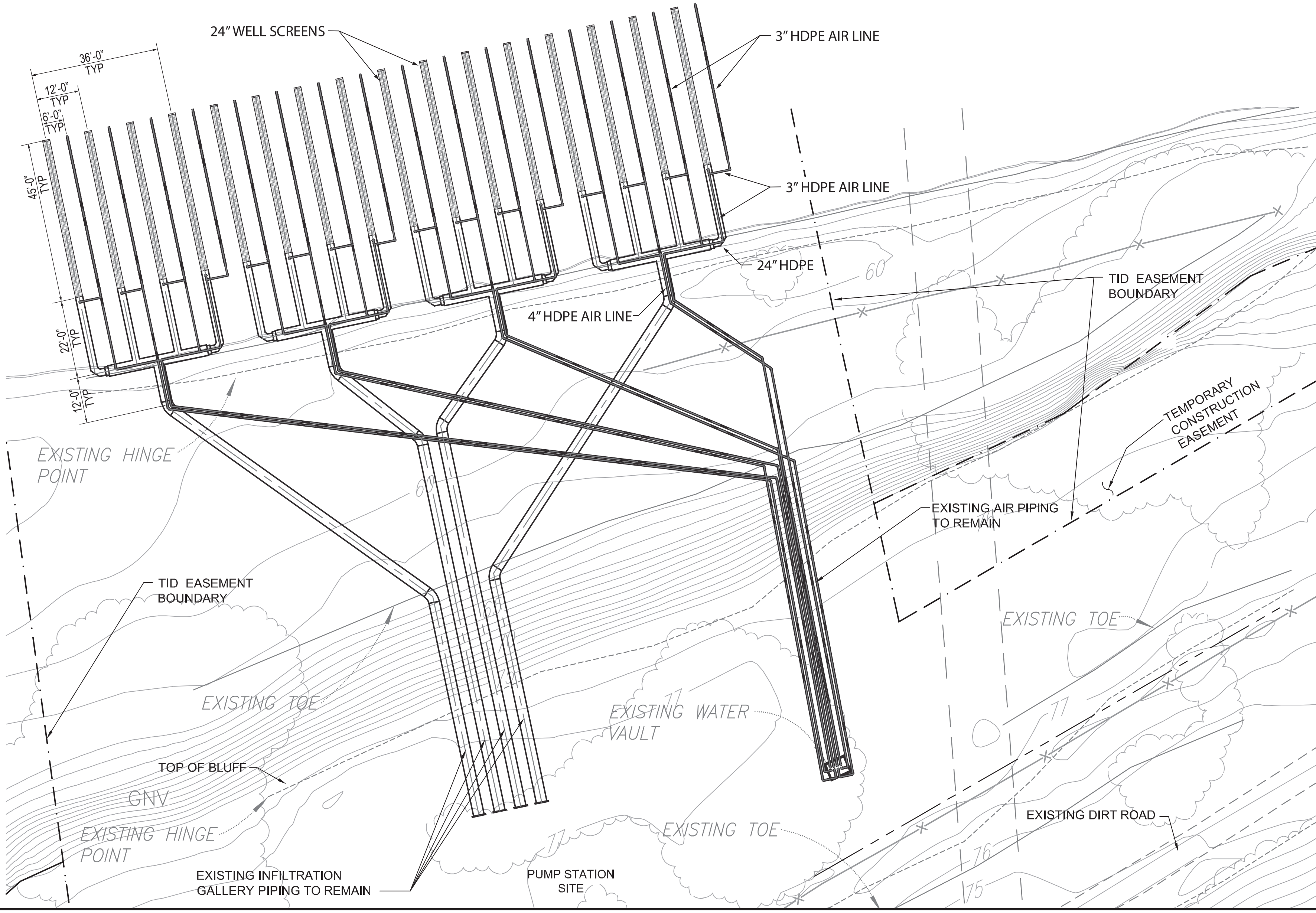
If the infiltration gallery testing demonstrates that the existing river intake facilities do not operate as intended or the condition or capacity of the intake/infiltration gallery is deficient or insufficient, then the Surface Water Supply Project scope could require significant changes. Under this scenario, SRWA would need to evaluate and assess the location, design, construction, and operation of a new river intake facility at a different location on the river (which also would affect the routing of the raw water supply pipelines from the intake to the water treatment plant site and TID canal) or the in-river reconstruction or rehabilitation of the existing infiltration gallery. For this reason, SRWA has determined that it first must assess the existing infiltration gallery condition before completing and finalizing the design of the proposed Surface Water Supply Project.

2.4 Existing Infiltration Gallery Facilities

The infiltration gallery consists of four horizontal screened bays with 24-inch-diameter stainless steel well screens, air purge lines, and associated piping manifolding. The entire gallery is enclosed in an excavated area that extends approximately 65 feet into the river, with a total upstream-downstream width of approximately 192 feet, for a total surface area above the gallery pipes of approximately 12,480 square feet (**Figure 2-3**). The in-river, submerged gallery screens and pipes are covered by 4-6 feet of imported native cobble and gravel; south of the riverbank, the pipes are approximately 40 feet beneath the land surface.

An air purge (or backflushing) system is incorporated into the infiltration gallery. The system was intended to be operated once each year, typically between mid-April and mid-May, to loosen and remove fine sediment that may migrate into the gravel pack around and above the gallery screens. According to the RSWSP draft EIR prepared by TID in 2006, the proposed timing of the air purge would typically coincide with the spring outmigration pulse flow at the La Grange Dam; that timing was intended to benefit juvenile salmon in the Tuolumne River (TID 2006).

The air purge system consists of perforated pipes transitioning from 2 inches in diameter at the river end to 6 inches at the levee end. The pipes are enclosed within 6-inch-diameter polyvinyl chloride (PVC) well screens located 6 feet apart, parallel to the larger well screens. Air lines are situated inside the larger 24-inch gallery pipes. The air purge manifold has never been tested since installation of the infiltration gallery in 2002-2003.



Source: Brown and Caldwell 2009

Prepared by:
Horizon WATER and ENVIRONMENT

Figure 2-3. Infiltration Gallery

Infiltration Gallery Testing Project

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2.5 Proposed Project Features

The Proposed Project would include excavation of an area to access the infiltration gallery pipes; construction of a wet well and associated facilities adjacent to and connecting with the existing infiltration gallery; air purging and test pumping of the gallery pipes to dislodge sediment; pumping of river water through the gallery and into settling basins to inspect and test infiltration gallery and pump capacity and water quality; and disposal of the water, once any entrained sediment has settled out. This section describes the facilities, construction activities, and operational activities that would comprise the Proposed Project.

2.5.1 Proposed Project Facilities

Wet Well

To access the infiltration gallery pipes for testing, it is necessary to excavate an area above the pipes to a depth of approximately 46 feet (below existing ground surface) at their unattached (levee) end. The planned excavation area would be 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. At grade (i.e., the visible portion), the structure would be 59 feet long by 33 feet wide. In light of the depth and size of the excavation area and its closeness to the river, retaining walls must be installed to hold back the earthen material for worker safety and environmental protection purposes (e.g., to minimize the potential for collapse or for sediment contamination of the river during the testing operation). Because of the magnitude of the work and the desire to avoid repeating major excavation and construction-related work, it would not be prudent or reasonable to install temporary walls for this testing work, remove the temporary walls, and refill the excavated area following completion of the inspection and testing, only to remobilize and re-excavate the same area later to install a permanent wet well as part of the Surface Water Supply Project (if that project is approved). Consequently, as part of this work and excavation, and while the excavation area is dug and open, SRWA plans to construct a rectangular wet well within the excavated area that could be used later as a permanent feature of the Surface Water Supply Project (**Figure 2-4**).

The wet well would be constructed entirely of steel-reinforced concrete. The structure would be divided into two sections by a common divider wall. On each half of the structure, space would be provided for three temporary pumps to be suspended from the structure's top slab. The wet well would be designed so that each pump could be placed in a bay, separated from the other bays by partial divider walls. Each half of the structure would also feature a short baffle wall between the inlet pipes and the pump bays to reduce turbulence and promote uniform approach velocities to each pump. The top slab of the structure would be placed just above the finished grade elevation (83.5 feet), and would later become the floor for the pump station building that would be constructed as part the Surface Water Supply Project (if approved). The wet well area would be approximately 2,000 square feet at grade, with the full excavation covering approximately 5,000 square feet.

The wet well excavation would likely encounter groundwater because of the site's location adjacent to the river; as a result, groundwater control and/or dewatering would be required. Before construction begins, SRWA and/or its contractors would prepare a shoring and excavation plan that would describe appropriate methods of ground stabilization to be implemented during excavation activities. The soil lining the bottom and sides of the wet well would be stabilized with some combination of sheet piling, jet grouting, and/or soil freezing to strengthen the sides and isolate the excavated area from the surrounding soil.

SRWA has not yet approved the Surface Water Supply Project and recently commenced preparation of an environmental impact report for that project. SRWA may determine that the Surface Water Supply Project is not feasible. Under that scenario, the wet well would not be incorporated into and used as part of the larger Surface Water Supply Project.

Temporary Facilities for Infiltration Gallery Pumping and Purging

Although the pumps and the remainder of the raw water pump station would not be constructed or equipped until the Surface Water Supply Project (if it is approved), temporary pumping and compressed air equipment would be installed to facilitate the testing and interim operation of the infiltration gallery.

Construction of the wet well structure would facilitate the temporary installation and operation of portable pumps that would be used during testing. The pumps utilized for testing would be able to pump from near the bottom of the wet well to induce the maximum drawdown in the galleries. Flexible discharge piping from the temporary pumps would exit the concrete top slab of the wet well.

The temporary pumps would have a combined capacity of 100 cubic feet per second (cfs), or 45,000 gallons per minute (gpm). Assuming that the flow is distributed evenly among the four gallery bays, the average flow rate per bay at design capacity would be 25 cfs (11,250 gpm). However, allowing for some variability in capacity among bays, an overall capacity of 15,000 gpm per bay is proposed, with a maximum capacity of 45,000 gpm for simultaneous testing of the four bays.

The temporary air compression equipment would have a combined capacity of approximately 1,100 cubic feet per minute (cfm) at a minimum of 100 pounds per square inch (psi).

The temporary pumping arrangement would consist of up to 15 pumps totaling approximately 1,400 horsepower (hp). Temporary compressed air equipment would consist of one or more diesel-powered portable compressors. Power for the pumps would be provided either by a diesel-driven generator or by temporary pole-mounted electrical supply along existing right-of-way and/or TID easements.

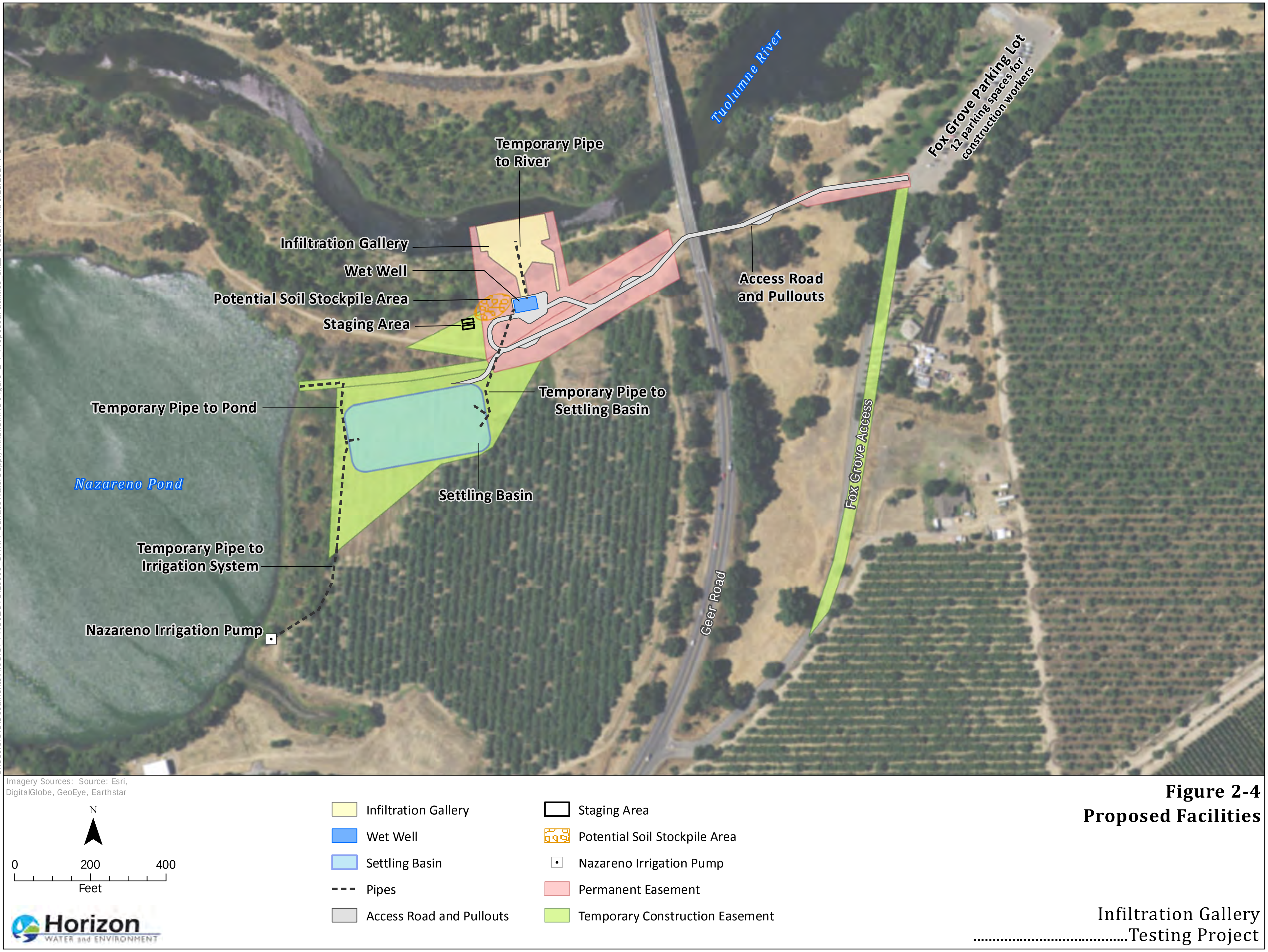

Figure 2-4
Proposed Facilities

Infiltration Gallery Testing Project

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Settling Basin and Discharge Facilities

Water pumped through the infiltration gallery for testing would be pumped through one or more temporary pipes with a cross-sectional area of approximately 16 square feet into a lined, earthen settling basin adjacent to the Nazareno pond to allow entrained sediment to settle out. The basin could also be used to clarify any nuisance groundwater captured and pumped out of the wet well excavation. Based on available area and discharge restrictions, the size of the settling basin would be approximately 300 feet by 130 feet (approximately 0.9 acre), with a water depth of approximately 3 feet. At the proposed 15,000-gpm pumping rate, a basin of this size would fill with water in approximately 1 hour.

The settling basin would be constructed with two cells, with the first (smaller) cell used for settling of coarse-grained material and the second cell for fine-grained material. An outlet manifold (a long pipe with evenly spaced, small-diameter openings) would be installed at the discharge point into the first cell to keep the exit velocity at or below 2-3 feet per second, thereby preventing scouring. The transition from the first to the second cell would be constructed using concrete blocks that would act as flow baffles. An effluent control weir running the width of the basin at its downstream end would promote uniform flow across the basin and prevent short circuiting (i.e., ensure that water is retained in the basin long enough for sediment to settle out). Water flowing over the weir would be collected in a lined sump or trench at the end of the basin before being pumped to the discharge location.

The potential volume of sediment to be produced during test pumping has been calculated at approximately 230 cubic yards (SPF Water Engineering 2016), estimated as follows: The volume of the gravel pack surrounding the infiltration gallery is approximately 2,300 cubic yards. When clean, the gravel pack likely has an effective porosity of approximately 20 percent. If half of the pore space within the gravel pack has filled with fine-grained sediment that can be flushed out of the pack since its construction in 2002-2003, then the amount of sediment that could potentially be entrained during pumping is approximately 230 cubic yards; the actual amount would likely be less. This volume assumes that the bed load of the river would not be continuously adding substantial amounts of fine sediment to the gallery system during test pumping; based on relatively low turbidity readings taken during high flows during the winter of 2016/2017, it is not expected that significant amounts of sediment would be added to the gravel pack during testing.

Once sediment has settled in the basin, the various types of discharge water would be disposed of in several ways:

- Nuisance groundwater encountered during construction of the wet well would be pumped into the adjacent orchards east of the settling basin as irrigation water.

- Testing water from the infiltration gallery would be pumped into the pond on the Nazareno property or discharged back into the Tuolumne River.

Storm Drainage

Stormwater runoff from the access road, wet well, temporary pumping arrangement, and yard area would be allowed to flow to the level ground surface, which would be covered with aggregate base or crushed rock. Likewise, stormwater runoff from the settling basin area would flow away from the adjacent orchard. Because these areas are permeable, stormwater would percolate into the underlying soil and groundwater. A storm drain system would not be required.

Security

The wet well and temporary pump site would be fenced temporarily by a chain-link perimeter fence approximately 6 to 8 feet high, topped with three strands of barbed wire. Within the fence line, the ground surface of the wet well and temporary pump site would be covered with aggregate base or crushed rock. Following construction of the wet well, TID and SRWA would replace the temporary fencing with a more permanent security fence. TID and SRWA would require the contractor to install security lighting with motion sensors and closed circuit cameras at the site to monitor the wet well and temporary pump site.

Easements

TID has an existing, permanent easement from the California Department of Fish and Wildlife, through the Wildlife Conservation Board, that allows TID to access the 2-acre infiltration gallery site for construction, operation, and maintenance of the existing facilities at that site. To accommodate permanent access to that portion of the project area, TID and SRWA would purchase an additional 1-acre area just south of the site, on the Nazareno property. A temporary easement of approximately 3 acres would be acquired from Nazareno to provide access to the Nazareno pond and to construct and operate the settling basin.

Project Site Access

Construction equipment, worker vehicles, and water tanker trucks would access the project site by following the paved access road from Geer Road to Fox Grove Regional Park and continuing on a gravel access road between the parking lot and the project site (see Figure 2-2). This gravel access road would be 12 feet wide; placement of aggregate base would allow all-weather access for heavy-duty trucks and other large construction equipment.

The County maintains a locked gate on the paved access road between Geer Road and the Fox Grove parking lot. The contractor would coordinate with the County of Stanislaus Parks Department regarding installation of a gate or other means to prevent unauthorized vehicles from entering the project site.

2.5.2 Construction

Table 2-2 provides an overview of the phases and timing of construction, equipment to be used, and estimated number of workers and truck trips during each phase.

Table 2-2. Overview of Project Construction

Construction Phase	Timeframe	Equipment Used	Soil Balance (cubic yards)	Truck Trips (round trips)	Worker Trips (round trips)
Phase 1 – Site access and site preparation	1-2 months	Tractor-trailers (to haul equipment), front-end loaders, scrapers, dump trucks, rollers, bulldozers, small equipment, water trucks (4,000 gallon)	–	2-3 daily avg / 40-50 total	7 daily avg / 154 total
Phase 2 – Ground stabilization	2-3 months	Tractor-trailers (to haul equipment), drilling rig (to create bore holes), jet grouting equipment (trucks, grout mixing equipment, injection equipment) or soil freezing equipment (trucks, chillers/ refrigeration equipment), dump trucks, water trucks (4,000 gallon), generators, small tools; possibly sheet pile driving equipment for excavation and shoring	100 (excavated for jet grouting or soil freezing); stockpiled for use in Phases 4 and 6	2-2.5 daily avg / 100-120 total	7 daily avg / 308-462 total
Phase 3 – Excavation of the wet well	1-2 months (including 1 month overlap with Phase 4)	Tractor-trailers (to haul equipment), excavators, dump trucks, dozers, front-end loaders, 4 groundwater pumps, crane with clam shell, water trucks (4,000 gallon)		2-2.5 daily avg / 100-120 total	7 daily avg / 308-462 total
Phase 4 – Construction of the wet well and settling basin	9-10 months	Tractor-trailers (to haul equipment), cranes, concrete trucks, concrete pumpers, welding equipment, 2 sump pumps, 4 groundwater pumps, small tools, water trucks (4,000 gallon), scaffolding	7,800 (excavated): 2,200 (backfill wet well) 2,700 (grade slopes around wet well) 2,900 (build settling basin berm)	2-2.5 daily avg / 230-260 total	7 daily avg / 770-924 total
Phase 5 – Infiltration gallery testing	1 month	Tractor-trailers (to haul equipment), 13 temporary submersible pumps in wet well (and two backups), 3 pumps in settling basin (and 1 backup), portable air compressors, air tanks, temporary hoses and piping, cranes, gradall forklift, diesel		2-3 daily avg / 40-50 total	7 daily avg / 154 total

Construction Phase	Timeframe	Equipment Used	Soil Balance (cubic yards)	Truck Trips (round trips)	Worker Trips (round trips)
		generators			
Phase 6 – Site cleanup and contractor demobilization	1-2 months	Tractor-trailers (to haul equipment), front-end loaders, scrapers, dump trucks, rollers, bulldozers, small equipment, water trucks (4,000 gallon)	2,900 (settling basin berm regraded into field)	2-2.25 daily avg / 80-100 total	7 daily avg / 308 total
Total	15-20 months			590-700 total	2,002-2,464

Source: *Information provided by West Yost Associates in 2017*

Project Phasing and Methods

Phase 1 – Site Access and Site Preparation: The proposed gravel access route from the Fox Grove parking lot, extending under the Geer Road Bridge, to the project site would be cleared and grubbed to a width of approximately 12 feet (with care taken to avoid impacts on elderberries and trees that would remain). Some earthwork would be required to minimize the slope of the access road between the project site and the parking lot. A layer of aggregate base would be compacted to create an all-weather surface. Adjacent to the parking lot, an area would be covered with larger crushed rock to create a "rumble strip" to help knock mud and rocks off of vehicle tires before they leave the site.

Site preparation at the wet well and settling basin sites would generally include limited clearing, grubbing, and grading in the vicinity of the wet well and temporary pump site. Specific site preparation activities would depend on the topography and the structural/ design needs of the Proposed Project facilities. Clearing and grubbing activities would be conducted with standard excavators, bulldozers, and hand labor, particularly in areas near elderberry shrubs.

Phase 2 – Ground Stabilization: To minimize the occurrence of groundwater within the wet well excavation, the ground surrounding the excavation would first be stabilized. The contractor would develop an engineered construction approach that would likely include some combination of sheet piling, jet grouting, and/or soil freezing. In either case, the stabilization effort would result in an envelope of stabilized soil columns and/or structural steel sheet piles impervious to groundwater migration.

Following installation of driven sheet pile walls, jet grouting would involve the injection of a grout mixture into pre-drilled, vertical bore holes within the excavation footprint to create a "slab" of soil-cement columns impervious to groundwater. Approximately 100 cubic yards of soil would be excavated during this process, which would be used to grade around the wet well and/or settling basin during Phase 4.

Soil freezing would also involve the use of pre-drilled, vertical bore holes using a sonic drilling rig; impervious steel pipes would be inserted into the holes and filled with a refrigerant (such as calcium chloride brine). Using temporary equipment at the surface, the refrigerant would be cooled and recirculated sufficiently to freeze the groundwater adjacent to the bore holes, creating a wall of frozen soil-water columns impervious to groundwater. After construction of the wet well, the steel pipes would be evacuated of brine, cut off a short distance below the ground surface, filled with sand or grout, and abandoned in place. The brine would be pumped into trucks and hauled away for off-site disposal or possible reuse.

For either method of ground stabilization, materials would be stored in a contained area during use and would be removed when the process is complete.

Phase 3 – Excavation of the Wet Well: After the ground in the wet well area has been stabilized, excavation would commence. The upper portion of the excavation would be completed using one or more excavators perched near the rim of the perimeter wall. Soil removed from the excavation would be placed in dump trucks and moved to a temporary soil stockpile location within the project site (see Figure 2-4). When the depth of the excavation reaches the extent of the excavators' reach, the excavators would be replaced by clamshell excavators or other equipment capable of reaching the bottom of the wet well. The excavation would be completed to the desired depth in this manner.

Because the excavation would extend below normal groundwater levels adjacent to the river, and because the underlying soils include pervious layers, the excavated well area would require dewatering, likely through a combination of exclusion (e.g., via jet grouting or soil freezing) and nuisance groundwater pumping to the settling basin (approximately 100 gpm until the bottom of the excavation is sealed in concrete).

Phase 4 – Construction of the Wet Well and Settling Basin: Upon completing the excavation, construction of the wet well would commence. Depending on the amount of moisture at the bottom of the excavation, one of two approaches to creating a subbase for the structure foundation would be employed: (1) if the excavation is relatively dry, aggregate base would be placed and compacted; (2) if the excavation is relatively wet, a concrete "rat slab" would be placed and allowed to cure. In the latter approach, the cured rat slab would effectively seal the bottom of the excavation against additional moisture and create the solid, dry base for placement of the structure foundation.

The reinforced concrete wet well structure would be constructed in stages, starting with the foundation. After the contractor places formwork and rebar, concrete would be pumped into the forms and allowed to cure before stripping forms and beginning forming and rebar placement for the subsequent sections of concrete. In this way, the concrete structure would be constructed from the bottom up. After completion of all structural concrete placement and curing, the structure would be filled with water to test for leaks. Any leaks would be repaired.

The existing infiltration gallery header piping would then be connected to the wet well inlet channel. The four existing 36-inch-diameter pipes are currently capped with bolted blind flanges and do not have valves to shut off water flow; as such, the pipes must be incorporated into the wall of the wet well before removal of the blind flanges. Upon completion of the concrete wet well structure, the wet well would be filled with water to the river elevation to equalize static water pressure on either side of the flanges. Divers would then enter the wet well and remove the blind flanges. Each inlet pipe would then be fitted with a 36-inch-diameter sluice gate, which would allow future isolation of any combination of inlet pipes.

Construction of the wet well and required appurtenances would generally include installation of temporary electrical/instrumentation equipment and temporary mechanical equipment (i.e., pumps, motors, valves) and piping.

The settling basin would be constructed by forming a soil berm approximately 5 feet tall as the perimeter of the basin. The basin would be lined with a removable membrane (e.g., heavy-duty plastic sheeting). Concrete baffle blocks would be placed near the upstream end, and a temporary effluent control weir (likely constructed of wooden weir plates attached to concrete blocks or traffic barriers) would be created at the downstream end. An effluent ditch or depression would be created and lined to accommodate effluent pumps that would move water out of the settling basin to the discharge location. Discharge water would be conveyed to and from the settling basin by means of plastic piping braced on the ground surface (i.e., not buried).

Soil excavated from the wet well (approximately 7,800 cubic yards) would be stockpiled in staging areas or elsewhere on site. Stockpiled soil would be secured with minimal compaction and hydroseeding. Approximately 2,200 cubic yards of stockpiled soil would be used to backfill the wet well excavation (between the exterior face of the wet well walls and the edges of the excavation) and to raise the grade in the immediate vicinity of the wet well. The finished surface surrounding the wet well site would be graded to an elevation of 83 feet above mean sea level (msl) to ensure an elevation above the 100-year flood level (78.7 feet msl). Approximately 2,700 cubic yards of fill would be required to achieve this grading plan. The remaining soil (approximately 2,900 cubic yards) would be used to construct the berm surrounding the settling basin. Any soil not reused would be neatly stockpiled and hydroseeded on the Nazareno property for the property owner's future use.

Phase 5 – Infiltration Gallery Testing: After completion of the wet well structure, testing of the infiltration galleries would commence. Approximately 15 temporary submersible pumps would be installed along the floor of the wet well. A temporary compressed air system would be installed to facilitate the air purging of the gravel media surrounding the perforated gallery pipes in the riverbed. The air system equipment would be located at grade, near the wet well, with air piping routed to a vault installed alongside the existing infiltration gallery. Electrical equipment and instrumentation would be installed as necessary to power, control, and monitor the temporary pumping and compressed air equipment.

Pumping of the infiltration gallery would occur in stages. Initially, each of the four bays of gallery piping would be pumped individually at approximately 15,000 gpm. Air purging of the gallery could occur before or after initial gallery pumping events. After the gallery bays are largely cleared of sediment, additional pumping of the overall infiltration gallery would commence for the purpose of confirming gallery yield. Operation of the infiltration gallery during testing is described in more detail in Section 2.6.3, "Proposed Project Operations."

Phase 6 – Site Cleanup and Contractor Demobilization: Upon successful completion of gallery testing, site cleanup and contractor demobilization would commence. Temporary testing equipment would be removed. The settling basin would be disassembled, and the soil used to create the earthen berms would be neatly stockpiled and hydroseeded on the Nazareno property for the property owner's future use. Minor finish grading would likely be required in the vicinity of the wet well and along the access road. Permanent security fencing would be installed in the vicinity of the wet well. Contractor and construction manager trailers would be removed from the site. Any damage to the existing Fox Grove access road resulting from construction traffic would be repaired during demobilization.

Construction Management and Staging Areas

Two single-wide trailers (approximately 12 feet by 56 feet) would be installed on the project site to provide office space for the contractor and SRWA's on-site construction manager. These trailers would be located side by side in the area of the infiltration gallery. Each trailer would be equipped with a waste sump that would require occasional pumping. Potable water would be delivered to the site.

Staging areas would be used to store construction equipment and other construction-related materials. Construction staging and laydown areas would be located on the project site Construction activities, materials delivery, soil stockpiling, and equipment/vehicle parking would be confined to these areas.

Construction Equipment and Workers

The main pieces of equipment that may be used are as follows:

- track-mounted excavator
- truck-mounted crane
- stand-alone crane
- paving equipment
- flat-bed delivery truck
- concrete truck
- concrete pumper truck
- bulldozer
- dump truck
- compactors (sheepsfoot and roller)
- motor grader
- front-end loader
- backhoe
- excavator
- water truck
- pickup truck
- diesel generator
- temporary pumps and air compressors

Construction would take place in several phases, as described above and in Table 2-2. The contractor would schedule the number of crews needed to complete the work within the approved schedule; however, it is anticipated that, over the course of the construction period, an average of approximately seven workers would be on the site each day.

Construction Schedule

Construction of the wet well and temporary pump station is anticipated to begin as early as winter 2017/2018 and would be completed in summer or fall 2019. Construction is planned to take place Mondays through Fridays, normally between 7:00 a.m. and 6:00 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. The approximate timeline for construction phases is shown in Table 2-2.

2.5.3 Proposed Project Operations

Period of Operation

Once construction of the wet well and settling basin is complete, the infiltration gallery would be operated for a brief period to produce water for testing. Short-term operation for testing purposes is anticipated to take place in summer or fall 2019. **Table 2-3** summarizes the estimated period of operation.

Table 2-3. Estimated Period of Project Operation

Operation	Maximum Period of Operation	Pumping Rate (gallons per minute)	Volume Produced (acre-feet)
Test Pumping	4 days (96 hours)	15,000 (each of four bays)	44-264
Gallery Testing	2-3 days	45,000 maximum	16-25

Source: SPF Water Engineering 2016

For preliminary estimation purposes, it is assumed that intermittent test pumping would take place for a minimum of 4 hours per bay and a maximum of 24 hours per bay, up to approximately 4 days or 96 hours. At the 15,000-gpm rate with four bays, the total produced volume would be between 44 and 264 acre-feet of discharge water.

Gallery testing would consist of pumping the four bays at a combined rate of 45,000 gpm. As with test pumping, the water levels, flow rates, and water quality parameters would be measured and recorded during test pumping. Each test would take place for approximately 2 hours. Test volume would be approximately 16-25 acre-feet of discharge water. Gallery testing would likely occur over the course of 2-3 days.

Infiltration Gallery Test Pumping

The purpose of infiltration gallery test pumping would be to purge fine-grained sediments from the gallery excavation (well screens and gravel pack) to maximize hydraulic capacity of the gallery and reduce turbidity of the water produced. Purging would be accomplished through a combination of pumping (i.e., withdrawing water from the river through the gallery bays) and air purging (i.e., sending pressurized air through gallery bays for release into the surrounding gravel pack). Potential methods for disposal of test water are pumping to land application in the adjacent orchard or returning water to the river. In either case, test water would be sent first to the settling basin to reduce turbidity and settleable solids concentrations. One bay would be connected to the wet well at a time, with the other bays isolated from the wet well. Testing would proceed in a downstream direction, with development of Bay 1 (the easternmost bay) first, followed by Bays 2, 3, and 4 in downstream order.

Water would be pumped from one gallery until the water produced is low in settleable sediment and the turbidity is equal to river turbidity. Water would be discharged to the settling basin and could be used for irrigation of the nearby orchard, sent to the Nazareno pond, or returned to the river. The overall residence time for sediment-laden water in the settling basin would be approximately 1 hour. Pumping would proceed until the gravel envelope surrounding the gallery is largely clear of fine-grained material.

Water could be discharged back to the river through injection back into the infiltration gallery pipes as permitted by the Central Valley Regional Water Quality Control Board (RWQCB) and California Department of Fish and Wildlife (CDFW). Pumping to injection would consist of pumping relatively clean water from one gallery bay into the next gallery bay. The purpose of injection would be to clean the gallery screens and gravel pack from the inside out; sediment loosened by injection would likely be discharged to the river and carried downstream. Pumping by injection would occur in a downstream direction; water pumped from Bay 1 would be injected into Bay 2, then Bay 3, and finally Bay 4.

An advantage of pumping to injection is a reduction in the volume of water discharged to the settling basin. Water that does not contain settleable sediments, but does contain other suspended materials (e.g., organic materials, fine clay particles), could be pumped continuously at a high rate for final testing of the upstream bays while simultaneously contributing to the initial testing of downstream bays.

Air purging would consist of blowing air through the 24-inch stainless steel perforated gallery pipes and the 6-inch PVC perforated air pipes installed within the gravel pack between the water-production well screens. As the air exits upward through the gravel pack, fine-grained materials would be loosened and carried downstream.

As with pumping to injection, use of the air purge system would be reviewed by the Central Valley RWQCB and CDFW, and the required permits could place seasonal restrictions on this activity. Permitting is discussed in more detail in Section 3.4, *Biological Resources,* in Chapter 3, *Environmental Checklist*, of this IS/MND.

During all pumping operations, the water would be continuously monitored for turbidity, conductivity, and sand content. Sand content would be monitored at the pump discharge using a Rossum Sand Tester or similar equipment. Water quality parameters would be recorded at intervals of approximately 15 minutes. Pumping rates would be measured using weirs, orifices, or flow meters, and water levels in the wet well would be recorded using well sounders and recording pressure transducers. Flow rates and water levels would also be recorded at intervals of approximately 15 minutes.

Infiltration Gallery Testing

Gallery testing would consist of pumping the four bays at a combined rate of 45,000 gpm. As with test pumping, the water levels, flow rates, and water quality parameters would be measured and recorded. Each test would take place for approximately 2 hours. For a sustained 2-hour test at 45,000 gpm, the volume of water produced would be approximately 16-25 acre-feet. Gallery testing would likely occur over the course of 2-3 days.

Ideally, testing would occur during a period of low flow in the river to represent worst-case pumping conditions; however, pumping would require a minimum flow of 100 cfs. Gallery testing could take place during any season, although operation is anticipated to take place in summer or fall 2019.

Disposal of Discharge Water

Nuisance groundwater would be of lower quality than the river testing water. The groundwater would be pumped to the settling basin (acting as a holding tank), and then discharged to the orchard irrigation system by temporary pipe laid at grade, connecting to the existing piped network just downstream of the existing irrigation pump. A check valve would be installed on the irrigation system to prevent this low-quality water from backflowing into the Nazareno pond.

Water produced during testing would be discharged to the settling basin before being pumped to either the Nazareno pond or the Tuolumne River. It is likely that, after 2 hours of test pumping, the amount of settleable solids in the discharge water would be low and the settling basin would function largely as a pass-through structure; at that point, water could be discharged directly from the basin to the Nazareno pond or back to the river.

2.6 Applicable Best Management Practices

SRWA would implement a variety of best management practices (BMPs) to ensure compliance with environmental regulations.

2.6.1 Fugitive Dust Measures

The proposed project would be subject to the San Joaquin Valley Air Pollution Control District's (SJVAPCD's) Regulation VIII (Fugitive Dust Prohibitions). SRWA would require its contractors to implement the following control measures, as listed in Table 2 of the SJVAPCD's *Mitigation Measures* guidance document (SJVAPCD 2015) to reduce fugitive dust emissions:

- 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 (e.g., hydroseeded).
- 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.
- 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.

2.6.2 Construction Air Quality

SRWA will require the contractor to use construction equipment that minimizes air emissions to the extent feasible such that overall fleet emissions are equal to or less than emissions compared to the most recent fleet average established by the California Air Resources Board. Acceptable options for reducing emissions include the use of late-model engines, low-emission diesel products, alternative fuels, engine retrofit technology, after-treatment products, add-on devices such as particulate filters, and/or other options as such become available.

2.6.3 TID Spill Cleanup Guidelines

TID maintains *Spill Cleanup Guidelines* that provides guidance to field crews during oil spill cleanup efforts (TID 2015). SRWA would require its contractors to be maintain copies of the Spill Cleanup Guidelines on site during construction activities; be familiar with the guidelines; and implement them as needed during construction and operation of the proposed project.

2.7 Permits and Approvals

The permits and regulatory compliance requirements for the Proposed Project are described, along with the responsible or permitting agency, in **Table 2-4**.

Table 2-4. Applicable Permits and Regulatory Requirements

Regulatory Agency	Law/Regulation	Purpose	Permit/ Authorization Type
U.S. Army Corps of Engineers	Section 404 of the Clean Water Act	Regulates dredge and fill to Waters of the U.S.	Section 404 permit
U.S. Fish and Wildlife Service	CVPIA Section 3406 (b)(1), Anadromous Fish Restoration Program	Protect anadromous fish from effects of water transfers and withdrawals as part of the Central Valley Project	Review of impacts for compliance
National Marine Fisheries Service (NMFS)	Section 7 of the Endangered Species Act	Informal consultation is required regarding potential impacts on special-status fish	Concurrence from NMFS
California Department of Fish and Wildlife	Fish and Game Code Section 1602 Streambed Alteration Agreement	Requires any person, governmental agency, or public utility proposing an activity that will divert or obstruct the natural flow or change the bed, channel or bank of any river, stream, or lake, or proposing to use any material from a streambed, to notify CDFW of such proposed activity	Streambed Alteration Agreement
California Wildlife Protection Board	Existing TID easement	Permission to use Fox Grove Regional Park areas for construction access and staging	Compliance with existing easement requirements
Central Valley Regional Water Quality Control Board	Section 401 of the Clean Water Act	Water quality certification required to discharge infiltration gallery testing water to river	Section 401 Water Quality Certification

Regulatory Agency	Law/Regulation	Purpose	Permit/ Authorization Type
San Joaquin Valley Air Pollution Control District	Clean Air Act	Required by state and federal law for any operation or equipment that has the potential to emit air contaminants; required of both small and large businesses and agencies, and are required before construction begins for a new operation; whenever a change of ownership occurs; before a modification takes place; or before equipment is replaced or relocated.	Authority to Construct, construction notification form, dust control plan
Central Valley Flood Protection Board	Title 23 CCR Section 112, Table 8.1	Required for projects or uses that encroach into rivers, waterways, and floodways within and adjacent to federal and state authorized flood control projects and within designated floodways adopted by the Board.	Encroachment permit
Stanislaus County	Streets and Highways Code Sections 1460-1470 and other County Policies and Requirements	Establish compliance with County right-of-way policies	Road encroachment permit
		Required for monitoring wells and soil or geotechnical borings	Monitoring well/ boring permit

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Chapter 3
Environmental Checklist

1.	**Project Title**	Infiltration Gallery Testing Project
2.	**Lead Agency Name and Address**	Stanislaus Regional Water Authority (SRWA) 156 South Broadway, Suite 230 Turlock, CA 95380
3.	**Contact Person, Phone Number and Email**	Michael F. Brinton, Interim General Manager (209) 538-5758 Michael.Brinton@ci.ceres.ca.us
4.	**Project Location and APN**	Tuolumne River, river mile 26 at Geer Road Bridge, Stanislaus County, California; APNs 018-003-006, 018-004-012, 018-004-013, 018-005-003, 018-006-010, 018-006-011
5.	**Property Owner(s)**	California Wildlife Conservation Board, Turlock Irrigation District, Gary and Gina Nazareno, Stanislaus County
6.	**General Plan Designation**	Agriculture
7.	**Zoning**	A-2-40
8.	**Description of Project**	Testing of existing infiltration gallery and installation of related wet well; see Section 2 of this IS for further description
9.	**Surrounding Land Uses and Setting**	<u>North</u>: Tuolumne River, farmland, vacant area, one farm residence. <u>South</u>: Vacant land, grassland, Nazareno property (farmland, walnut orchard, farm residence). <u>East</u>: Vacant land, Geer Road, Fox Grove Regional Park (land owned by California Wildlife Conservation Board, managed by Stanislaus County). <u>West</u>: Vacant land, Nazareno agricultural pond
10.	**Other Public Agencies whose Approval or Input May Be Needed**	U.S. Fish and Wildlife Service, National Marine Fisheries Service, California Department of Fish and Wildlife, California Department of Parks and Recreation, Central Valley Regional Water Quality Control Board, San Joaquin Valley Air Pollution Control District, Central Valley Flood Protection

	Board, Stanislaus County, and Turlock Irrigation District.
11. Have California Native American tribes traditionally and culturally affiliated with the project area requested consultation pursuant to Public Resources Code section 21080.3.1? If so, has consultation begun?	Consultation has been initiated. Two tribes have responded under Public Resources Code Section 21080.3.1; neither tribe requested consultation.

Environmental Factors Potentially Affected

The following section provides: (1) a summary of the potentially significant environmental impacts of the proposed project, along with proposed mitigation measures; (2) a completed Environmental Checklist for the proposed project; and (3) a description of the affected environment and the potential environmental consequences of the proposed project. The description of the affected environment and potential environmental consequences of the proposed project covers 19 separate environmental issues that the lead agency (SRWA) anticipated could have potential effects on the environment. These include the following:

☒ Aesthetics	☒ Mineral Resources
☒ Agricultural and Forestry Resources	☒ Noise
☒ Air Quality	☒ Population/Housing
☒ Biological Resources	☒ Public Services
☒ Cultural Resources	☒ Recreation
☒ Geology/Soils	☒ Transportation/Traffic
☒ Greenhouse Gas Emissions	☒ Tribal Cultural Resources
☒ Hazards and Hazardous Materials	☒ Utilities/Service Systems
☒ Hydrology/Water Quality	☒ Mandatory Findings of Significance
☒ Land Use/Planning	

Determination

The conclusions and recommendations contained herein are professional opinions derived in accordance with current standards of professional practice. They are based on a review of sources of information cited in this document, and the comments received, conversations with knowledgeable individuals; the preparer's personal knowledge of the area; and, where necessary, a visit to the site.

On the basis of this initial evaluation:

☐ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

☒ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

☐ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

☐ I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect (1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and (2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

☐ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Michael F. Brinton 7-26-17

Signature Date

Michael F. Brinton, Interim General Manager

Impact Terminology

This IS/MND 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, or if the impact does not apply to the project.
- 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 if it results in a substantial adverse change in the physical conditions of the environment. Significant impacts are identified by using specific significance criteria as a basis of evaluation. Mitigation measures are identified to reduce these potential effects on the environment.
- This IS/MND identifies particular mitigation measures that are intended to lessen project impacts. The State CEQA Guidelines (14 CCR Section 15370) define mitigation as:
  - avoiding the impact altogether by not taking a certain action or parts of an action;
  - minimizing impacts by limiting the degree or magnitude of the action and its implementation;
  - rectifying the impact by repairing, rehabilitating, or restoring the impacted environment;
  - reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action; and
  - compensating for the impact by replacing or providing substitute resources or environments.

3.1 AESTHETICS

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the Project:				
a. Have a substantial adverse effect on a scenic vista?	☐	☐	☐	☒
b. Substantially damage scenic resources, including, but not limited to trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☒	☐
c. Substantially degrade the existing visual character or quality of the site and its surroundings?	☐	☐	☒	☐
d. Create a new source of substantial light or glare that would adversely affect daytime or nighttime views in the area?	☐	☐	☒	☐

3.1.1 Regulatory Setting

Federal Laws, Regulations, and Policies

There are no federal laws, regulations, or policies relevant to 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 is the only state-designated scenic highway (Caltrans 2017b).

Local Laws, Regulations, and Policies

The *Stanislaus County General Plan's* Conservation/Open Space Element encourages the protection and preservation of natural and scenic areas throughout the County (Stanislaus County 2015). 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.

3.1.2 Environmental Setting

The project area's visual setting is characterized by agricultural fields and orchards, the Geer Road Bridge, the Tuolumne River, and scattered agricultural buildings and residences. Past mining activities have resulted in removal of riparian vegetation and altered the natural landforms into various pits, ponds, and piles that include engineered berms; some of these areas have since been restored to a more natural configuration (EDAW 2001). Electric utility poles and electric lines traverse and parallel Geer Road at various points. As shown in **Figure 3.1-1**, Photos 1 and 2, the orchards, levee, and river are the dominant landscape feature in the project area.

The project site is partially visible from the Geer Road Bridge. Motorists traveling on this road have brief views of the project site and surrounding rural landscape. Figure 3.1-1, Photo 2 shows a representative view of the Tuolumne River and access road located west of the Geer Road bridge crossing. Close-up views of the project site are also available from the Tuolumne River. Water-based recreational users (e.g., boaters and kayakers) may have views of the project site. As shown in Figure 3.1-1, Photo 3, the access road entering the project site from Fox Grove Regional Park is visible from the park itself. Due to distance and the presence of mature trees, the levee, and the Geer Road Bridge, the project site is not visible from nearby residences on either side of the river.

The visual character of the project area is rural due to the presence of both agricultural areas and disturbed natural areas (e.g., the Tuolumne River and valley floor, which have been substantially altered by past mining operations). Resources that may be considered scenic in the project area include mature trees lining Geer Road (south of the bridge crossing), orchards, vineyards and trees within Fox Grove Regional Park. The Tuolumne River itself is also considered a scenic resource. Given the presence of these trees and the largely undeveloped nature of the project area, the visual quality of the project site is considered moderate.

Photo 1. Northwest facing view from Geer Road looking towards Nazareno Pond and orchards in the project area. (February 2017)

Photo 2. Northwest-facing view from Geer Road looking towards access road underneath Geer Road and Tuolumne River. (February 2017)

Figure 3.1-1 Representative Views

Horizon WATER and ENVIRONMENT

Infiltration Gallery Testing Project

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Photo 3. View of access road in Fox Grove Park facing west towards Geer Road. (April 2016)

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3.1.3 Discussion of Checklist Responses

a. Adverse effects on scenic vistas—No Impact

There are no designated scenic vista points in the 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.

b. Damage to scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway—Less than Significant

As noted in Section 3.1.1, there are no state-designated scenic highways in the project vicinity. Therefore, no impacts on views from a scenic highway would occur.

As described in Chapter 2, *Project Description,* construction of the proposed project would involve use of the existing access road from Geer Road to the Fox Grove Regional Park parking lot and improvement of an unpaved access road from the parking lot, under the Geer Road Bridge, to the project site. The road would be resurfaced with gravel. One oak tree less than 12 inches diameter-at-breast-height (dbh) and some shrubs would be removed to accommodate these access road improvements. Some trees and shrubs lining the access roads may also need to be trimmed. Given the numerous trees and shrubs visible from the Geer Road and Fox Grove Regional Park, the removal of one tree and some shrubs would not substantially affect scenic resources. Over time, newly planted vegetation and trimmed trees and vegetation would grow back. For this reason, the proposed project would not substantially damage scenic resources and this impact would be **less than significant**. In addition, as described in Section 3.4, *Biological Resources,* implementation of Mitigation Measure BIO-6 would ensure that temporary and permanent impacts on riparian vegetation and the oak tree would be mitigated through replacement, further reducing the significance of this impact.

c. Changes to existing visual character or quality—Less than Significant

Construction activities associated with the wet well and settling basin, discharge facilities, and access road improvements would be visible from Geer Road. Motorists traveling on Geer Road would have brief views of large equipment engaged in vegetation clearing, grubbing, grading, and soil excavation activities. As the staging areas and stockpile areas would be located on the levee, motorists using Geer Road Bridge may also have short-duration views of construction materials, equipment, and excavated soil. Water-based recreationists using the Tuolumne River would have views of the construction work areas. In addition, recreational users at Fox Grove Regional Park would have views of road improvement activities during the initial month of construction and would see trucks entering and leaving the site frequently throughout the remaining construction period. Given the project area's working rural landscape, the temporary nature of construction activities, and because views of the project site are would be brief for motorists and recreationists, the construction-related impacts on the area's visual character and quality would be less than significant.

Once construction is completed, the wet well would be belowground and topped with a concrete pad enclosing the temporary pumps. During project operations, pump testing and infiltration gallery testing would occur in brief periods over approximately 1 month (Table 2-2). Brief views of the concrete pad, settling basin, and infiltration gallery and pump testing may be available from Geer Road but vegetation and mature trees would help screen views from the roadway. During the brief period of project operations, water-based recreation users may not be allowed near the project area, if deemed necessary for safety reasons. After test pumping and infiltration gallery testing are completed, water-based recreationists would have brief views of the fencing enclosing the wet well area and the re-graded area around the wet well. These facilities would not detract from views of the orchards and riparian trees along the Tuolumne River. As such, the newly constructed facilities and operational activities would not substantially degrade the visual character or quality of the project area. This impact would be **less than significant**.

d. New sources of light or glare—Less than Significant

The proposed project would not include any reflective surfaces that could result in glare. Therefore, the project would not create a new source of substantial glare that would adversely affect day or nighttime views in the area. The project would, however, include installation of motion-sensitive security lighting outside the wet well and settling basin area. When the lights are activated, motorists traveling on Geer Road may have brief views of the lighting. The closest residence is located approximately 1,200 feet away (southeast of project site) and the Nazareno residence is approximately 1,980 feet southwest of the project site. Due to distance, motion-sensitive lighting would not be visible from these residences. For these reasons, light and glare effects of the Proposed Project would be **less than significant**.

3.2 AGRICULTURAL RESOURCES

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:				
a. Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program (FMMP) of the California Resources Agency, to nonagricultural use?	☐	☐	☒	☐
b. Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☒	☐
c. Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	☐	☐	☐	☒
d. 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?	☐	☐	☐	☒
e. 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?	☐	☐	☒	☐

3.2.1 Regulatory Setting

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 the California Department of Conservation (DOC), the Farmland Mapping and Monitoring Program (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):

> <u>Prime Farmland</u> – 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.
>
> <u>Farmland of Statewide Importance</u> – lands similar to Prime Farmland but with minor shortcomings such as greater slope or less ability to store moisture.
>
> <u>Unique Farmland</u> – 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.
>
> <u>Farmland of Local Importance</u> – lands such as dryland grains and irrigated pastures that are not considered Prime Farmland, Farmland of Statewide Importance, or Unique Farmland.
>
> <u>Grazing Land</u> – 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" (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 by the board 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 (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 (Government Code Section 51104[g]).

> 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 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. This policy contains the following goals:

- 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 (LAFCO 2015).

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's* 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

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

Agricultural Element

Policy 1.10. The County shall protect agricultural operations from conflicts with non-agricultural uses by requiring buffers between proposed non-agricultural uses and adjacent agricultural operations.

Implementation Measure 1. The County shall require buffers and setbacks for all discretionary projects introducing or expanding non-agricultural uses in or adjacent to an agricultural area consistent with the guidelines presented in Appendix "A" of the Agricultural Element.

Policy 2.3. The County shall ensure all lands enrolled in the Williamson Act are devoted to agricultural and compatible uses supportive of the long-term conservation of agricultural land.

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 non-agricultural uses (Stanislaus County 2015). Specific guidelines that are applicable 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.

3.2.2 Environmental Setting

In 2014, 691,561 acres of the Stanislaus County's 973,440 acres were in agricultural production (Stanislaus County Agricultural Commissioner 2014, 2015). Based on FMMP maps, the types of farmland that surround the project area are primarily Prime Farmland, with approximately 150 acres of Nonagricultural and Natural Vegetation Land west of the project site. Fox Grove Regional Park is considered to be semi-agricultural and rural commercial land, which can include farmsteads, agricultural storage and packing sheds, unpaved parking areas, composting facilities, equine facilities, firewood lots, and campgrounds. Based on this definition and the current uses of the park, this land is not being used for agricultural purposes. **Figure 3.2-1** provides a more detailed map of the farmland category breakdowns for the project area. The project site is located on land classified as Nonagricultural and Natural Vegetation Land, which may include heavily wooded, rocky or barren areas as well as grassland areas which do not qualify for grazing land due to size or land management restrictions. In regards to the proposed Project, no plan for agricultural preservation has been established at this time.

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 project is located on non-enrolled land and would therefore not violate any Williamson Act protection policies. The surrounding land consists of Williamson Act – Prime Agricultural Land and non-enrolled land (Figure 3.2-1). Land directly north of the project boundary, across the Tuolumne River, consists of urban/built up land surrounding the former Geer Road Landfill site.

Trees and shrubs are present on both sides of the access road from Fox Grove Regional Park, as well as in the northern portion of the project area.

3.2.3 Discussion of Checklist Responses

a. Convert farmland to nonagricultural use—Less than Significant

Improvements from the Fox Grove Regional Park parking lot westward to the project site (as shown in Figure 3.2-1) would be constructed on nonagricultural land.

The proposed wet well and temporary pump site would also be developed on lands that are classified as Nonagricultural and Natural Vegetation land.

The southern portion of the project site, where the settling basin would be located, is classified as prime farmland and is currently in use as orchards. Although the settling basin would occupy this land for the 15-20 months of construction and testing, the orchard would not be affected and the proposed project would not permanently convert this prime farmland to non-agricultural use. It is possible that the proposed project could result in irrigation water being provided to these lands if the pumped water is released into the orchards. Following pumping, the settling basin would be removed and the orchard would continue in agricultural use. The proposed project would have a **less-than-significant impact** with regard to conversion of prime farmland**.**

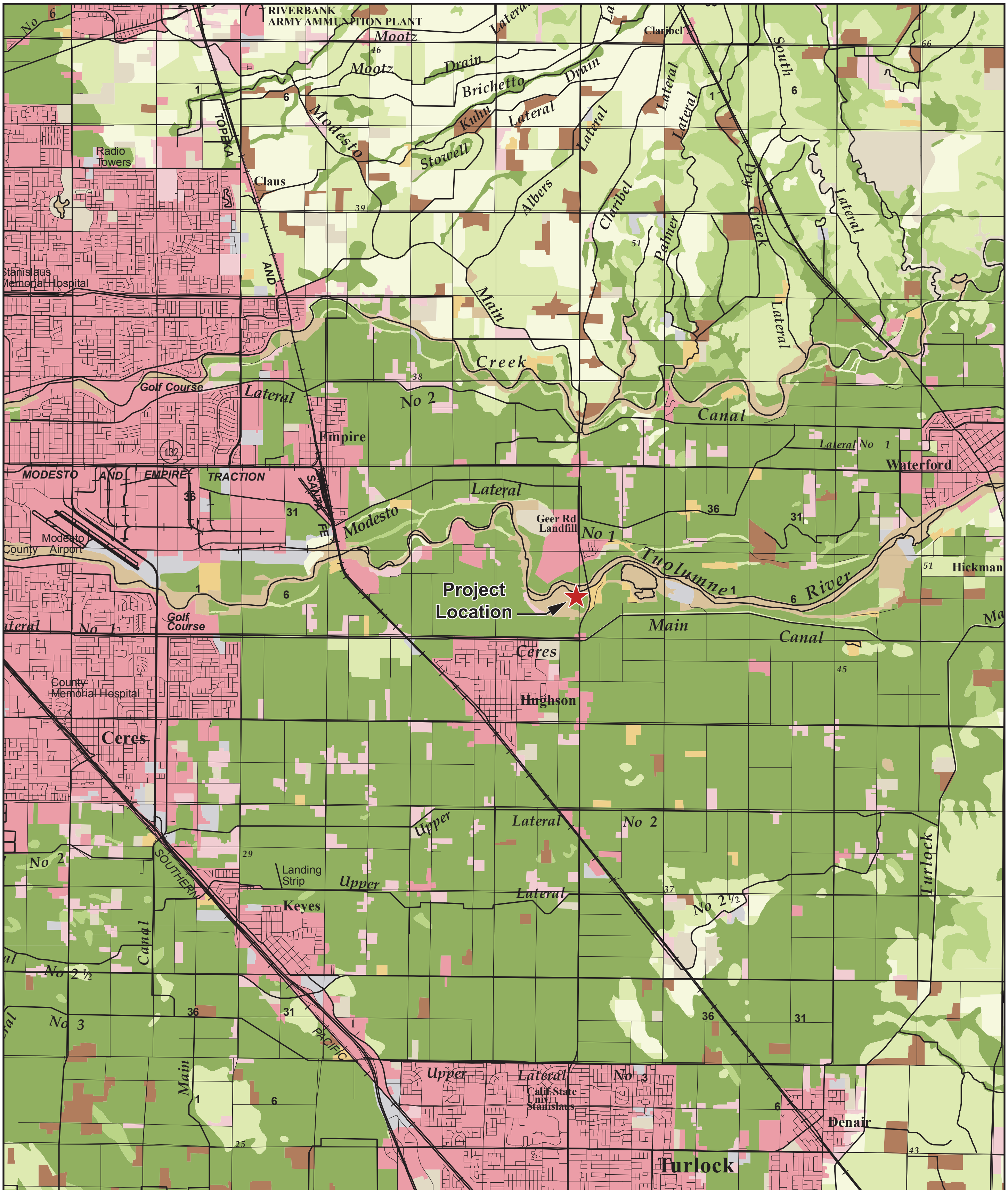
b. Conflict with existing zoning for agricultural use or Williamson Act contract—Less than Significant

The proposed project is located on non-enrolled land and is therefore not under Williamson Act contract. Part of the proposed facilities would be developed on land zoned by the County for agricultural use, but they are permitted by such zoning along with their ancillary uses. TID has an easement permitting construction, operation, and maintenance of the infiltration gallery facilities at the project site, and the proposed project involves activities that are covered by that easement. Some of these facilities are proposed within and adjacent to the Tuolumne River channel in areas that are not suitable for agriculture (EDAW 2001). Therefore, the proposed project would not conflict with Williamson Act contracts or agricultural zoning. The proposed project would have a **less-than-significant impact** on agricultural zoning.

c, d. Conflict with existing zoning for forest land or timber land, or result in the loss of forest land or conversion of forest land to non-forest use—No Impact

Trees and shrubs are present on both sides of the access road from Fox Grove Regional Park, as well as in the northern portion of the proposed project area. Road improvements would involve widening the unpaved access road to 12 feet, which might require trimming of some tree branches and shrubs. Only one tree has been identified for removal. The park is located on semi-agricultural and rural commercial land.

According to Pub. Res. Code Section 4526, "timberland" is defined as non-federal land that is available for, and capable of, growing a commercial crop of trees of a species used to produce lumber and other forest products. No commercial tree crops are grown on the proposed project site or the park property, and none are grown in the project area.



Source: CDC 2015

Prepared by:

Horizon WATER and ENVIRONMENT

Figure 3.2-1. Stanislaus County Important Farm Lands 2014

Infiltration Gallery Testing Project

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Government Code Section 51104(g) defines "timber" as trees of any species maintained for eventual harvest for forest products purposes. No timber is grown on the proposed project site or the park property, and none is grown in the project area.

Pub. Res. Code Section 12220(g) specifies that "forestland" is land that can support 10-percent native tree cover of any species under natural conditions, and that allows for management of one or more forest resources. Fox Grove Regional Park meets this definition of "forestland." As stated above and in Section 3.4, "Biological Resources," the number of trees that could be removed as a result of project-related activities would be minimal. In addition, the park is not zoned for forestland.

The proposed project is not located on or near forestland or timberland, as defined in Pub. Res. Code Sections 12220(g) and 4526 or Government Code Section 51104(g). Therefore, the proposed project would not conflict with existing zoning for forestland or timberland or result in the loss of forest land or conversion of forest land to non-forest use. The proposed project would have **no impact.**

e. Result in the conversion of agricultural or forest lands—Less than Significant

The proposed project would not conflict or result in the loss of forest lands because there are no forest lands located on or around the project site. While the proposed project would be located on Nonagricultural and Natural Vegetation Land and orchards, and would result in temporary inability to use a portion of these lands for agricultural purposes, the land would be returned to production after the temporary project facilities are removed. Therefore, the proposed project would have a **less-than-significant impact** on agricultural and forest lands.

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3.3 Air Quality

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
When available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:				
a. Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☒	☐
b. Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	☐	☐	☒	☐
c. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is a nonattainment area for an applicable federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors)?	☐	☐	☒	☐
d. Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒	☐
e. Create objectionable odors affecting a substantial number of people?	☐	☐	☒	☐

3.3.1 Regulatory Setting

Federal and State Laws, Regulations, and Policies

The Clean Air Act (CAA) is implemented by the U.S. Environmental Protection Agency (USEPA) and sets ambient air limits, known as the National Ambient Air Quality Standards (NAAQS), for seven criteria pollutants: particulate matter of aerodynamic radius of 10 micrometers or less (PM_{10}), particulate matter of aerodynamic radius of 2.5 micrometers or less ($PM_{2.5}$), carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), ground-level ozone (O_3), and lead. Of these criteria pollutants, particulate matter and ground-level ozone pose the greatest threats to human health.

The California Air Resources Board (CARB) sets standards for criteria pollutants in California that are more stringent than the NAAQS and include the following additional contaminants: visibility-reducing particles, hydrogen sulfide, sulfates, and vinyl chloride.

Table 3.3-1 shows the current attainment status in the portion of the San Joaquin Valley Air Basin within Stanislaus County for the state and federal ambient air quality standards for criteria air pollutants.

Table 3.3-1. 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	See footnote 3
	8-hour	0.070 ppm	N	
		0.075 ppm		N (Extreme) See footnote 3
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/m³	N	
		150 µg/m³		A
	Annual arithmetic mean	20 µg/m³	N	
Fine Particulate Matter ($PM_{2.5}$)	24-hour	35 µg/m³		N (Moderate)
	Annual arithmetic mean	12 µg/m³	N	N
Sulfates	24-hour	25 µg/m³	A	
Lead[6]	30-day average	1.5 µg/m³	A	
	Calendar quarter	1.5 µg/m³		U/A
	Rolling 3-month average	0.15 µg/m³		U/A
Hydrogen Sulfide	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
PST – Pacific Standard Time
µg/m³ – micrograms per cubic meter

Notes:

1. California standards for ozone, carbon monoxide (except Lake Tahoe), sulfur dioxide (1-hour and 24-hour), nitrogen dioxide, suspended particulate matter - PM_{10}, and visibility-reducing particles are values that are not to be exceeded. The standards for sulfates, Lake Tahoe carbon monoxide, lead, hydrogen sulfide, 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 lead and the PM_{10} annual standard), then some measurements may be excluded. In particular, measurements are excluded that CARB determines would occur less than once per year on the average. The Lake Tahoe carbon monoxide standard is 6.0 ppm, one-half the national standard and two-thirds the state standard.
2. National standards shown are the "primary standards" designed to protect public health. National air quality standards are set by USEPA at levels determined to be protective of public health with an adequate margin of safety. National standards other than for ozone, particulates, and those based on annual averages are not to be exceeded more than once per year. The 1-hour ozone 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 equal to or less than one. The 8-hour ozone standard is attained when the 3-year average of the 4th 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 99th percentile of monitored concentrations is less than 150 µg/m3. The 24-hour PM2.5 standard is attained when the 3-year average of 98th percentiles is less than 35 µg/m3. 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 if the 3-year average of annual averages spatially averaged across officially designed clusters of sites falls below the standard.
3. The national 1-hour ozone standard was revoked by USEPA on June 15, 2005. On October 1, 2015, the USEPA issued a final ruling to change the federal ozone (8-hour) standard from 0.075 ppm to 0.070 ppm. The attainment status provided in this table for the NAAQS ozone standard is based on the 2008 8-hour NAAQS standard of 0.075 ppm since there are not yet available attainment status determinations for the 2015 standard.
4. Statewide Visibility-Reducing Particle Standard (except Lake Tahoe Air Basin): Particles in sufficient amount to produce an extinction coefficient of 0.23 per kilometer when the relative humidity is less than 70 percent. This standard is intended to limit the frequency and severity of visibility impairment due to regional haze and is equivalent to a 10-mile nominal visual range.
5. To attain this standard, the 3-year average of the 98th 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 lead and vinyl chloride as toxic air contaminants with no threshold level of exposure below which there are no adverse health effects determined.

Sources: CARB 2016; USEPA 2016, 2017

Toxic Air Pollutants

USEPA and CARB regulate various stationary, area, and mobile sources of toxic air pollutants. USEPA has regulations involving performance standards for specific sources that may release toxic air contaminants (TACs), known as hazardous air pollutants (HAPs) at the federal level. In addition, USEPA has regulations involving emission criteria for off-road sources such as emergency generators, construction equipment, and vehicles.

USEPA has granted CARB permission to establish 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. Airborne Toxic Control Measures (ATCMs) are implemented to address sources of TACs. The ATCM for Diesel Particulate Matter from Portable Engines Rated at 50 Horsepower (hp) and Greater is relevant to the proposed project.

Local Laws, Regulations, and Policies

The proposed project is located in the San Joaquin Valley Air Basin (SJVAB). The SJVAB's air quality has been designated nonattainment by USEPA for federal ozone and $PM_{2.5}$ (fine particulate matter, dust) standards. CARB has designated the SJVAB as nonattainment for state ozone, $PM_{2.5}$, and PM_{10} standards. The CAA and the California Clean Air Act require areas that are designated nonattainment to reduce emissions until federal and state standards are met. The San Joaquin Valley Air Pollution Control District (SJVAPCD) has jurisdiction over air quality in the SJVAB.

The SJVAPCD's recommended CEQA thresholds are outlined in its *Guidance for Assessing and Mitigating Air Quality Impacts* (SJVAPCD 2015a) and summarized in **Table 3.3-2**. SJVAPCD's thresholds for reactive organic gases (ROG) and oxides of nitrogen (NO_X), which are ozone precursors, are 10 tons/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 determined to be in compliance with the applicable SJVAPCD air quality plans (SJVAPCD 2015a). In addition, the SJVAPCD has established thresholds of significance for criteria pollutant emissions based on project type and size for small projects, which it is reasonable to conclude would not exceed applicable thresholds of significance for criteria pollutants. These levels are based on the SJVAPCD's New Source Review (NSR) offset requirements for stationary sources. An applicable threshold for the proposed project would be an industrial land use category that generates less than 1,506 trips per day (SJVAPCD 2017a).

Table 3.3-2. Applicable SJVAPCD Construction and Operational Significance Thresholds under CEQA

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

Source: SJVAPCD 2015a

The SJVAPCD has adopted attainment plans to address ozone and PM. These air quality plans include the *2013 Plan for the Revoked 1-hour Ozone Standard*, a *2016 Ozone Plan* to address USEPA's 2008 8-hour ozone standard, and the 2007 *PM_{10} Maintenance Plan and Request for Redesignation,* which demonstrates that the SJVAB complies with the PM_{10} standard (SJVAPCD 2017b, 2017c). In addition, the SJVPACD is developing a single comprehensive attainment plan, the *2017 Integrated PM2.5 Plan*, to address the 1997, 2006, and 2012 $PM_{2.5}$ standards under the federal CAA (SJVAPCD 2017c, 2017d). This plan would likely supersede the existing *2016 Moderate Area Plan for the 2012 PM2.5 Standard*, the *2015 Plan for the 1997 PM2.5 Standard*, and the *2012 PM2.5 Plan for the 2006 Standard*.

The proposed project is also subject to SJVAPCD Regulation VIII (Fugitive Dust Prohibitions). The purpose of Regulation VIII is to reduce the amount of PM_{10} entrained into the ambient air from anthropogenic sources. The proposed project will be required to implement the mandatory control measures listed in Table 2 of the SJVAPCD's *Mitigation Measures* guidance document (SJVAPCD 2015b) to reduce fugitive dust emissions. These measures are not considered mitigation measures under CEQA because they are required by law.

The following portions of the Regulation VIII requirements are applicable to the proposed project:

- 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.
- 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.

Stanislaus County General Plan

The *Stanislaus County General Plan's* Conservation and Open Space Element (2015) identifies air quality improvement-related goals and policies that would contribute to reduced criteria pollutant emissions by promoting communication and coordination to support the development and operation of local and regional air quality programs. 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.

3.3.2 Environmental 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 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 Modesto area of the SJVAB near the proposed project area, the average annual precipitation is approximately 12 inches (Western Regional Climate Center 2016).

3.3.3 Discussion of Checklist Responses

a. Conflict with or obstruct implementation of the applicable air quality plan—Less than Significant

A project is deemed inconsistent with air quality plans if it would result in population and/or employment growth that exceeds growth estimates included in the applicable air quality plan, which, in turn, would generate emissions not accounted for in that air quality plan's emissions budget. Therefore, projects need to be evaluated to determine whether they would generate population and employment growth and, if so, whether that growth would exceed the growth rates included in the relevant air quality plans. The proposed project would not involve the construction of any residential, commercial, or industrial structures that would generate population and/or employment growth (see related discussion in Section 3.13, "Population and Housing"). In addition, the proposed project would not involve the construction or long-term operation of any major stationary sources of emissions.

Finally, the use of construction equipment and vehicles would result in a short-term generation of air pollutant emissions. Short-term emissions of ozone precursors, PM_{10}, and $PM_{2.5}$ could contribute to the region's existing nonattainment of the state PM_{10} standard and the state and federal ozone and $PM_{2.5}$ standards. However, as shown in **Table 3.3-3** and discussed in greater detail in item "b" below, construction- and operation-related emissions would not exceed the SJVAPCD's applicable significance thresholds, and therefore would be consistent with the applicable air quality plans. In addition, as discussed in Section 2.6, "Applicable Best Management Practices," the proposed project will comply with Regulation VIII to minimize PM emissions during construction activities.

For these reasons, this impact would be **less than significant**.

b. Violate any air quality standard or contribute substantially to an existing or projected air quality violation—Less than Significant

During construction of the proposed project, the combustion of fossil fuels for operation of construction equipment, sediment/material hauling, and worker trips would result in construction-related emissions of criteria air pollutants. In addition, construction activities would generate fugitive dust from excavation activities. The proposed project would qualify as a small industrial project under the SJVAPCD's screening criteria because it would generate fewer truck and worker vehicle trips than the 1,506-vehicle/day threshold (SJVAPCD 2017a). Therefore, in accordance with SJVAPCD guidance, the proposed project would not substantially contribute to an existing air quality violation or violate any air quality standard.

The proposed project's criteria air pollutant emissions during construction are shown in Table 3.3-3**.** For the purposes of this analysis, all six project phases described in Chapter 2, *Project Description*, were analyzed as project construction phases, including operation of the infiltration gallery under Phase 5. Therefore, because emissions associated with test pumping and the infiltration gallery testing are included in the estimated construction emissions, the emissions shown in Table 3.3-3 likely overstate the actual emissions.

Based on comparison to the significance thresholds, all pollutants are well below the construction emission thresholds. As explained above, SJVAPCD has determined that those projects with mass emissions less than the thresholds of significance would not create additional violations of pollutants (SJVAPCD 2014, 2017a). In addition, because the proposed project would be required to implement SJVAPCD dust control measures, fugitive dust emissions (PM_{10} and $PM_{2.5}$) would be less than significant. Compliance with SJVAPCD's required dust control measures would not be considered a mitigation measure under CEQA because implementation of these measures is required under Regulation VIII. Therefore, this impact would be **less than significant**.

Table 3.3-3. Estimated Project Construction Emissions

	Emissions (tons per year)							
Year	**CO**	**NO_X**	**ROG**	**SO_X**	**Exhaust PM_{10}**	**Fugitive PM_{10}**	**Exhaust $PM_{2.5}$**	**Fugitive $PM_{2.5}$**
2018	1.4	2.6	0.2	0.003	0.1	0.4	0.1	0.2
2019	3.1	5.1	0.5	0.006	0.3	0.4	0.2	0.2
Total	4.5	7.7	0.7	0.009	0.4	0.8	0.3	0.4
SJVAPCD Significance Threshold	100	10	10	27	15		15	
Exceed Threshold?	No	No	No	No	No		No	

Source: Modeling provided by Horizon in 2017 (Appendix A).

c. Cumulatively considerable net increase of any criteria pollutant for which the project region is a nonattainment area—Less than Significant

The SJVAB is currently designated as a nonattainment area for federal and state ozone and $PM_{2.5}$ standards and state PM_{10} standards. Thus, the combined emissions of past, present, and probable future projects would have a significant cumulative impact on air quality in the project area. No single project, however, would be sufficient in size, by itself, to cause nonattainment of the regional air quality standards. As described in items "a" and "b" above, construction of the proposed project would result in emissions of ozone precursors (ROG and NO_X), $PM_{2.5}$, and PM_{10} below the significance thresholds for project-level impacts established by SJVAPCD (2014, 2017a). The proposed project would not involve the development or long-term operation of any major stationary sources of emissions. Given that these emissions are estimated to be substantially lower than SJVAPCD's thresholds of significance and (by definition, as explained in item "a") would be consistent with existing growth plans, the emissions are unlikely to contribute to any new violations or contribute substantially to any air quality violation. As a result, short- and long-term air quality impacts associated with the proposed project would not result in a cumulatively considerable net increase in any criteria pollutant for which the project region is designated in nonattainment. Therefore, this impact would be **less than significant**.

d. Expose sensitive receptors to substantial pollutant concentrations—Less than Significant

The closest sensitive receptors to the proposed project's construction activities consist of one residence 1,200 feet southeast of the edge of the proposed project area, and the Nazareno residence approximately 1,980 feet southwest of the project site. In addition, the Stanislaus Wildlife Care Center 520 feet to the east; and Fox Grove Regional Park, which is immediately adjacent to the eastern edge of the project site. The pollutants of concern that would affect sensitive receptors are PM_{10} and $PM_{2.5}$ contained in fugitive dust and diesel particulate matter

(DPM) from off-road equipment exhaust emissions. The control of particulate matter and fugitive dust is discussed in item "a," and SJVAPCD Regulation VIII would be implemented during construction activities to minimize exposure to fugitive dust. The construction period for the proposed project, which is up to approximately 20 months, would involve an average of approximately 2-3 trips per day by construction vehicles. Therefore, construction activities for the proposed project would not involve the use of substantial quantities of construction equipment and, thus, would not emit substantial quantities of DPM.

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 TAC 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 specific 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 (Office of Environmental Health Hazard Assessment [OEHHA] 2015). Concentrations of mobile-source DPM emissions are typically reduced by 70 percent at a distance of approximately 500 feet (CARB 2005). For these reasons, and given the uncertainty of estimating chronic health effects over a short period, health effects from exposure of sensitive receptors to construction-related DPM emissions were not quantified.

Construction air quality BMPs identified in Section 2.6, "Applicable Best Management Practices," would reduce the amount of construction emissions to the extent feasible through a combination of 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. These construction practices would ensure that health effects from construction of 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. Therefore, with implementation of construction air quality BMPs, potential construction emissions would be minimized and the impact on sensitive receptors from fugitive dust and other pollutants would be **less than significant**.

e. Create objectionable odors affecting a substantial number of people—Less than Significant

Construction activities for the proposed project would not result in the generation of permanent or long-term objectionable odors. Odors associated with the intermittent operation of diesel-powered equipment might be detected by nearby sensitive receptors, but these odors would be of short duration and would not affect a substantial number of people.

Soil excavated or brought up from excavation and construction activities may contain organic material that is decaying, which may create an objectionable odor. The intensity of the odor perceived by a receptor depends on the distance of the receptor from the construction activity and the amount and quality of the exposed soil material. The location of the construction activities would be limited and in a rural area not located near a large number of receptors. In addition, much of the excavated soil would be reused on site and, therefore, reburied. Thus, any odor that could be produced would be short term and temporary. Therefore, this impact would be **less than significant**.

3.4 Biological Resources

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:				
a. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the CDFW or USFWS?	☐	☒	☐	☐
b. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the DFG or USFWS?	☐	☒	☐	☐
c. Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the CWA (including marshes, vernal pools, and coastal wetlands) through direct removal, filling, hydrological interruption, or other means?	☐	☐	☒	☐
d. Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	☒	☐
e. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☐	☒
f. Conflict with the provisions of an adopted habitat conservation plan (HCP); natural community conservation plan; or other approved local, regional, or state HCP?	☐	☐	☐	☒

3.4.1 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 U.S.

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 Section 401 of the CWA.

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, 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 to conduct activities that may result in the discharge to waters of the U.S. (including wetlands) 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 Permits for Stormwater Discharge

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 (those that cover a number 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 system (MS4s), in accordance with Section 402 of the CWA, through its Municipal Storm Water Permitting Program. Permits are issued under two phases depending on the size of the urbanized area/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, included as part of the MS4 permit, includes pollution prevention activities, including construction and post-construction BMPs.

General Construction Stormwater Permit

Most construction projects that disturb 1 acre or more of land are required to obtain coverage under the SWRCB's General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (Order 2009-0009-DWQ, as amended by 2010-0014-DWQ and 2012-0006-DWQ), in accordance with CWA Section 402. 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).

The SWPPP must include a site map and a description of the proposed construction activities, demonstrate compliance with relevant local ordinances and regulations, and present a list of BMPs that will be implemented to prevent soil erosion and protect against discharge of sediment and other construction-related pollutants to surface waters. Permittees are further required to conduct monitoring and reporting to ensure that BMPs are correctly implemented and are effective in controlling the discharge of construction-related pollutants.

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 the Bald and Golden Eagle Protection 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 to include 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 nine RWQCBs, which 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 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 (NPPA) and the California Endangered Species Act (CESA). The NPPA (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, 3513, and 3800 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).

Local Laws, Regulations, and Policies

Stanislaus County General Plan

The *Stanislaus County General Plan* 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 and the preservation of open space lands (Stanislaus County 2015). 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.

3.4.2 Environmental Setting

Aquatic Resources

Tuolumne River Flows

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 between the Merced River watershed to the south and the Stanislaus River watershed to the north. The sediment supply to the lower Tuolumne River has been cut off as a result of construction of upstream dams at several locations for power generation, water supply, and flood control, with Don Pedro Reservoir being the largest impoundment. The La Grange Dam site, completed in 1883, has been the upstream limit for anadromous fish migration since at least 1871 (FishBio 2016).

The lower Tuolumne River flows from La Grange Dam west through Modesto to the confluence with the San Joaquin River. The San Joaquin River flows north and joins the Sacramento River in the Sacramento–San Joaquin Delta. The lower Tuolumne River corridor extends from its confluence with the San Joaquin River at river mile (RM) 0 to La Grange Dam at RM 52.2. The upper reach of the Tuolumne River (RM 52-34) includes the majority of salmonid spawning habitat (Stillwater Sciences 2012). The middle reach (RM 34-17) is a transitional area, where the substrate changes from gravel to sand, and contains many areas that were mined for gravel and/or sand (FishBio 2016).

Minimum instream flows in the lower Tuolumne River are regulated by the 1996 Federal Energy Regulatory Commission (FERC) Settlement Agreement (FSA) for the New Don Pedro Project (76 FERC 6117). Under the FSA, minimum flows October 1 through May 31 range from 150 to 300 cfs and flows from June 1 through September 30 range from 50 to 250 cfs, depending on the water year type (EDAW 2001). To provide lower summer water temperatures and increased habitat suitability for all Chinook salmon (*Oncorhynchus tshawytscha*) life stages, the current flow requirements increase flows from April through September for all water year types and provide a fall attraction pulse flow in most years. In addition, a spring pulse flow is provided in all but critically dry and dry years to stimulate outmigration of Chinook juvenile salmon.

The FSA also required TID to implement a plan to divert water from the Tuolumne River for irrigation in place of existing water diversions at La Grange Dam (RM 52). In 2002-2003, the infiltration gallery was installed at the location of the Proposed Project (RM 26) with the primary purpose of benefitting aquatic resources by allowing water to remain in the river for an additional 26 miles below the dam before being diverted (EIP 2006). The intent of infiltration gallery operation is for TID to make releases (up to 100 cfs) in addition to the FERC minimum flows, resulting in net increased flows in the Tuolumne River. The TID infiltration gallery was constructed in conjunction with the Tuolumne River Restoration Special Run Pool [SRP] 9 Project (EDAW 2001). After installation of the infiltration gallery in 2002-2003, 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 (Stillwater Sciences 2006). Subsequent monitoring in 2006 found that the restoration project had successfully increased channel velocity under most flow conditions relative to pre-project conditions (Stillwater Sciences 2006). The increased velocities have led to lower water temperatures and improved habitat conditions for Chinook salmon, with the greatest benefits occurring during flows greater than 1,500 cfs, when rearing habitat becomes available on the floodplains and in the high flow channels (Stillwater Sciences 2006). Higher flows also increase the chances of successful Chinook salmon outmigration (Stillwater Sciences 2006). Despite the restoration, most Chinook salmon and steelhead (*O. mykiss*) continue to spawn in areas upstream of the project area. Largemouth and smallmouth bass continue to occur in the project area and pose a high risk of predation to fry and juvenile Chinook salmon.

In the lower reaches of the river (RMs 0-24), upstream salmonid migration has been increasingly restricted as the coverage and distribution of water hyacinth (*Eichornia crassipes*) has grown. Under low water conditions, water hyacinth may form rafts that cover the entire channel; one study found that in 2015, a severe drought year, one such raft was located about 3 miles downstream of the proposed project area (FishBio 2016). In that study, 37 other rafts were detected between RM 24 and the confluence with the San Joaquin River (RM 0). While these rafts do not appear to create a complete physical barrier to upstream fish passage, they may influence fish behavior by making fish more reluctant to attempt to swim under the dense vegetation (FishBio 2016). Successive years of recent drought may have reduced fish migration in the river, but record flooding in 2017 has very likely broken apart the rafts and released the barrier to fish passage.

Fish Species

Two special-status salmonids occur in the Tuolumne River: Central Valley Fall and Late Fall Run Evolutionarily Significant Unit (ESU) Chinook salmon and Central Valley Distinct Population Segment (DPS) steelhead. Annual spawning surveys for these species have been conducted upstream of the Geer Road bridge (RM 26) since 1990. The most recent concentrated monitoring of fish species in the Tuolumne River began in fall 2009 at the Tuolumne River Weir at RM 24.5, 1.5 miles west of the proposed project site (FishBio 2016). During 2015 monitoring, fall-run adult Chinook salmon were documented, but no Central Valley steelhead were detected. Other native species detected were hardhead (*Mylopharodon conocephalus*) and Sacramento sucker (*Catostomus occidentalis*). The majority of species documented (93 percent) were nonnative, including largemouth bass *(Micropterus salmoides),* smallmouth bass *(M. dolomieu),* white catfish *(Ictalurus catus*), channel catfish (*Ictalurus punctatus*), common carp (*Cyprinus carpio*), goldfish (*Carassius auratus*), black bass (*Micropterus* spp.), and sunfish (*Lepomis* spp.). Many of the non-native species are known to prey on juvenile Chinook salmon (e.g., largemouth bass, smallmouth, and catfish) (FishBio 2016).

Table 3.4-1 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. The current status and life history of each species is discussed further below.

Table 3.4-1 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 emergence	SJR & tributaries												
Juvenile rearing	SJR & tributaries												
Juvenile emigration	SJR & tributaries, Bay–Delta, Pacific Ocean												
Central Valley Steelhead Trout													
Adult migration	SJR tributaries												
Adult spawning	SJR tributaries												
Egg incubation and emergence	SR/SJR tributaries												
Juvenile rearing	SJR tributaries						**Yearlings Only**						
Yearling outmigration	SJR & tributaries												
Hardhead													
Adult spawning	SR, SJR, & tributaries (low to mid-elevation)												
Juvenile rearing	SR, SJR, & tributaries (low to mid-elevation)												

Source: Stillwater Sciences 2013.

Fall-run Chinook Salmon. Fall-run Chinook salmon has been the focus of extensive study and management in the Tuolumne River due to its population declines and susceptibility to degradation of their freshwater habitat. The spawning reach for adult fall-run Chinook has been defined as extending 28.1 miles downstream of La Grange Dam to below the location of the Tuolumne River Weir at RM 24.5 (FishBio 2016). Annual monitoring has occurred at the weir during the spawning migration period (October 1 to December 31), but monitoring activities occur throughout the year. The 2015 monitoring documented net upstream passage of 421 adults, the second lowest number since monitoring began in 2009 (FishBio 2016). At the weir, net upstream passage of adults has ranged from 264 in 2009 to 3,664 in 2013.

In the Tuolumne River system, spawning activity peaks in early to mid-November. The duration of incubation varies depending on water temperature and so generally extends over a 2- to 3-month period before the fry (length equal to or less than 50 millimeters) and juveniles (length greater than 50 millimeters) outmigrate from the spawning areas from early to mid-February through April (Table 3.4-1). Outmigration of larger juveniles (length greater than 85 millimeters) generally occurs from April through June, with smolts entering the ocean between April and July. A small number of juveniles may remain in fresh water over the summer and outmigrate as yearlings (Moyle 2002).

Central Valley Steelhead. In 2000, NMFS designated the Tuolumne River as critical habitat for Central Valley steelhead (NMFS 2000a). Critical habitat on the Tuolumne River includes the water, substrate, and adjacent riparian zone. In June 2000, NMFS issued final no-take standards under Section 4(d) of the ESA and identified specific conservation programs under which limited exceptions to the take prohibitions are allowed (NMFS 2000b).

Steelhead typically migrate to the ocean after spending 1-4 years (usually 2 years) in fresh water and may remain at sea for 1-3 years before returning to spawn in fresh water (Moyle 2002). Unlike most other salmonid species, steelhead are iteroparous, or capable of returning to spawn more than once before dying; however, most individuals spawn only once. Redds (nests) are constructed in gravel substrate, and spawning typically occurs from December through June (Moyle 2002). The eggs incubate in the gravels and hatch as alevins (larval fish that are nourished by a yolk sac), which remain in the gravel for several weeks, after which they emerge as free-swimming fry.

Extensive monitoring programs for steelhead have been conducted in the Tuolumne River since 1981. These surveys have found steelhead within the upper 5-10 river miles below La Grange Dam (RM 42-52), where habitat conditions (e.g., spawning gravel) are generally suitable and water temperatures typically range from 53°F to 70°F in summer and from 50.4°F to 58°F in winter (Stillwater Sciences 2012). Estimates of the adult (>150mm) steelhead population in that reach of the river have ranged from a low of 339 in 2009 to a high of 7,000-11,000 (Stillwater Sciences 2013). Steelhead are rarely observed or captured at locations farther downstream. Stillwater Sciences (2012) summarized the following: in seine surveys from 2001-2011; no steelhead were captured below RM 42.4; only one adult steelhead has been identified at the counting weir (RM 24) since 1997; only 31 steelhead were captured in rotary screw traps at RM 31.5 and RM 5.2 between 1999 and 2011; and snorkeling surveys are not conducted below RM 31.5. Therefore, steelhead are very unlikely to occur in the project area.

Hardhead. Hardhead (*Mylopharodon conocephalus*) are large cyprinids (minnows) native to the Sacramento and San Joaquin River basins. They are a California Species of Special Concern. Hardhead are believed to be relatively intolerant of low oxygen levels and prefer deep pools in areas with slow water velocities and bottom substrates ranging from sand to boulders (Moyle et al. 1995). They forage for invertebrates and aquatic plant material in slow water. 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). Hardhead become mature after 2 years and are thought to spawn during April-May in gravel riffles in upstream areas (Moyle 2002).

Hardhead occur in the lower Tuolumne River and have been documented in the vicinity of the proposed project site by electrofishing, snorkeling, and rotary screw trap surveys conducted since 1990 (Stillwater Sciences 2012). Most recently, hardhead have been documented at the Tuolumne River Weir at RM 24.5, 1.5 miles west of the project area (FishBio 2016).

Terrestrial Resources

Plant Communities

Sensitive plant communities at the proposed project site include two riparian woodland types: Arroyo willow *(Salix lasiolepis)* riparian scrub and blue elderberry *(Sambucus nigra* ssp. *caerulea)* stand (Sawyer et al. 2009). The site also contains a walnut orchard and ruderal vegetation.

Riparian Woodlands. Arroyo willow scrub occupies approximately 0.5 acre on 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 2001. Prior to the restoration of SRP 9, very little riparian vegetation was present within the active channel 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 includes riparian species such as black willow *(S. 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 occupy about 3.5 acres along the embankment approximately 20 feet above the river channel. The shrub layer includes blue elderberry as the dominant species, with other species including coyote brush *(Baccharis* spp.), the non-native tobacco bush *(Nicotiana glauca),* and willows. The tree layer is sparse and includes live oak *(Q. agrifolia),* Fremont's cottonwood, and the non-native tree of heaven *(Ailanthus altissima).* The understory of this habitat is non-native annual grassland. Very few native species are present in the understory, which includes a dense infestation of Italian thistle (*Carduus pycnocephalus*) at the site of the proposed wet well. While many elderberry stands are subject to intermittent flooding, the embankment is above the 100-year flood elevation. Elderberry shrubs are present along the existing park access road on both sides of the Geer Road Bridge and in the more densely vegetated and flood-prone area adjacent to the east side of the Nazareno pond.

Riparian woodlands provide cover, food, and nesting habitat for a variety of wildlife species. 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*). 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.

Orchard/Ruderal

The vegetation south of the embankment is primarily an English walnut (*Juglans regia*) orchard. The understory is comprised of non-native grasses and forbs, including Bermuda grass (*Cynodon dactylon*), ripgut brome (*Bromus diandrus*), and black mustard (*Brassica nigra*). The western perimeter of the orchard east of the Nazareno pond (location of the proposed settling basin) was formerly orchard but now consists of ruderal vegetation, including the native mugwort (*Artemisa douglasiana*) and non-natives such as 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 wildlife species expected on the site include Mourning Dove *(Zenaida macroura),* Western Meadowlark *(Sturnella neglecta),* European Starling *(Sturnus vulgaris),* American Crow *(Corvus brachyrhyncos),* and Brewer's Blackbird *(Euphagus cyanocephalus).*

In the walnut orchard, the understory vegetation that would provide food and cover for wildlife is sparse, limiting the abundance and diversity of wildlife species. Species such as the side-blotched lizard (*Uta stansburiana*) can occur in this habitat type. American Crow and Yellow-billed Magpies (*Pica nuttalli*), which forage on nut crops, are often present.

Special-status Species

Definitions and Methods of Assessment

For the purposes of this assessment, special-status plant and wildlife species refers to 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 and 2 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 (IPaC 2017);
- 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;
- California Native Plant Society's (CNPS's) *Inventory of Rare and Endangered Plants of California* (CNPS 2017) and CRPR listing.

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, carcasses, castings, prey remains) during field investigations or in previous studies in the area.

Threatened, Endangered, and Special-status Species

Table 3.4-2 lists the special-status plant species known to occur in the vicinity of the Study Area. There are no known CNDDB occurrences of special-status plants within a 5-mile radius of the Study Area. Species that are possible or present are discussed further below, species with no suitable habitat or that are not expected are not discussed further.

Table 3.4-2 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 at Site
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 between 195-490 m. 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 site lacks suitable habitat for this species.
Atriplex subtilis San Joaquin spearscale	-/-/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 site lacks suitable habitat for this species.
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 (CNDDB 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 m. Flowers July to September.	**None**. The site lacks suitable habitat for this species.

Scientific Name /Common Name	Federal/State/ CRPR Status	Habitat Characteristics	Potential to Occur at Site
Monardella leucocephala Merced monardella	-/-/1B	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 (CNDDB 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 m. Flowers May to August.	**None**. The site lacks suitable habitat for this species.
Orcuttia pilosa hairy Orcutt grass	FE/ST/1B	Vernal pools 25-125 m. Flowers May to September.	**None**. The site 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 m. 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 (CNDDB 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).
Sagittaria sanfordii Sanford's arrowhead	-/-/1B	In standing or slow-moving, shallow freshwater ponds, marshes, canals, sloughs, ditches, creeks, vernal pools and lakes, and rivers. 0-650 meters. May-October.	**Not expected**. There are no known occurrences of this species in Stanislaus County (CNDDB 2017). Focused rare plant surveys conducted for the Restoration Project did not detect this species (EDAW 2001).
Tuctoria greenei Greene's tuctoria	FE/SR/1B	Clay bottoms of drying vernal pools and lakes in valley grassland. 5-10 m. Flowers May to September.	**None**. The site lacks suitable habitat for this species.

Sources: IPaC 2017; CNDDB 2017; CNPS 2017; Appendix B

Table 3.4-3 lists the special-status wildlife species known to occur in the vicinity of the project area. **Figure 3.4-1** shows the CNDDB occurrences of special-status wildlife species within a 5-mile radius of the proposed project area. Species that are possible or known to be present are discussed further below; species with no suitable habitat or that are not expected are not discussed further.

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

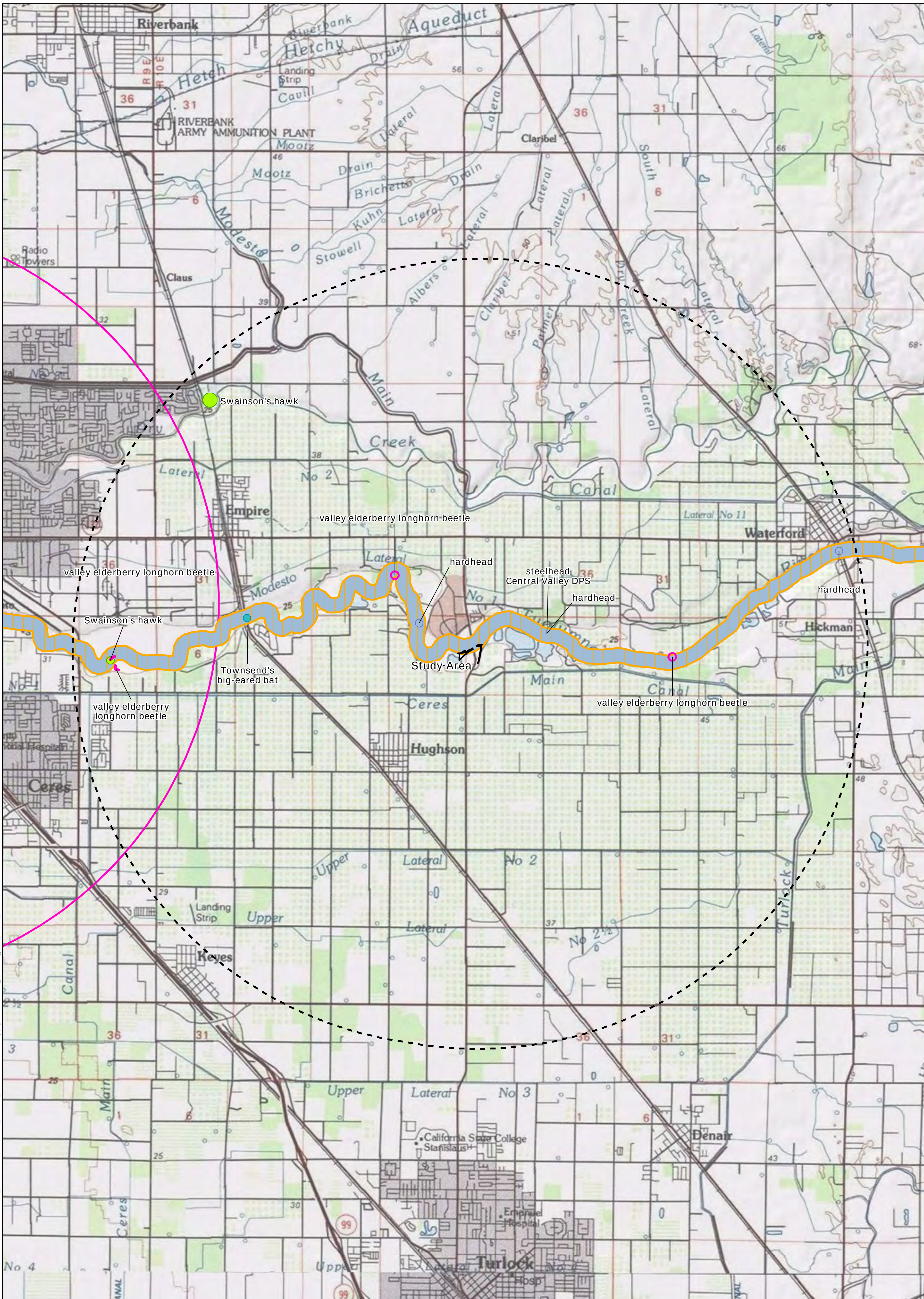
Scientific Name/ Common Name	Federal/State Status	Habitat Characteristics	Potential to Occur at Site
		Invertebrates	
Branchinecta lynchi vernal pool fairy shrimp	FT/--	Inhabit small, clear-water sandstone-depression pools and grassed swale, earth slump, or basalt-flow depression pools.	**None.** The site lacks suitable habitat for this species.
Desmocerus californicus dimorphus valley elderberry longhorn beetle	FT/--	Occurs in the central valley of California, in association with blue elderberry (*Sambucus mexicana*).	**Present.** Some elderberry shrubs within the project site have bore 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 site lacks suitable habitat for this species.
		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 ft. elevation. Need basking sites and suitable (sandy banks or grassy open fields) upland habitat up to 0.5 km 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.

Scientific Name/ Common Name	Federal/State Status	Habitat Characteristics	Potential to Occur at Site
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 site 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 & foothills in or near permanent sources of deep water with dense, shrubby or emergent riparian vegetation.	**None.** The site 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 SW.
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 site lacks suitable breeding habitat for this species. The nearest known occurrence is in the Hickman vernal pool complex about 15 miles west.
Thamnophis gigas giant garter snake	FT/ST	This is the most aquatic of the garter snakes in CA. 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 site does not provide suitable freshwater marsh habitat for this species. This species is not known to occur in this area of the Tuolumne River.

Scientific Name/ Common Name	Federal/State Status	Habitat Characteristics	Potential to Occur at Site
Birds			
Agelaius tricolor tricolored blackbird	--/ Emergency Protection Status as of 12/3/14 per FGC 2076.5, 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.** The site lacks suitable breeding habitat for this species. Existing vegetation is not extensive or dense enough to support a breeding colony.
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 grassland provides marginal habitat since the grasses and weedy forbs tend to be tall. There is one CNDDB occurrence from Stanislaus County near the town of Riverbank, about 9miles north of the Project Area.
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 habit is present within and adjacent to the project site. 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 about 11 miles east near Hickman.
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.

Scientific Name/ Common Name	Federal/State Status	Habitat Characteristics	Potential to Occur at Site
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.
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 site lacks suitable habitat for this species.
Mammals			
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 project site.
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 site reconnaissance.

Sources: IPaC 2017; CNDDB 2017; Appendix B



CNDDB Animal Occurrences

- Swainson's hawk
- Townsend's big-eared bat
- hardhead
- steelhead - Central Valley DPS
- valley elderberry longhorn beetle

Source: California Dept. of Fish & Wildlife, Match 2017

N

0 0.5 1 2
Miles

Study Area
5-mile Radius of Study Area

Horizon WATER and ENVIRONMENT

Figure 3.4-1
CNDDB Occurrences of Special-status Wildlife Species within a 5-mile Radius of the Proposed Project Area

Stanislaus Regional Water Authority
Surface Water Treatment Project

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Table 3.4-4 lists the special-status fish species known to occur in the vicinity of the proposed project area. Figure 3.4-1 shows the CNDDB occurrences of special-status fish species within a 5-mile radius of the proposed project area.

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

Scientific Name /Common Name	Federal/State Status	Habitat Characteristics	Potential to Occur at Site
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 < 2ppt.	**None.** Project Area is out of range of the species.
Mylopharodon conocephalus hardhead	None/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.
Pogonichthys macrolepidotus Sacramento splittail	None/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. In wet years, splittail have been observed in the lower Tuolumne as far east as Modesto (Moyle et al. 2004).	**None.** Suitable habitat is not present in the project area.
Oncorhynchus mykiss steelhead (Central Valley DPS)	FT/None	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.	**Present.** Steelhead have been documented in the Tuolumne River both up- and downstream of the project area, but are very infrequently detected below RM 42 (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.

Scientific Name /Common Name	Federal/State Status	Habitat Characteristics	Potential to Occur at Site
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 were historically present in the Tuolumne River and have been locally extirpated. Strays have a low potential to occur.
Oncorhynchus tshawytscha Chinook Salmon, Spring-run (Nonessential experimental population)	See Fish and Game Code Sections 2080.2 to 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 nonessential experimental population.	**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.

Sources: IPaC 2017; CNDDB 2017; Appendix B

3.4.3 Discussion of Checklist Responses

a. Substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species—Less than Significant with Mitigation

Effects on Fish Species

The purpose of the infiltration gallery (RM 26) is to allow water that would otherwise be diverted at La Grange Dam (RM 52) to remain in the Tuolumne River for an additional 26 miles before being diverted. The IS/MND prepared in 2001 included a detailed evaluation of gallery operation from mid-March through mid-October in relation to sensitive fish species and concluded that an increase in flow of 100 cfs between La Grange Dam and the infiltration gallery would be considered a beneficial impact on aquatic resources (EDAW 2001). During operation of the proposed project, diversions through the infiltration gallery would occur either when sufficient flows exist in addition to the required minimum flows based on the FSA, or through additional releases made by TID from La Grange Dam to support the diversions. The amount of additional flow required would include consideration of any offsetting return flows from the infiltration gallery.

The 2001 IS/MND also evaluated the potential for entrainment or impingement of juveniles (e.g., Chinook salmon alevins, fry, or smolts) at the infiltration gallery intake pipes during pumping activities and concluded that, because of the low approach velocities and the general lack of spawning in the immediate area, substantial entrainment or impingement of sensitive fish species was not likely. That discussion is summarized below. Differences in the current proposed project from the two previous analyses are as follows: (1) the amount of fine sediment due to air purging of the infiltration gallery piping that could be mobilized has recently been estimated at 230 CY; and (2) the potential exists that discharge waters generated during wet well excavation (nuisance groundwater) and pumping activities may be returned to the Tuolumne River.

Mobilization of Fine Sediment Due to Air Purging

The infiltration gallery testing entails purging fine-grained sediments from the well screens and gravel pack to maximize hydraulic capacity of the gallery and reduce turbidity of the water produced. Testing would be accomplished through a combination of pumping (i.e., withdrawing water from the river through the gallery bays, discussed below) and air purging. The air purge system in the infiltration gallery would operate by sending pressurized air through gallery bays for release into the surrounding gravel pack. As the air exits upward through the gravel pack, fine-grained materials would be loosened and released into the Tuolumne River. The potential volume of sediment to be purged during infiltration gallery testing is estimated to be 230 cubic yards (see Section 2.6.1 in Chapter 2, *Project Description*).

Potential impacts on sensitive fish species could result from increased concentrations of total suspended solids (TSS) and the redeposition of entrained sediment and potential infiltration into bed substrates. If air purging occurs under the spring outmigration pulse (April-May), studies have shown that increased turbidity greater than 25 NTU can reduce predation on salmonids by making it harder for predatory fish, such as largemouth bass (*Micropterus salmoides*), to find the juvenile fish (Gregory and Levings 1998). In a recent study on predation in the lower Tuolumne River, turbidity during sampling ranged from 0.77 NTU to 2.83 NTU and was representative of the range of typical baseline turbidity conditions (FISHBIO 2013).

Potential impacts associated with mobilized sediment due to air purging that results in increased TSS and/or increased sediment deposition during fall-run Chinook migration (Oct-Nov), spawning (Nov) and juvenile emergence and rearing (Nov-Mar) would be considered potentially significant unless mitigation is incorporated. With the implementation of **Mitigation Measure BIO-1 (Schedule Air Purging to Avoid and Minimize Impacts on Special-status Fish),** which would limit air purging to April 1–September 30, this impact would be reduced to a less-than-significant level.

As described above, almost no adult steelhead or active steelhead spawning have been documented below RM 42 and therefore, steelhead are very unlikely to occur in the proposed project area (Stillwater Sciences 2012). Consequently, increased TSS would not be expected to impact on steelhead migration, spawning, or juvenile migration.

Hardhead are year-round residents and have been documented in the vicinity of the proposed project site in recent years (Stillwater Sciences 2012). It is thought that juveniles primarily occupy shallow areas near the channel margins and that adult hardhead spawn during April-May in gravel riffles (Moyle et al. 2002), which are more likely to occur in upstream areas.

Disposal of Discharge Waters

Pumping operations would require a minimum flow of 100 cfs in addition to minimum FERC flows. Discharge water generated during pumping activities (as well as nuisance groundwater encountered during excavation) would be diverted to a settling basin prior to being discharged to the Nazareno pond or orchard or the Tuolumne River. As a result, discharge water would be low in settleable sediment and turbidity. Given that the proposed project would be operated for only a short time (i.e., 4 days for test pumping and 2 days for testing over a span of 1 month), and the quality of discharge water is expected to be similar to that of the Tuolumne River, the potential impacts of discharging this water back into the river on salmonids and resident hardhead would be less than significant.

Potential for Entrainment or Impingement

The mesh size of the infiltration gallery intake pipes is approximately 0.06 inch, thereby excluding items as large as Chinook salmon eggs (0.18-0.34 inch in diameter; EDAW 2001). In addition, the intake velocity of the infiltration gallery at the gravel surface would be approximately 0.01 foot per second (fps). This is 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 (EDAW 2001). Current NMFS screening criteria set a maximum approach velocity of 0.33 fps. Swimming speed and mesh size are therefore expected to be sufficient to prevent entrainment of free-swimming Chinook salmon and unhatched eggs.

The risk of impingement of Chinook salmon at the channel bed surface is reduced by having a filter bed cover of gravels that 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 the 2-foot-diameter gallery screens, which act as a filter bed. Impingement of eggs is considered highly unlikely.

Conclusion

Impacts of the proposed project on fish species related to disposal of discharge waters into the Tuolumne River or entrainment or impingement of juveniles or eggs at the intake pipes would be less than significant because:

- The proposed project would be operated for only a short time (i.e., 4 days for test pumping and 2 days for testing over a span of 1 month);
- The mesh size of the infiltration gallery intake pipes would exclude items as small as Chinook salmon eggs and the intake velocity of the pipes is well below the minimum swimming speeds of salmonid fry, juveniles, or smolts; and
- The quality of any discharge water is expected to be similar to that of the Tuolumne River.

Mobilization of fine sediment during air purging, however, would have the potential to result in increased TSS and/or increased sediment deposition. With implementation of Mitigation Measure BIO-1, air purging would take place during a work period when entrained sediment would not adversely affect spawning; this impact would be less than significant with mitigation.

Mitigation Measure BIO-1: Schedule Air Purging to Avoid and Minimize Impacts on Special-status Fish.

To the extent feasible, SRWA and its contractor(s) shall limit air purging of the gallery to the work period between April 1 and September 30 to avoid peak salmonid spawning migration and sensitive development stages. If air purging cannot be conducted between April 1 and September 30, SRWA shall consult with NMFS, USFWS, and CDFW to identify a work period that will not result in substantial adverse effects on special-status fish based on the hydrologic and biological conditions for the year of testing.

Effects on Terrestrial Species

Plant Species

Construction of the wet well and settling basin would involve vegetation clearing, excavation, and grading in disturbed riparian habitat and ruderal areas. These areas are either unsuitable or provide very marginal habitat for the special-status plants known to occur within the vicinity of the project area (Table 3.4-2). Thus, special-status plant species are not likely to be affected by proposed project activities and no impact would occur.

Invertebrate Species

Valley elderberry longhorn beetle (VELB), federally listed as threatened and a California Species of Concern, is associated exclusively with its host plant, elderberry (*Sambucus* spp.). Adult beetles of this subspecies feed and lay eggs on the elderberry shrubs in riparian communities of the Central Valley. The larvae remain within the elderberry stems until they emerge through exit holes as adults. Elderberry shrubs with apparent bore holes are present in the proposed project area; therefore, VELB are presumed to be present.

Impacts on VELB and individual elderberry shrubs may result from removal of or damage to elderberry plants, generation of excessive dust, or altered soil and drainage conditions. Impacts that result in direct mortality of VELB or substantial degradation of their habitat are considered potentially significant. **Mitigation Measure BIO-2 (Implement Measures to Avoid Impacts on Valley Elderberry Longhorn Beetle)** would avoid impacts on the host plant for this species to the extent feasible. As a result, impacts on VELB would be less than significant with mitigation.

Bird Species

Yellow Warbler (*Setophaga petechia*) and Yellow-breasted Chat (*Icteria virens*) are passerine birds with similar habitat requirements. They are present in California during the summer and often nest in riparian willow thickets, which are present in the project area. The project area also contains potentially suitable breeding habitat for Loggerhead Shrike (*Lanius* *ludovicianus*). Although no CNDDB occurrences of these species are known in the vicinity of the project area, sightings of Yellow Warbler have been reported in the area during the breeding season (eBird 2017). If these species were to occur in the project area, construction activities during the breeding season, such as vegetation removal and noise, could result in adverse impacts on these species. Implementation of **Mitigation Measure BIO-3 (Conduct Nesting Bird Surveys for Work between February 15 and August 31 and Implement Avoidance Measures)** would require that, if construction or ground-disturbing work would take place between February 15 and August 31, nesting bird surveys be conducted and avoidance measures, including buffer areas, be implemented to protect nesting birds. As a result, impacts on nesting birds would be less than significant with mitigation.

Burrowing Owl *(Athene cunicularia)* is a California Species of Special Concern. These small owls generally prefer to inhabit open areas and grasslands with low-growing or grazed vegetation. This year-round resident lives in small colonies and typically nests and roosts 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. The grassland at the project site would provide marginal habitat for Burrowing Owls because the grasses and weedy forbs tend to be tall, although the orchard may provide foraging grounds. If Burrowing Owls were to occupy the site, construction activities could disturb them through noise, visual distraction, or direct impact on burrows. Such impacts could affect reproduction or fitness of individuals and would be significant. Implementation of **Mitigation Measure BIO-4 (Conduct Burrowing Owl Surveys, Establish Buffers, and Implement Passive or Active Relocation Techniques to Avoid or Minimize Impacts on Burrowing Owls)** would require that surveys be conducted and measures be implemented to avoid impacts on this species to the extent feasible. Where disturbance is unavoidable, buffers would be established around active burrows. If active burrows cannot be avoided, passive relocation techniques could be used. If the owls are relocated, compensation would be provided to offset the impact. As a result, impacts on Burrowing Owls would be less than significant with mitigation.

Swainson's Hawk (*Buteo swainsoni*) is state listed as a threatened species. Riparian habitat along the margins of the Tuolumne River and mature trees within the proposed project area provide potentially suitable nesting habitat for Swainson's Hawk. White-tailed Kite (*Elanus leucurus*) could also utilize the riparian habitat for nesting. Foraging habitat for Swainson's Hawk is present in open elderberry stands and also in the adjacent agricultural areas. Construction in the vicinity of nest sites could disturb nesting through generation of noise, visual distraction, or direct impacts on occupied nests (e.g., tree removal or ground disturbance). Impacts on Swainson's Hawk or White-tailed Kite nesting sites that result in nest abandonment, nest failure, or reduced health or vigor of nestlings would be significant. Implementation of **Mitigation Measure BIO-5 (Conduct Nesting Raptor Surveys and Establish Buffers to Avoid or Minimize Impacts on Swainson's Hawk and White-tailed Kite)** would require that surveys be conducted and measures be implemented to avoid impacts on this species to the extent feasible. Where disturbance is unavoidable, buffers would be established around active nests. As a result, impacts on nesting raptors would be less than significant with mitigation.

Reptile Species

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. The freshwater Nazareno pond provides suitable aquatic habitat for WPT, while the adjacent grassland in the elderberry stand could provide suitable 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. 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-6 (Conduct Preconstruction Surveys, Establish Buffers around Nests, and Implement Measures to Avoid or Minimize Impacts on Western Pond Turtle)** would require that surveys be conducted and measures be implemented to avoid impacts on these species to the extent feasible. Where disturbance is unavoidable, buffers would be established around active nests. As a result, impacts on WPT nests would be less than significant with mitigation.

Mammal Species

Townsend's big-eared bat (*Corynorhinus townsendii*), pallid bat (*Antrozous pallidus*), and hoary bat (*Lasierus cinerus*) may occur in the proposed project area. The Geer Road Bridge contains crevices and cavities that are potential roost sites for bats. 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. Noise, vibration, or increased lighting can lead to the disturbance of roosting bats, if present. Although construction- and operation-related activities of the proposed project and potential impacts on bat roosts would be temporary, disturbance that leads to the abandonment of a special-status bat maternity roost would be a significant impact. Implementation of **Mitigation Measure BIO-7 (Conduct Preconstruction Surveys and Implement Measures to Avoid or Minimize Impacts on Special-status Bats)** would require that surveys be conducted and measures be implemented to avoid impacts on special-status bats and maternity roosts to the extent feasible. As a result, impacts on special-status bats and maternity roosts would be less than significant with mitigation.

Mitigation Measure BIO-2: Implement Measures to Avoid Impacts on Valley Elderberry Longhorn Beetle.

SRWA and its contractor(s) shall implement the following VELB avoidance measures:

a. No less than 15 days prior to commencing construction, document the locations and condition of elderberry plants within 100 feet of construction areas, including photographing the base, stems, and canopy of those shrubs.

b. To the extent feasible, schedule construction activities that would occur within 100 feet of elderberry shrubs during August-February to avoid the VELB flight season (March-July).

c. 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 100 feet of the access road.

d. Unload aggregate base for the access road surface at strategic locations more than 100 feet from elderberry shrubs and spread in a manner to minimize dust (e.g., wet road base during unloading).

e. Install speed bumps at strategic intervals on the access road and implement a 15-mile-per-hour speed limit to minimize dust.

f. Mowing may occur from July through April to reduce fire hazard. No mowing will occur within 5 feet of elderberry stems to avoid damaging shrubs (e.g., stripping away bark through careless use of mowing equipment).

g. Construction personnel shall participate in a Contractor Environmental Awareness Training (CEAT). The CEAT will instruct work crews about the status of the VELB and the need to protect its elderberry host plant. The CEAT shall communicate the need to avoid damaging the elderberry plants and the possible penalties for not complying with these requirements. The engineering specifications and site plans will reference specific avoidance and protection measures for VELB and elderberry shrubs.

h. 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.

i. No insecticides, herbicides, fertilizers, or other chemicals that might harm the beetle or its host plant will be used within 100 feet of any elderberry plant.

j. A qualified biologist will conduct weekly site inspections during the VELB flight season (March-July) to examine elderberry shrub condition. If impacts on elderberry shrubs are observed, work will stop immediately and USFWS will be notified.

k. Continue to protect buffer areas upon completion of construction from adverse effects of the proposed project. Maintain fencing and signage as needed and implement post-construction erosion control and re-vegetation with appropriate native plants, when necessary.

Mitigation Measure BIO-3: Conduct Nesting Bird Surveys for Work between February 15 and August 31 and Implement Avoidance Measures.

If vegetation clearing or ground-disturbing activities commence between February 15 and August 31, a qualified biologist shall 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, 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. A qualified biologist may identify an alternative buffer based on a site-specific evaluation and in consultation with CDFW. Work shall not commence within the buffer until fledglings are fully mobile and no longer reliant upon the nest or parental care for survival.

Mitigation Measure BIO-4: Conduct Burrowing Owl Surveys, Establish Buffers, and Implement Passive or Active Relocation Techniques to Avoid or Minimize Impacts on Burrowing Owls.

Before initiating ground-disturbing activities, surveys for Burrowing Owls shall be conducted in accordance with protocols established in the *Staff Report on Burrowing Owl Mitigation* (CDFG 2012 or current version). If ground-disturbing activities are delayed or suspended for more than 30 days after the preconstruction surveys, the site shall be resurveyed. If Burrowing Owls are detected, disturbance to burrows shall be avoided during the nesting season (February 1 through August 31). Buffers shall be established around occupied burrows in accordance with guidance provided in the *Staff Report on Burrowing Owl Mitigation* (CDFG 2012). Buffers around occupied burrows shall be a minimum of 656 feet (200 meters) during the breeding season, and 164 feet (50 meters) during the non-breeding season.

Outside of the nesting season (February 1 through August 31), passive relocation techniques may be implemented. Owls can be excluded from burrows within 164 feet of construction by installing one-way doors in burrow entrances. The work area shall be monitored daily for 1 week to confirm that owls have departed from burrows before any ground-disturbing activities. Where feasible, burrows shall be excavated using hand tools and refilled to prevent reoccupation. Sections of flexible plastic pipe shall be inserted into the tunnels during excavation to maintain an escape route for any animals inside the burrow.

If occupied burrows cannot be avoided during the non-breeding season, new burrows shall be created or enhanced at a 1:1 ratio one week before implementation of passive relocation techniques, in adjacent habitat within the dispersal range of the owls. If Burrowing Owl habitat is enhanced or created, a monitoring and management plan shall be implemented to assess the effectiveness of the mitigation, subject to the approval of CDFW.

Mitigation Measure BIO-5: 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, surveys for Swainson's Hawk and White-tailed Kite shall be conducted. 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 that smaller buffers will be 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.

Mitigation Measure BIO-6: Conduct Preconstruction Surveys, Establish Buffers around Nests, and Implement Measures to Avoid or Minimize Impacts on Western Pond Turtle.

Preconstruction surveys for WPT shall be conducted by a qualified biologist 14 days before and 24 hours before the start of construction activities 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 the 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. 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.

Mitigation Measure BIO-7: Conduct Preconstruction Surveys and Implement Measures to Avoid or Minimize Impacts on Special-status Bats.

A preconstruction survey shall be conducted by a qualified bat biologist between May 1 and July 15 to maximize detection of bats during maternity season. The survey shall 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. 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 to a level that would not cause roost abandonment.

Conclusion

With implementation of the above-described mitigation measures, this impact would be **less than significant with mitigation**.

b. Substantial adverse effect on any riparian habitat or other sensitive natural community—Less than Significant with Mitigation

Most of the proposed project activities would take place in degraded riparian habitat on the embankment above the Tuolumne River, but some activities may also occur in restored riparian habitat in the floodplain. Sensitive natural communities potentially affected by the proposed project include blue elderberry stands and arroyo willow thickets.

The only construction activity that would occur within the arroyo willow thicket on the floodplain of the Tuolumne River is the temporary placement of a discharge pipe laid on the ground surface, running from the infiltration gallery into the river. Because no ground disturbance would take place, this activity would result in minimal disturbance within that habitat.

Excavation and construction of the wet well and improvements to the access road on the embankment above the Tuolumne River would result in permanent disturbance to approximately 0.63 acre of annual grassland. The largest amount of disturbance would result from improvements to the existing unpaved access route, including widening to 12 feet, placement of aggregate base, and installation of turnouts and a loop at the wet well; this disturbance would affect approximately 0.58 acre. The concrete structure (36 feet by 60 feet) for the wet well would disturb 0.05 acre, for a total of 0.63 acre of permanent impact on the annual grassland. The road improvement may result in the removal of one live oak tree less than 12 inches in diameter at breast height (dbh). Other project activities (e.g., soil stockpiling) would result in temporary impacts on less than 0.50 acre of annual grassland. The temporary disturbance created by the sedimentation basin (approximately 300 feet by 130 feet, or 0.9 acre) would occur in ruderal vegetation and would not affect riparian habitat. The quality of the riparian habitat that would be disturbed is very low, and the disturbance would be primarily limited to annual grassland. Temporary and permanent disturbance to trees or native vegetation, however, would be considered potentially significant. Implementation of **Mitigation Measure BIO-8 (Implement Revegetation within 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-8: Implement Revegetation within Riparian Habitat and Sensitive Natural Communities Disturbed during Construction.

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 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.

c. Substantial adverse effects on federally protected wetlands—Less than Significant

A jurisdictional delineation of waters of the U.S., including wetlands, was conducted at the project site in December 2016. The delineation identified the Tuolumne River and the Nazareno pond as potential jurisdictional waters of the U.S. Work within areas defined as waters of the U.S. that would involve placement of fill would require a CWA Section 404 permit and Section 401 water quality certification. The temporary pipes installed on the ground surface running from the wet well to the Tuolumne River and from the settling basin to the Nazareno pond would qualify as fill. All work proposed in jurisdictional waters of the U.S. would be authorized under these permits, and the work would comply with the general and regional conditions of the permits. The pipes would be removed upon completion of the proposed project and there would be no permanent disturbance to jurisdictional waters or wetlands. Therefore, the impact of the proposed project on federally protected wetlands would not be substantial and would be **less than significant.**

d. Substantial interference with wildlife movement, established wildlife corridors, or the use of native wildlife nursery sites—Less than Significant with Mitigation

A wildlife corridor is generally a topographical/landscape feature or movement area that connects two open space habitat parcels that would otherwise be entirely fragmented or isolated from one another. Wildlife corridors link areas of suitable wildlife habitat that are otherwise separated by changes in vegetation, rugged terrain, or human disturbance. The Tuolumne River and associated riparian habitat is an important wildlife movement corridor in this portion of the San Joaquin Valley.

Operations of the proposed project would generate noise, light, and an increased level of human activity relative to baseline conditions. Noise generated at the facilities would come from sources such as vehicles, large construction equipment (e.g., excavators, bulldozers, drilling rig), water pumps, generators, and human activity. Construction activities that result in substantial adverse effects on wildlife movement or use of nursery sites, or that adversely affect the established wildlife corridor presented by the Tuolumne River, would be potentially significant.

The proposed project would incorporate several mitigation measures to avoid or minimize adverse effects on movement and reproduction of fish and wildlife resources during the excavation and construction of the wet well.

First, for activities that would occur during the breeding season for birds that may nest in the riparian corridor, Mitigation Measures BIO-3 and BIO-5 would require preconstruction surveys to identify nest sites and subsequently minimize disturbance to active nests or breeding sites.

Mitigation Measure BIO-4 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.

Upon completion of the wet well, the infiltration gallery testing and test pumping phase would occur over a maximum of 6-7 days in a 1-month span (see Table 2-2). This short duration, along with use of the settling basin, would limit the volume of fine sediment that could potentially be returned to the Tuolumne River. The proposed project also incorporates temporal restrictions on infiltration gallery testing to limit mobilization of fine sediment that could adversely affect Chinook salmon and hardhead migration and spawning (Mitigation Measure BIO-1). The pumping equipment is not expected to generate significant noise because pumps would be submerged within the wet well and covered with a concrete pad;

however, substantial aboveground noise generated by the short-term operation of compressor equipment and diesel generators would be reduced with implementation of Mitigation Measure NOISE-1 (refer to Section 3.12).

Following completion of construction, the temporary chain-link fencing around the disturbed area would be replaced with security fencing localized to the vicinity of the wet well. Therefore, the fencing would not adversely affect wildlife movement within the riparian corridor. The improved access road and limited motion-activated security lighting would remain in place. SWRA would implement a restoration plan for riparian habitat and sensitive natural communities disturbed during construction (Mitigation Measure BIO-7).

As a result, this impact would be **less than significant with mitigation.**

e. Conflict with local policies or ordinances protecting biological resources—No Impact

The *Stanislaus County General Plan* 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 and the preservation of open space lands (Stanislaus County 2015). The proposed project would be consistent with the relevant goals and policies, as described in Section 3.4.1; therefore, there would be **no impact.**

f. Conflict with the provisions of an adopted HCP, Natural Community Conservation Plan, or other approved local, regional, or state HCP—No Impact

The project area is with the boundaries of the PG&E San Joaquin Valley Operation and Maintenance Habitat Conservation Plan (HCP) (CDFW 2015). 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 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 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.**

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3.5 CULTURAL RESOURCES

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:				
a. Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5?	☐	☐	☐	☒
b. Cause a substantial adverse change in the significance of an archaeological resource as defined in Section 15064.5?	☐	☒	☐	☐
c. Directly or indirectly destroy a unique paleontological resource or site or unique geological feature?	☐	☒	☐	☐
d. Disturb any human remains, including those interred outside of dedicated cemeteries?	☐	☒	☐	☐

3.5.1 Regulatory Setting

Federal Laws, Regulations, and Policies

National Historic Preservation Act

The proposed project would require a permit from USACE 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) 306108, 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 (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.

Note that typically, USACE/SHPO consultation is limited to the 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 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.

The lead agency having jurisdiction over a project is also responsible to ensure that paleontological resources are protected in compliance with CEQA and other applicable statutes. Paleontological and historical resource management is also addressed in Pub. Res. Code Section 5097.5, "Archaeological, Paleontological, and Historical Sites." This statute defines as a misdemeanor any unauthorized disturbance or removal of a fossil site or remains on public land and specifies that state agencies may undertake surveys, excavations, or other operations as necessary on state lands to preserve or record paleontological resources. This statute applies to construction or other project-related impacts that would occur on state-owned or state-managed lands.

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

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, a 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.

3.5.2 Environmental Setting

Prehistory

Little archaeological work has been conducted in the Modesto area or in the San Joaquin Valley in general; therefore, the archaeology of the 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 time 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 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 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 Northern Valley tribes closely resembled the Yokuts groups to the south, although there were some cultural 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. Hunting provided 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, Kings, and other rivers and streams that flowed from the Sierra. Smith was followed by fellow trappers, including Peter Ogden, Ewing Young, Kit Carson, and Joseph Walker.

The first permanent European settlement may have occurred in Stanislaus County 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 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 hungry for 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 project area was agricultural, and it has remained so. 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 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 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, shark teeth, and sea urchins (Sierra College 2016).

Cultural Resources 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 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 3.17, *Tribal Cultural Resources.*

Archival Research

A records search was conducted in November 2016 by the Central California Information Center (CCIC) of the California Historical Resources Information System (CHRIS), located at California State University at Stanislaus (CCIC File No. 10088N; **Appendix C**). The purpose of the records search 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 records search for the project study area encompassed the project area and a ½-mile study radius around the project area.

The record search found that four cultural resources studies had previously been conducted within the project study area, as listed in **Table 3.5-1**. No cultural resources were recorded within the project area as the result of these surveys, although one previously recorded ranch complex resource was recorded on the opposite side of the Tuolumne River and about ¼ downstream of the project study area.

Table 3.5-1. Previous Cultural Resources Studies in the Project Study Area

CCIC No.	Author(s)	Year	Title
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
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	Geer Road Bridge Retrofit, Archaeological Survey
ST-06446	M.A. Peak	2006	Cultural Resources Assessment for the Turlock Irrigation Districts 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 (JRP) and Archaeological Survey Report

Field Survey and Results

A field review of the project study area, including the proposed access roads, was conducted by a Horizon archaeologist on October 18, 2016. Ground surface visibility was good to fair throughout the project area. No cultural resources were identified.

3.5.3 Discussion of Checklist Responses

a. Adverse change in the significance of a historical resource—No Impact

No cultural resource within the project study area has been determined to be eligible for inclusion in the CRHR or otherwise eligible as a significant historic resource in accordance with CEQA standards, and, thus, defined as a historical resource. As a result, there would be **no impact** on historical resources.

b. Adverse change in the significance of an archaeological resource—Less than Significant with Mitigation

An archaeological survey was conducted of the proposed project site, and no archaeological resources were found; however, archaeological remains could be buried with no surface manifestation. The wet well, temporary pump site, and security fencing would be located in the area that was completely disturbed to a depth of at least 65 feet for construction of the infiltration gallery; thus, there is no likelihood of encountering buried archaeological materials during the construction of these features. The settling basin would be constructed at ground level. Improvements to the unpaved access road would involve scraping and grading, however, which have the potential to uncover buried archaeological remains. 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 Measure CR-1 (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 CRHR-eligible archaeological sites accidentally uncovered during construction to a level that is **less than significant**.

Mitigation Measure CR-1: Suspend Construction Immediately if Cultural Resources Are Discovered, Evaluate All Identified Cultural Resources for CRHR Eligibility, and Implement Appropriate Mitigation Measures for Eligible Resources.

Not all cultural resources are visible on the ground surface. As a result, construction of some of the proposed project facilities (e.g., the access road) has the potential to uncover buried archaeological materials. If any cultural resources, including structural features, unusual amounts of bone or shell, flaked or ground stone artifacts, historic-era artifacts, 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 shall be contacted.

All cultural resources uncovered during construction within the project site shall be evaluated for eligibility for inclusion in the CRHR. Resource evaluations shall be conducted by individuals who meet the U.S. Secretary of the Interior's professional standards in archaeology, history, or architectural history, as appropriate. If any of the resources meet the eligibility criteria identified in Pub. Res. Code Section 5024.1 or State CEQA Guidelines Section 21083.2(g), mitigation measures will be developed in consultation with SRWA and Native American tribes, if appropriate, and implemented in accordance with State CEQA Guidelines Section 15126.4(b) before construction resumes.

c. Destruction of a unique paleontological resource or site or unique geological feature—Less than Significant with Mitigation

As with archaeological resources, paleontological resources are not always visible on the ground surface; this is particularly applicable for fossils buried in Quaternary-age alluvium. The wet well, temporary pump site, and security fencing are located in an area that was completely disturbed for construction of the infiltration gallery system, but the areas of the proposed settling basin and access road have the potential to yield buried paleontological resources, though the likelihood is low. 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 CR-2 (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 to a level that is **less than significant**.

Mitigation Measure CR-2: 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.

Any discovery of paleontological resources during construction shall be evaluated by a qualified paleontologist, as defined in *Standard Procedures for the Assessment and Mitigation of Adverse Impacts to Paleontological Resources* (Society of Vertebrate Paleontology 2010). 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, following the guidelines of the *Standard Procedures for the Assessment and Mitigation of Adverse Impacts to Paleontological Resources* (Society of Vertebrate Paleontology 2010) and in consultation with SRWA. Work shall not resume until authorization is received from SRWA and any recommendations received from the qualified paleontologist are implemented.

d. Disturbance of any human remains, including those interred outside of dedicated cemeteries—Less than Significant with Mitigation

No human remains were identified at the proposed project site as a result of background research or the field survey. The potential for human remains to be identified on the site during construction is considered low, although their presence cannot be entirely discounted. Implementation of **Mitigation Measure CR-3 (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**.

Mitigation Measure CR-3: 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, and Seismicity

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the Project:				
a. Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☐	☒
ii. Strong seismic ground shaking?	☐	☐	☒	☐
iii. Seismic-related ground failure, including liquefaction?	☐	☐	☒	☐
iv. Landslides?	☐	☐	☒	☐
b. Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐
c. 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 an on-site or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?	☐	☐	☒	☐
d. 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?	☐	☐	☒	☐
e. 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?	☐	☐	☐	☒

3.6.1 Regulatory Setting

Federal Laws, Regulations, and Policies

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 (NIST). Since its inception, NEHRP has shifted its focus from earthquake prediction to hazard reduction. The current program objectives (NEHRP 2016) are as follows:

1. Developing effective measures to reduce earthquake hazards;
2. Promoting the adoption of earthquake hazard reduction activities by federal, state, and local governments, national building standards and model building code organizations, engineers, architects, building owners, and others who play a role in planning and constructing buildings, bridges, structures, and critical infrastructure or "lifelines";
3. Improving the basic understanding of earthquakes and their effects on people and infrastructure through interdisciplinary research involving engineering, natural sciences, and social, economic, and decision sciences; and
4. Developing and maintaining the USGS seismic monitoring system (Advanced National Seismic System); the NSF-funded project aimed at improving materials, designs, and construction techniques (George E. Brown Jr. Network for Earthquake Engineering Simulation); and the global earthquake monitoring network (Global Seismic Network).

Implementation of NEHRP objectives is accomplished 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 (Pub. Res. Code Section 2621 et seq.) was passed 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." 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

The Seismic Hazards Mapping Act of 1990 (Pub. Res. Code Sections 2690–2699.6) establishes statewide minimum public safety standards for mitigation of earthquake hazards. While the Alquist-Priolo Act addresses surface fault rupture, the Seismic Hazards Mapping Act addresses other earthquake-related hazards, including strong ground shaking, liquefaction, and seismically induced landslides. Its provisions are similar in concept to those of the Alquist-Priolo Act: The state is charged with identifying and mapping areas at risk of strong ground shaking, liquefaction, landslides, and other seismic hazards, and cities and counties are required to regulate development within mapped seismic hazard zones. In addition, the act addresses not only seismically induced hazards but also expansive soils, settlement, and slope stability. Under the Seismic Hazards Mapping Act, cities and counties may withhold the development permits for a site within seismic hazard zones until appropriate site-specific geologic and/or geotechnical investigations have been carried out and measures to reduce potential damage have been incorporated into the development plans.

California Building Standards Code

Title 24 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. The CBC specifies criteria for open excavation, seismic design, and load-bearing capacity directly related to construction in California.

Local Laws, Regulations, and Policies

The *Stanislaus County General Plan* guides land use and development in the unincorporated Stanislaus County (Stanislaus County 2015). The Conservation/Open Space Element of the general plan emphasizes the conservation and management of natural resources and the preservation of open space lands. The Safety Element of the general plan focuses on the protection of the community from any 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. 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.

3.6.2 Environmental Setting

The proposed project area is located within the alluvial valley developed along the Tuolumne River in eastern Stanislaus County. The headwaters of the river are formed in the mountainous area of the Sierra Nevada east of the project site. The headwaters drain granitic terrain of the Sierran Batholith in the core of the mountain range. Flowing westward, the river dissects Tertiary volcanic and sedimentary rocks that overlie older Jurassic metavolcanic and metasedimentary materials of the foothills. Eventually, the river emerges onto the Great Valley. At this regional break in slope, the river has deposited large alluvial fans. These fans resulted in creation of the Modesto Formation, sedimentary rocks composed of arkosic sediments and deposits (California Geological Survey [CGS] 1991). Near the project site and the Tuolumne River, younger alluvium overlies the Modesto Formation.

Mapping by the U.S. Department of Agriculture, Natural Resources Conservation Service (NRCS) identifies soils underlying the project site as Grangeville very fine sandy loam, 0 to 1 percent slopes (NRCS 2017a). Typical of alluvial fans, this soil unit is alluvium derived from granite. Grangeville very fine sandy loam is considered somewhat poorly drained, with a very low runoff class and moderate to high susceptibility to erosion (NRCS 2017b). However, the project area supported historic aggregate mining operations, and has been subsequently restored, and as such, native soils are already highly disturbed within the vicinity of the project site.

A geotechnical investigation conducted by West Yost Associates (2017) describes underlying geologic and soil conditions near the infiltration gallery/wet well connection interface. Based on observed underlying conditions, subsurface materials were divided into four descending and overlapping units:

Unit 1: medium-dense silty sand and sandy silt with sporadic layers of clean sand and some clay extending to an elevation ranging from 51 to 53 feet above msl.

Unit 2: dense sandy gravel with few fines (5 to 10 percent). This unit would yield substantial water during construction due to its relatively high hydraulic conductivity. Unit 2 extends to an elevation ranging from 0 to 2 feet above msl.

Unit 3: stiff sandy silt, clayey sand, and silty sand with interbedded layers of lean clay (1 to 2 feet thick). This layer has the potential to provide some hydraulic resistance during construction. Unit 3 extends to an elevation ranging from 15 to 16 feet below msl.

Unit 4: very stiff to hard interbedded silt and clay with sporadic clean sand layers. Overall, this unit would have the lowest permeability of the encountered soils.

The project site is located in an area that experiences relatively low seismic activity and is moderately susceptible to seismic-related hazards. Seismic ground shaking is estimated to be low to moderate with an estimated peak horizontal acceleration of 0.354 g[1] (a unit of acceleration due to Earth's gravity; CGS 2008). The project site is not located within a designated Alquist-Priolo Earthquake Fault Zone and no active faults have been identified near the project area (CGS 2010). The Foothill Fault System (approximately 22 miles northeast) and the San Joaquin Fault (approximately 22 miles west) are the closest identified potentially active fault zones (CGS 2010).

Groundwater elevations at the project 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 project site is estimated at 68 feet above msl (West Yost Associates 2017).

3.6.3 Discussion of Checklist Responses

a. Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:

ii. 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 closest active faults (i.e., evidence of fault rupture within the last 11,000

[1] Peak ground acceleration (PGA) is a measure of how quickly the earth shakes in a given geographic area (i.e., the intensity of the earthquake). Generally speaking, a PGA of 0.001 *g* is perceptible by people, a PGA of 0.02 *g* causes people to lose their balance, and a PGA of 0.50 *g* may cause well-designed buildings to collapse if the duration of the shaking is sustained.

years) are the Foothill Fault System (approximately 22 miles northeast) and the San Joaquin Fault (approximately 22 miles west) (CGS 2010). There would be **no impact** related to rupture of a known earthquake fault.

iii. Strong seismic ground shaking—Less than Significant

In general, the anticipated level of ground shaking at the project site would be low to moderate as compared to other regions of California. The wet well and concrete foundations would be constructed to current (2016) 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**.

iii, iv. Seismic-related ground failure, including liquefaction and landslides—Less than Significant

The proposed 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 (West Yost Associates 2017). These alluvial materials, coupled with the shallow groundwater elevation, may result in unstable slopes during excavation and trenching activities for wet well installation. 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. In addition, the alluvial material and high groundwater table may also subject proposed project facilities to liquefaction during large seismic events.

As part of the proposed project, SRWA and its contractors would incorporate the site-specific recommendations outlined in the geotechnical investigation (West Yost Associates 2017) into the design and construction of all project facilities. In addition, 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**.

b. Substantial soil erosion or the loss of topsoil—Less than Significant

The proposed project would include the construction of a temporary pump station and settling basin. 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 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 NPDES General Construction Permit and implementation of SWPPP requirements, as required by Section 402 of the Clean Water Act and state and local construction regulations, would ensure that this impact would be less than significant.

Therefore, construction and operation of the proposed project would not result in substantial soil erosion and would be **less than significant**.

c. 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 low. Although excavation of the wet well and the pump station foundation would 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 discountable.

The proposed project site 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 (West Yost Associates 2017). These coarse materials, coupled with the shallow groundwater elevation, may result in unstable slopes during excavation and trenching activities for wet well installation. Proposed 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. In addition, the alluvial material and high groundwater table may also subject proposed project facilities to liquefaction during large seismic events.

However, as described in the geotechnical investigation (West Yost Associates 2017) and item “a(iii)” above, the proposed project facilities would be designed and installed to address site-specific seismic-related or soil stability issues and minimize the potential risk of structural failure. Prior to construction activities, a shoring and excavation plan would be prepared that would describe appropriate methods of slope stabilization to be implemented during excavation activities. This plan would include some combination of sheet piling, jet grouting and/or soil freezing, resulting in a perimeter wall of stabilized soil columns impervious to groundwater migration. 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**.

d. Location on expansive soil, creating substantial risks to life or property —Less than Significant

According to NRCS mapping (NRCS 2017a) and geotechnical investigations (West Yost Associates 2017), soils underlying the project site consist of Grangeville 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**.

e. 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—No Impact

Septic tanks or alternative wastewater disposal systems would not be installed as part of the proposed project. The proposed project would have **no impact**.

3.7 GREENHOUSE GAS EMISSIONS

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:				
a. Generate a net increase in greenhouse gas emissions which may have a significant impact on the environment?	☐	☐	☒	☐
b. Conflict with a county-adopted climate action plan or another applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☒	☐

3.7.1 Regulatory Setting

Federal Laws, Regulations, and Policies

At the federal level, USEPA has developed regulations to reduce greenhouse gas (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).

On October 5, 2009, Executive Order (EO) 13514, Federal Leadership in Environmental, Energy, and Economic Performance, was issued by the Council on Environmental Quality (CEQ). The EO 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 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. EOs 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, 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 EOs 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. The update outlines that the State Water Resources Control Board will implement measures to maintain water supply reliability and reduce GHG emissions.

In April 2015, Governor Brown issued EO B-30-15, which established a GHG reduction target of 40 percent below 1990 levels by 2030. This is between previously established targets of achieving 1990 levels by 2020 and 80 percent below 1990 levels by 2050. The EO also directs the state to incorporate climate change impacts in the Five-Year Infrastructure Plan, updating the state's climate adaptation strategy, and implement measures under existing agency and departmental authority to reduce GHG emissions.

Senate Bill 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.

CARB is updating the Scoping Plan to reflect progress since 2005, additional reduction measures, and plans for reductions beyond 2020. CARB recently released the draft proposed second update to reflect the 2030 target set by Executive Order B-30-15 and codified by SB 32, including establishing strategies to comply with SB 32 (CARB 2017).

The updated Scoping Plan is expected to be adopted in late summer 2017. The draft scoping plan suggests several areas where measures for water and wastewater treatment could be considered. This includes improving the energy consumption for water pumping, treatment, heating; utilizing anaerobic digestion and wastewater treatment plant capacity to help process organic waste diverted from landfills; using biosolids for soil amendments; and incentivizing methane capture systems at wastewater treatment plants to produce renewable electricity, transportation fuel, or pipeline biomethane.

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.

Local Laws, Regulations, and Policies

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 2008, 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 2009). 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 2009); 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 2009). 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.15a.** Make information available regarding the San Joaquin Valley Air Pollution Control District Best Performance Standards for industrial energy efficiency.

Stanislaus County General Plan

The *Stanislaus County General Plan's* Conservation and Open Space Element (2015) 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. Additional air quality-related goals and policies described in the Section 3.3, *Air Quality*, would also apply to the Proposed Project.

3.7.2 Environmental Setting

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 2014, total California GHG emissions were 441.5 million tons of carbon dioxide equivalents (MT CO_2e) (CARB 2016). 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 reached a peak in 2004 and have since decreased by 9.4. In 2014, the transportation sector of the California economy was the largest source of emissions, accounting for approximately 36 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 MT 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 other counties (e.g., Sacramento County, 11.0 MT CO_2e; San Diego County, 10.0 MT CO_2e) (ICF International 2013).

3.7.3 Discussion of Checklist Responses

a. Generate a net increase in greenhouse gas emissions which may have a significant impact on the environment—Less than Significant

Construction of the proposed project and pumping and testing activities would result in one-time emissions of GHGs. As shown in **Table 3.7-1**, combined one-time GHG emissions associated with the proposed project's construction and testing activities would be approximately 806 MT CO_2e, spread out between 2017 and 2018. These one-time emissions would not continue to occur once construction and testing activities are complete.

Table 3.7-1. Proposed Project GHG Emissions

Emissions Source	MT CO_2e
Construction 2018	258
Construction 2019	548
Total One-time (Construction and Testing Activities)	806

Note: Construction and testing activities emissions based on CalEEMod modeling results (Appendix A).

As described above, the SJVAPCD has not issued clear one-time GHG emissions thresholds or BPS for construction and testing activities. However, based on past literature (USEPA 2009), the majority of construction-related GHG emissions originate from the combustion of fossil fuels; implementation of BMPs to reduce fossil fuel combustion would minimize construction-related GHG emissions associated with the proposed project. If BPS are not available, the SJVAPCD encourages users to demonstrate at least a 29-percent reduction from BAU, which is the level required on average in the Scoping Plan to meet the 2020 goal of AB 32. This is appropriate for projects that will have a long term and annual release of GHGs, but is less applicable to one-time releases such as is the case with this project. A review of the Scoping Plan reduction goals does not show any measures that are applicable to this short-term construction and testing project. General fuel efficiency measures and the low carbon fuel standard would reduce the GHG emissions from the combustion of fossil fuels over the life cycle of the project, but it is difficult to distinguish a specific reduction level from BAU that would occur with this project. Therefore, it is appropriate to consider whether there is a "bright line" threshold below which GHG emissions are unlikely to impede implementation of AB 32. Several air districts in California have proposed "bright line" thresholds for projects, under which they are not anticipated to result in a significant impact on global climate change or impede the goals of AB 32. The most conservative "bright-line" threshold adopted is 1,100 MT/year (Bay Area Air Quality Management District (BAAQMD) 2010; SMAQMD 2016a and 2016b). Since the proposed project's emissions, even if they were to occur within one calendar year, would be well below such significance thresholds, the impact is **less than significant**.

b. Conflict with any applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases—Less than Significant

The proposed project would generate temporary emissions of GHGs and would include the implementation of measures to minimize the project's construction- and pumping/testing-related emissions. These measures would not conflict with any measures identified by SJVAPCD since there are no BPS for these types of sources. As discussed above, quantification of a reduction from BAU is difficult for this one-time release of GHG emissions. However, GHG emission reduction strategies that are in place to improve fuel efficiency of vehicles and decrease the life cycle emissions with the low carbon fuel standard would reduce GHG emissions associated with this project. There are no other strategies outlined in the Scoping Plan that are applicable to this project. Therefore, this project would be consistent with the goal of AB 32, as well as the policies and actions described in CARB's *Scoping Plan* (2014) and SJVAPCD's *Climate Change Action Plan* (2009) and would not impede progress of these plans. In addition, the proposed project would comply with the RST's regional CAP goals, strategies, and policies, as well as Stanislaus County's applicable general plan policies related to reduced energy use for water supply and distribution activities and conserving water. Therefore, the proposed project would comply with all applicable plans, policies, and regulations, including AB 32 and the policies and actions described in CARB's *Scoping Plan* and SJVAPCD's *Climate Change Action Plan*. This impact would be **less than significant**.

3.8 Hazards and Hazardous Materials

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the Project:				
a. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☒	☐	☐
b. 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?	☐	☒	☐	☐
c. Emit hazardous emissions or involve handling hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☐	☒
d. Be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, create a significant hazard to the public or the environment?	☐	☐	☐	☒
e. Be located within an airport land use plan area or, where such a plan has not been adopted, be within 2 miles of a public airport or public use airport and result in a safety hazard for people residing or working in the study area?	☐	☐	☐	☒
f. Be located within the vicinity of a private airstrip and result in a safety hazard for people residing or working in the study area?	☐	☐	☐	☒
g. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☒	☐	☐
h. 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?	☐	☐	☒	☐

3.8.1 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. The major federal, state, and regional agencies enforcing these regulations are USEPA; Occupational Safety and Health Administration (OSHA); California Department of Toxic Substances Control (DTSC); California Department of Industrial Relations, Division of Occupational Safety and Health (Cal/OSHA); California Governor's Office of Emergency Services (Cal OES); SWRCB; Central Valley RWQCB; and SJVAPCD.

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 received 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.

Occupational Safety and Health Administration

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

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. OEHHA, an agency under the California Environmental Protection Agency (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 threshold quantity of a regulated substance are required to develop a risk management plan (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. Certified Unified Program Agencies (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.

3.8.2 Environmental Setting

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). The records search indicates that no listed hazardous materials or waste sites are present on the project site or within the 1-mile search radius (i.e., no sites listed on the NPL, SPL, CERCLIS, LUST, SWLF, or CORTESE list).

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 seasonal (wet) periods (Central Valley RWQCB 2011). Stanislaus County is monitoring the groundwater and implementing corrective actions (i.e., groundwater pumping and treatment).

Wildfire Hazards

The area surrounding the project site is not located within a fire hazard severity zone (CAL FIRE 2007). The nearest fire station, staffed by the Stanislaus Consolidated Fire Protection District, is 1.5 miles north of the project site, near the intersection of Geer Road and Yosemite Boulevard, approximately 3 minutes' driving distance. The City of Hughson Fire Department station is approximately 1.6 miles southwest.

3.8.3 Discussion of Checklist Responses

a. 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 site. 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, proposed 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 would be required to prepare a SWPPP as part of its compliance with applicable NPDES permits; the SWPPP would include spill prevention measures for stationary source equipment and immediate spill cleanup. The potential for adverse impacts would be further minimized through the implementation of **Mitigation Measure HYDRO-1 (Locate Staging and Storage Areas Outside of the Floodplain, and Winterize Areas Subject to Winter Inundation)**. 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 (TID 2015).

Ground stabilization methods during excavation of the wet well may include jet grouting and/or soil freezing; in particular, the soil freezing process involves use of equipment containing a refrigerant (calcium chloride brine). The refrigerant would be contained inside buried, vertical steel pipes. Upon completion of wet well construction, the refrigerant would be extracted from the pipes and removed from the site. A contractor with specific knowledge, training, and experience with routine transport, use, disposal and/or accidental release of the refrigerant would be on site during soil freezing operations.

During operation, proposed project facilities use a combination of electric and/or diesel/gas-powered pumps. Facility maintenance activities would involve small quantities of lubricating fluids and solvents. Compliance with standard federal, state, and local hazardous materials regulations and the SWPPP prepared for the proposed project would avoid any substantial hazard to the public or the environment associated with routine transport, use, disposal, and/or accidental release of such materials during project operation.

The implementation of Mitigation Measure HYDRO-1, described in item 3.9.a in Section 3.9, *Hydrology and Water Quality*, along with compliance with standard federal, state, and local hazardous materials regulations (including implementation of a SWPPP under the NPDES), 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**.

b. 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

For the same reasons described in item "a" above, the implementation of Mitigation Measure HYDRO-1, along with compliance with standard federal, state and local hazardous materials regulations (including implementation of a SWPPP under the NDPES), would reduce the potential for accidental release of hazards materials to the public or the environment to a level that is **less than significant with mitigation**.

c. Emit hazardous emissions or involve handling hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school—No Impact

No existing or proposed schools are located within ¼ mile of the project site. The nearest schools (i.e., Fox Road Elementary and Emilie J. Ross Middle School) are located approximately 1 mile to the southwest in Hughson. Therefore, there would be **no impact**.

d. 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 site (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 site had been identified as having 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 discontinuation 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 may 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 nondetection; 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 to be found in the river or groundwater in concentrations above environmental screening levels is low. In addition, at the proposed project site, a combination of sheet piling, jet grouting and/or soil freezing would be utilized during excavation of the wet well, which would provide a perimeter wall of stabilized soil columns impervious to groundwater migration and would substantially limit dewatering volumes. As a result, the potential for contaminated groundwater to be pumped from the wet well excavation or the river to the proposed project site is minimal. Therefore, potential health hazards to the public or the environment would be **less than significant**.

e, f. Located within an airport land use plan area or, where such a plan has not been adopted, be within 2 miles of a private airport or public airport and result in a safety hazard for people residing or working in the study area—No Impact

The proposed project site is not within an airport land use plan area or within 2 miles of a private or public airport. The nearest public airport, the Modesto County Airport, is located approximately 5.8 miles west of the project site. Therefore, there would be **no impact**.

g. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan—Less than Significant with Mitigation

Construction- and operation-related employee vehicle trips and truck trips for the proposed project would increase traffic and could result in traffic slowdowns on Geer Road and the public access road to Fox Grove Regional Park over the 15- to 20-month duration of the project. An increase in traffic could impair emergency responders, especially on the narrow park access road. However, construction-related traffic would be temporary. Approximately seven employee vehicles per day would enter and leave the site; an average of approximately two to three trucks would travel to and from the project site on a daily basis. Access to the project site and surrounding properties for fire and emergency response vehicles would be maintained at all times; however, trucks traveling on the narrow access road could temporarily impede access to the park or the project site for emergency vehicles. There would be no 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 would implement **Mitigation Measure TRANS-1 (Prepare and Implement a Construction Traffic Management Plan)**, described in item 3.16.d in Section 3.16, *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**.

h. 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—Less than Significant

According to the Safety Element of the *Stanislaus County General Plan* (2015), the areas of potential wildland fire hazard in Stanislaus County are the Diablo Range, located west of Interstate 5, and the Sierra Nevada foothills in the eastern portion of the county. As indicated in this element of the general plan, the CAL FIRE has stated that natural vegetation, along with steep topography and lack of access, produce overall wildland fire ratings of moderate to high in wildland fire areas (Stanislaus County 2015). The project site is located in central Stanislaus County adjacent to the Tuolumne River in an area dominated by agriculture, and is not located within a wildland fire hazard area.

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 through Fox Grove Regional Park or, if necessary, on the Nazareno property agricultural road on the west side of Geer Road. 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**.

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3.9 Hydrology and Water Quality

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:				
a. Violate any water quality standards or waste discharge requirements?	☐	☒	☐	☐
b. Substantially deplete groundwater supplies or interfere substantially with groundwater recharge, resulting in 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 that would not support existing land uses or planned uses for which permits have been granted)?	☐	☐	☒	☐
c. 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 that would result in substantial erosion or siltation on site or off site?	☐	☐	☒	☐
d. 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 that would result in flooding on-site or off-site?	☐	☐	☒	☐
e. Create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	☐	☐	☐	☒
f. Otherwise substantially degrade water quality?	☐	☒	☐	☐
g. 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?	☐	☐	☐	☒
h. Place within a 100-year flood hazard area structures that would impede or redirect floodflows?	☐	☐	☒	☐

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
i.	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?	☐	☐	☒	☐
j.	Contribute to inundation by seiche, tsunami, or mudflow?	☐	☐	☐	☒

3.9.1 Regulatory Setting

Federal Laws, Regulations, and Policies

Clean Water Act

The CWA is the primary federal law that protects the quality of the nation's surface waters, including lakes, rivers, and coastal 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). 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), states are required to identify "impaired water bodies" (those 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 development of control plans to improve water quality. USEPA then approves the state's recommended list of impaired waters or adds and/or removes water bodies. 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, and protections are administered by a federal or state agency. The Tuolumne River is designated as a Wild and Scenic River above Don Pedro Dam, but not below it (National Wild and Scenic Rivers System 2017).

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 1969 Porter-Cologne Water Quality Control Act, known as the Porter-Cologne Act, regulates and coordinates California's activities with USEPA under 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 nine RWQCBs, which 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**.

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																		
New 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

P = Potential beneficial uses

L = Existing limited beneficial uses

Source: Central Valley RWQCB 2016

As shown in Table 3.9-1, the segment of the Tuolumne River from New 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

DWR's 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 passing or imminent floods threaten the safety of any dam or reservoir (DSOD No Date).

Sustainable Groundwater Management Act

The Sustainable Groundwater Management Act (SGMA), passed in 2014, became law in 2015 and created a legal and policy framework to locally 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.
- Depletions of interconnected surface water that have significant and unreasonable adverse impacts on beneficial uses of the surface water.

Local Laws, Regulations, and Policies

Stanislaus County General Plan

The *Stanislaus County General Plan* guides land use and development in the unincorporated area of Stanislaus County (Stanislaus County 2015). The Conservation/Open Space Element emphasizes the conservation and management of natural resources and the preservation of open space lands. Goals and policies related to hydrology and water quality 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 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.

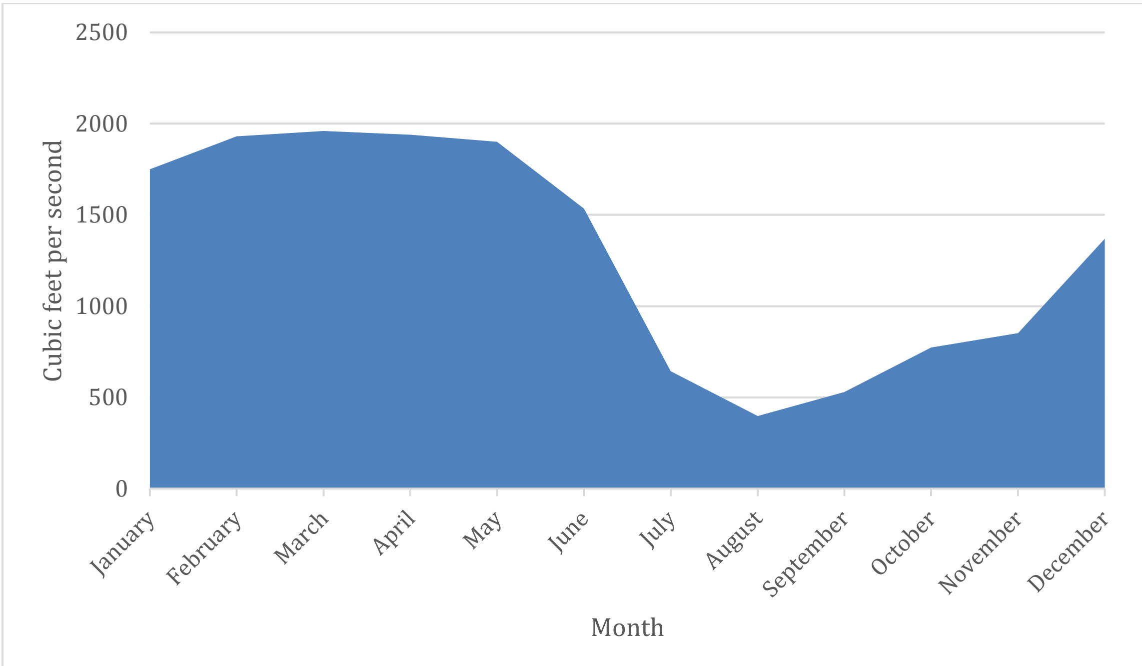
3.9.2 Environmental Setting

Hydrology

The Tuolumne River, the largest of the three main tributaries to the San Joaquin River, originates in the Sierra Nevada mountains. 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 the spring.

As described further under "Geomorphology" below, peak flows in the Tuolumne River have been reduced substantially since construction of the Don Pedro 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.



Source: USGS 2017

Figure 3.9-1. Mean Monthly Discharge at USGS Gage 11290000 (Tuolumne River at Modesto, CA), Water Years 1940-2016

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.

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 the SWRCB's Section 303(d) list, as shown in **Table 3.9-2**.

Table 3.9-2. 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]
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: 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

Geomorphology

As noted above, 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 La Grange Dam) as well as channel and floodplain form.

Since 1893, the La Grange Dam (followed by the Don Pedro 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 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 Don Pedro 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 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). Much of the dredger spoils (tailings) were removed in the late 1960s to construct 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 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 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/composition, making 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[2] 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. Between 1997 and 2006, it is estimated that an average of 457,000 acre-feet per year was pumped by agricultural and urban agencies, and small domestic water systems and private property owners (TGBA 2008). On average, within the subbasin, groundwater levels declined by nearly 7 feet 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).

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. As of 2015, this entity had begun the stakeholder engagement process for formation of a GSA (TGBA 2015).

Floodplain and Dam Inundation Area

Portions of the project area are located within the 100-year floodplain, as mapped by FEMA (2008). According to the *Stanislaus County General Plan* dam inundation map, the entire project site 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 New 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.

3.9.3 Discussion of Checklist Responses

a, f. Violate any water quality standards or waste discharge requirements or otherwise substantially degrade water quality—Less than Significant with Mitigation

Construction

Construction of the wet well, settling basin, and related facilities would require 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 away into nearby water bodies 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.

Because the proposed project would disturb more than 1 acre of land, SRWA (or its contractor) would be required to obtain NPDES coverage under the General Construction Permit. This would require development and implementation of a SWPPP, including

[2] "E-clay" is a term for 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).

construction BMPs to prevent and control erosion. The SWPPP also would be required to identify all potential sources of pollution and develop effective measures to prevent pollutants from being discharged from the site. Therefore, the SWPPP would include spill prevention measures for stationary equipment, as well as spill response procedures in the event any fuels or hazardous materials were to spill. Additionally, the Proposed Project would implement **Mitigation Measure HYDRO-1 (Locate Staging and Storage Areas Outside of the Floodplain, and Winterize Areas Subject to Winter Inundation)**, which would require that staging/storage areas for construction vehicles, equipment, parts, and materials be located outside of the floodplain where inundation from high flows would not cause these items to be deposited in the river.

Implementation of Mitigation Measure HYDRO-1 and the SWPPP would be anticipated to prevent significant adverse effects on water quality or violation of water quality objectives during Project construction. Therefore, this impact would be **less than significant with mitigation**.

Mitigation Measure HYDRO-1: Locate Staging and Storage Areas Outside of the Floodplain, and Winterize Areas Subject to Winter Inundation.

SRWA shall require in construction drawings and specifications that staging/storage areas for construction vehicles, equipment, parts, and materials, including fuels, lubricants, and solvents, will be located outside of the floodplain where inundation of high flows will not cause these items to be deposited into the river.

In addition, project facilities located within the floodplain, and subject to inundation during periods of high flow in the Tuolumne River, such as the access road from Fox Grove Regional Park to the project site, and the proposed detention basin, will be winterized prior to the onset of the rainy season (October through April) to ensure that sediment or other contaminants are not discharged to surface waters in the event that the facilities are inundated. This may include decommissioning the detention basin (i.e., filling and revegetating), or use of other measures to stabilize the basin substrate.

These measures shall also be incorporated into the SWPPP, as appropriate.

Operation

Operation of the proposed project would involve infiltration gallery backflushing to purge or remove accumulated sediment from the gallery structures. This could result in mobilization of sediment in the water column, which could adversely affect water quality and beneficial uses.

The Tuolumne River is not designated as impaired for sediment but is impaired for various other contaminants, as shown in Table 3.9-2. Over the years since the infiltration gallery was installed, sediment has settled into the spaces around the water inflow pipes. In the early stages of testing, air will be blown through the submerged pipes to backflush the deposited sediment and clear the pipelines for pumping. As described in Chapter 2, *Project Description,* the maximum amount of sediment accumulated in the gravel pack surrounding the infiltration gallery to be pumped during infiltration gallery testing is estimated to be 230 cubic yards, but is likely less than this (SPF Water Engineering 2016). In addition, SRWA would comply with Mitigation Measure BIO-1, which requires that air purging be scheduled between June 1 and September 30 or another work period identified in consultation with NMFS, USFWS, and CDFW that would avoid substantial adverse effects on special-status fish. As described in Section 3.4, *Biological Resources,* 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. Given that the proposed project would be operated for a short time (i.e., up to seven 24-hour periods over a span of 1 month for test pumping) and that, with implementation of a SWPPP, no new sediment would be deposited into the river during project operation, impacts on water quality from sediment mobilized in the water column would not be anticipated to result in substantial adverse impacts on water quality. Therefore, this impact would be **less than significant.**

b. Substantially deplete groundwater supplies or interfere substantially with groundwater recharge, resulting in a net deficit in aquifer volume or lowering of the local groundwater table level—Less than Significant

The purpose of the proposed project is to provide information about Tuolumne River water quality that would facilitate planning and design of a new water treatment plant as part of SRWA's proposed Surface Water Supply Project. That larger project is intended to reduce reliance on groundwater and thereby preserve groundwater supplies for residents of Turlock and Ceres. As described in Chapter 2, *Project Description,* the Cities currently rely solely on groundwater to meet municipal and industrial water demand; given recent and historical reductions in groundwater levels, SRWA has determined that development of a surface supply is important for meeting long-term drinking water demands.

Construction of the proposed project would not require substantial water supplies (perhaps a small amount of water for dust control during construction) and would not use groundwater. Excavation/construction of the wet well may encounter groundwater and require dewatering of the excavation area, but this would not substantially affect groundwater supplies. Operation of the proposed project would involve production of up to 281 acre-feet of water over approximately 7 days of pumping during the course of a month. This water would be discharged back into the river, onto adjacent fields as irrigation water, or into or the Nazareno pond, and would not be consumptively used. Given the short duration of project operation and the relatively small quantity of water to be produced in comparison to typical flows in the river (see Figure 3.9-1), production of this quantity of water would not substantially affect groundwater recharge that may occur via percolation through the river bottom.

The proposed project would include minimal amounts of impervious surfaces that could substantially interfere with groundwater recharge. Access road improvements would consist of grading and covering the existing dirt road with aggregate base, which would remain permeable. The only aboveground impervious surface included as part of the proposed project would be the concrete top to the wet well, which would cover approximately 2,126 square feet. As described in Chapter 2, *Project Description,* stormwater from the temporary pump station site would be discharged to the level, pervious surface of the surrounding area where it could infiltrate to the soil and groundwater below. Overall, this impact would be **less than significant.**

c, d. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, resulting in substantial erosion, siltation, or flooding on-site or off-site—Less than Significant

Operation of the infiltration gallery would pull water from the Tuolumne River through a series of pipes into the wet well and pump that water into the adjacent settling basin. The infiltration gallery itself is an existing facility, the operation of which was approved by TID in 2001 (EDAW 2001), although TID did not subsequently operate the infiltration gallery. The water being withdrawn from the river was previously being withdrawn by TID 26 miles upstream at the La Grange Dam under an existing water right. Therefore, operation of the infiltration gallery would not substantially alter existing drainage patterns of the site or the area.

The Proposed Project would alter the existing drainage pattern of the site through creation and use of the wet well and settling basin. These facilities could collect water that falls on or near the site as precipitation, but this would not be anticipated to result in substantial siltation, erosion, or flooding. Soil stockpiled during construction would be hydroseeded or otherwise protected in accordance with the SWPPP to prevent erosion. As described in Chapter 2, *Project Description,* water pumped from the infiltration gallery would be pumped to the settling basin before it is pumped to the Nazareno pond, used as irrigation water on nearby fields or orchards, or discharged back to the river. The size of the settling basin and the residence time before use of the water would allow sediment to settle out in the basin, preventing discharge of sediment into the pond, fields, or river. The proposed project would not involve construction of large impervious surfaces that could generate substantial runoff causing siltation, erosion, or flooding. Therefore, this impact would be **less than significant.**

e. Create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff—No Impact

The proposed project would not discharge stormwater to any municipal stormwater system. As described in Chapter 2, *Project Description,* runoff from the temporary pump site would be allowed to discharge to the level, pervious surface of the surrounding area for gentle overland flow/infiltration. Therefore, **no impact** would occur.

g. 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—No Impact

The proposed project would not include any housing. Therefore, **no impact** would occur.

h. Place structures within a 100-year flood hazard area resulting in impeding or redirect flood flows—Less than Significant

The permanent facilities to be installed as part of the proposed project would be located above the 100-year flood hazard area and would not substantially impede or redirect flood flows. The wet well would be excavated adjacent to the infiltration gallery and, when completed, would extend approximately 5 feet above the existing ground surface for a total area (including berms) of 4,500 square feet. The finished elevation of the wet well site would be 83.5 feet above msl, which would be above the estimated 100-year flood elevation of 78.7 feet above msl. The temporary settling basin would be located within the 100-year flood hazard area and may capture or detain flood flows that might overtop its surrounding berms, which would be a beneficial effect in terms of impeding or redirecting flood flows. Therefore, this impact would be **less than significant**.

i. Expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding resulting from the failure of a levee or dam—Less than Significant

Proposed project facilities would be within the inundation area for New Don Pedro Dam and could potentially be subject to flooding if that upstream dam were to fail. Most of the proposed project facilities (e.g., wet well and settling basin) would likely not be substantially damaged by flooding. Construction equipment could be damaged by flooding during the winter wet season or in the unlikely event of a dam failure. Construction workers present on site also could be subject to hazards from failure of the New Don Pedro Dam; however, given the low probability of dam failure and the relatively short duration of project construction, this possible exposure to hazards is not considered likely. Therefore, this impact would be **less than significant.**

j. Contribute to inundation by seiche, tsunami, or mudflow—No Impact

The proposed project would not be located near any large lakes, steep slopes, or the ocean; therefore, there is no tsunami risk at the site. The Nazareno pond west of the project site is not large enough to inundate proposed project facilities from seiche, which is typically caused by strong wind and is not expected to occur on this site. The project site is located on and adjacent to a levee that is maintained on a routine basis to provide flood protection to the surrounding area; its composition and slope are not conducive to conditions that could create mudflow. Therefore, the Proposed Project would not contribute to inundation by seiche, tsunami, or mudflow. **No impact** would occur.

3.10 LAND USE AND PLANNING

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:				
a. Physically divide an established community?	☐	☐	☐	☒
b. 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?	☐	☐	☒	☐
c. Conflict with any applicable habitat conservation plan or natural community conservation plan?	☐	☐	☐	☒

3.10.1 Regulatory Setting

Federal Laws, Regulations, and Policies

There are no federal laws, regulations, and/or policies relating to land use and planning that are applicable to the proposed project.

State Laws, Regulations, and Policies

There are no state laws, regulations, and/or policies relating to land use and planning that are applicable to the proposed project.

Local Laws, Regulations, and Policies

Stanislaus County General Plan

The *Stanislaus County General Plan* Land Use Element contains several policy measures are applicable to the project site and any activities associated with it. These policies and any implementation measures that are relevant to the project are listed below (Stanislaus County 2015):

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.

City of Hughson General Plan

The proposed project would be located less than 1 mile from 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 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.

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 2016):

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.

3.10.2 Environmental Setting

The land surrounding the proposed project site consists of orchards and agricultural land to the west and park, agricultural, and rural land to the east, including Fox Grove Regional Park. As described in Section 3.2, *Agriculture and Forestry Resources,* the proposed project site and the park are on land that is not under Williamson Act contract and is therefore considered to be non-enrolled land. Land surrounding the proposed project site to the north, south, and east beyond the park is considered Williamson Act – Prime agricultural land (Stanislaus County 2010). As a result, this land is undeveloped and does not have any residential or commercial structures, aside from the Stanislaus Wildlife Care Center located adjacent to the park along the east side and some farming-related facilities. The primary land use surrounding the site is for agricultural production. In 2014, 691,561 acres of Stanislaus County's 973,440 acres were in agricultural production (Stanislaus County 2014, 2016a).

3.10.3 Discussion of Checklist Responses

a. Divide an established community—No Impact

The proposed project site is located on unincorporated county land that is surrounded by agricultural land. The wet well, temporary pumps, and settling basin would be located on a specific parcel of land adjacent to the Tuolumne River and would not preclude access from one portion of the surrounding community to another. As a result, the proposed project would not physically divide an established community. The proposed project would have **no impact**.

b. Conflict with land use plans or policies—Less than Significant

Under the proposed project, the proposed facilities would be developed on land designated by the County's General Plan Land Use Map as Nonagricultural and Natural Vegetation land that is not under Williamson Act contract. Based on the land classification, there is no agricultural value on the portion of the land where the permanent facilities and most of the temporary facilities (with the exception of the settling basin and associated facilities) are to be constructed. The southern portion of the project site, where the settling basin would be located, is classified as prime farmland and is currently in use as orchards, as described in Section 3.2, *Agriculture and Forestry Resources.* Although the settling basin would occupy this land for the 15-20 months of construction and testing, the orchard would not be affected, and the proposed project would not permanently convert this prime farmland to nonagricultural use. In addition, this land is not under Williamson Act contract. Therefore, this land is not reserved for conservation and the proposed project would not adversely affect the potential for agricultural use of the land.

The proposed project would require the construction of a wet well to house the temporary pumps that would be used during test pumping of the infiltration gallery. The top of the wet well/pump enclosure would be approximately 83.5 feet msl. Policies LU-3.2 and LU-3.6 of the *City of Hughson General Plan*, with requirements about the appearance of new development, would apply to the proposed project under Policy 27 of the *Stanislaus County General Plan* Land Use Element, because the project site is less than 1 mile from the city boundary. The proposed project facilities would not obstruct or degrade the visual character or quality of any buildings or structures located within the city. Therefore, the project would be in compliance with these policies.

The proposed project site is zoned on the County's Zoning Map as A-2-40 (Stanislaus County 1990). These designations permit a range of agricultural, utility, and recreation uses, including uses that are ancillary to agricultural operations. The proposed project is consistent with permitted uses identified in Section 21.20.020(I) of the Stanislaus County Zoning Ordinance (Stanislaus County 2016). During construction and operation, the proposed facilities could discharge water from the settling basin to adjacent orchards or agricultural fields or the Nazareno pond, which would provide an additional short-term benefit to the adjacent agricultural operation. 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**.

c. Conflict with any habitat conservation plan or natural community conservation plan—No Impact

The project area is with the boundaries of the PG&E San Joaquin Valley Operation and Maintenance HCP (CDFW 2015). 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 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 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.**

3.11 Mineral Resources

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:				
a. 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?	☐	☐	☒	☐
b. 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?	☐	☐	☐	☒

3.11.1 Regulatory Setting

Federal Laws, Regulations, and Policies

No federal laws, regulations and policies related to mineral resources apply to the proposed project.

State Laws, Regulations, and Policies

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 2015). 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 General Plan

The *Stanislaus County General Plan* Conservation/Open Space Element contains goals and policies relevant to mineral resources (Stanislaus County 2015). Although the project site was, at one time, subject to mining activities, the gravel mining pit on the property was restored in 2001 and no further mining activities are anticipated. None of these goals or policies are applicable to the proposed project.

3.11.2 Environmental Setting

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.

The project area is designated by the DOC's Division of Mines and Geology (CDMG) as a Mineral Resources Zone (MRZ) containing concrete-grade sand and gravel resources (MRZ-2a, -2b and-3a) (DOC 1993). The project site is located on sand and gravel resources areas that run along 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 proposed project site was previously part of a gravel mining operation along the Tuolumne River. The 2001 project that resulted in construction of the infiltration gallery also involved 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.

3.11.3 Discussion of Checklist Responses

a. 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—No Impact

The proposed project area was mined for aggregate in the past and was restored as part of the project that included construction of the infiltration gallery. As a result, the location that was used for mining now contains the infiltration gallery that would be tested by the proposed project, as well as the Nazareno pond that could receive discharge water from the wet well and settling basin. The proposed project 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 proposed project would have **no impact.**

b. 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 – Less than Significant

Based on MRZ data for the land surrounding the project site, the area consists of sand and gravel materials used for concrete (Stanislaus County 2016). The construction of a wet well would excavate to a depth of approximately 50 feet to connect with the unattached end of the infiltration gallery, resulting in removal of soil, which may contain either or both of these resources. Soil excavated from these facilities would be stockpiled in staging areas or reused on site in forming and then backfilling the settling basin (upon completion of the project), grading around the wet well structure, or for fill at other on-site locations if appropriate. Geotechnical evaluation has not shown that the soil at the proposed project site would be marketable as sand or gravel. As a result, there would not be loss of availability of a locally important mineral resource site and this would be a **less-than-significant** impact.

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3.12 NOISE

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project result in:				
a. Exposure of persons to or generation of noise levels in excess of standards established in a local general plan or noise ordinance or applicable standards of other agencies?	☐	☒	☐	☐
b. Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☒	☐
c. A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☐	☒
d. A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☒	☐	☐
e. For a project located within an airport land use plan area, or, where such a plan has not been adopted, within 2 miles of a public airport or public-use airport, would the project expose people residing or working in the project site to excessive noise levels?	☐	☐	☐	☒
f. For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project site to excessive noise levels?	☐	☐	☐	☒

3.12.1 Overview of Noise and Vibration Concepts and Terminology

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 limit the expression of sound intensity numbers to a convenient and manageable range. 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, using the A-weighted decibel (dBA) scale.

Different types of measurements are used to characterize the time-varying nature of sound. Below are brief definitions of these measurements and other terminology used in this section:

- **Decibel (dB)** is a measure of sound on a logarithmic scale that indicates the squared ratio of sound pressure amplitude to a reference sound pressure amplitude. The reference pressure is 20 micro-pascals.
- **A-weighted decibel (dBA)** is an overall frequency-weighted sound level in decibels that approximates the frequency response of the human ear.
- **Maximum sound level (L_{max})** is the maximum sound level measured during a given measurement period.
- **Minimum sound level (L_{min})** is the minimum sound level measured during a given measurement period.
- **Equivalent sound level (L_{eq})** is the equivalent steady-state sound level that, in a given period, would contain the same acoustical energy as a time-varying sound level during that same period.
- **Day-night sound level (L_{dn})** is the energy average of the A-weighted sound levels occurring during a 24-hour period, with 10 dB added to the A-weighted sound levels during the period from 10:00 p.m. to 7:00 a.m. (typical sleeping hours). This weighting adjustment reflects the elevated sensitivity of individuals to ambient sound during nighttime hours.
- **Community noise equivalent level (CNEL)** is the energy average of the A-weighted sound levels during a 24-hour period, with 5 dB added to the A-weighted sound levels from 7:00 p.m. to 10:00 p.m. and 10 dB added to the A-weighted sound levels from 10:00 p.m. to 7:00 a.m.

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 3.12-1** presents approximate noise levels for common noise sources, measured adjacent to the source.

Table 3.12-1. 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

Note: dBA = A-weighted decibel

Source: Caltrans 2013

Vibration

Ground-borne vibration propagates from the source through the ground to adjacent buildings by surface waves. Vibration may be composed of a single pulse, a series of pulses, or a continuous oscillatory motion. The frequency of a vibrating object describes how rapidly it is oscillating, measured in Hertz (Hz). Most environmental vibrations consist of a composite, or "spectrum," of many frequencies. The normal frequency range of most ground-borne vibrations that can be felt generally starts from a low frequency of less than 1 Hz to a high of about 200 Hz. Vibration information for this analysis has been described either in terms of the peak particle velocity (PPV), measured in inches per second (in/sec), or in terms of the vibration level measured with respect to root-mean-square vibration velocity in decibels (VdB), with a reference quantity of 1 micro-inch per second.

Vibration energy dissipates as it travels through the ground, causing the vibration amplitude to decrease with distance away from the source. High-frequency vibrations decrease much more rapidly than do those characterized by low frequencies, so that in a far-field zone distant from a source, the vibrations with lower frequency amplitudes tend to dominate. Soil properties also affect the propagation of vibration. When ground-borne vibration interacts with a building, a ground-to-foundation coupling loss (i.e., loss that occurs when energy is transferred from the ground to the building) usually results, but the vibration also can be amplified by the structural resonances of the walls and floors. Vibration in buildings is typically perceived as rattling of windows, shaking of loose items, or the motion of building surfaces. In some cases, the vibration of building surfaces also can be radiated as sound and heard as a low-frequency rumbling noise, known as ground-borne noise.

Ground-borne vibration is generally limited to areas within a few hundred feet of certain types of industrial operations and construction/demolition activities, such as pile driving. Road vehicles rarely create enough ground-borne vibration amplitude to be perceptible to humans unless the receiver is in immediate proximity to the source or the road surface is poorly maintained and has potholes or bumps. Human sensitivity to vibration varies by frequency and by receiver. Generally, people are more sensitive to low-frequency vibration.

Human annoyance also is related to the number and duration of events; the more events or the greater the duration, the more annoying it becomes.

3.12.2 Regulatory Setting

Federal Laws, Regulations, and Policies

No federal laws, regulations, or policies for construction-related noise and vibration apply to the proposed project. The Federal Transit Administration (FTA) 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).

For construction vibration impacts, the FTA guidelines use an annoyance threshold of 80 VdB for infrequent events (fewer than 30 vibration events per day) and damage thresholds of 0.3 in/sec PPV for engineered concrete and masonry structures and 0.12 in/sec PPV for buildings extremely susceptible to vibration damage (FTA 2006).

State Laws, Regulations, and Policies

California requires each local government entity to implement a noise element as part of its general plan. California Administrative Code, Title 4, presents guidelines for evaluating the compatibility of various land uses as a function of community noise exposure. The state land use compatibility guidelines are listed in **Table 3.12-2.**

Local Laws, Regulations and Policies

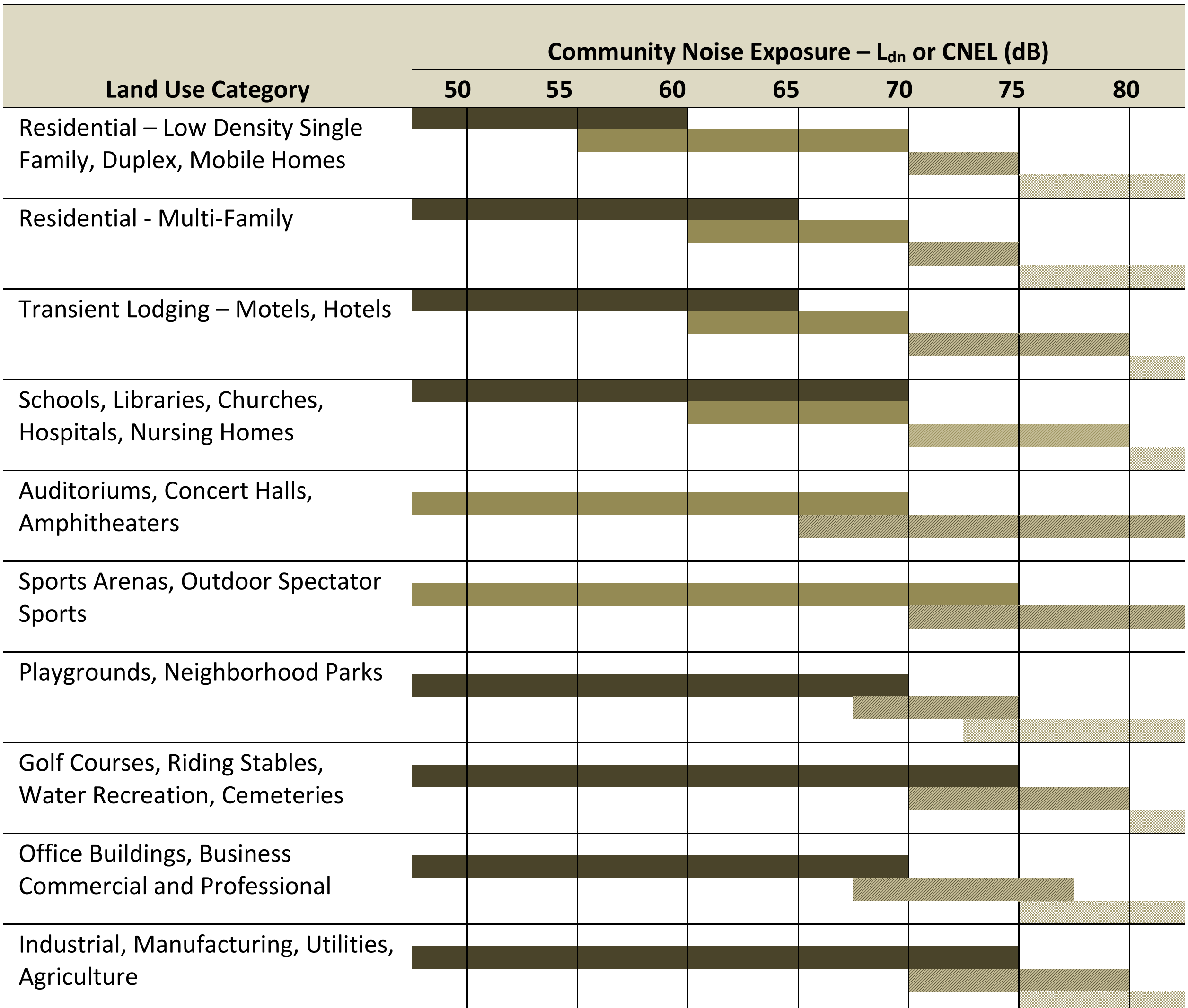
Stanislaus County General Plan

The Noise Element of the *Stanislaus County General Plan* (Stanislaus County 2015) 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.

Table 3.12-2. State Land Use Compatibility Standards for Community Noise Environment



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 2003.

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 3.12-3** below] in areas containing residential or other noise sensitive land uses.

Table 3.12-3. 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 2015

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 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. In addition, construction and maintenance activities performed by or at the direction of any public entity or public utility are exempt from the noise limits identified in Chapter 10.46. Thus, the requirements of the noise ordinance would not be applicable to the proposed project.

3.12.3 Environmental Setting

The project site is located in a rural area 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 project area include the Stanislaus Wildlife Care Center and two nearby residences. Ambient noise in the project site is influenced by noise from vehicular traffic on Geer Road and the 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 project site may include vehicular traffic on State Route 132 and Hatch Road, and construction material processing activities (Calaveras Materials property).

According to the general plan EIR, noise levels at the nearest long-term monitoring location to the proposed project (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 project site, based on anticipated traffic levels (Stanislaus County 2016).

Noise-sensitive receptors in the project area are Fox Grove Regional Park, Stanislaus Wildlife Care Center, and a farm residence. For the purposes of noise measurements, the edge of these properties would be located approximately 700, 1,040, and 1,070 feet east from the center of the project area, respectively, just east of Geer Road and the project site and south of the Tuolumne River.

3.12.4 Discussion of Checklist Reponses

a. Noise levels in excess of standards established in the local general plan or noise ordinance, or in other applicable local, state or federal standards—Less than Significant with Mitigation

The Proposed Project would generate noises associated with construction, pumping, and testing activities, which would be temporary and cease once these construction- and maintenance-related activities are complete. Apart from those activities, there would not be any operation-related noise sources.

Construction activities would require the use of noise-generating construction equipment, including but not limited to drilling rigs, bulldozers, a crane, excavator, concrete trucks, pumps, generators, potentially sheet piling equipment, and other equipment, as shown in Table 2-2 in Chapter 2, *Project Description*. In general, all construction equipment would be operated on weekdays between the hours of 7:00 a.m. and 6:00 p.m. However, diesel generators may need to be operated outside of these hours to allow for the continued operation of the project's various pumps and/or refrigeration equipment, the latter of which would need to be operated continuously. As shown in **Appendix D, *Noise Calculations***, the noise analysis selected the loudest two pieces of equipment that would potentially be used concurrently within one construction phase and determined the resulting potential noise levels during the day and at night. During the daytime hours, this construction equipment would generate maximum intermittent noise levels of approximately 96 dBA at a distance of 50 feet and 70 dBA at a distance of 1,070 feet (the boundary of the nearest residence). Potential noise levels from evening and nighttime construction activities (i.e., assumed to be generators) could result in maximum intermittent noise levels of approximately 85 dBA at a distance of 50 feet and 58 dBA at the nearest residence (approximately 1,070 feet from the center of the project site).

The proposed project construction activities during the daytime would generate noise levels at the Fox Grove Regional Park and Stanislaus Wildlife Care Center of approximately 74 dBA and 70.3 dBA, respectively, which would exceed the *Stanislaus County General Plan* daytime noise standards (shown in Table 3.12-3) of 55 dBA L_{eq} (hourly) and 70 dBA (maximum). The daytime noise level at the nearest residence would be approximately 70 dBA, which would be in compliance with the 70-dBA maximum. Nighttime construction activities for the proposed project (limited to operation of generators) would generate noise levels of approximately 58-62 dBA at the residence and park, less than the maximum nighttime noise threshold (65 dBA). As described above, activities on the project site would be exempt from the County's municipal code noise standards because the proposed project would be construction activities performed by a public agency (SRWA). Implementation of **Mitigation Measure NOISE-1 (Implement Noise Reduction Measures)** would minimize the temporary construction-related noise levels and avoid exposure of sensitive receptors to construction noise in excess of applicable standards. Therefore, this impact would be **less than significant with mitigation**.

Mitigation Measure NOISE-1: Implement Noise Reduction Measures.

SRWA shall require its contractor(s) to implement noise-reducing measures to limit construction-related noise in the project area to the levels required by Table IV-24 of the *Stanislaus County General Plan* Noise Element (Table 3.12-3 of this IS/MND). Measures that may be implemented may include, but will not be limited to, the following:

a. All noise-producing equipment and vehicles using internal combustion engines shall be equipped with mufflers; air-inlet silencers, where appropriate; and any other shrouds, shields, or noise-reducing features in good operating condition that meet or exceed original factory specification. Mobile or fixed "package" equipment (e.g., arc-welders, air compressors) shall be equipped with shrouds and noise control features that are readily available for those types of equipment.

b. Mobile noise-generating equipment and machinery shall be shut off when not in use (i.e., idling time 5 minutes maximum).

c. Stationary noise-generating equipment shall be located as far as practicable from noise-sensitive land uses.

d. When practicable, the contractor shall select construction equipment that generates lower noise levels (e.g., drill rig instead of pile driver).

e. When practicable, the contractor shall use noise-reducing enclosures around stationary noise-generating equipment.

f. When practicable, the contractor shall construct barriers between noise sources and noise-sensitive land uses or utilize existing barrier features (terrain) or material stockpiles to block sound transmission.

b. Exposure of persons to or generation of excessive ground-borne vibration or ground-borne noise levels—Less than Significant

The vibration threshold for buildings is 0.12 in/sec PPV for buildings that are extremely susceptible to vibration damage; the human annoyance threshold is 80 VdB. Vibration and ground-borne noise levels were estimated following methods described in the FTA's *Transit Noise and Vibration Impact Assessment* guidelines (FTA 2006) to determine the PPV that could affect buildings and the VdB for annoyance. The analysis assumed that the equipment with the greatest vibration potential would have vibration sound levels similar to those of a vibratory roller. **Table 3.12-4** shows relevant parameters for the roller and indicates that the distance to sensitive receptors would meet the identified vibration thresholds. Therefore, the impact of ground-borne vibration or ground-borne noise would be **less than significant**.

Table 3.12-4. Construction Equipment and Vibration Distance

Equipment	PPV at 25 ft.	Distance to PPV of 0.12 in./sec.	Noise Vibration Level at 25 ft.	Distance to Noise Vibration of 80 VdB
Vibratory Roller	0.21 in./sec.	36.3 feet	94 VdB	73.2 feet

Notes: in/sec = inches per second; PPV = peak particle velocity; VdB = vibration velocity in decibels

Source: FTA 2006

c. Substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project—No Impact

The proposed project would not include any permanent operations. All pumping, testing, and construction activities are considered temporary activities. Therefore, there would be **no impact**.

d. Substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project—Less than Significant with Mitigation

As discussed under item "a" above, the proposed project would result in temporary increases in ambient noise levels during construction, pumping, and testing activities. The threshold for temporary construction-related noise increases above ambient levels would be 65 dBA (human annoyance threshold), which was calculated to occur for any sensitive receptors within approximately 1,900 feet of the project site (Appendix D). Implementation of Mitigation Measure NOISE-1 would reduce the impact of both temporary and periodic noise levels during construction activities to levels that would meet the threshold. As a result, this impact would be **less than significant with mitigation**.

e, f. For a project located within an airport land use plan area, within 2 miles of a public airport or public-use airport or within the vicinity of a private airstrip would the project expose people residing or working in the project site to excessive noise levels—No Impact

The proposed project would be located outside of any airport land use plan area, and is not located within 2 miles of a public airport or public use airport. The project is also not located within the vicinity of a private airstrip. The nearest public airport is Modesto City-County Airport, approximately 5.1 miles northwest of the project site. The nearest private airstrip is approximately 1.7 miles to the northwest. In addition, the project would not generate an increase in airplane flights. Therefore, the proposed project would not expose people residing or working in the project area to excessive noise levels and would have **no impact**.

3.13 Population and Housing

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:				
a. 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)?	☐	☐	☐	☒
b. Displace a substantial number of existing housing units, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒
c. Displace a substantial number of people, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

3.13.1 Regulatory Setting

There are no federal, state, or local laws, regulations or policies applicable to population and housing in relation to the proposed project.

3.13.2 Environmental Setting

The project site is located in rural Stanislaus County in an area where designated land uses at and adjacent to the project site are zoned General Agriculture 40 Acre (A-2-40) (Stanislaus County 2015). As shown in Figure 2-2 in Chapter 2, *Project Description,* most of the proposed project activities would occur within the Tuolumne River corridor on parcels owned by the California Department of Parks and Recreation. In 2005, TID was granted an easement for the parcel that would contain the wet well under Fish and Game Code Section 1348(c)(2), which grants the State the right to transfer property held for wildlife conservation to local agencies for various purposes. TID's easement parcel is adjacent to another TID parcel on the east side of the Geer Road Bridge. The remainder of the project area is bounded on the east by Fox Grove Regional Park, on the west by open space, on the north by the Tuolumne River, and on the south by the Nazareno property. One residence is associated with the walnut orchard on the Nazareno property

3.13.3 Discussion of Checklist Responses

a. Induce population growth—No Impact

The proposed project does not directly propose any new growth or development; it would create a connection with an existing water diversion facility (the infiltration gallery) in the Tuolumne River. Water diverted as part of the proposed project would be used for test pumping of TID's existing infiltration gallery. Information acquired from this process would be used in planning and design of SRWA's future proposed Surface Water Supply Project, which would involve pumping water from the river to a new raw water treatment plant and providing the treated water to the Cities for municipal water supply uses. The proposed project is limited to short-term pumping and testing of water from the infiltration gallery; no connection to a municipal water facility would result from the proposed project. While the potential future (not yet approved) Surface Water Supply Project would increase the municipal water supply and allow for indirect population growth as a result of such an increase, this is not part of the proposed project, nor would the proposed project obligate SRWA to implement the larger project. Thus, there would be **no impact**.

b, c. Displace Population or Housing—No Impact

The proposed project is located on parcels that are designated as, and in use for, open space and agricultural production. No residential or other structures would be removed as a result of project-related activities. Construction would take place over 15-20 months, and sufficient numbers of workers likely reside in the project area so that relocation of workers into the area would not be required. Project-related construction and operation activities would not displace any existing housing units or people or necessitate construction of replacement housing elsewhere. Therefore, there would be **no impact.**

3.14 Public Services

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:				
a. Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities or a 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 following public services:				
i. Fire protection?	☐	☐	☒	☐
ii. Police protection?	☐	☐	☒	☐
iii. Schools?	☐	☐	☐	☒
iv. Parks?	☐	☐	☒	☐
v. Other public facilities?	☐	☐	☐	☒

3.14.1 Regulatory Setting

Federal Laws, Regulations, and Policies

No federal laws, regulations, or policies 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 General Plan

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 relate to public services and the Proposed Project:

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.

3.14.2 Environmental Setting

Fire Protection

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, the District responded to 7,769 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 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).

Police Protection

The Stanislaus County Sheriff's Department (SCSD) provides law enforcement services to unincorporated Stanislaus County, including 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).

Schools

Two school districts are located near the proposed project area: Hughson Unified School District and Waterford Unified School District.

The Hughson Unified School District consists of the following schools:

- Hughson Elementary School
- Fox Road Elementary School
- Hughson High School
- Emilie J. Ross Middle School
- Billy Joe Dickens Continuation School
- Valley Community Day School

In 2015, the district had 2,146 total enrolled students (Hughson Unified School District 2015).

The Waterford Unified School District includes the following schools:

- Connecting Waters Charter School
- Richard M. Moon Primary School
- Lucille Whitehead Intermediate School
- Waterford Junior High School
- Waterford High School
- Sentinel High School
- Waterford Adult Education Center

Total enrollment for the 2015-2016 school year was 3,877 students (California Department of Education 2017).

Parks

Stanislaus County has five main regional parks, twelve neighborhood parks, ten community parks, and two off-highway vehicle parks (Stanislaus County 2017). Fox Grove Regional Park is directly adjacent to the project area. Fox Grove Regional Park includes a boat ramp and areas for fishing, swimming, parking and picnicking.

Hospitals

The nearest hospitals to the proposed project area are located in Modesto and Turlock.

3.14.3 Discussion of Checklist Responses

a. Result in adverse physical impacts associated with the provision of new or physically altered governmental facilities or a need for new or physically altered governmental facilities

ii. Fire protection—Less than Significant

The proposed project would involve use of internal combustion–powered construction equipment and the storage and use of flammable and/or hazardous materials, such as fuel. These activities could potentially increase fire risk or provide an ignition source, and thereby generate calls for service from SCFPD. Existing regulations, such as the California Fire Code, would require that SRWA or its contractors implement measures to reduce fire risk, prevent accidental ignition, and allow for fire apparatus access. These measures would substantially reduce any potential fire risk from the proposed project during construction.

Following construction, the proposed project would not be anticipated to generate calls for service from SCFPD. The proposed project would not add housing or flammable structures, and would use limited amounts of hazardous materials that would be stored in accordance with hazardous materials regulations (see Section 3.8, *Hazards and Hazardous Materials*). In the event that proposed project activities were to generate some calls for service, these would not be anticipated to be of sufficient number or magnitude to require or result in construction of new or expanded fire protection facilities. Therefore, this impact would be **less than significant.**

iii. Police protection—Less than Significant

The proposed project would not be anticipated to generate substantial calls for police protection service. During construction, construction activities (e.g., truck hauling, equipment transport) could introduce potential for individuals to steal tools and materials. However, the construction site would be fenced temporarily by an 8-foot-high chain-link perimeter fence topped with three strands of barbed wire. Following construction of the wet well, SRWA would replace the temporary fencing with a more permanent security fence. Also, SRWA would require the construction contractor to install security lighting with motion sensors and closed-circuit cameras at the site to monitor the wet well and temporary pump site. As a result, the potential for vandalism is not particularly likely and would not substantially increase the need for police service.

Following construction, the proposed project would not be anticipated to generate substantial calls for police service. The proposed project would not add housing, commercial structures, or people to the area. The facilities would be enclosed by security fencing as described above and would not be expected to be a target for vandalism or crime. Therefore, this impact would be **less than significant.**

iv. Schools—No Impact

The proposed project would not add permanent housing or commercial businesses to the area. Therefore, the proposed project would not attract residents who would attend, or whose children would attend, local schools.

During construction, workers would most likely commute to the project site, or, if they were to relocate, would not be expected to permanently settle in the area. Therefore, **no impact** on schools would occur.

v. Parks—Less than Significant

As noted above, the proposed project is located adjacent to Fox Grove Regional Park. During project construction, the access road to the park would be used for construction vehicle and equipment access to the project site, which could interfere with public access to the park. The access road would remain open during construction, however, and proposed project activities would not interfere with operation of the park. Any damage to the access road resulting from construction traffic would be repaired at the end of the construction period.

As described in items "a(ii)" and "a(iii)" above and in Section 3.13, *Population and Housing,* the proposed project would not increase population in the surrounding area during construction or operation; therefore, it would not be expected to increase use of Fox Grove Regional Park or other parks in Stanislaus County.

Although construction traffic could minimally affect ease of access to Fox Grove Regional Park during project construction, the proposed project would require or result in a need to construct new or expanded park or recreational facilities. Therefore, this impact would be **less than significant.**

vi. Other public facilities—No Impact

As described above and in Section 3.13, *Population and Housing,* the proposed project would not result in population growth. Therefore, the proposed project would not place additional demands on other existing public services and facilities, such as hospitals. **No impact** would occur.

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3.15 Recreation

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:				
a. 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?	☐	☐	☒	☐
b. Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?	☐	☐	☐	☒

3.15.1 Regulatory Setting

Federal Laws, Regulations, and Policies

No federal laws, regulations and 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 2017a). Within Stanislaus County, the department manages only one area called the Turlock State Recreational Area, which is located approximately 20 miles from the project site (CDPR 2017b). 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 regulations do not apply to this park.

Stanislaus County General Plan

Conservation/Open Space Element

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.

Implementation Measure 2. Prior to the issuance of any building permit on parcels fronting on rivers and streams, it shall be verified that the building site is outside of Army Corps of Engineers easements.

Stanislaus County Parks Master Plan

The *Stanislaus County Parks Master Plan* was originally 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).

3.15.2 Environmental Setting

The proposed project is 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. The project 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 and lack of river access, but a boating dock is located at Fox Grove Regional Park. A list of parks and recreational facilities in the project area is provided in **Table 3.15-1**.

Table 3.15-1. 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 Conservation Board (leased to Stanislaus County)	Directly adjacent, east	Boating, picnicking, swimming, fishing
S. Reinway Park and Trailhead	City of Waterford	4, west	Hiking
Beard Park	City of Waterford	5.3, southwest	Baseball fields, basketball courts, community center, playground, soccer fields, tennis courts, BBQ grills
River Park	City of Waterford	5.3, southwest	Picnicking, BBQ grills, horseshoe pit, pavilion
Starn Park	City of Hughson	1.5, northeast	Baseball fields, playground, gazebos, BBQ grills, trails
Senior Community Center	City of Hughson	1.7, northeast	Kitchen, multipurpose rooms
Extreme Paintball Park	Privately owned	2.5, north	Paintball
Ceres River Bluff Regional Park	City of Ceres	5.0, east	Soccer fields, softball fields, basketball court, volleyball courts, picnicking, playgrounds, hiking/biking, boating
Donnelly Park	City of Turlock	7.7, north	Picnicking, BBQ grills, playgrounds, basketball court, pond
Christofferson Park	City of Turlock	6.6, north	Playgrounds, picnicking, BBQ grills

Sources:Stanislaus County 2017b; City of Hughson 2017; City of Waterford 2017a, 2017b; City of Turlock 2017.

3.15.3 Discussion of Checklist Responses

a. Increase use of existing parks or recreational facilities—Less than Significant

The proposed project involves construction and short-term testing of water infrastructure that would not create or attract any type of local population (resident, visitor, or employee), and thus would not increase the use of existing parks or recreational facilities. During construction, trucks would use the access road from Geer Road to Fox Grove Regional Park. Visitors may decide to use another park or recreational facility to avoid access difficulties. While this circumstance may lead to an increased use of nearby parks or recreational facilities, the effect would be minimal because Fox Grove Regional Park attendance is relatively low, and would not be considered significant. Mitigation Measure TRANS-1, described in item 3.16.d in Section 3.16, *Transportation and Traffic,* would further address potential access delays in and around the proposed project site. The proposed project would have a **less-than-significant impact** on existing parks and recreational facilities.

b. Creation of new or altered recreational facilities—Less than Significant with Mitigation

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 and short-term operation of a wet well and pumping facilities adjacent to Fox Grove Regional Park that would potentially affect access to the park and boating dock. Construction activities could also generate noise that may disturb nearby fish and result in adverse impacts on fishing locations. Mitigation Measure TRANS-1 would address potential access delays in and around the proposed project site. Implementation of **Mitigation Measure REC-1 (Coordinate Construction Activities with Stanislaus County Parks and Recreation Department)** would reduce these 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**.

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 access is maintained to the park. SRWA or its contractor shall also consult with the County to identify any potential conflicts with proposed 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 will not prevent or restrict the progress of these improvements.

3.16 TRANSPORTATION/TRAFFIC

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the Project:				
a. 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?	☐	☐	☒	☐
b. 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?	☐	☐	☐	☒
c. 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?	☐	☐	☐	☒
d. Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☒	☐	☐
e. Result in inadequate emergency access?	☐	☒	☐	☐
f. Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?	☐	☐	☐	☒

3.16.1 Traffic and Transportation Terminology

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 3.16-1** provides more detailed descriptions of each LOS grade.

Table 3.16-1. 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

3.16.2 Regulatory Setting

Federal Laws, Regulations, and Policies

Occupational Safety and Health Administration

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

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 highway to the project site that is maintained by Caltrans is State Route 132, approximately 2 miles north along Geer Road from the proposed project site. As of January 2017, a proposed project to improve regional and interregional circulation along with alleviating traffic congestion is under review. This improvement project would create a four-lane freeway/expressway along a new alignment that connects the route with Modesto. Construction is set to begin in 2018 and should therefore not impact construction related activities for the proposed Project (Caltrans 2017).

Local Regulations and Policies

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 any creation of deficiencies throughout the County's roadways. The performance measures that the CMP supports are mobility, air quality, land use, and economic objectives. The policies published in the CMP were considered for inclusion in the Regional Transportation Plan mentioned above. Objective Three of the CMP establishes policies aimed at preserving and enhancing environmental quality. One of those policies, which states that "environmental impacts, both short-term and long-term, of transportation decisions shall be appropriately analyzed and considered, and adverse impacts mitigated wherever possible" is applicable to the proposed Project (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. 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 first of which being the Land Use Element (Stanislaus County 2015). The following goal, policy 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

The second element within the General Plan is the Circulation Element, which serves to: (1) provide a system of roads throughout the County which reflects land use needs; and (2) support a broad range of transportation modes (Stanislaus County 2015).

Goal One. Provide a system of roads and roads throughout the County that meets land use needs.

Policy Two. Circulation systems shall be designed and maintained to promote safety and minimize traffic congestion.

Implementation Measure 1. 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.

3.16.3 Environmental Setting

The proposed project site is located adjacent to Geer Road, which runs between Fox Grove Regional Park to the east, and orchards or agricultural fields to the west.

SR 132 is one of the primary east-west routes in the county, traveling the width of the county from 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 intersection is 2 miles north of the project site.

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 from the project site on Hatch Road.

East Hatch Road is a two-lane arterial that runs through the northern side of Hughson, with 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 right of way due to the Ceres Main Canal restrictions (Stanislaus County 2016). Hatch Road is approximately 0.5 mile south of the project site. Based on 2004 data from the *City of Hughson General Plan*, the stretch of Hatch Road between 7th Street and Geer Road had a daily traffic volume of 5,725 vehicles averaging a speed of 55 miles per hour (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 the city of 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 State Route 132 approximately 2 miles north from the proposed project site (Stanislaus County 2016). Traffic volumes regarding this intersection are summarized in **Table 3.16-2**. Several other important intersections regarding Geer Road exist south of the project site and are located within the City of Hughson. These intersections are Geer Road/Hatch Road, which is located

.5 miles south, and Geer Road/Whitmore Avenue just 1.25 miles south. Both intersections are signalized. Traffic volumes for the intersection of Geer Road and Hatch Road were analyzed in 2004 and were determined to consist of a daily traffic volume of 11,805 vehicles averaging speeds of 45 miles per hour (City of Hughson 2005).

Table 3.16-2. Annual Average Daily Traffic Volumes at SR 132/Geer Road Intersection

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

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

Traffic Count Data

According to the Stanislaus County General Plan EIR (2016), ADT on Geer Road south of the proposed project site 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. **Table 3.16-3** shows traffic volumes on streets in the proposed project area.

Table 3.16-3. Traffic Volumes on Project Area Roadways

Roadway	Cross Street 1	Cross Street 2	2014		2035	
			Volume	LOS	Volume	LOS
Geer Road/ Albers Road	Santa Fe Avenue	Grayson Road	10,800	A	10,900	B
	Keyes Road	Barnhart Road	11,100	B	11,300	B
Yosemite (SR 132)	Triangle Ranch Road	Albers Road	9,800	B	11,900	B

Source: Stanislaus County 2016

3.16.4 Discussion of Checklist Responses

a, b. Conflict with applicable circulation plans, ordinances, or policies and applicable congestion management programs — Less than Significant

According to the Stanislaus County General Plan EIR, Geer Road in the vicinity of the proposed project site operates at LOS A or B, and SR 132 at the Geer Road intersection operates at LOS A (Stanislaus County 2016b). Under 2035 conditions, these roadways would continue to operate at LOS B. The number of trips per day that would result from proposed project construction activities and operation, as listed in Table 2-2 would be minimal compared to the thousands of vehicles that travel along this route each day. In addition, construction vehicles used for the project would be parked in the Fox Grove Regional Park parking lot east of the Geer Road Bridge when not in use. Therefore, these vehicles would not access Geer

Road for parking except for initial travel to the site at the start of their use and travel off of the site after their use has been completed. Therefore, project-related trips would not be expected to measurably affect LOS levels along SR 132 or Geer Road.

In addition, the project would be conducted to meet the StanCOG Regional Transportation Plan objectives. Specifically, Goal Five (lower overall vehicle miles traveled, reduce greenhouse gas emissions, and improve overall air quality) would be achieved by keeping construction equipment on site and not leaving the project site on a daily basis. As a result, conflicts with LOS standards established by the county or with conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system would not occur.

The proposed Project would comply with all of the policies established in the Stanislaus Council of Governments Congestion Management Process, including the relevant portions of the policy in Objective Three ("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). Specifically, this MND addresses all environmental impacts, both short-term and long-term, including any mitigation measures that may be required. As a result, the proposed Project would not conflict with the StanCOG 2009 Congestion Management Process.

Overall, impacts would be **less than significant**.

c. Change in air traffic patterns—No Impact

The proposed project area is subject to occasional aircraft flyovers from the Modesto 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. As the result, the proposed project has **no impact.**

d. Increased hazards due to design features—Less than Significant with Mitigation

The improvements to the access road from Fox Grove Park would include earthwork to minimize the slope of the route and the creation of a rumble strip, which would improve the safety of the route for workers. The portion of this route from the parking lot to the project site would be gated off to visitors, so no hazards to the public would occur because of this construction activity.

The proposed project may pose an increase in hazards due to road sharing between large construction trucks and visitor vehicles along the Fox Grove Regional Park access road heading toward the parking lot. Implementation of **Mitigation Measure TRANS-1 (Prepare and Implement a Construction Traffic Management Plan)** 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, conflicts between construction-related traffic associated with the proposed project and other vehicles would be **less than significant with mitigation.**

Mitigation Measure TRANS-1: Prepare and Implement a Construction Traffic Management Plan.

SRWA shall require that the construction contractor prepare and implement a construction traffic management plan to reduce potential interference with local emergency response plans, as well as to reduce potential traffic safety hazards and ensure adequate access for emergency responders. Development and implementation of this plan shall be coordinated with Stanislaus County. SRWA (or the construction contractor) 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 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. Identified haul routes will be recorded in the contract documents.
- 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).
- Evaluate the need to provide flaggers or temporary traffic control on Geer Road or at key intersections along the haul route during all or some portion of the construction period.
- Notify 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, including identification of an on-site traffic manager. Post 24-hour contact information for the traffic manager on the site.
- 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.

e. 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 project site. However, once the vehicles are on the project site, their trips will be restricted to and from the Fox Grove parking lot to the project site only. Worker trips to and from the site would consist of a total of seven trips per day for each of the six phases. Implementation of Mitigation Measure TRANS-1, as described in item "d" above, 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**.

f. Conflict with alternative transportation policies, plans, or programs — No Impact

The proposed project is not located near any public transit or bicycle facilities and would not alter or restrict access to any pedestrian facilities that may be located in Fox Grove Regional Park. The proposed project is located on unincorporated land that can only be accessed by an undeveloped route when coming in from the park side. The area west of the proposed Project site is private orchard property and does not contain any of the facilities mentioned above. The undeveloped route is locked by a gate to prevent pedestrian access and is maintained by Stanislaus County. Therefore, no pedestrian facilities are located near the project site to be affected, nor are there any adopted policies, plans or programs regarding public transit, bicycle, or pedestrian facilities that the project would conflict with. The project would also not decrease the performance or safety of these facilities. As a result, the proposed project would have **no impact.**

3.17 Tribal Cultural Resources

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either: a site. feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape. sacred place. or object with cultural value to a California Native American tribe, and that is:				
a. A site, feature, place, cultural landscape, sacred place, or object with cultural value to a California Native American tribe that is listed or eligible for listing in the California Register of Historical Resources, or included in a local register of historical resources as defined in Public Resources Code section 5020.l(k), or	☐	☐	☐	☒
b. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	☐	☒	☐	☐

3.17.1 Regulatory Setting

Federal Laws, Regulations, and Policies

Federal law does not address tribal cultural resources (TCRs), which are defined and regulated in the California Public Resources Code. However, similar resources, called Traditional Cultural Properties (TCPs), fall under the purview of Section 106 of the NHPA, as described 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 NRHP. Therefore, as historic properties, TCPs must be treated according to the implementing regulations found under Title 36 CFR §800, as amended in 2001.

State Laws, Regulations, and Policies

CEQA and State CEQA Guidelines

AB 52, which was approved by the California State Legislature in September 2014 and went into effect on January 1, 2015, requires that lead agencies consult with any 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 proposed project with an effect that may cause a substantial adverse change in the significance of a TCR may have a significant effect on the environment.

As defined in Pub. Res. Code Section 21074(a), 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; or

(B) Included in a local register of historical resources as defined in subdivision (k) of Section 5020.1.

(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.

TCRs are further defined under Pub. Res. Code Section 21074 as follows:

(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 with the criteria of subdivision (a).

Mitigation measures for TCRs must be developed in consultation with the affected California Native American tribe in accordance with Pub. Res. Code Section 21080.3.2 or Section 21084.3. The latter section 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.

California Register of Historical Resources

Public Resources Code Section 5024.1 establishes the CRHR. See Section 3.5, *Cultural Resources,* for a full description of the CRHR, criteria for listing eligibility, guidelines for assessing historical integrity, and resources that have special considerations.

Local Regulations, and Policies

Stanislaus County does not have any local regulations or policies relating to TCRs. The *Stanislaus County General Plan* contains goals and policies applicable to cultural resources, as described in Section 3.5.

3.17.2 Environmental Setting

As discussed in Section 3.5, *Cultural Resources,* the Proposed Project is in the traditional ancestral territory of the Northern Yokuts. The North Valley Yokuts Tribe submitted a letter of interest to SRWA in accordance with Pub. Res. Code Section 21080.3.1(b)(1), requesting notification of projects proposed by the agency.[3] The NAHC identified two tribes with a traditional and cultural association with the project area: the North Valley Yokuts and the Southern Sierra Miwuk Nation. SRWA sent a notification about the project to both tribes, via letters dated February 14, 2017. SRWA did not receive requests for formal consultation under Pub. Res. Code Section 21080.3.1(b)(2) from any of those contacted within the 30-day response time. Follow-up phone calls were made to Chairpersons Perez and Martin on April 7, 2017 to confirm receipt of the notification letters. **Table 3.17-1** lists all those contacted and summarizes the results of the consultation.

Table 3.17-1. Native American Consultation

Organization/Tribe	Name of Contact	Letter Date	Comments
Ms. Katherine Erolinda Perez, Chairperson	North Valley Yokuts Tribe	02/14/2017	A follow-up phone call was made on 04/07/2017; a message was left on Chairperson Perez's voicemail.
Ms. Lois Martin, Chairperson	Southern Sierra Miwuk Nation	02/14/2017	A follow-up phone call was made on 04/07/2017. Chairperson Martin confirmed that her tribe did not want to consult on the project.

[3] The Torres Martinez Desert Cahuilla Indians, who are traditionally and culturally affiliated with the Salton Sea area of Riverside County, also sent a letter to SRWA, requesting notification of projects in accordance with Pub. Res. Code Section 21080.3.1(b)(1). SWRA responded via letter on February 14, 2017, respectfully requesting evidence of the tribe's traditional and cultural affiliation with the project area. There has been no response to date and it is assumed that the tribe does not intend to be notified of projects by the SWRA.

3.17.3 Discussion of Checklist Responses

a. Substantial adverse change in the significance of a tribal cultural resource that is listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources—No Impact

No TCRs listed or eligible for listing listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources are known to occur in the project vicinity. There would be **no impact**.

b. Substantial adverse change in the significance of a tribal cultural resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant—Less than Significant with Mitigation

No TCRs determined by the lead agency, in its discretion and supported by substantial evidence, to be significant, are known to be located in the project vicinity. There would be no impact. If Native American archaeological remains or Native American human remains that could be TCRs are identified during the course of construction, they would be treated according to **Mitigation Measure CR-1 (Suspend Construction Immediately if Cultural Resources Are Discovered, Evaluate All Identified Cultural Resources for CRHR Eligibility, and Implement Appropriate Mitigation Measures for Eligible Resources)** or **Mitigation Measure CR-3 (Halt Construction Immediately if Human Remains Are Discovered and Implement Applicable Provisions of the California Health and Safety Code)**, respectively.

3.18 Utilities and Service Systems

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the Project:				
a. Exceed wastewater treatment requirements of the applicable RWQCB?	☐	☐	☒	☐
b. Require or result in the construction of new water or wastewater treatment facilities or an expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☒	☐
c. Require or result in the construction of new stormwater drainage facilities or an expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☐	☒
d. Have sufficient water supplies available to serve the Project from existing entitlements and resources, or would new or expanded entitlements be needed?	☐	☐	☐	☒
e. Result in a determination by the wastewater treatment provider that serves or may serve the Project that it has inadequate capacity to serve the Project's projected demand in addition to the provider's existing commitments?	☐	☐	☒	☐
f. Be served by a landfill with insufficient permitted capacity to accommodate the Project's solid waste disposal needs?	☐	☐	☒	☐
g. Comply with federal, state, and local statutes and regulations related to solid waste?	☐	☐	☒	☐
h. Encourage activities that resulted in the use of substantial amounts of fuel or energy, or used these resources in a wasteful manner?	☐	☐	☒	☐

3.18.1 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 Integrated Waste Management Act of 1989

The California Integrated Waste Management Act of 1989 (CIWMA) (Pub. Res. Code Division 30), enacted through AB 939 and modified by subsequent legislation, required all California cities and counties to implement programs to reduce, recycle, and compost at least 50 percent of wastes by 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 (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 General Plan

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.

3.18.2 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.

Turlock

The City of Turlock provides water supply to a population of about 71,043 through a system of 20 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). Projected water demands within the City of Turlock service area are shown in **Table 3.18-1.**

Table 3.18-1. Projected Water Demands within the City of Turlock

	2015	2020	2025	2030	2035
Total Projected Water Demand (million gallons)*	6,035	8,951	10,013	11,180	12,334
* Includes potable, raw, and recycled water.					

Source: City of Turlock 2015

According to the data presented in Table 3.18-1, water demand in the City of Turlock service area is projected to increase by approximately 104 percent from 2015 to 2035.

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 3.18-2** shows projected water demands within the City of Ceres service area.

Table 3.18-2. Projected Water Demands within the City of Ceres

	2015	2020	2025	2030	2035
Total Projected Water Demand (million gallons)*	2,611	3,505	4,241	4,973	6,006
* Includes Potable, Raw, and Recycled water.					

Source: City of Ceres 2016

As shown in Table 3.18-2, water demand within the City is expected to increase by 130 percent from 2015 to 2035.

Turlock Irrigation District

TID provides irrigation water to agricultural lands in Stanislaus County and operates the 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).

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 proposed project site. Wastewater generated by the proposed project that could not be treated on site or discharged could potentially be taken to this facility. Other options would include the Ceres Wastewater Treatment Plant (WWTP) or the Turlock Regional Water Quality Control Facility (RWQCF).

Stormwater

No stormwater facilities or infrastructure exists near the proposed project site. Water that falls on the site as precipitation either infiltrates into the soil or flows overland to the Tuolumne River or the Nazareno pond.

Solid Waste

Solid waste generated by the proposed project that could not be reused on site would most likely be taken to the Fink Road Landfill. This landfill, approximately 30 miles southwest of the project 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. 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.

Energy

The proposed project site is within the service area of TID. Existing 480-kilovolt (kV) TID electric service lines cross the project site.

3.18.3 Discussion of Checklist Responses

a, e. Exceed wastewater treatment requirements of the Central Valley RWQCB or result in 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—Less than Significant

The proposed project would not generate substantial wastewater during construction. The project site is not connected to any centralized wastewater collection system and construction workers would use portable restroom facilities installed on site for the duration of project construction. During construction of the wet well, it is possible that dewatering of the excavation may be required, but this water would be pumped to the adjacent settling basin and from there to the Nazareno pond, the adjacent orchard or fields, or the river. This nuisance groundwater would not be disposed of at a WWTP.

During project operation, infiltration gallery test pumping would generate discharge water, but this water would be discharged to the adjacent settling basin and from there to the Nazareno pond, the adjacent orchard or fields, or back into the river. Discharge of this water would be subject to RWQCB permitting and would meet RWQCB requirements prior to discharge. Therefore, this impact would be **less than significant.**

b. Require the construction of new water or wastewater treatment facilities or expansion of existing facilities—Less than Significant

The proposed project is an initial step in the planning process that, if approved, would lead to an expansion of water facilities through the Surface Water Supply Project. As described in Chapter 2, *Project Description,* the proposed project would involve construction of a wet well, temporary pump facilities, and a settling basin connected to an existing infiltration gallery. This IS/MND focuses on environmental impacts of the construction and temporary operation of the wet well and temporary pump facilities to allow testing of the infiltration gallery. As such, the environmental impacts of this project are evaluated throughout this IS/MND.

If SRWA later approves the Surface Water Supply Project (following review and certification of an EIR for that project), the infiltration gallery and wet well would be used as part of that later project. If the Surface Water Supply Project were approved by SRWA, water from the infiltration gallery would be pumped through the wet well to a new water treatment plant located east of Fox Grove Regional Park. The environmental effects of the Surface Water Supply Project will be evaluated in the Surface Water Supply Project EIR, which currently is being prepared. The Surface Water Supply Project already has been planned and is being reviewed, and it is not a result of or caused by the proposed project.

The proposed project would not result in construction of new water or wastewater facilities. The proposed project would be limited to construction of a wet well and temporary pumps to facilitate testing of the existing infiltration gallery. The proposed project would not involve construction of any housing, commercial buildings, or other land uses that could generate water or wastewater service demand. Therefore, this impact would be **less than significant.**

c. Require the construction of new stormwater drainage facilities or expansion of existing facilities—No Impact

The proposed project would not result in construction of new or expanded stormwater facilities. As described in Chapter 2, *Project Description,* and evaluated in Section 3.9, *Hydrology and Water Quality,* the proposed project would not include substantial new impervious area, and stormwater would be allowed to flow off site by overland flow or percolate to groundwater. No stormwater facilities exist near the site that would be affected by or require expansion due to the Proposed Project. Therefore, **no impact** would occur.

d. Have sufficient water supplies available to serve the project from existing entitlements and resources—No Impact

The proposed project would not require additional water supplies. As described above and in Chapter 2, *Project Description,* the proposed project would be limited to testing of the infiltration gallery and associated facilities. TID already has entitlements to the water that would be diverted during the testing process. Approximately 61-281 acre-feet of water would be produced during testing and operation of the proposed project during a 1-month period; much or all of this water would be pumped to the Nazareno pond, used for irrigation of nearby agricultural lands, or discharged back to the river. **No impact** would occur.

f. Served by a landfill that has insufficient capacity to accommodate the project's solid waste disposal needs—Less than Significant

As described in Chapter 2, *Project Description,* construction of the wet well and settling basin would involve excavation that could produce up to 7,800 cy of spoils. To the extent feasible, this material would be reused on site in construction and grading for other proposed project facilities, but some excavated material may require offsite disposal, perhaps at a landfill. Additionally, project construction activities would involve clearing and removal of tree trimmings and other vegetative material. This material would be taken to a transfer station for appropriate disposal at a composting facility.

As noted in "Environmental Setting" above, the only active landfill in Stanislaus County is the Fink Road Landfill, which had approximately 8.2 million cy of remaining capacity when last reported in 2012. Excavated material from the proposed project that could not be reused would likely be disposed of at this landfill or at one of the large volume transfer stations in the county; spoils not used to create the settling basin would be neatly stockpiled and hydroseeded on the Nazareno property for the property owner's future use.

Given the relatively small quantity of solid waste (up to approximately 7,800 cy between jet grouting excavation and wet well excavation, plus some vegetative material) expected to be generated by the proposed project, even if all the excavated material from project construction required disposal at the landfill (i.e., none of the material was reused on site or otherwise diverted from the landfill), it would not have an appreciable effect on the landfill's capacity or result in a need to construct new or expanded facilities. Therefore, this impact would be **less than significant.**

g. Comply with all applicable regulations related to solid waste—Less than Significant

As noted in "Regulatory Setting" above, per capita disposal information is not available for unincorporated Stanislaus County. Generally, the CIWMA requires jurisdictions to divert 50 percent of their solid waste from the landfill.

As described in Chapter 2, *Project Description,* the proposed project would reuse excavated material to the extent feasible; however, reuse of all of this material may not be possible, requiring disposal in a landfill. Given the relatively small volume of solid waste to be generated (up to approximately 7,800 cy between jet grouting excavation and wet well excavation, plus some vegetative material) by the proposed project, this would not materially affect Stanislaus County's ability to comply with CIWMA. Therefore, this impact would be **less than significant.**

h. Encourage activities that would result in the use of substantial amounts of fuel or energy, or use these resources in a wasteful manner—Less than Significant

During project construction, the proposed project would involve use of heavy construction equipment; in accordance with existing laws related to air emissions (see discussion in Section 3.3, *Air Quality*), however, this equipment would not be allowed to idle unnecessarily or for long periods of time.

During project operation, the proposed project would use relatively large amounts of energy to operate the pumps, the largest of which would generate up to 1,400 hp. but these pumps would operate for a limited time (approximately 7 days over a 1-month span). The pumps would not operate unnecessarily or in a wasteful manner. Therefore, this impact would be **less than significant.**

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3.19 Mandatory Findings of Significance

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
i. Does the Project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory?	☐	☒	☐	☐
j. Does the Project have impacts that are individually limited but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)	☐	☐	☒	☐
k. Does the Project have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☒	☐	☐

3.19.1 Discussion of Checklist Responses

a. Effects on Environmental Quality, Fish or Wildlife, and Historic Resources—Less than Significant with Mitigation

Wildlife Habitat and Populations; Rare and Endangered Species

The proposed project would not substantially reduce the number or restrict the range of a rare or endangered plant or animal species. Impacts on fish species related to disposal of discharge water and entrainment or impingement would be less than significant. Mobilization of fine sediment during air purging, however, would have the potential to result in increased TSS and/or increased sediment deposition on habitat for spawning and rearing fall-run Chinook and hardhead but would be mitigated with implementation of Mitigation Measure BIO-1. Special-status terrestrial species that could be affected by the proposed project are valley elderberry longhorn beetle, Yellow Warbler, Yellow-breasted Chat, Loggerhead Shrike, Burrowing Owl, Swainson's Hawk, White-tailed Kite, western pond turtle, Townsend's big-eared bat, pallid bat, and hoary bat. Implementation of Mitigation Measures BIO-1 through BIO-7 would reduce impacts on special-status species to a level that would be **less than significant with mitigation**.

California History and Prehistory and Paleontology

No archaeological, historical, or paleontological resources, or TCRs, have been identified in the proposed project area. Implementation of Mitigation Measures CR-1 through CR-3 would reduce potential impacts on unknown resources to a level that would be **less than significant with mitigation**.

b. Impacts that Are Individually Limited but Cumulatively Considerable—Less than Significant

A cumulative impact refers to the combined effect of "two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts" (State CEQA Guidelines Section 15355). As defined by the State of California, cumulative impacts reflect "the change in the environment which results from the incremental impact of the Proposed Project when added to other closely related past, present, and reasonably foreseeable probable future projects. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time" (State CEQA Guidelines Section 15355[b]).

Based on review of active planning projects listed on the Stanislaus County Planning and Community Development Department's website (Stanislaus County 2017), planned projects in the project area that could potentially combine with the proposed project to result in cumulative impacts include the following:

- Art Silva Dairy expansion, a request to increase an existing dairy facility by 928 head, including construction of 53,000 square feet of barn, in Modesto (approximately 8 miles northwest of the proposed project site);
- Isaaco Estates project, a 3-acre subdivision in a rural residential area in Denair (approximately 8 miles south of the project site);
- Darrell's Mini Storage project, a rezone to accommodate 100 RV storage spaces on a 3-acre site in Modesto (approximately 16 miles northwest of the project site);
- Fruit Yard Amphitheater project, an expansion of an existing development with an outdoor, 3,500-person amphitheater event center, stage, storage building, and permanent and temporary parking areas (approximately 3 miles north of the project site);
- Martin subdivision, a request to subdivide a rural residential parcel to create four residential parcels in Denair (approximately 8 miles south of the project site); and
- Don's RV Center, a rezone and approval of an RV sales yard adjacent to an existing RV sales business in Keyes (approximately 8 miles southwest of the project site).

Although the projects listed above may result in temporary adverse effects on the environment, none of the identified projects are located in the same geographic area as the proposed project or affect the same types of resources. The projects listed above involve residential development or commercial development. All of these projects would be required to comply with the same regional air quality and GHG regulations as would the proposed project, and each would be required to reduce or mitigate significant impacts on those resources. The proposed project would consist of short-term construction activities leading to short-term test pumping of the infiltration gallery, and long-term impacts on the environment on resources considered in this document (e.g., transportation, air quality, GHG, noise) would be less than significant, after mitigation, from a cumulative standpoint.

In conclusion, none of the identified projects have the potential to combine with the proposed project to result in a significant cumulative impact to which the proposed project might make a substantial contribution.

The proposed project also is related to the Surface Water Supply Project. As explained in Chapter 2, the proposed project (which involves the testing of pre-existing facilities) is necessary preliminary work relating to the environmental review and potential approval of the larger Surface Water Supply Project. SRWA therefore is pursuing a series of CEQA actions for the two projects. This IS/MND focuses on the short-term and temporary construction and other impacts of the infiltration gallery testing and the related installation of the wet well. The Surface Water Supply Project EIR will incorporate the results of that testing and evaluate the broader scope of environmental impacts associated with the construction and long-term operation of a new surface water project (including the infiltration gallery and wet well) serving the Cities.

c. Effects on Human Beings—Less than Significant

All of the potentially adverse effects on human beings identified in this initial study would be avoided or reduced by BMPs incorporated into the Proposed Project, or would be mitigated to a less-than-significant level by implementation of measures identified in this document. Construction-related GHG impacts would be less than significant. Mitigation Measure TRANS-1 would address potential impacts on emergency plans and traffic. Impacts on noise would be reduced with implementation of Mitigation Measure NOISE-1. No substantial adverse effects on human beings would result.

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Chapter 4
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Chapter 5
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3.19, Mandatory Findings of Significance

None cited.

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Appendix A

Air Quality and Greenhouse Gas Calculations

SRWA

Stanislaus County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Light Industry	3.00	1000sqft	3.00	3,000.00	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	46
Climate Zone	3			**Operational Year**	2019
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

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Project Characteristics - Updated Start Date

Land Use - Disturbed area is 3 acres, well area is smaller.

Construction Phase - Updated

Off-road Equipment - updated

Off-road Equipment - Updated

Off-road Equipment - Updated

Off-road Equipment - Updated

Off-road Equipment - Updated

Off-road Equipment - Updated - Pump emissions accounted for with generator emissions since pumps are electric and powered by generators

Off-road Equipment - Updated

Trips and VMT - Updated

Demolition -

Grading - Can't add Phases, so just split the total 15,300 between these two.

Vehicle Emission Factors -

Vehicle Emission Factors -

Vehicle Emission Factors -

Energy Use -

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Parking	150.00	0.00
tblAreaCoating	Area_EF_Parking	150	0
tblAreaCoating	Area_Nonresidential_Exterior	1500	0
tblAreaCoating	Area_Nonresidential_Interior	4500	0
tblConstructionPhase	NumDays	10.00	0.00
tblConstructionPhase	NumDays	220.00	132.00
tblConstructionPhase	NumDays	220.00	22.00
tblConstructionPhase	NumDays	20.00	22.00

tblConstructionPhase	NumDays	6.00	66.00
tblConstructionPhase	NumDays	10.00	44.00
tblConstructionPhase	NumDays	3.00	66.00
tblConstructionPhase	PhaseEndDate	9/4/2018	8/6/2018
tblConstructionPhase	PhaseEndDate	10/4/2018	9/5/2018
tblConstructionPhase	PhaseEndDate	12/5/2018	11/6/2018
tblConstructionPhase	PhaseStartDate	3/3/2018	2/2/2018
tblConstructionPhase	PhaseStartDate	9/5/2018	8/7/2018
tblConstructionPhase	PhaseStartDate	10/5/2018	9/6/2018
tblGrading	AcresOfGrading	0.00	3.00
tblGrading	MaterialExported	0.00	7,650.00
tblGrading	MaterialImported	0.00	7,650.00
tblLandUse	LotAcreage	0.07	3.00
tblOffRoadEquipment	HorsePower	231.00	80.00
tblOffRoadEquipment	HorsePower	158.00	81.00
tblOffRoadEquipment	HorsePower	84.00	97.00
tblOffRoadEquipment	HorsePower	247.00	97.00
tblOffRoadEquipment	HorsePower	97.00	78.00
tblOffRoadEquipment	HorsePower	78.00	130.00
tblOffRoadEquipment	HorsePower	221.00	187.00
tblOffRoadEquipment	HorsePower	9.00	97.00
tblOffRoadEquipment	HorsePower	402.00	97.00
tblOffRoadEquipment	HorsePower	402.00	247.00
tblOffRoadEquipment	HorsePower	402.00	89.00
tblOffRoadEquipment	HorsePower	84.00	9.00
tblOffRoadEquipment	HorsePower	100.00	247.00
tblOffRoadEquipment	LoadFactor	0.29	0.38

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tblOffRoadEquipment	LoadFactor	0.38	0.73
tblOffRoadEquipment	LoadFactor	0.74	0.37
tblOffRoadEquipment	LoadFactor	0.40	0.37
tblOffRoadEquipment	LoadFactor	0.37	0.48
tblOffRoadEquipment	LoadFactor	0.48	0.42
tblOffRoadEquipment	LoadFactor	0.50	0.41
tblOffRoadEquipment	LoadFactor	0.56	0.37
tblOffRoadEquipment	LoadFactor	0.38	0.37
tblOffRoadEquipment	LoadFactor	0.38	0.40
tblOffRoadEquipment	LoadFactor	0.38	0.20
tblOffRoadEquipment	LoadFactor	0.74	0.56
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tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
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tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
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tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
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tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
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tblOffRoadEquipment	PhaseName		Soil Stabilization
tblOffRoadEquipment	PhaseName		Wet Well Construction
tblOffRoadEquipment	PhaseName		Soil Stabilization
tblOffRoadEquipment	PhaseName		Excavation
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tblOffRoadEquipment	PhaseName		Excavation
tblOffRoadEquipment	PhaseName		Soil Stabilization
tblOffRoadEquipment	PhaseName		Excavation
tblOffRoadEquipment	PhaseName		Wet Well Construction
tblOffRoadEquipment	PhaseName		Site Cleanup
tblOffRoadEquipment	PhaseName		Soil Stabilization
tblOffRoadEquipment	PhaseName		Wet Well Construction
tblOffRoadEquipment	PhaseName		Site Cleanup
tblOffRoadEquipment	PhaseName		Testing
tblOffRoadEquipment	PhaseName		Testing
tblOffRoadEquipment	PhaseName		Site Cleanup
tblOffRoadEquipment	PhaseName		Site Cleanup

tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblProjectCharacteristics	OperationalYear	2018	2019
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblTripsAndVMT	HaulingTripNumber	0.00	50.00
tblTripsAndVMT	HaulingTripNumber	0.00	120.00
tblTripsAndVMT	HaulingTripNumber	956.00	120.00
tblTripsAndVMT	HaulingTripNumber	0.00	260.00
tblTripsAndVMT	HaulingTripNumber	0.00	50.00
tblTripsAndVMT	HaulingTripNumber	0.00	100.00
tblTripsAndVMT	WorkerTripNumber	28.00	7.00
tblTripsAndVMT	WorkerTripNumber	18.00	7.00
tblTripsAndVMT	WorkerTripNumber	28.00	7.00
tblTripsAndVMT	WorkerTripNumber	1.00	7.00
tblTripsAndVMT	WorkerTripNumber	1.00	7.00
tblTripsAndVMT	WorkerTripNumber	28.00	7.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2017	0.2429	2.5839	1.4295	2.8000e-003	0.4085	0.1260	0.5345	0.2208	0.1180	0.3388	0.0000	256.1930	256.1930	0.0642	0.0000	257.7989
2018	0.5093	5.1095	3.1400	6.0700e-003	0.4145	0.2551	0.6695	0.2227	0.2395	0.4623	0.0000	544.6183	544.6183	0.1323	0.0000	547.9247
Maximum	**0.5093**	**5.1095**	**3.1400**	**6.0700e-003**	**0.4145**	**0.2551**	**0.6695**	**0.2227**	**0.2395**	**0.4623**	**0.0000**	**544.6183**	**544.6183**	**0.1323**	**0.0000**	**547.9247**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2017	0.2429	2.5838	1.4295	2.8000e-003	0.4085	0.1260	0.5345	0.2208	0.1180	0.3388	0.0000	256.1927	256.1927	0.0642	0.0000	257.7987
2018	0.5093	5.1095	3.1400	6.0700e-003	0.4145	0.2551	0.6695	0.2227	0.2395	0.4623	0.0000	544.6177	544.6177	0.1323	0.0000	547.9241
Maximum	**0.5093**	**5.1095**	**3.1400**	**6.0700e-003**	**0.4145**	**0.2551**	**0.6695**	**0.2227**	**0.2395**	**0.4623**	**0.0000**	**544.6177**	**544.6177**	**0.1323**	**0.0000**	**547.9241**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

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Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
		Highest		

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0117	0.0000	3.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	5.0000e-005	5.0000e-005	0.0000	0.0000	6.0000e-005
Energy	3.4000e-004	3.0800e-003	2.5900e-003	2.0000e-005		2.3000e-004	2.3000e-004		2.3000e-004	2.3000e-004	0.0000	11.1998	11.1998	4.2000e-004	1.3000e-004	11.2505
Mobile	8.5100e-003	0.0761	0.1020	3.7000e-004	0.0232	5.5000e-004	0.0238	6.2400e-003	5.2000e-004	6.7700e-003	0.0000	34.2720	34.2720	2.0200e-003	0.0000	34.3225
Waste						0.0000	0.0000		0.0000	0.0000	0.7551	0.0000	0.7551	0.0446	0.0000	1.8708
Water						0.0000	0.0000		0.0000	0.0000	0.2201	1.0921	1.3121	0.0227	5.4000e-004	2.0406
Total	**0.0206**	**0.0792**	**0.1046**	**3.9000e-004**	**0.0232**	**7.8000e-004**	**0.0240**	**6.2400e-003**	**7.5000e-004**	**7.0000e-003**	**0.9752**	**46.5639**	**47.5391**	**0.0697**	**6.7000e-004**	**49.4845**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0117	0.0000	3.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	5.0000e-005	5.0000e-005	0.0000	0.0000	6.0000e-005
Energy	3.4000e-004	3.0800e-003	2.5900e-003	2.0000e-005		2.3000e-004	2.3000e-004		2.3000e-004	2.3000e-004	0.0000	11.1998	11.1998	4.2000e-004	1.3000e-004	11.2505
Mobile	8.5100e-003	0.0761	0.1020	3.7000e-004	0.0232	5.5000e-004	0.0238	6.2400e-003	5.2000e-004	6.7700e-003	0.0000	34.2720	34.2720	2.0200e-003	0.0000	34.3225
Waste						0.0000	0.0000		0.0000	0.0000	0.7551	0.0000	0.7551	0.0446	0.0000	1.8708
Water						0.0000	0.0000		0.0000	0.0000	0.2201	1.0921	1.3121	0.0227	5.4000e-004	2.0406
Total	**0.0206**	**0.0792**	**0.1046**	**3.9000e-004**	**0.0232**	**7.8000e-004**	**0.0240**	**6.2400e-003**	**7.5000e-004**	**7.0000e-003**	**0.9752**	**46.5639**	**47.5391**	**0.0697**	**6.7000e-004**	**49.4845**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

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Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Access and Prep	Demolition	8/1/2017	8/30/2017	5	22	
2	Soil Stabilization	Site Preparation	8/31/2017	11/30/2017	5	66	
3	Excavation	Grading	12/1/2017	3/2/2018	5	66	
4	Wet Well Construction	Building Construction	2/2/2018	8/6/2018	5	132	
5	Testing	Building Construction	8/7/2018	9/5/2018	5	22	
6	Site Cleanup	Paving	9/6/2018	11/6/2018	5	44	
7	Architectural Coating	Architectural Coating	12/6/2018	12/5/2018	5	0	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 4,500; Non-Residential Outdoor: 1,500; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Access and Prep	Off-Highway Trucks	2	8.00	402	0.38
Site Access and Prep	Other Construction Equipment	1	8.00	172	0.42
Site Access and Prep	Rollers	2	8.00	80	0.38
Site Access and Prep	Rubber Tired Dozers	2	8.00	247	0.40
Site Access and Prep	Rubber Tired Loaders	2	8.00	203	0.36
Site Access and Prep	Scrapers	2	8.00	367	0.48
Soil Stabilization	Bore/Drill Rigs	1	8.00	187	0.41
Soil Stabilization	Cranes	1	8.00	231	0.29
Soil Stabilization	Generator Sets	2	8.00	84	0.74

Soil Stabilization	Off-Highway Trucks	2	8.00	97	0.37
Soil Stabilization	Other Construction Equipment	1	8.00	172	0.42
Excavation	Cranes	1	8.00	231	0.29
Excavation	Excavators	2	8.00	81	0.73
Excavation	Generator Sets	2	8.00	84	0.74
Excavation	Off-Highway Trucks	2	8.00	247	0.40
Excavation	Rubber Tired Dozers	2	8.00	97	0.37
Excavation	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Wet Well Construction	Cement and Mortar Mixers	2	8.00	97	0.37
Wet Well Construction	Cranes	2	8.00	231	0.29
Wet Well Construction	Generator Sets	2	8.00	84	0.74
Wet Well Construction	Off-Highway Trucks	2	8.00	89	0.20
Wet Well Construction	Other Construction Equipment	1	8.00	172	0.42
Wet Well Construction	Welders	1	8.00	46	0.45
Testing	Air Compressors	2	8.00	130	0.42
Testing	Cranes	2	8.00	80	0.38
Testing	Generator Sets	2	8.00	97	0.37
Testing	Pumps	0	8.00	9	0.56
Testing	Rough Terrain Forklifts	1	8.00	247	0.40
Site Cleanup	Off-Highway Trucks	2	8.00	402	0.38
Site Cleanup	Other Construction Equipment	1	8.00	172	0.42
Site Cleanup	Rollers	2	8.00	80	0.38
Site Cleanup	Rubber Tired Dozers	2	8.00	247	0.40
Site Cleanup	Scrapers	2	8.00	367	0.48
Site Cleanup	Tractors/Loaders/Backhoes	2	8.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Access and Prep	11	7.00	0.00	50.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Soil Stabilization	7	7.00	0.00	120.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Excavation	11	7.00	0.00	120.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Wet Well Construction	10	7.00	0.00	260.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Testing	7	7.00	0.00	50.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Site Cleanup	11	7.00	0.00	100.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating				0.00	16.80	6.60				

3.1 Mitigation Measures Construction

3.2 Site Access and Prep - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0998	1.1521	0.5642	1.0700e-003		0.0504	0.0504		0.0464	0.0464	0.0000	99.7294	99.7294	0.0306	0.0000	100.4934
Total	**0.0998**	**1.1521**	**0.5642**	**1.0700e-003**	**0.0000**	**0.0504**	**0.0504**	**0.0000**	**0.0464**	**0.0464**	**0.0000**	**99.7294**	**99.7294**	**0.0306**	**0.0000**	**100.4934**

3.2 Site Access and Prep - 2017

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.6000e-004	8.5300e-003	1.1900e-003	2.0000e-005	4.3000e-004	5.0000e-005	4.7000e-004	1.2000e-004	5.0000e-005	1.6000e-004	0.0000	1.9559	1.9559	1.3000e-004	0.0000	1.9593
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.6000e-004	5.2000e-004	5.2200e-003	1.0000e-005	9.6000e-004	1.0000e-005	9.6000e-004	2.5000e-004	1.0000e-005	2.6000e-004	0.0000	0.9390	0.9390	4.0000e-005	0.0000	0.9399
Total	**9.2000e-004**	**9.0500e-003**	**6.4100e-003**	**3.0000e-005**	**1.3900e-003**	**6.0000e-005**	**1.4300e-003**	**3.7000e-004**	**6.0000e-005**	**4.2000e-004**	**0.0000**	**2.8949**	**2.8949**	**1.7000e-004**	**0.0000**	**2.8992**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0998	1.1521	0.5642	1.0700e-003		0.0504	0.0504		0.0464	0.0464	0.0000	99.7293	99.7293	0.0306	0.0000	100.4932
Total	**0.0998**	**1.1521**	**0.5642**	**1.0700e-003**	**0.0000**	**0.0504**	**0.0504**	**0.0000**	**0.0464**	**0.0464**	**0.0000**	**99.7293**	**99.7293**	**0.0306**	**0.0000**	**100.4932**

3.2 Site Access and Prep - 2017

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.6000e-004	8.5300e-003	1.1900e-003	2.0000e-005	4.3000e-004	5.0000e-005	4.7000e-004	1.2000e-004	5.0000e-005	1.6000e-004	0.0000	1.9559	1.9559	1.3000e-004	0.0000	1.9593
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.6000e-004	5.2000e-004	5.2200e-003	1.0000e-005	9.6000e-004	1.0000e-005	9.6000e-004	2.5000e-004	1.0000e-005	2.6000e-004	0.0000	0.9390	0.9390	4.0000e-005	0.0000	0.9399
Total	**9.2000e-004**	**9.0500e-003**	**6.4100e-003**	**3.0000e-005**	**1.3900e-003**	**6.0000e-005**	**1.4300e-003**	**3.7000e-004**	**6.0000e-005**	**4.2000e-004**	**0.0000**	**2.8949**	**2.8949**	**1.7000e-004**	**0.0000**	**2.8992**

3.3 Soil Stabilization - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					2.0200e-003	0.0000	2.0200e-003	2.4000e-004	0.0000	2.4000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0883	0.8977	0.5315	1.0400e-003		0.0468	0.0468		0.0447	0.0447	0.0000	93.8866	93.8866	0.0204	0.0000	94.3955
Total	**0.0883**	**0.8977**	**0.5315**	**1.0400e-003**	**2.0200e-003**	**0.0468**	**0.0489**	**2.4000e-004**	**0.0447**	**0.0449**	**0.0000**	**93.8866**	**93.8866**	**0.0204**	**0.0000**	**94.3955**

3.3 Soil Stabilization - 2017

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	6.3000e-004	0.0205	2.8500e-003	5.0000e-005	1.0200e-003	1.1000e-004	1.1400e-003	2.8000e-004	1.1000e-004	3.9000e-004	0.0000	4.6942	4.6942	3.2000e-004	0.0000	4.7022
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.9800e-003	1.5500e-003	0.0157	3.0000e-005	2.8700e-003	2.0000e-005	2.8900e-003	7.6000e-004	2.0000e-005	7.8000e-004	0.0000	2.8169	2.8169	1.1000e-004	0.0000	2.8198
Total	**2.6100e-003**	**0.0220**	**0.0185**	**8.0000e-005**	**3.8900e-003**	**1.3000e-004**	**4.0300e-003**	**1.0400e-003**	**1.3000e-004**	**1.1700e-003**	**0.0000**	**7.5111**	**7.5111**	**4.3000e-004**	**0.0000**	**7.5220**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					2.0200e-003	0.0000	2.0200e-003	2.4000e-004	0.0000	2.4000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0883	0.8977	0.5315	1.0400e-003		0.0468	0.0468		0.0447	0.0447	0.0000	93.8865	93.8865	0.0204	0.0000	94.3954
Total	**0.0883**	**0.8977**	**0.5315**	**1.0400e-003**	**2.0200e-003**	**0.0468**	**0.0489**	**2.4000e-004**	**0.0447**	**0.0449**	**0.0000**	**93.8865**	**93.8865**	**0.0204**	**0.0000**	**94.3954**

3.3 Soil Stabilization - 2017

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	6.3000e-004	0.0205	2.8500e-003	5.0000e-005	1.0200e-003	1.1000e-004	1.1400e-003	2.8000e-004	1.1000e-004	3.9000e-004	0.0000	4.6942	4.6942	3.2000e-004	0.0000	4.7022
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.9800e-003	1.5500e-003	0.0157	3.0000e-005	2.8700e-003	2.0000e-005	2.8900e-003	7.6000e-004	2.0000e-005	7.8000e-004	0.0000	2.8169	2.8169	1.1000e-004	0.0000	2.8198
Total	**2.6100e-003**	**0.0220**	**0.0185**	**8.0000e-005**	**3.8900e-003**	**1.3000e-004**	**4.0300e-003**	**1.0400e-003**	**1.3000e-004**	**1.1700e-003**	**0.0000**	**7.5111**	**7.5111**	**4.3000e-004**	**0.0000**	**7.5220**

3.4 Excavation - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.3995	0.0000	0.3995	0.2187	0.0000	0.2187	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0505	0.4960	0.3029	5.5000e-004		0.0285	0.0285		0.0267	0.0267	0.0000	49.7811	49.7811	0.0126	0.0000	50.0956
Total	**0.0505**	**0.4960**	**0.3029**	**5.5000e-004**	**0.3995**	**0.0285**	**0.4280**	**0.2187**	**0.0267**	**0.2454**	**0.0000**	**49.7811**	**49.7811**	**0.0126**	**0.0000**	**50.0956**

3.4 Excavation - 2017

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.0000e-004	6.5200e-003	9.1000e-004	2.0000e-005	8.5000e-004	4.0000e-005	8.9000e-004	2.2000e-004	3.0000e-005	2.5000e-004	0.0000	1.4936	1.4936	1.0000e-004	0.0000	1.4962
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.3000e-004	4.9000e-004	4.9800e-003	1.0000e-005	9.1000e-004	1.0000e-005	9.2000e-004	2.4000e-004	1.0000e-005	2.5000e-004	0.0000	0.8963	0.8963	4.0000e-005	0.0000	0.8972
Total	**8.3000e-004**	**7.0100e-003**	**5.8900e-003**	**3.0000e-005**	**1.7600e-003**	**5.0000e-005**	**1.8100e-003**	**4.6000e-004**	**4.0000e-005**	**5.0000e-004**	**0.0000**	**2.3899**	**2.3899**	**1.4000e-004**	**0.0000**	**2.3934**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.3995	0.0000	0.3995	0.2187	0.0000	0.2187	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0505	0.4960	0.3029	5.5000e-004		0.0285	0.0285		0.0267	0.0267	0.0000	49.7811	49.7811	0.0126	0.0000	50.0955
Total	**0.0505**	**0.4960**	**0.3029**	**5.5000e-004**	**0.3995**	**0.0285**	**0.4280**	**0.2187**	**0.0267**	**0.2454**	**0.0000**	**49.7811**	**49.7811**	**0.0126**	**0.0000**	**50.0955**

3.4 Excavation - 2017

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.0000e-004	6.5200e-003	9.1000e-004	2.0000e-005	8.5000e-004	4.0000e-005	8.9000e-004	2.2000e-004	3.0000e-005	2.5000e-004	0.0000	1.4936	1.4936	1.0000e-004	0.0000	1.4962
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.3000e-004	4.9000e-004	4.9800e-003	1.0000e-005	9.1000e-004	1.0000e-005	9.2000e-004	2.4000e-004	1.0000e-005	2.5000e-004	0.0000	0.8963	0.8963	4.0000e-005	0.0000	0.8972
Total	**8.3000e-004**	**7.0100e-003**	**5.8900e-003**	**3.0000e-005**	**1.7600e-003**	**5.0000e-005**	**1.8100e-003**	**4.6000e-004**	**4.0000e-005**	**5.0000e-004**	**0.0000**	**2.3899**	**2.3899**	**1.4000e-004**	**0.0000**	**2.3934**

3.4 Excavation - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.3995	0.0000	0.3995	0.2187	0.0000	0.2187	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0916	0.9041	0.6187	1.1700e-003		0.0497	0.0497		0.0466	0.0466	0.0000	105.4354	105.4354	0.0267	0.0000	106.1039
Total	**0.0916**	**0.9041**	**0.6187**	**1.1700e-003**	**0.3995**	**0.0497**	**0.4491**	**0.2187**	**0.0466**	**0.2653**	**0.0000**	**105.4354**	**105.4354**	**0.0267**	**0.0000**	**106.1039**

3.4 Excavation - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	3.7000e-004	0.0129	1.7600e-003	3.0000e-005	9.4000e-004	5.0000e-005	9.9000e-004	2.5000e-004	5.0000e-005	3.0000e-004	0.0000	3.1727	3.1727	2.0000e-004	0.0000	3.1778
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.2000e-003	9.2000e-004	9.3200e-003	2.0000e-005	1.9600e-003	2.0000e-005	1.9700e-003	5.2000e-004	1.0000e-005	5.3000e-004	0.0000	1.8938	1.8938	7.0000e-005	0.0000	1.8955
Total	**1.5700e-003**	**0.0138**	**0.0111**	**5.0000e-005**	**2.9000e-003**	**7.0000e-005**	**2.9600e-003**	**7.7000e-004**	**6.0000e-005**	**8.3000e-004**	**0.0000**	**5.0664**	**5.0664**	**2.7000e-004**	**0.0000**	**5.0733**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.3995	0.0000	0.3995	0.2187	0.0000	0.2187	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0916	0.9041	0.6187	1.1700e-003		0.0497	0.0497		0.0466	0.0466	0.0000	105.4353	105.4353	0.0267	0.0000	106.1038
Total	**0.0916**	**0.9041**	**0.6187**	**1.1700e-003**	**0.3995**	**0.0497**	**0.4491**	**0.2187**	**0.0466**	**0.2653**	**0.0000**	**105.4353**	**105.4353**	**0.0267**	**0.0000**	**106.1038**

3.4 Excavation - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	3.7000e-004	0.0129	1.7600e-003	3.0000e-005	9.4000e-004	5.0000e-005	9.9000e-004	2.5000e-004	5.0000e-005	3.0000e-004	0.0000	3.1727	3.1727	2.0000e-004	0.0000	3.1778
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.2000e-003	9.2000e-004	9.3200e-003	2.0000e-005	1.9600e-003	2.0000e-005	1.9700e-003	5.2000e-004	1.0000e-005	5.3000e-004	0.0000	1.8938	1.8938	7.0000e-005	0.0000	1.8955
Total	**1.5700e-003**	**0.0138**	**0.0111**	**5.0000e-005**	**2.9000e-003**	**7.0000e-005**	**2.9600e-003**	**7.7000e-004**	**6.0000e-005**	**8.3000e-004**	**0.0000**	**5.0664**	**5.0664**	**2.7000e-004**	**0.0000**	**5.0733**

3.5 Wet Well Construction - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2079	1.9542	1.2246	2.2100e-003		0.1021	0.1021		0.0973	0.0973	0.0000	193.7818	193.7818	0.0410	0.0000	194.8068
Total	**0.2079**	**1.9542**	**1.2246**	**2.2100e-003**		**0.1021**	**0.1021**		**0.0973**	**0.0973**	**0.0000**	**193.7818**	**193.7818**	**0.0410**	**0.0000**	**194.8068**

3.5 Wet Well Construction - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.1700e-003	0.0409	5.5900e-003	1.1000e-004	2.2200e-003	1.7000e-004	2.3800e-003	6.1000e-004	1.6000e-004	7.7000e-004	0.0000	10.0821	10.0821	6.5000e-004	0.0000	10.0983
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.5100e-003	2.6900e-003	0.0274	6.0000e-005	5.7400e-003	5.0000e-005	5.7800e-003	1.5300e-003	4.0000e-005	1.5700e-003	0.0000	5.5550	5.5550	2.1000e-004	0.0000	5.5602
Total	**4.6800e-003**	**0.0436**	**0.0329**	**1.7000e-004**	**7.9600e-003**	**2.2000e-004**	**8.1600e-003**	**2.1400e-003**	**2.0000e-004**	**2.3400e-003**	**0.0000**	**15.6371**	**15.6371**	**8.6000e-004**	**0.0000**	**15.6585**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2079	1.9542	1.2246	2.2100e-003		0.1021	0.1021		0.0973	0.0973	0.0000	193.7816	193.7816	0.0410	0.0000	194.8066
Total	**0.2079**	**1.9542**	**1.2246**	**2.2100e-003**		**0.1021**	**0.1021**		**0.0973**	**0.0973**	**0.0000**	**193.7816**	**193.7816**	**0.0410**	**0.0000**	**194.8066**

3.5 Wet Well Construction - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.1700e-003	0.0409	5.5900e-003	1.1000e-004	2.2200e-003	1.7000e-004	2.3800e-003	6.1000e-004	1.6000e-004	7.7000e-004	0.0000	10.0821	10.0821	6.5000e-004	0.0000	10.0983
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.5100e-003	2.6900e-003	0.0274	6.0000e-005	5.7400e-003	5.0000e-005	5.7800e-003	1.5300e-003	4.0000e-005	1.5700e-003	0.0000	5.5550	5.5550	2.1000e-004	0.0000	5.5602
Total	**4.6800e-003**	**0.0436**	**0.0329**	**1.7000e-004**	**7.9600e-003**	**2.2000e-004**	**8.1600e-003**	**2.1400e-003**	**2.0000e-004**	**2.3400e-003**	**0.0000**	**15.6371**	**15.6371**	**8.6000e-004**	**0.0000**	**15.6585**

3.6 Testing - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0295	0.2619	0.1878	3.6000e-004		0.0150	0.0150		0.0143	0.0143	0.0000	31.8646	31.8646	5.5500e-003	0.0000	32.0034
Total	**0.0295**	**0.2619**	**0.1878**	**3.6000e-004**		**0.0150**	**0.0150**		**0.0143**	**0.0143**	**0.0000**	**31.8646**	**31.8646**	**5.5500e-003**	**0.0000**	**32.0034**

3.6 Testing - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.3000e-004	7.8600e-003	1.0800e-003	2.0000e-005	4.3000e-004	3.0000e-005	4.6000e-004	1.2000e-004	3.0000e-005	1.5000e-004	0.0000	1.9389	1.9389	1.3000e-004	0.0000	1.9420
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.8000e-004	4.5000e-004	4.5600e-003	1.0000e-005	9.6000e-004	1.0000e-005	9.6000e-004	2.5000e-004	1.0000e-005	2.6000e-004	0.0000	0.9258	0.9258	3.0000e-005	0.0000	0.9267
Total	**8.1000e-004**	**8.3100e-003**	**5.6400e-003**	**3.0000e-005**	**1.3900e-003**	**4.0000e-005**	**1.4200e-003**	**3.7000e-004**	**4.0000e-005**	**4.1000e-004**	**0.0000**	**2.8647**	**2.8647**	**1.6000e-004**	**0.0000**	**2.8687**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0295	0.2619	0.1878	3.6000e-004		0.0150	0.0150		0.0143	0.0143	0.0000	31.8646	31.8646	5.5500e-003	0.0000	32.0034
Total	**0.0295**	**0.2619**	**0.1878**	**3.6000e-004**		**0.0150**	**0.0150**		**0.0143**	**0.0143**	**0.0000**	**31.8646**	**31.8646**	**5.5500e-003**	**0.0000**	**32.0034**

3.6 Testing - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.3000e-004	7.8600e-003	1.0800e-003	2.0000e-005	4.3000e-004	3.0000e-005	4.6000e-004	1.2000e-004	3.0000e-005	1.5000e-004	0.0000	1.9389	1.9389	1.3000e-004	0.0000	1.9420
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.8000e-004	4.5000e-004	4.5600e-003	1.0000e-005	9.6000e-004	1.0000e-005	9.6000e-004	2.5000e-004	1.0000e-005	2.6000e-004	0.0000	0.9258	0.9258	3.0000e-005	0.0000	0.9267
Total	**8.1000e-004**	**8.3100e-003**	**5.6400e-003**	**3.0000e-005**	**1.3900e-003**	**4.0000e-005**	**1.4200e-003**	**3.7000e-004**	**4.0000e-005**	**4.1000e-004**	**0.0000**	**2.8647**	**2.8647**	**1.6000e-004**	**0.0000**	**2.8687**

3.7 Site Cleanup - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1716	1.9071	1.0479	2.0200e-003		0.0880	0.0880		0.0809	0.0809	0.0000	184.2388	184.2388	0.0574	0.0000	185.6727
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.1716**	**1.9071**	**1.0479**	**2.0200e-003**		**0.0880**	**0.0880**		**0.0809**	**0.0809**	**0.0000**	**184.2388**	**184.2388**	**0.0574**	**0.0000**	**185.6727**

3.7 Site Cleanup - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	4.5000e-004	0.0157	2.1500e-003	4.0000e-005	8.5000e-004	6.0000e-005	9.2000e-004	2.3000e-004	6.0000e-005	3.0000e-004	0.0000	3.8777	3.8777	2.5000e-004	0.0000	3.8840
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.1700e-003	9.0000e-004	9.1200e-003	2.0000e-005	1.9100e-003	2.0000e-005	1.9300e-003	5.1000e-004	1.0000e-005	5.2000e-004	0.0000	1.8517	1.8517	7.0000e-005	0.0000	1.8534
Total	**1.6200e-003**	**0.0166**	**0.0113**	**6.0000e-005**	**2.7600e-003**	**8.0000e-005**	**2.8500e-003**	**7.4000e-004**	**7.0000e-005**	**8.2000e-004**	**0.0000**	**5.7294**	**5.7294**	**3.2000e-004**	**0.0000**	**5.7374**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1716	1.9071	1.0479	2.0200e-003		0.0880	0.0880		0.0809	0.0809	0.0000	184.2386	184.2386	0.0574	0.0000	185.6725
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.1716**	**1.9071**	**1.0479**	**2.0200e-003**		**0.0880**	**0.0880**		**0.0809**	**0.0809**	**0.0000**	**184.2386**	**184.2386**	**0.0574**	**0.0000**	**185.6725**

3.7 Site Cleanup - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	4.5000e-004	0.0157	2.1500e-003	4.0000e-005	8.5000e-004	6.0000e-005	9.2000e-004	2.3000e-004	6.0000e-005	3.0000e-004	0.0000	3.8777	3.8777	2.5000e-004	0.0000	3.8840
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.1700e-003	9.0000e-004	9.1200e-003	2.0000e-005	1.9100e-003	2.0000e-005	1.9300e-003	5.1000e-004	1.0000e-005	5.2000e-004	0.0000	1.8517	1.8517	7.0000e-005	0.0000	1.8534
Total	**1.6200e-003**	**0.0166**	**0.0113**	**6.0000e-005**	**2.7600e-003**	**8.0000e-005**	**2.8500e-003**	**7.4000e-004**	**7.0000e-005**	**8.2000e-004**	**0.0000**	**5.7294**	**5.7294**	**3.2000e-004**	**0.0000**	**5.7374**

3.8 Architectural Coating - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.8 Architectural Coating - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.8 Architectural Coating - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	8.5100e-003	0.0761	0.1020	3.7000e-004	0.0232	5.5000e-004	0.0238	6.2400e-003	5.2000e-004	6.7700e-003	0.0000	34.2720	34.2720	2.0200e-003	0.0000	34.3225
Unmitigated	8.5100e-003	0.0761	0.1020	3.7000e-004	0.0232	5.5000e-004	0.0238	6.2400e-003	5.2000e-004	6.7700e-003	0.0000	34.2720	34.2720	2.0200e-003	0.0000	34.3225

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Light Industry	20.91	3.96	2.04	61,015	61,015
Total	20.91	3.96	2.04	61,015	61,015

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Light Industry	14.70	6.60	6.60	59.00	28.00	13.00	92	5	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Light Industry	0.492843	0.036615	0.171617	0.143376	0.029402	0.006440	0.026970	0.082668	0.001814	0.001226	0.004993	0.000882	0.001153

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	7.8459	7.8459	3.5000e-004	7.0000e-005	7.8766
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	7.8459	7.8459	3.5000e-004	7.0000e-005	7.8766
NaturalGas Mitigated	3.4000e-004	3.0800e-003	2.5900e-003	2.0000e-005		2.3000e-004	2.3000e-004		2.3000e-004	2.3000e-004	0.0000	3.3539	3.3539	6.0000e-005	6.0000e-005	3.3739
NaturalGas Unmitigated	3.4000e-004	3.0800e-003	2.5900e-003	2.0000e-005		2.3000e-004	2.3000e-004		2.3000e-004	2.3000e-004	0.0000	3.3539	3.3539	6.0000e-005	6.0000e-005	3.3739

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Light Industry	62850	3.4000e-004	3.0800e-003	2.5900e-003	2.0000e-005		2.3000e-004	2.3000e-004		2.3000e-004	2.3000e-004	0.0000	3.3539	3.3539	6.0000e-005	6.0000e-005	3.3739
Total		**3.4000e-004**	**3.0800e-003**	**2.5900e-003**	**2.0000e-005**		**2.3000e-004**	**2.3000e-004**		**2.3000e-004**	**2.3000e-004**	**0.0000**	**3.3539**	**3.3539**	**6.0000e-005**	**6.0000e-005**	**3.3739**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Light Industry	62850	3.4000e-004	3.0800e-003	2.5900e-003	2.0000e-005		2.3000e-004	2.3000e-004		2.3000e-004	2.3000e-004	0.0000	3.3539	3.3539	6.0000e-005	6.0000e-005	3.3739
Total		**3.4000e-004**	**3.0800e-003**	**2.5900e-003**	**2.0000e-005**		**2.3000e-004**	**2.3000e-004**		**2.3000e-004**	**2.3000e-004**	**0.0000**	**3.3539**	**3.3539**	**6.0000e-005**	**6.0000e-005**	**3.3739**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Light Industry	26970	7.8459	3.5000e-004	7.0000e-005	7.8766
Total		**7.8459**	**3.5000e-004**	**7.0000e-005**	**7.8766**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Light Industry	26970	7.8459	3.5000e-004	7.0000e-005	7.8766
Total		**7.8459**	**3.5000e-004**	**7.0000e-005**	**7.8766**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0117	0.0000	3.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	5.0000e-005	5.0000e-005	0.0000	0.0000	6.0000e-005
Unmitigated	0.0117	0.0000	3.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	5.0000e-005	5.0000e-005	0.0000	0.0000	6.0000e-005

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0117					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	3.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	5.0000e-005	5.0000e-005	0.0000	0.0000	6.0000e-005
Total	**0.0117**	**0.0000**	**3.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**5.0000e-005**	**5.0000e-005**	**0.0000**	**0.0000**	**6.0000e-005**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0117					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	3.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	5.0000e-005	5.0000e-005	0.0000	0.0000	6.0000e-005
Total	**0.0117**	**0.0000**	**3.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**5.0000e-005**	**5.0000e-005**	**0.0000**	**0.0000**	**6.0000e-005**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	1.3121	0.0227	5.4000e-004	2.0406
Unmitigated	1.3121	0.0227	5.4000e-004	2.0406

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Light Industry	0.69375 / 0	1.3121	0.0227	5.4000e-004	2.0406
Total		**1.3121**	**0.0227**	**5.4000e-004**	**2.0406**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Light Industry	0.69375 / 0	1.3121	0.0227	5.4000e-004	2.0406
Total		**1.3121**	**0.0227**	**5.4000e-004**	**2.0406**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.7551	0.0446	0.0000	1.8708
Unmitigated	0.7551	0.0446	0.0000	1.8708

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Light Industry	3.72	0.7551	0.0446	0.0000	1.8708
Total		**0.7551**	**0.0446**	**0.0000**	**1.8708**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Light Industry	3.72	0.7551	0.0446	0.0000	1.8708
Total		**0.7551**	**0.0446**	**0.0000**	**1.8708**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

SRWA

Stanislaus County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Light Industry	3.00	1000sqft	3.00	3,000.00	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	46
Climate Zone	3			**Operational Year**	2019
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

SRWA - Stanislaus County, Summer

Project Characteristics - Updated Start Date

Land Use - Disturbed area is 3 acres, well area is smaller.

Construction Phase - Updated

Off-road Equipment - updated

Off-road Equipment - Updated

Off-road Equipment - Updated

Off-road Equipment - Updated

Off-road Equipment - Updated

Off-road Equipment - Updated - Pump emissions accounted for with generator emissions since pumps are electric and powered by generators

Off-road Equipment - Updated

Trips and VMT - Updated

Demolition -

Grading - Can't add Phases, so just split the total 15,300 between these two.

Vehicle Emission Factors -

Vehicle Emission Factors -

Vehicle Emission Factors -

Energy Use -

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Parking	150.00	0.00
tblAreaCoating	Area_EF_Parking	150	0
tblAreaCoating	Area_Nonresidential_Exterior	1500	0
tblAreaCoating	Area_Nonresidential_Interior	4500	0
tblConstructionPhase	NumDays	10.00	0.00
tblConstructionPhase	NumDays	220.00	132.00
tblConstructionPhase	NumDays	220.00	22.00
tblConstructionPhase	NumDays	20.00	22.00

SRWA - Stanislaus County, Summer

tblConstructionPhase	NumDays	6.00	66.00
tblConstructionPhase	NumDays	10.00	44.00
tblConstructionPhase	NumDays	3.00	66.00
tblConstructionPhase	PhaseEndDate	9/4/2018	8/6/2018
tblConstructionPhase	PhaseEndDate	10/4/2018	9/5/2018
tblConstructionPhase	PhaseEndDate	12/5/2018	11/6/2018
tblConstructionPhase	PhaseStartDate	3/3/2018	2/2/2018
tblConstructionPhase	PhaseStartDate	9/5/2018	8/7/2018
tblConstructionPhase	PhaseStartDate	10/5/2018	9/6/2018
tblGrading	AcresOfGrading	0.00	3.00
tblGrading	MaterialExported	0.00	7,650.00
tblGrading	MaterialImported	0.00	7,650.00
tblLandUse	LotAcreage	0.07	3.00
tblOffRoadEquipment	HorsePower	231.00	80.00
tblOffRoadEquipment	HorsePower	158.00	81.00
tblOffRoadEquipment	HorsePower	84.00	97.00
tblOffRoadEquipment	HorsePower	247.00	97.00
tblOffRoadEquipment	HorsePower	97.00	78.00
tblOffRoadEquipment	HorsePower	78.00	130.00
tblOffRoadEquipment	HorsePower	221.00	187.00
tblOffRoadEquipment	HorsePower	9.00	97.00
tblOffRoadEquipment	HorsePower	402.00	97.00
tblOffRoadEquipment	HorsePower	402.00	247.00
tblOffRoadEquipment	HorsePower	402.00	89.00
tblOffRoadEquipment	HorsePower	84.00	9.00
tblOffRoadEquipment	HorsePower	100.00	247.00
tblOffRoadEquipment	LoadFactor	0.29	0.38

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tblOffRoadEquipment	LoadFactor	0.38	0.73
tblOffRoadEquipment	LoadFactor	0.74	0.37
tblOffRoadEquipment	LoadFactor	0.40	0.37
tblOffRoadEquipment	LoadFactor	0.37	0.48
tblOffRoadEquipment	LoadFactor	0.48	0.42
tblOffRoadEquipment	LoadFactor	0.50	0.41
tblOffRoadEquipment	LoadFactor	0.56	0.37
tblOffRoadEquipment	LoadFactor	0.38	0.37
tblOffRoadEquipment	LoadFactor	0.38	0.40
tblOffRoadEquipment	LoadFactor	0.38	0.20
tblOffRoadEquipment	LoadFactor	0.74	0.56
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00

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tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	PhaseName		Testing
tblOffRoadEquipment	PhaseName		Soil Stabilization
tblOffRoadEquipment	PhaseName		Wet Well Construction
tblOffRoadEquipment	PhaseName		Soil Stabilization
tblOffRoadEquipment	PhaseName		Excavation
tblOffRoadEquipment	PhaseName		Soil Stabilization
tblOffRoadEquipment	PhaseName		Excavation
tblOffRoadEquipment	PhaseName		Soil Stabilization
tblOffRoadEquipment	PhaseName		Excavation
tblOffRoadEquipment	PhaseName		Wet Well Construction
tblOffRoadEquipment	PhaseName		Site Cleanup
tblOffRoadEquipment	PhaseName		Soil Stabilization
tblOffRoadEquipment	PhaseName		Wet Well Construction
tblOffRoadEquipment	PhaseName		Site Cleanup
tblOffRoadEquipment	PhaseName		Testing
tblOffRoadEquipment	PhaseName		Testing
tblOffRoadEquipment	PhaseName		Site Cleanup
tblOffRoadEquipment	PhaseName		Site Cleanup

tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblProjectCharacteristics	OperationalYear	2018	2019
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblTripsAndVMT	HaulingTripNumber	0.00	50.00
tblTripsAndVMT	HaulingTripNumber	0.00	120.00
tblTripsAndVMT	HaulingTripNumber	956.00	120.00
tblTripsAndVMT	HaulingTripNumber	0.00	260.00
tblTripsAndVMT	HaulingTripNumber	0.00	50.00
tblTripsAndVMT	HaulingTripNumber	0.00	100.00
tblTripsAndVMT	WorkerTripNumber	28.00	7.00
tblTripsAndVMT	WorkerTripNumber	18.00	7.00
tblTripsAndVMT	WorkerTripNumber	28.00	7.00
tblTripsAndVMT	WorkerTripNumber	1.00	7.00
tblTripsAndVMT	WorkerTripNumber	1.00	7.00
tblTripsAndVMT	WorkerTripNumber	28.00	7.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2017	9.1655	105.5378	51.9495	0.1006	12.2782	4.5866	14.9964	6.6727	4.2199	9.2216	0.0000	10,294.62 12	10,294.62 12	3.0792	0.0000	10,371.60 14
2018	7.8781	87.4190	48.2118	0.0946	12.3617	4.0017	16.1213	6.6960	3.6816	10.2478	0.0000	9,528.927 3	9,528.927 3	2.8896	0.0000	9,601.167 5
Maximum	**9.1655**	**105.5378**	**51.9495**	**0.1006**	**12.3617**	**4.5866**	**16.1213**	**6.6960**	**4.2199**	**10.2478**	**0.0000**	**10,294.62 12**	**10,294.62 12**	**3.0792**	**0.0000**	**10,371.60 14**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2017	9.1655	105.5378	51.9495	0.1006	12.2782	4.5866	14.9964	6.6727	4.2199	9.2216	0.0000	10,294.62 12	10,294.62 12	3.0792	0.0000	10,371.60 14
2018	7.8781	87.4190	48.2118	0.0946	12.3617	4.0017	16.1213	6.6960	3.6816	10.2478	0.0000	9,528.927 3	9,528.927 3	2.8896	0.0000	9,601.167 5
Maximum	**9.1655**	**105.5378**	**51.9495**	**0.1006**	**12.3617**	**4.5866**	**16.1213**	**6.6960**	**4.2199**	**10.2478**	**0.0000**	**10,294.62 12**	**10,294.62 12**	**3.0792**	**0.0000**	**10,371.60 14**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0642	0.0000	3.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		6.6000e-004	6.6000e-004	0.0000		7.0000e-004
Energy	1.8600e-003	0.0169	0.0142	1.0000e-004		1.2800e-003	1.2800e-003		1.2800e-003	1.2800e-003		20.2579	20.2579	3.9000e-004	3.7000e-004	20.3782
Mobile	0.0721	0.5382	0.8269	2.8700e-003	0.1735	3.9900e-003	0.1775	0.0466	3.7900e-003	0.0504		291.2183	291.2183	0.0162		291.6243
Total	**0.1382**	**0.5551**	**0.8414**	**2.9700e-003**	**0.1735**	**5.2700e-003**	**0.1787**	**0.0466**	**5.0700e-003**	**0.0516**		**311.4768**	**311.4768**	**0.0166**	**3.7000e-004**	**312.0033**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0642	0.0000	3.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		6.6000e-004	6.6000e-004	0.0000		7.0000e-004
Energy	1.8600e-003	0.0169	0.0142	1.0000e-004		1.2800e-003	1.2800e-003		1.2800e-003	1.2800e-003		20.2579	20.2579	3.9000e-004	3.7000e-004	20.3782
Mobile	0.0721	0.5382	0.8269	2.8700e-003	0.1735	3.9900e-003	0.1775	0.0466	3.7900e-003	0.0504		291.2183	291.2183	0.0162		291.6243
Total	**0.1382**	**0.5551**	**0.8414**	**2.9700e-003**	**0.1735**	**5.2700e-003**	**0.1787**	**0.0466**	**5.0700e-003**	**0.0516**		**311.4768**	**311.4768**	**0.0166**	**3.7000e-004**	**312.0033**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Access and Prep	Demolition	8/1/2017	8/30/2017	5	22	
2	Soil Stabilization	Site Preparation	8/31/2017	11/30/2017	5	66	
3	Excavation	Grading	12/1/2017	3/2/2018	5	66	
4	Wet Well Construction	Building Construction	2/2/2018	8/6/2018	5	132	
5	Testing	Building Construction	8/7/2018	9/5/2018	5	22	
6	Site Cleanup	Paving	9/6/2018	11/6/2018	5	44	
7	Architectural Coating	Architectural Coating	12/6/2018	12/5/2018	5	0	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 4,500; Non-Residential Outdoor: 1,500; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Access and Prep	Off-Highway Trucks	2	8.00	402	0.38
Site Access and Prep	Other Construction Equipment	1	8.00	172	0.42
Site Access and Prep	Rollers	2	8.00	80	0.38

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Site Access and Prep	Rubber Tired Dozers	2	8.00	247	0.40
Site Access and Prep	Rubber Tired Loaders	2	8.00	203	0.36
Site Access and Prep	Scrapers	2	8.00	367	0.48
Soil Stabilization	Bore/Drill Rigs	1	8.00	187	0.41
Soil Stabilization	Cranes	1	8.00	231	0.29
Soil Stabilization	Generator Sets	2	8.00	84	0.74
Soil Stabilization	Off-Highway Trucks	2	8.00	97	0.37
Soil Stabilization	Other Construction Equipment	1	8.00	172	0.42
Excavation	Cranes	1	8.00	231	0.29
Excavation	Excavators	2	8.00	81	0.73
Excavation	Generator Sets	2	8.00	84	0.74
Excavation	Off-Highway Trucks	2	8.00	247	0.40
Excavation	Rubber Tired Dozers	2	8.00	97	0.37
Excavation	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Wet Well Construction	Cement and Mortar Mixers	2	8.00	97	0.37
Wet Well Construction	Cranes	2	8.00	231	0.29
Wet Well Construction	Generator Sets	2	8.00	84	0.74
Wet Well Construction	Off-Highway Trucks	2	8.00	89	0.20
Wet Well Construction	Other Construction Equipment	1	8.00	172	0.42
Wet Well Construction	Welders	1	8.00	46	0.45
Testing	Air Compressors	2	8.00	130	0.42
Testing	Cranes	2	8.00	80	0.38
Testing	Generator Sets	2	8.00	97	0.37
Testing	Pumps	0	8.00	9	0.56
Testing	Rough Terrain Forklifts	1	8.00	247	0.40
Site Cleanup	Off-Highway Trucks	2	8.00	402	0.38
Site Cleanup	Other Construction Equipment	1	8.00	172	0.42

Site Cleanup	Rollers		2	8.00	80	0.38
Site Cleanup	Rubber Tired Dozers		2	8.00	247	0.40
Site Cleanup	Scrapers		2	8.00	367	0.48
Site Cleanup	Tractors/Loaders/Backhoes		2	8.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Access and Prep	11	7.00	0.00	50.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Soil Stabilization	7	7.00	0.00	120.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Excavation	11	7.00	0.00	120.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Wet Well Construction	10	7.00	0.00	260.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Testing	7	7.00	0.00	50.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Site Cleanup	11	7.00	0.00	100.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating				0.00	16.80	6.60				

3.1 Mitigation Measures Construction

3.2 Site Access and Prep - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	9.0766	104.7391	51.2940	0.0977		4.5816	4.5816		4.2151	4.2151		9,993.899 1	9,993.899 1	3.0621		10,070.45 19
Total	**9.0766**	**104.7391**	**51.2940**	**0.0977**	**0.0000**	**4.5816**	**4.5816**	**0.0000**	**4.2151**	**4.2151**		**9,993.899 1**	**9,993.899 1**	**3.0621**		**10,070.45 19**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0235	0.7557	0.1024	1.8800e-003	0.0397	4.2900e-003	0.0440	0.0109	4.1000e-003	0.0150		197.6383	197.6383	0.0128		197.9593
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0654	0.0430	0.5531	1.0400e-003	0.0894	7.0000e-004	0.0901	0.0237	6.5000e-004	0.0244		103.0839	103.0839	4.2600e-003		103.1903
Total	**0.0888**	**0.7986**	**0.6556**	**2.9200e-003**	**0.1291**	**4.9900e-003**	**0.1341**	**0.0346**	**4.7500e-003**	**0.0394**		**300.7221**	**300.7221**	**0.0171**		**301.1495**

3.2 Site Access and Prep - 2017

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	9.0766	104.7391	51.2940	0.0977		4.5816	4.5816		4.2151	4.2151	0.0000	9,993.8991	9,993.8991	3.0621		10,070.4519
Total	**9.0766**	**104.7391**	**51.2940**	**0.0977**	**0.0000**	**4.5816**	**4.5816**	**0.0000**	**4.2151**	**4.2151**	**0.0000**	**9,993.8991**	**9,993.8991**	**3.0621**		**10,070.4519**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0235	0.7557	0.1024	1.8800e-003	0.0397	4.2900e-003	0.0440	0.0109	4.1000e-003	0.0150		197.6383	197.6383	0.0128		197.9593
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0654	0.0430	0.5531	1.0400e-003	0.0894	7.0000e-004	0.0901	0.0237	6.5000e-004	0.0244		103.0839	103.0839	4.2600e-003		103.1903
Total	**0.0888**	**0.7986**	**0.6556**	**2.9200e-003**	**0.1291**	**4.9900e-003**	**0.1341**	**0.0346**	**4.7500e-003**	**0.0394**		**300.7221**	**300.7221**	**0.0171**		**301.1495**

3.3 Soil Stabilization - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0613	0.0000	0.0613	7.1900e-003	0.0000	7.1900e-003			0.0000			0.0000
Off-Road	2.6747	27.2014	16.1071	0.0316		1.4192	1.4192		1.3537	1.3537		3,136.1286	3,136.1286	0.6800		3,153.1279
Total	**2.6747**	**27.2014**	**16.1071**	**0.0316**	**0.0613**	**1.4192**	**1.4805**	**7.1900e-003**	**1.3537**	**1.3609**		**3,136.1286**	**3,136.1286**	**0.6800**		**3,153.1279**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0188	0.6045	0.0819	1.5100e-003	0.0318	3.4300e-003	0.0352	8.7100e-003	3.2800e-003	0.0120		158.1106	158.1106	0.0103		158.3674
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0654	0.0430	0.5531	1.0400e-003	0.0894	7.0000e-004	0.0901	0.0237	6.5000e-004	0.0244		103.0839	103.0839	4.2600e-003		103.1903
Total	**0.0842**	**0.6475**	**0.6351**	**2.5500e-003**	**0.1212**	**4.1300e-003**	**0.1253**	**0.0324**	**3.9300e-003**	**0.0364**		**261.1945**	**261.1945**	**0.0145**		**261.5577**

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3.3 Soil Stabilization - 2017

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0613	0.0000	0.0613	7.1900e-003	0.0000	7.1900e-003			0.0000			0.0000
Off-Road	2.6747	27.2014	16.1071	0.0316		1.4192	1.4192		1.3537	1.3537	0.0000	3,136.1286	3,136.1286	0.6800		3,153.1279
Total	**2.6747**	**27.2014**	**16.1071**	**0.0316**	**0.0613**	**1.4192**	**1.4805**	**7.1900e-003**	**1.3537**	**1.3609**	**0.0000**	**3,136.1286**	**3,136.1286**	**0.6800**		**3,153.1279**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0188	0.6045	0.0819	1.5100e-003	0.0318	3.4300e-003	0.0352	8.7100e-003	3.2800e-003	0.0120		158.1106	158.1106	0.0103		158.3674
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0654	0.0430	0.5531	1.0400e-003	0.0894	7.0000e-004	0.0901	0.0237	6.5000e-004	0.0244		103.0839	103.0839	4.2600e-003		103.1903
Total	**0.0842**	**0.6475**	**0.6351**	**2.5500e-003**	**0.1212**	**4.1300e-003**	**0.1253**	**0.0324**	**3.9300e-003**	**0.0364**		**261.1945**	**261.1945**	**0.0145**		**261.5577**

3.4 Excavation - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					12.1055	0.0000	12.1055	6.6276	0.0000	6.6276			0.0000			0.0000
Off-Road	4.8076	47.2362	28.8516	0.0521		2.7141	2.7141		2.5450	2.5450		5,226.1241	5,226.1241	1.3203		5,259.1326
Total	**4.8076**	**47.2362**	**28.8516**	**0.0521**	**12.1055**	**2.7141**	**14.8196**	**6.6276**	**2.5450**	**9.1726**		**5,226.1241**	**5,226.1241**	**1.3203**		**5,259.1326**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0188	0.6045	0.0819	1.5100e-003	0.0833	3.4300e-003	0.0867	0.0214	3.2800e-003	0.0246		158.1106	158.1106	0.0103		158.3674
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0654	0.0430	0.5531	1.0400e-003	0.0894	7.0000e-004	0.0901	0.0237	6.5000e-004	0.0244		103.0839	103.0839	4.2600e-003		103.1903
Total	**0.0842**	**0.6475**	**0.6351**	**2.5500e-003**	**0.1727**	**4.1300e-003**	**0.1768**	**0.0451**	**3.9300e-003**	**0.0490**		**261.1945**	**261.1945**	**0.0145**		**261.5577**

3.4 Excavation - 2017

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					12.1055	0.0000	12.1055	6.6276	0.0000	6.6276			0.0000			0.0000
Off-Road	4.8076	47.2362	28.8516	0.0521		2.7141	2.7141		2.5450	2.5450	0.0000	5,226.124 1	5,226.124 1	1.3203		5,259.132 6
Total	**4.8076**	**47.2362**	**28.8516**	**0.0521**	**12.1055**	**2.7141**	**14.8196**	**6.6276**	**2.5450**	**9.1726**	**0.0000**	**5,226.124 1**	**5,226.124 1**	**1.3203**		**5,259.132 6**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0188	0.6045	0.0819	1.5100e-003	0.0833	3.4300e-003	0.0867	0.0214	3.2800e-003	0.0246		158.1106	158.1106	0.0103		158.3674
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0654	0.0430	0.5531	1.0400e-003	0.0894	7.0000e-004	0.0901	0.0237	6.5000e-004	0.0244		103.0839	103.0839	4.2600e-003		103.1903
Total	**0.0842**	**0.6475**	**0.6351**	**2.5500e-003**	**0.1727**	**4.1300e-003**	**0.1768**	**0.0451**	**3.9300e-003**	**0.0490**		**261.1945**	**261.1945**	**0.0145**		**261.5577**

3.4 Excavation - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					12.1055	0.0000	12.1055	6.6276	0.0000	6.6276			0.0000			0.0000
Off-Road	4.0688	40.1830	27.4979	0.0521		2.2066	2.2066		2.0720	2.0720		5,165.451 8	5,165.451 8	1.3101		5,198.203 2
Total	**4.0688**	**40.1830**	**27.4979**	**0.0521**	**12.1055**	**2.2066**	**14.3121**	**6.6276**	**2.0720**	**8.6996**		**5,165.451 8**	**5,165.451 8**	**1.3101**		**5,198.203 2**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0162	0.5574	0.0741	1.4900e-003	0.0430	2.3100e-003	0.0453	0.0115	2.2100e-003	0.0137		156.7682	156.7682	9.5600e-003		157.0072
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0582	0.0374	0.4853	1.0200e-003	0.0894	6.9000e-004	0.0901	0.0237	6.3000e-004	0.0243		101.6692	101.6692	3.8300e-003		101.7649
Total	**0.0743**	**0.5949**	**0.5594**	**2.5100e-003**	**0.1324**	**3.0000e-003**	**0.1354**	**0.0352**	**2.8400e-003**	**0.0380**		**258.4374**	**258.4374**	**0.0134**		**258.7721**

3.4 Excavation - 2018

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					12.1055	0.0000	12.1055	6.6276	0.0000	6.6276			0.0000			0.0000
Off-Road	4.0688	40.1830	27.4979	0.0521		2.2066	2.2066		2.0720	2.0720	0.0000	5,165.451 8	5,165.451 8	1.3101		5,198.203 2
Total	**4.0688**	**40.1830**	**27.4979**	**0.0521**	**12.1055**	**2.2066**	**14.3121**	**6.6276**	**2.0720**	**8.6996**	**0.0000**	**5,165.451 8**	**5,165.451 8**	**1.3101**		**5,198.203 2**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0162	0.5574	0.0741	1.4900e-003	0.0430	2.3100e-003	0.0453	0.0115	2.2100e-003	0.0137		156.7682	156.7682	9.5600e-003		157.0072
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0582	0.0374	0.4853	1.0200e-003	0.0894	6.9000e-004	0.0901	0.0237	6.3000e-004	0.0243		101.6692	101.6692	3.8300e-003		101.7649
Total	**0.0743**	**0.5949**	**0.5594**	**2.5100e-003**	**0.1324**	**3.0000e-003**	**0.1354**	**0.0352**	**2.8400e-003**	**0.0380**		**258.4374**	**258.4374**	**0.0134**		**258.7721**

3.5 Wet Well Construction - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.1501	29.6086	18.5551	0.0334		1.5468	1.5468		1.4740	1.4740		3,236.483 3	3,236.483 3	0.6847		3,253.601 9
Total	**3.1501**	**29.6086**	**18.5551**	**0.0334**		**1.5468**	**1.5468**		**1.4740**	**1.4740**		**3,236.483 3**	**3,236.483 3**	**0.6847**		**3,253.601 9**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0175	0.6039	0.0803	1.6200e-003	0.0344	2.5000e-003	0.0369	9.4300e-003	2.4000e-003	0.0118		169.8323	169.8323	0.0104		170.0911
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0582	0.0374	0.4853	1.0200e-003	0.0894	6.9000e-004	0.0901	0.0237	6.3000e-004	0.0243		101.6692	101.6692	3.8300e-003		101.7649
Total	**0.0757**	**0.6413**	**0.5655**	**2.6400e-003**	**0.1238**	**3.1900e-003**	**0.1270**	**0.0331**	**3.0300e-003**	**0.0362**		**271.5014**	**271.5014**	**0.0142**		**271.8560**

3.5 Wet Well Construction - 2018

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.1501	29.6086	18.5551	0.0334		1.5468	1.5468		1.4740	1.4740	0.0000	3,236.4833	3,236.4833	0.6847		3,253.6019
Total	**3.1501**	**29.6086**	**18.5551**	**0.0334**		**1.5468**	**1.5468**		**1.4740**	**1.4740**	**0.0000**	**3,236.4833**	**3,236.4833**	**0.6847**		**3,253.6019**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0175	0.6039	0.0803	1.6200e-003	0.0344	2.5000e-003	0.0369	9.4300e-003	2.4000e-003	0.0118		169.8323	169.8323	0.0104		170.0911
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0582	0.0374	0.4853	1.0200e-003	0.0894	6.9000e-004	0.0901	0.0237	6.3000e-004	0.0243		101.6692	101.6692	3.8300e-003		101.7649
Total	**0.0757**	**0.6413**	**0.5655**	**2.6400e-003**	**0.1238**	**3.1900e-003**	**0.1270**	**0.0331**	**3.0300e-003**	**0.0362**		**271.5014**	**271.5014**	**0.0142**		**271.8560**

3.6 Testing - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.6854	23.8058	17.0681	0.0329		1.3594	1.3594		1.3010	1.3010		3,193.156 5	3,193.156 5	0.5564		3,207.065 9
Total	**2.6854**	**23.8058**	**17.0681**	**0.0329**		**1.3594**	**1.3594**		**1.3010**	**1.3010**		**3,193.156 5**	**3,193.156 5**	**0.5564**		**3,207.065 9**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0202	0.6968	0.0926	1.8700e-003	0.0397	2.8900e-003	0.0426	0.0109	2.7700e-003	0.0137		195.9603	195.9603	0.0120		196.2590
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0582	0.0374	0.4853	1.0200e-003	0.0894	6.9000e-004	0.0901	0.0237	6.3000e-004	0.0243		101.6692	101.6692	3.8300e-003		101.7649
Total	**0.0784**	**0.7342**	**0.5779**	**2.8900e-003**	**0.1291**	**3.5800e-003**	**0.1327**	**0.0346**	**3.4000e-003**	**0.0380**		**297.6295**	**297.6295**	**0.0158**		**298.0239**

3.6 Testing - 2018

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.6854	23.8058	17.0681	0.0329		1.3594	1.3594		1.3010	1.3010	0.0000	3,193.1565	3,193.1565	0.5564		3,207.0659
Total	**2.6854**	**23.8058**	**17.0681**	**0.0329**		**1.3594**	**1.3594**		**1.3010**	**1.3010**	**0.0000**	**3,193.1565**	**3,193.1565**	**0.5564**		**3,207.0659**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0202	0.6968	0.0926	1.8700e-003	0.0397	2.8900e-003	0.0426	0.0109	2.7700e-003	0.0137		195.9603	195.9603	0.0120		196.2590
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0582	0.0374	0.4853	1.0200e-003	0.0894	6.9000e-004	0.0901	0.0237	6.3000e-004	0.0243		101.6692	101.6692	3.8300e-003		101.7649
Total	**0.0784**	**0.7342**	**0.5779**	**2.8900e-003**	**0.1291**	**3.5800e-003**	**0.1327**	**0.0346**	**3.4000e-003**	**0.0380**		**297.6295**	**297.6295**	**0.0158**		**298.0239**

3.7 Site Cleanup - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	7.7998	86.6848	47.6339	0.0917		3.9981	3.9981		3.6782	3.6782		9,231.2979	9,231.2979	2.8738		9,303.1436
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**7.7998**	**86.6848**	**47.6339**	**0.0917**		**3.9981**	**3.9981**		**3.6782**	**3.6782**		**9,231.2979**	**9,231.2979**	**2.8738**		**9,303.1436**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0202	0.6968	0.0926	1.8700e-003	0.0397	2.8900e-003	0.0426	0.0109	2.7700e-003	0.0137		195.9603	195.9603	0.0120		196.2590
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0582	0.0374	0.4853	1.0200e-003	0.0894	6.9000e-004	0.0901	0.0237	6.3000e-004	0.0243		101.6692	101.6692	3.8300e-003		101.7649
Total	**0.0784**	**0.7342**	**0.5779**	**2.8900e-003**	**0.1291**	**3.5800e-003**	**0.1327**	**0.0346**	**3.4000e-003**	**0.0380**		**297.6295**	**297.6295**	**0.0158**		**298.0239**

3.7 Site Cleanup - 2018

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	7.7998	86.6848	47.6339	0.0917		3.9981	3.9981		3.6782	3.6782	0.0000	9,231.2978	9,231.2978	2.8738		9,303.1436
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**7.7998**	**86.6848**	**47.6339**	**0.0917**		**3.9981**	**3.9981**		**3.6782**	**3.6782**	**0.0000**	**9,231.2978**	**9,231.2978**	**2.8738**		**9,303.1436**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0202	0.6968	0.0926	1.8700e-003	0.0397	2.8900e-003	0.0426	0.0109	2.7700e-003	0.0137		195.9603	195.9603	0.0120		196.2590
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0582	0.0374	0.4853	1.0200e-003	0.0894	6.9000e-004	0.0901	0.0237	6.3000e-004	0.0243		101.6692	101.6692	3.8300e-003		101.7649
Total	**0.0784**	**0.7342**	**0.5779**	**2.8900e-003**	**0.1291**	**3.5800e-003**	**0.1327**	**0.0346**	**3.4000e-003**	**0.0380**		**297.6295**	**297.6295**	**0.0158**		**298.0239**

3.8 Architectural Coating - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.8 Architectural Coating - 2018

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0721	0.5382	0.8269	2.8700e-003	0.1735	3.9900e-003	0.1775	0.0466	3.7900e-003	0.0504		291.2183	291.2183	0.0162		291.6243
Unmitigated	0.0721	0.5382	0.8269	2.8700e-003	0.1735	3.9900e-003	0.1775	0.0466	3.7900e-003	0.0504		291.2183	291.2183	0.0162		291.6243

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Light Industry	20.91	3.96	2.04	61,015	61,015
Total	20.91	3.96	2.04	61,015	61,015

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Light Industry	14.70	6.60	6.60	59.00	28.00	13.00	92	5	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Light Industry	0.492843	0.036615	0.171617	0.143376	0.029402	0.006440	0.026970	0.082668	0.001814	0.001226	0.004993	0.000882	0.001153

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	1.8600e-003	0.0169	0.0142	1.0000e-004		1.2800e-003	1.2800e-003		1.2800e-003	1.2800e-003		20.2579	20.2579	3.9000e-004	3.7000e-004	20.3782
NaturalGas Unmitigated	1.8600e-003	0.0169	0.0142	1.0000e-004		1.2800e-003	1.2800e-003		1.2800e-003	1.2800e-003		20.2579	20.2579	3.9000e-004	3.7000e-004	20.3782

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Light Industry	172.192	1.8600e-003	0.0169	0.0142	1.0000e-004		1.2800e-003	1.2800e-003		1.2800e-003	1.2800e-003		20.2579	20.2579	3.9000e-004	3.7000e-004	20.3782
Total		**1.8600e-003**	**0.0169**	**0.0142**	**1.0000e-004**		**1.2800e-003**	**1.2800e-003**		**1.2800e-003**	**1.2800e-003**		**20.2579**	**20.2579**	**3.9000e-004**	**3.7000e-004**	**20.3782**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Light Industry	0.172192	1.8600e-003	0.0169	0.0142	1.0000e-004		1.2800e-003	1.2800e-003		1.2800e-003	1.2800e-003		20.2579	20.2579	3.9000e-004	3.7000e-004	20.3782
Total		**1.8600e-003**	**0.0169**	**0.0142**	**1.0000e-004**		**1.2800e-003**	**1.2800e-003**		**1.2800e-003**	**1.2800e-003**		**20.2579**	**20.2579**	**3.9000e-004**	**3.7000e-004**	**20.3782**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0642	0.0000	3.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		6.6000e-004	6.6000e-004	0.0000		7.0000e-004
Unmitigated	0.0642	0.0000	3.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		6.6000e-004	6.6000e-004	0.0000		7.0000e-004

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0642					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	3.0000e-005	0.0000	3.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		6.6000e-004	6.6000e-004	0.0000		7.0000e-004
Total	**0.0642**	**0.0000**	**3.1000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**6.6000e-004**	**6.6000e-004**	**0.0000**		**7.0000e-004**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0642					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	3.0000e-005	0.0000	3.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		6.6000e-004	6.6000e-004	0.0000		7.0000e-004
Total	**0.0642**	**0.0000**	**3.1000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**6.6000e-004**	**6.6000e-004**	**0.0000**		**7.0000e-004**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

SRWA

Stanislaus County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Light Industry	3.00	1000sqft	3.00	3,000.00	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	46
Climate Zone	3			**Operational Year**	2019
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Updated Start Date

Land Use - Disturbed area is 3 acres, well area is smaller.

Construction Phase - Updated

Off-road Equipment - updated

Off-road Equipment - Updated

Off-road Equipment - Updated

Off-road Equipment - Updated

Off-road Equipment - Updated

Off-road Equipment - Updated - Pump emissions accounted for with generator emissions since pumps are electric and powered by generators

Off-road Equipment - Updated

Trips and VMT - Updated

Demolition -

Grading - Can't add Phases, so just split the total 15,300 between these two.

Vehicle Emission Factors -

Vehicle Emission Factors -

Vehicle Emission Factors -

Energy Use -

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Parking	150.00	0.00
tblAreaCoating	Area_EF_Parking	150	0
tblAreaCoating	Area_Nonresidential_Exterior	1500	0
tblAreaCoating	Area_Nonresidential_Interior	4500	0
tblConstructionPhase	NumDays	10.00	0.00
tblConstructionPhase	NumDays	220.00	132.00
tblConstructionPhase	NumDays	220.00	22.00
tblConstructionPhase	NumDays	20.00	22.00

SRWA - Stanislaus County, Winter

tblConstructionPhase	NumDays	6.00	66.00
tblConstructionPhase	NumDays	10.00	44.00
tblConstructionPhase	NumDays	3.00	66.00
tblConstructionPhase	PhaseEndDate	9/4/2018	8/6/2018
tblConstructionPhase	PhaseEndDate	10/4/2018	9/5/2018
tblConstructionPhase	PhaseEndDate	12/5/2018	11/6/2018
tblConstructionPhase	PhaseStartDate	3/3/2018	2/2/2018
tblConstructionPhase	PhaseStartDate	9/5/2018	8/7/2018
tblConstructionPhase	PhaseStartDate	10/5/2018	9/6/2018
tblGrading	AcresOfGrading	0.00	3.00
tblGrading	MaterialExported	0.00	7,650.00
tblGrading	MaterialImported	0.00	7,650.00
tblLandUse	LotAcreage	0.07	3.00
tblOffRoadEquipment	HorsePower	231.00	80.00
tblOffRoadEquipment	HorsePower	158.00	81.00
tblOffRoadEquipment	HorsePower	84.00	97.00
tblOffRoadEquipment	HorsePower	247.00	97.00
tblOffRoadEquipment	HorsePower	97.00	78.00
tblOffRoadEquipment	HorsePower	78.00	130.00
tblOffRoadEquipment	HorsePower	221.00	187.00
tblOffRoadEquipment	HorsePower	9.00	97.00
tblOffRoadEquipment	HorsePower	402.00	97.00
tblOffRoadEquipment	HorsePower	402.00	247.00
tblOffRoadEquipment	HorsePower	402.00	89.00
tblOffRoadEquipment	HorsePower	84.00	9.00
tblOffRoadEquipment	HorsePower	100.00	247.00
tblOffRoadEquipment	LoadFactor	0.29	0.38

tblOffRoadEquipment	LoadFactor	0.38	0.73
tblOffRoadEquipment	LoadFactor	0.74	0.37
tblOffRoadEquipment	LoadFactor	0.40	0.37
tblOffRoadEquipment	LoadFactor	0.37	0.48
tblOffRoadEquipment	LoadFactor	0.48	0.42
tblOffRoadEquipment	LoadFactor	0.50	0.41
tblOffRoadEquipment	LoadFactor	0.56	0.37
tblOffRoadEquipment	LoadFactor	0.38	0.37
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tblOffRoadEquipment	LoadFactor	0.38	0.20
tblOffRoadEquipment	LoadFactor	0.74	0.56
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tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
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tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
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tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
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tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
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tblOffRoadEquipment	PhaseName		Testing
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tblOffRoadEquipment	PhaseName		Wet Well Construction
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tblOffRoadEquipment	PhaseName		Site Cleanup
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tblOffRoadEquipment	PhaseName		Wet Well Construction
tblOffRoadEquipment	PhaseName		Site Cleanup
tblOffRoadEquipment	PhaseName		Testing
tblOffRoadEquipment	PhaseName		Testing
tblOffRoadEquipment	PhaseName		Site Cleanup
tblOffRoadEquipment	PhaseName		Site Cleanup

tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblProjectCharacteristics	OperationalYear	2018	2019
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblTripsAndVMT	HaulingTripNumber	0.00	50.00
tblTripsAndVMT	HaulingTripNumber	0.00	120.00
tblTripsAndVMT	HaulingTripNumber	956.00	120.00
tblTripsAndVMT	HaulingTripNumber	0.00	260.00
tblTripsAndVMT	HaulingTripNumber	0.00	50.00
tblTripsAndVMT	HaulingTripNumber	0.00	100.00
tblTripsAndVMT	WorkerTripNumber	28.00	7.00
tblTripsAndVMT	WorkerTripNumber	18.00	7.00
tblTripsAndVMT	WorkerTripNumber	28.00	7.00
tblTripsAndVMT	WorkerTripNumber	1.00	7.00
tblTripsAndVMT	WorkerTripNumber	1.00	7.00
tblTripsAndVMT	WorkerTripNumber	28.00	7.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2017	9.1663	105.5694	51.8769	0.1005	12.2782	4.5867	14.9965	6.6727	4.2199	9.2217	0.0000	10,278.6109	10,278.6109	3.0802	0.0000	10,355.6150
2018	7.8786	87.4465	48.1447	0.0944	12.3617	4.0017	16.1214	6.6960	3.6817	10.2479	0.0000	9,512.9776	9,512.9776	2.8905	0.0000	9,585.2410
Maximum	**9.1663**	**105.5694**	**51.8769**	**0.1005**	**12.3617**	**4.5867**	**16.1214**	**6.6960**	**4.2199**	**10.2479**	**0.0000**	**10,278.6109**	**10,278.6109**	**3.0802**	**0.0000**	**10,355.6150**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2017	9.1663	105.5694	51.8769	0.1005	12.2782	4.5867	14.9965	6.6727	4.2199	9.2217	0.0000	10,278.6109	10,278.6109	3.0802	0.0000	10,355.6150
2018	7.8786	87.4465	48.1447	0.0944	12.3617	4.0017	16.1214	6.6960	3.6817	10.2479	0.0000	9,512.9775	9,512.9775	2.8905	0.0000	9,585.2410
Maximum	**9.1663**	**105.5694**	**51.8769**	**0.1005**	**12.3617**	**4.5867**	**16.1214**	**6.6960**	**4.2199**	**10.2479**	**0.0000**	**10,278.6109**	**10,278.6109**	**3.0802**	**0.0000**	**10,355.6150**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0642	0.0000	3.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		6.6000e-004	6.6000e-004	0.0000		7.0000e-004
Energy	1.8600e-003	0.0169	0.0142	1.0000e-004		1.2800e-003	1.2800e-003		1.2800e-003	1.2800e-003		20.2579	20.2579	3.9000e-004	3.7000e-004	20.3782
Mobile	0.0600	0.5611	0.7496	2.6400e-003	0.1735	4.0500e-003	0.1775	0.0466	3.8400e-003	0.0504		268.2571	268.2571	0.0168		268.6770
Total	**0.1261**	**0.5780**	**0.7641**	**2.7400e-003**	**0.1735**	**5.3300e-003**	**0.1788**	**0.0466**	**5.1200e-003**	**0.0517**		**288.5156**	**288.5156**	**0.0172**	**3.7000e-004**	**289.0559**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0642	0.0000	3.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		6.6000e-004	6.6000e-004	0.0000		7.0000e-004
Energy	1.8600e-003	0.0169	0.0142	1.0000e-004		1.2800e-003	1.2800e-003		1.2800e-003	1.2800e-003		20.2579	20.2579	3.9000e-004	3.7000e-004	20.3782
Mobile	0.0600	0.5611	0.7496	2.6400e-003	0.1735	4.0500e-003	0.1775	0.0466	3.8400e-003	0.0504		268.2571	268.2571	0.0168		268.6770
Total	**0.1261**	**0.5780**	**0.7641**	**2.7400e-003**	**0.1735**	**5.3300e-003**	**0.1788**	**0.0466**	**5.1200e-003**	**0.0517**		**288.5156**	**288.5156**	**0.0172**	**3.7000e-004**	**289.0559**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Access and Prep	Demolition	8/1/2017	8/30/2017	5	22	
2	Soil Stabilization	Site Preparation	8/31/2017	11/30/2017	5	66	
3	Excavation	Grading	12/1/2017	3/2/2018	5	66	
4	Wet Well Construction	Building Construction	2/2/2018	8/6/2018	5	132	
5	Testing	Building Construction	8/7/2018	9/5/2018	5	22	
6	Site Cleanup	Paving	9/6/2018	11/6/2018	5	44	
7	Architectural Coating	Architectural Coating	12/6/2018	12/5/2018	5	0	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 4,500; Non-Residential Outdoor: 1,500; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Access and Prep	Off-Highway Trucks	2	8.00	402	0.38
Site Access and Prep	Other Construction Equipment	1	8.00	172	0.42
Site Access and Prep	Rollers	2	8.00	80	0.38

SRWA - Stanislaus County, Winter

Site Access and Prep	Rubber Tired Dozers	2	8.00	247	0.40
Site Access and Prep	Rubber Tired Loaders	2	8.00	203	0.36
Site Access and Prep	Scrapers	2	8.00	367	0.48
Soil Stabilization	Bore/Drill Rigs	1	8.00	187	0.41
Soil Stabilization	Cranes	1	8.00	231	0.29
Soil Stabilization	Generator Sets	2	8.00	84	0.74
Soil Stabilization	Off-Highway Trucks	2	8.00	97	0.37
Soil Stabilization	Other Construction Equipment	1	8.00	172	0.42
Excavation	Cranes	1	8.00	231	0.29
Excavation	Excavators	2	8.00	81	0.73
Excavation	Generator Sets	2	8.00	84	0.74
Excavation	Off-Highway Trucks	2	8.00	247	0.40
Excavation	Rubber Tired Dozers	2	8.00	97	0.37
Excavation	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Wet Well Construction	Cement and Mortar Mixers	2	8.00	97	0.37
Wet Well Construction	Cranes	2	8.00	231	0.29
Wet Well Construction	Generator Sets	2	8.00	84	0.74
Wet Well Construction	Off-Highway Trucks	2	8.00	89	0.20
Wet Well Construction	Other Construction Equipment	1	8.00	172	0.42
Wet Well Construction	Welders	1	8.00	46	0.45
Testing	Air Compressors	2	8.00	130	0.42
Testing	Cranes	2	8.00	80	0.38
Testing	Generator Sets	2	8.00	97	0.37
Testing	Pumps	0	8.00	9	0.56
Testing	Rough Terrain Forklifts	1	8.00	247	0.40
Site Cleanup	Off-Highway Trucks	2	8.00	402	0.38
Site Cleanup	Other Construction Equipment	1	8.00	172	0.42

Site Cleanup	Rollers	2	8.00	80	0.38
Site Cleanup	Rubber Tired Dozers	2	8.00	247	0.40
Site Cleanup	Scrapers	2	8.00	367	0.48
Site Cleanup	Tractors/Loaders/Backhoes	2	8.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Access and Prep	11	7.00	0.00	50.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Soil Stabilization	7	7.00	0.00	120.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Excavation	11	7.00	0.00	120.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Wet Well Construction	10	7.00	0.00	260.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Testing	7	7.00	0.00	50.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Site Cleanup	11	7.00	0.00	100.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating				0.00	16.80	6.60				

3.1 Mitigation Measures Construction

3.2 Site Access and Prep - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	9.0766	104.7391	51.2940	0.0977		4.5816	4.5816		4.2151	4.2151		9,993.8991	9,993.8991	3.0621		10,070.4519
Total	**9.0766**	**104.7391**	**51.2940**	**0.0977**	**0.0000**	**4.5816**	**4.5816**	**0.0000**	**4.2151**	**4.2151**		**9,993.8991**	**9,993.8991**	**3.0621**		**10,070.4519**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0242	0.7789	0.1157	1.8400e-003	0.0397	4.3700e-003	0.0441	0.0109	4.1800e-003	0.0151		193.7426	193.7426	0.0143		194.1002
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0655	0.0514	0.4672	9.2000e-004	0.0894	7.0000e-004	0.0901	0.0237	6.5000e-004	0.0244		90.9692	90.9692	3.7500e-003		91.0629
Total	**0.0897**	**0.8303**	**0.5829**	**2.7600e-003**	**0.1291**	**5.0700e-003**	**0.1342**	**0.0346**	**4.8300e-003**	**0.0394**		**284.7118**	**284.7118**	**0.0181**		**285.1631**

3.2 Site Access and Prep - 2017

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	9.0766	104.7391	51.2940	0.0977		4.5816	4.5816		4.2151	4.2151	0.0000	9,993.899 1	9,993.899 1	3.0621		10,070.45 19
Total	**9.0766**	**104.7391**	**51.2940**	**0.0977**	**0.0000**	**4.5816**	**4.5816**	**0.0000**	**4.2151**	**4.2151**	**0.0000**	**9,993.899 1**	**9,993.899 1**	**3.0621**		**10,070.45 19**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0242	0.7789	0.1157	1.8400e-003	0.0397	4.3700e-003	0.0441	0.0109	4.1800e-003	0.0151		193.7426	193.7426	0.0143		194.1002
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0655	0.0514	0.4672	9.2000e-004	0.0894	7.0000e-004	0.0901	0.0237	6.5000e-004	0.0244		90.9692	90.9692	3.7500e-003		91.0629
Total	**0.0897**	**0.8303**	**0.5829**	**2.7600e-003**	**0.1291**	**5.0700e-003**	**0.1342**	**0.0346**	**4.8300e-003**	**0.0394**		**284.7118**	**284.7118**	**0.0181**		**285.1631**

3.3 Soil Stabilization - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0613	0.0000	0.0613	7.1900e-003	0.0000	7.1900e-003			0.0000			0.0000
Off-Road	2.6747	27.2014	16.1071	0.0316		1.4192	1.4192		1.3537	1.3537		3,136.1286	3,136.1286	0.6800		3,153.1279
Total	**2.6747**	**27.2014**	**16.1071**	**0.0316**	**0.0613**	**1.4192**	**1.4805**	**7.1900e-003**	**1.3537**	**1.3609**		**3,136.1286**	**3,136.1286**	**0.6800**		**3,153.1279**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0193	0.6231	0.0926	1.4800e-003	0.0318	3.4900e-003	0.0353	8.7100e-003	3.3400e-003	0.0121		154.9941	154.9941	0.0114		155.2801
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0655	0.0514	0.4672	9.2000e-004	0.0894	7.0000e-004	0.0901	0.0237	6.5000e-004	0.0244		90.9692	90.9692	3.7500e-003		91.0629
Total	**0.0849**	**0.6745**	**0.5597**	**2.4000e-003**	**0.1212**	**4.1900e-003**	**0.1254**	**0.0324**	**3.9900e-003**	**0.0364**		**245.9633**	**245.9633**	**0.0152**		**246.3430**

3.3 Soil Stabilization - 2017

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0613	0.0000	0.0613	7.1900e-003	0.0000	7.1900e-003			0.0000			0.0000
Off-Road	2.6747	27.2014	16.1071	0.0316		1.4192	1.4192		1.3537	1.3537	0.0000	3,136.1286	3,136.1286	0.6800		3,153.1279
Total	**2.6747**	**27.2014**	**16.1071**	**0.0316**	**0.0613**	**1.4192**	**1.4805**	**7.1900e-003**	**1.3537**	**1.3609**	**0.0000**	**3,136.1286**	**3,136.1286**	**0.6800**		**3,153.1279**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0193	0.6231	0.0926	1.4800e-003	0.0318	3.4900e-003	0.0353	8.7100e-003	3.3400e-003	0.0121		154.9941	154.9941	0.0114		155.2801
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0655	0.0514	0.4672	9.2000e-004	0.0894	7.0000e-004	0.0901	0.0237	6.5000e-004	0.0244		90.9692	90.9692	3.7500e-003		91.0629
Total	**0.0849**	**0.6745**	**0.5597**	**2.4000e-003**	**0.1212**	**4.1900e-003**	**0.1254**	**0.0324**	**3.9900e-003**	**0.0364**		**245.9633**	**245.9633**	**0.0152**		**246.3430**

3.4 Excavation - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					12.1055	0.0000	12.1055	6.6276	0.0000	6.6276			0.0000			0.0000
Off-Road	4.8076	47.2362	28.8516	0.0521		2.7141	2.7141		2.5450	2.5450		5,226.124 1	5,226.124 1	1.3203		5,259.132 6
Total	**4.8076**	**47.2362**	**28.8516**	**0.0521**	**12.1055**	**2.7141**	**14.8196**	**6.6276**	**2.5450**	**9.1726**		**5,226.124 1**	**5,226.124 1**	**1.3203**		**5,259.132 6**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0193	0.6231	0.0926	1.4800e-003	0.0833	3.4900e-003	0.0868	0.0214	3.3400e-003	0.0247		154.9941	154.9941	0.0114		155.2801
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0655	0.0514	0.4672	9.2000e-004	0.0894	7.0000e-004	0.0901	0.0237	6.5000e-004	0.0244		90.9692	90.9692	3.7500e-003		91.0629
Total	**0.0849**	**0.6745**	**0.5597**	**2.4000e-003**	**0.1727**	**4.1900e-003**	**0.1769**	**0.0451**	**3.9900e-003**	**0.0491**		**245.9633**	**245.9633**	**0.0152**		**246.3430**

3.4 Excavation - 2017

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					lb/day									lb/day		
Fugitive Dust					12.1055	0.0000	12.1055	6.6276	0.0000	6.6276			0.0000			0.0000
Off-Road	4.8076	47.2362	28.8516	0.0521		2.7141	2.7141		2.5450	2.5450	0.0000	5,226.124 1	5,226.124 1	1.3203		5,259.132 6
Total	**4.8076**	**47.2362**	**28.8516**	**0.0521**	**12.1055**	**2.7141**	**14.8196**	**6.6276**	**2.5450**	**9.1726**	**0.0000**	**5,226.124 1**	**5,226.124 1**	**1.3203**		**5,259.132 6**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					lb/day									lb/day		
Hauling	0.0193	0.6231	0.0926	1.4800e-003	0.0833	3.4900e-003	0.0868	0.0214	3.3400e-003	0.0247		154.9941	154.9941	0.0114		155.2801
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0655	0.0514	0.4672	9.2000e-004	0.0894	7.0000e-004	0.0901	0.0237	6.5000e-004	0.0244		90.9692	90.9692	3.7500e-003		91.0629
Total	**0.0849**	**0.6745**	**0.5597**	**2.4000e-003**	**0.1727**	**4.1900e-003**	**0.1769**	**0.0451**	**3.9900e-003**	**0.0491**		**245.9633**	**245.9633**	**0.0152**		**246.3430**

3.4 Excavation - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					12.1055	0.0000	12.1055	6.6276	0.0000	6.6276			0.0000			0.0000
Off-Road	4.0688	40.1830	27.4979	0.0521		2.2066	2.2066		2.0720	2.0720		5,165.451 8	5,165.451 8	1.3101		5,198.203 2
Total	**4.0688**	**40.1830**	**27.4979**	**0.0521**	**12.1055**	**2.2066**	**14.3121**	**6.6276**	**2.0720**	**8.6996**		**5,165.451 8**	**5,165.451 8**	**1.3101**		**5,198.203 2**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0167	0.5735	0.0840	1.4600e-003	0.0430	2.3700e-003	0.0454	0.0115	2.2600e-003	0.0137		153.5928	153.5928	0.0107		153.8601
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0580	0.0447	0.4058	9.0000e-004	0.0894	6.9000e-004	0.0901	0.0237	6.3000e-004	0.0243		89.6887	89.6887	3.3400e-003		89.7723
Total	**0.0747**	**0.6183**	**0.4898**	**2.3600e-003**	**0.1324**	**3.0600e-003**	**0.1355**	**0.0352**	**2.8900e-003**	**0.0381**		**243.2815**	**243.2815**	**0.0140**		**243.6324**

3.4 Excavation - 2018

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					12.1055	0.0000	12.1055	6.6276	0.0000	6.6276			0.0000			0.0000
Off-Road	4.0688	40.1830	27.4979	0.0521		2.2066	2.2066		2.0720	2.0720	0.0000	5,165.451 8	5,165.451 8	1.3101		5,198.203 2
Total	**4.0688**	**40.1830**	**27.4979**	**0.0521**	**12.1055**	**2.2066**	**14.3121**	**6.6276**	**2.0720**	**8.6996**	**0.0000**	**5,165.451 8**	**5,165.451 8**	**1.3101**		**5,198.203 2**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0167	0.5735	0.0840	1.4600e-003	0.0430	2.3700e-003	0.0454	0.0115	2.2600e-003	0.0137		153.5928	153.5928	0.0107		153.8601
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0580	0.0447	0.4058	9.0000e-004	0.0894	6.9000e-004	0.0901	0.0237	6.3000e-004	0.0243		89.6887	89.6887	3.3400e-003		89.7723
Total	**0.0747**	**0.6183**	**0.4898**	**2.3600e-003**	**0.1324**	**3.0600e-003**	**0.1355**	**0.0352**	**2.8900e-003**	**0.0381**		**243.2815**	**243.2815**	**0.0140**		**243.6324**

3.5 Wet Well Construction - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category						lb/day								lb/day		
Off-Road	3.1501	29.6086	18.5551	0.0334		1.5468	1.5468		1.4740	1.4740		3,236.483 3	3,236.483 3	0.6847		3,253.601 9
Total	**3.1501**	**29.6086**	**18.5551**	**0.0334**		**1.5468**	**1.5468**		**1.4740**	**1.4740**		**3,236.483 3**	**3,236.483 3**	**0.6847**		**3,253.601 9**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category						lb/day								lb/day		
Hauling	0.0181	0.6213	0.0910	1.5800e-003	0.0344	2.5600e-003	0.0370	9.4300e-003	2.4500e-003	0.0119		166.3922	166.3922	0.0116		166.6818
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0580	0.0447	0.4058	9.0000e-004	0.0894	6.9000e-004	0.0901	0.0237	6.3000e-004	0.0243		89.6887	89.6887	3.3400e-003		89.7723
Total	**0.0761**	**0.6661**	**0.4968**	**2.4800e-003**	**0.1238**	**3.2500e-003**	**0.1271**	**0.0331**	**3.0800e-003**	**0.0362**		**256.0809**	**256.0809**	**0.0149**		**256.4541**

3.5 Wet Well Construction - 2018

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.1501	29.6086	18.5551	0.0334		1.5468	1.5468		1.4740	1.4740	0.0000	3,236.483 3	3,236.483 3	0.6847		3,253.601 9
Total	**3.1501**	**29.6086**	**18.5551**	**0.0334**		**1.5468**	**1.5468**		**1.4740**	**1.4740**	**0.0000**	**3,236.483 3**	**3,236.483 3**	**0.6847**		**3,253.601 9**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0181	0.6213	0.0910	1.5800e-003	0.0344	2.5600e-003	0.0370	9.4300e-003	2.4500e-003	0.0119		166.3922	166.3922	0.0116		166.6818
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0580	0.0447	0.4058	9.0000e-004	0.0894	6.9000e-004	0.0901	0.0237	6.3000e-004	0.0243		89.6887	89.6887	3.3400e-003		89.7723
Total	**0.0761**	**0.6661**	**0.4968**	**2.4800e-003**	**0.1238**	**3.2500e-003**	**0.1271**	**0.0331**	**3.0800e-003**	**0.0362**		**256.0809**	**256.0809**	**0.0149**		**256.4541**

3.6 Testing - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.6854	23.8058	17.0681	0.0329		1.3594	1.3594		1.3010	1.3010		3,193.156 5	3,193.156 5	0.5564		3,207.065 9
Total	**2.6854**	**23.8058**	**17.0681**	**0.0329**		**1.3594**	**1.3594**		**1.3010**	**1.3010**		**3,193.156 5**	**3,193.156 5**	**0.5564**		**3,207.065 9**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0209	0.7169	0.1050	1.8300e-003	0.0397	2.9600e-003	0.0427	0.0109	2.8300e-003	0.0137		191.9910	191.9910	0.0134		192.3251
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0580	0.0447	0.4058	9.0000e-004	0.0894	6.9000e-004	0.0901	0.0237	6.3000e-004	0.0243		89.6887	89.6887	3.3400e-003		89.7723
Total	**0.0789**	**0.7617**	**0.5108**	**2.7300e-003**	**0.1291**	**3.6500e-003**	**0.1328**	**0.0346**	**3.4600e-003**	**0.0381**		**281.6797**	**281.6797**	**0.0167**		**282.0974**

3.6 Testing - 2018

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.6854	23.8058	17.0681	0.0329		1.3594	1.3594		1.3010	1.3010	0.0000	3,193.1565	3,193.1565	0.5564		3,207.0659
Total	**2.6854**	**23.8058**	**17.0681**	**0.0329**		**1.3594**	**1.3594**		**1.3010**	**1.3010**	**0.0000**	**3,193.1565**	**3,193.1565**	**0.5564**		**3,207.0659**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0209	0.7169	0.1050	1.8300e-003	0.0397	2.9600e-003	0.0427	0.0109	2.8300e-003	0.0137		191.9910	191.9910	0.0134		192.3251
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0580	0.0447	0.4058	9.0000e-004	0.0894	6.9000e-004	0.0901	0.0237	6.3000e-004	0.0243		89.6887	89.6887	3.3400e-003		89.7723
Total	**0.0789**	**0.7617**	**0.5108**	**2.7300e-003**	**0.1291**	**3.6500e-003**	**0.1328**	**0.0346**	**3.4600e-003**	**0.0381**		**281.6797**	**281.6797**	**0.0167**		**282.0974**

3.7 Site Cleanup - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	7.7998	86.6848	47.6339	0.0917		3.9981	3.9981		3.6782	3.6782		9,231.297 9	9,231.297 9	2.8738		9,303.143 6
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**7.7998**	**86.6848**	**47.6339**	**0.0917**		**3.9981**	**3.9981**		**3.6782**	**3.6782**		**9,231.297 9**	**9,231.297 9**	**2.8738**		**9,303.143 6**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0209	0.7169	0.1050	1.8300e-003	0.0397	2.9600e-003	0.0427	0.0109	2.8300e-003	0.0137		191.9910	191.9910	0.0134		192.3251
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0580	0.0447	0.4058	9.0000e-004	0.0894	6.9000e-004	0.0901	0.0237	6.3000e-004	0.0243		89.6887	89.6887	3.3400e-003		89.7723
Total	**0.0789**	**0.7617**	**0.5108**	**2.7300e-003**	**0.1291**	**3.6500e-003**	**0.1328**	**0.0346**	**3.4600e-003**	**0.0381**		**281.6797**	**281.6797**	**0.0167**		**282.0974**

3.7 Site Cleanup - 2018

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	7.7998	86.6848	47.6339	0.0917		3.9981	3.9981		3.6782	3.6782	0.0000	9,231.2978	9,231.2978	2.8738		9,303.1436
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**7.7998**	**86.6848**	**47.6339**	**0.0917**		**3.9981**	**3.9981**		**3.6782**	**3.6782**	**0.0000**	**9,231.2978**	**9,231.2978**	**2.8738**		**9,303.1436**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0209	0.7169	0.1050	1.8300e-003	0.0397	2.9600e-003	0.0427	0.0109	2.8300e-003	0.0137		191.9910	191.9910	0.0134		192.3251
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0580	0.0447	0.4058	9.0000e-004	0.0894	6.9000e-004	0.0901	0.0237	6.3000e-004	0.0243		89.6887	89.6887	3.3400e-003		89.7723
Total	**0.0789**	**0.7617**	**0.5108**	**2.7300e-003**	**0.1291**	**3.6500e-003**	**0.1328**	**0.0346**	**3.4600e-003**	**0.0381**		**281.6797**	**281.6797**	**0.0167**		**282.0974**

3.8 Architectural Coating - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.8 Architectural Coating - 2018

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0600	0.5611	0.7496	2.6400e-003	0.1735	4.0500e-003	0.1775	0.0466	3.8400e-003	0.0504		268.2571	268.2571	0.0168		268.6770
Unmitigated	0.0600	0.5611	0.7496	2.6400e-003	0.1735	4.0500e-003	0.1775	0.0466	3.8400e-003	0.0504		268.2571	268.2571	0.0168		268.6770

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Light Industry	20.91	3.96	2.04	61,015	61,015
Total	20.91	3.96	2.04	61,015	61,015

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Light Industry	14.70	6.60	6.60	59.00	28.00	13.00	92	5	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Light Industry	0.492843	0.036615	0.171617	0.143376	0.029402	0.006440	0.026970	0.082668	0.001814	0.001226	0.004993	0.000882	0.001153

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	1.8600e-003	0.0169	0.0142	1.0000e-004		1.2800e-003	1.2800e-003		1.2800e-003	1.2800e-003		20.2579	20.2579	3.9000e-004	3.7000e-004	20.3782
NaturalGas Unmitigated	1.8600e-003	0.0169	0.0142	1.0000e-004		1.2800e-003	1.2800e-003		1.2800e-003	1.2800e-003		20.2579	20.2579	3.9000e-004	3.7000e-004	20.3782

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Light Industry	172.192	1.8600e-003	0.0169	0.0142	1.0000e-004		1.2800e-003	1.2800e-003		1.2800e-003	1.2800e-003		20.2579	20.2579	3.9000e-004	3.7000e-004	20.3782
Total		**1.8600e-003**	**0.0169**	**0.0142**	**1.0000e-004**		**1.2800e-003**	**1.2800e-003**		**1.2800e-003**	**1.2800e-003**		**20.2579**	**20.2579**	**3.9000e-004**	**3.7000e-004**	**20.3782**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Light Industry	0.172192	1.8600e-003	0.0169	0.0142	1.0000e-004		1.2800e-003	1.2800e-003		1.2800e-003	1.2800e-003		20.2579	20.2579	3.9000e-004	3.7000e-004	20.3782
Total		**1.8600e-003**	**0.0169**	**0.0142**	**1.0000e-004**		**1.2800e-003**	**1.2800e-003**		**1.2800e-003**	**1.2800e-003**		**20.2579**	**20.2579**	**3.9000e-004**	**3.7000e-004**	**20.3782**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0642	0.0000	3.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		6.6000e-004	6.6000e-004	0.0000		7.0000e-004
Unmitigated	0.0642	0.0000	3.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		6.6000e-004	6.6000e-004	0.0000		7.0000e-004

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0642					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	3.0000e-005	0.0000	3.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		6.6000e-004	6.6000e-004	0.0000		7.0000e-004
Total	**0.0642**	**0.0000**	**3.1000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**6.6000e-004**	**6.6000e-004**	**0.0000**		**7.0000e-004**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0642					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	3.0000e-005	0.0000	3.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		6.6000e-004	6.6000e-004	0.0000		7.0000e-004
Total	**0.0642**	**0.0000**	**3.1000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**6.6000e-004**	**6.6000e-004**	**0.0000**		**7.0000e-004**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Appendix B

Biological Resources Information

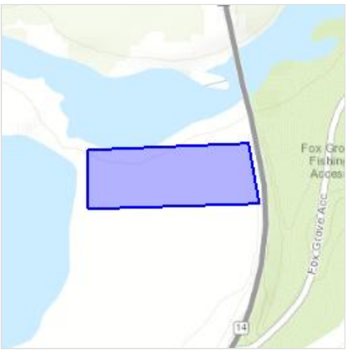
IPaC **U.S. Fish & Wildlife Service**

IPaC resource list

Project information

NAME
SRWA

LOCATION
Stanislaus County, California



Local office

Sacramento Fish And Wildlife Office

(916) 414-6600
(916) 414-6713

Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846

Endangered species

This resource list is for informational purposes only and should not be used for planning or analyzing project level impacts.

Section 7 of the Endangered Species Act **requires** Federal agencies to *"request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action"* for any project that is conducted, permitted, funded, or licensed by any Federal agency.

A letter from the local office and a species list which fulfills this requirement can only be obtained by requesting an official species list either from the Regulatory Review section in IPaC or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by creating a project and making a request from the Regulatory Review section.

Listed species[1] are managed by the Endangered Species Program of the U.S. Fish and Wildlife Service.

1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information.

The following species are potentially affected by activities in this location:

Amphibians

NAME	STATUS

California Red-legged Frog Rana draytonii | Threatened
There is a **final** critical habitat designated for this species. Your location is outside the designated critical habitat.
http://ecos.fws.gov/ecp/species/2891

California Tiger Salamander Ambystoma californiense | Threatened
There is a **final** critical habitat designated for this species. Your location is outside the designated critical habitat.
http://ecos.fws.gov/ecp/species/2076

Crustaceans

NAME	STATUS
Vernal Pool Fairy Shrimp Branchinecta lynchi There is a **final** critical habitat designated for this species. Your location is outside the designated critical habitat. http://ecos.fws.gov/ecp/species/498	Threatened
Vernal Pool Tadpole Shrimp Lepidurus packardi There is a **final** critical habitat designated for this species. Your location is outside the designated critical habitat. http://ecos.fws.gov/ecp/species/2246	Endangered

Fishes

NAME	STATUS
Delta Smelt Hypomesus transpacificus There is a **final** critical habitat designated for this species. Your location is outside the designated critical habitat. http://ecos.fws.gov/ecp/species/321	Threatened
Steelhead Oncorhynchus (=Salmo) mykiss There is a **final** critical habitat designated for this species. Your location is outside the designated critical habitat. http://ecos.fws.gov/ecp/species/1007	Threatened

Flowering Plants

NAME	STATUS
San Joaquin Orcutt Grass Orcuttia inaequalis There is a **final** critical habitat designated for this species. Your location is outside the designated critical habitat. http://ecos.fws.gov/ecp/species/5506	Threatened

Insects

NAME	STATUS
Valley Elderberry Longhorn Beetle Desmocerus californicus dimorphus There is a **final** critical habitat designated for this species. Your location is outside the designated critical habitat. http://ecos.fws.gov/ecp/species/7850	Threatened

Reptiles

NAME	STATUS
Giant Garter Snake Thamnophis gigas **No critical habitat** has been designated for this species. http://ecos.fws.gov/ecp/species/4482	Threatened

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

THERE ARE NO CRITICAL HABITATS AT THIS LOCATION.

Migratory birds

Birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any activity that results in the take (to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct) of migratory birds or eagles is prohibited unless authorized by the U.S. Fish and Wildlife Service[3]. There are no provisions for allowing the take of migratory birds that are unintentionally killed or injured.

Any person or organization who plans or conducts activities that may result in the take of migratory birds is responsible for complying with the appropriate regulations and implementing appropriate conservation measures.

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.
3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

Additional information can be found using the following links:

- Birds of Conservation Concern http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php
- Conservation measures for birds http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php
- Year-round bird occurrence data http://www.birdscanada.org/birdmon/default/datasummaries.jsp

The migratory birds species listed below are species of particular conservation concern (e.g. Birds of Conservation Concern) that may be potentially affected by activities in this location, not a list of every bird species you may find in this location. Although it is important to try to avoid and minimize impacts to all birds, special attention should be made to avoid and minimize impacts to birds of priority concern. To view available data on other bird species that may occur in your project area, please visit the AKN Histogram Tools and Other Bird Data Resources.

NAME	SEASON(S)
Bald Eagle Haliaeetus leucocephalus http://ecos.fws.gov/ecp/species/1626	Year-round
Black Rail Laterallus jamaicensis http://ecos.fws.gov/ecp/species/7717	Breeding
Burrowing Owl Athene cunicularia http://ecos.fws.gov/ecp/species/9737	Year-round
Fox Sparrow Passerella iliaca	Wintering
Lesser Yellowlegs Tringa flavipes http://ecos.fws.gov/ecp/species/9679	Wintering
Lewis's Woodpecker Melanerpes lewis http://ecos.fws.gov/ecp/species/9408	Wintering
Loggerhead Shrike Lanius ludovicianus http://ecos.fws.gov/ecp/species/8833	Year-round
Long-billed Curlew Numenius americanus http://ecos.fws.gov/ecp/species/5511	Wintering
Marbled Godwit Limosa fedoa http://ecos.fws.gov/ecp/species/9481	Wintering
Mountain Plover Charadrius montanus http://ecos.fws.gov/ecp/species/3638	Wintering

Nuttall's Woodpecker Picoides nuttallii http://ecos.fws.gov/ecp/species/9410	Year-round
Oak Titmouse Baeolophus inornatus http://ecos.fws.gov/ecp/species/9656	Year-round
Peregrine Falcon Falco peregrinus http://ecos.fws.gov/ecp/species/8831	Wintering
Short-eared Owl Asio flammeus http://ecos.fws.gov/ecp/species/9295	Wintering
Swainson's Hawk Buteo swainsoni http://ecos.fws.gov/ecp/species/1098	Breeding
Tricolored Blackbird Agelaius tricolor http://ecos.fws.gov/ecp/species/3910	Year-round
Western Grebe aechmophorus occidentalis http://ecos.fws.gov/ecp/species/6743	Wintering
Williamson's Sapsucker Sphyrapicus thyroideus http://ecos.fws.gov/ecp/species/8832	Year-round
Yellow-billed Magpie Pica nuttalli http://ecos.fws.gov/ecp/species/9726	Year-round

What does IPaC use to generate the list of migratory bird species potentially occurring in my specified location?

Landbirds:

Migratory birds that are displayed on the IPaC species list are based on ranges in the latest edition of the National Geographic Guide, Birds of North America (6th Edition, 2011 by Jon L. Dunn, and Jonathan Alderfer). Although these ranges are coarse in nature, a number of U.S. Fish and Wildlife Service migratory bird biologists agree that these maps are some of the best range maps to date. These ranges were clipped to a specific Bird Conservation Region (BCR) or USFWS Region/Regions, if it was indicated in the 2008 list of Birds of Conservation Concern (BCC) that a species was a BCC species only in a particular Region/Regions. Additional modifications have been made to some ranges based on more local or refined range information and/or information provided by U.S. Fish and Wildlife Service biologists with species expertise. All migratory birds that show in areas on land in IPaC are those that appear in the 2008 Birds of Conservation Concern report.

Atlantic Seabirds:

Ranges in IPaC for birds off the Atlantic coast are derived from species distribution models developed by the National Oceanic and Atmospheric Association (NOAA) National Centers for Coastal Ocean Science (NCCOS) using the best available seabird survey data for the offshore Atlantic Coastal region to date. NOAANCCOS assisted USFWS in developing seasonal species ranges from their models for specific use in IPaC. Some of these birds are not BCC species but were of interest for inclusion because they may occur in high abundance off the coast at different times throughout the year, which potentially makes them more susceptible to certain types of development and activities taking place in that area. For more refined details about the abundance and richness of bird species within your project area off the Atlantic Coast, see the Northeast Ocean Data Portal. The Portal also offers data and information about other types of taxa that may be helpful in your project review.

About the NOAANCCOS models: the models were developed as part of the NOAANCCOS project: Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf. The models resulting from this project are being used in a number of decision-support/mapping products in order to help guide decision-making on activities off the Atlantic Coast with the goal of reducing impacts to migratory birds. One such product is the Northeast Ocean Data Portal, which can be used to explore details about the relative occurrence and abundance of bird species in a particular area off the Atlantic Coast.

All migratory bird range maps within IPaC are continuously being updated as new and better information becomes available.

Can I get additional information about the levels of occurrence in my project area of specific birds or groups of birds listed in IPaC?

Landbirds:

Summary Table Report

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: County IS (Stanislaus)
 AND Quad IS (Ceres (3712058) OR Cressey (3712046) OR Denair (3712057) OR Hatch (3712048) OR Montpelier (3712056) OR Paulsell (3712066) OR Riverbank (3712068) OR Turlock (3712047))

Name (Scientific/Common)	CNDDB Ranks	Listing Status (Fed/State)	Other Lists	Elev. Range (ft.)	Total EO's	Element Occ. Ranks						Population Status		Presence		
						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
Agelaius tricolor tricolored blackbird	G2G3 S1S2	None Candidate Endangered	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_EN-Endangered NABCI_RWL-Red Watch List USFWS_BCC-Birds of Conservation Concern	55 120	949 S:6	0	0	0	0	3	3	5	1	3	3	0
Ambystoma californiense California tiger salamander	G2G3 S2S3	Threatened Threatened	CDFW_WL-Watch List IUCN_VU-Vulnerable	185 195	1150 S:2	0	0	0	1	0	1	1	1	2	0	0
Athene cunicularia burrowing owl	G4 S3	None None	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern USFWS_BCC-Birds of Conservation Concern	125 125	1932 S:1	0	0	0	1	0	0	1	0	1	0	0
Atriplex cordulata var. cordulata heartscale	G3T2 S2	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive		66 S:1	0	0	0	0	0	1	1	0	1	0	0
Atriplex subtilis subtle orache	G1 S1	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive		24 S:1	0	0	0	0	0	1	1	0	1	0	0
Bombus caliginosus obscure bumble bee	G4? S1S2	None None	IUCN_VU-Vulnerable	70 70	181 S:1	0	0	0	0	0	1	1	0	1	0	0
Bombus crotchii Crotch bumble bee	G3G4 S1S2	None None		80 100	233 S:2	0	0	0	0	0	2	2	0	2	0	0
Branchinecta lynchi vernal pool fairy shrimp	G3 S3	Threatened None	IUCN_VU-Vulnerable	125 200	755 S:2	0	1	0	0	0	1	1	1	2	0	0
Buteo swainsoni Swainson's hawk	G5 S3	None Threatened	BLM_S-Sensitive IUCN_LC-Least Concern USFWS_BCC-Birds of Conservation Concern	55 140	2425 S:6	0	1	2	0	0	3	3	3	6	0	0

Name (Scientific/Common)	CNDDB Ranks	Listing Status (Fed/State)	Other Lists	Elev. Range (ft.)	Total EO's	Element Occ. Ranks A	B	C	D	X	U	Population Status Historic > 20 yr	Recent <= 20 yr	Presence Extant	Poss. Extirp.	Extirp.
Calycadenia hooveri Hoover's calycadenia	G3 S3	None None	Rare Plant Rank - 1B.3 BLM_S-Sensitive	225 225	35 S:1	0	0	0	0	0	1	1	0	1	0	0
Corynorhinus townsendii Townsend's big-eared bat	G3G4 S2	None None	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern USFS_S-Sensitive WBWG_H-High Priority	70 70	625 S:1	0	1	0	0	0	0	0	1	1	0	0
Desmocerus californicus dimorphus valley elderberry longhorn beetle	G3T2 S2	Threatened None		50 80	271 S:3	0	0	1	1	0	1	2	1	3	0	0
Emys marmorata western pond turtle	G3G4 S3	None None	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_VU-Vulnerable USFS_S-Sensitive	60 60	1217 S:1	0	1	0	0	0	0	0	1	1	0	0
Euphorbia hooveri Hoover's spurge	G1 S1	Threatened None	Rare Plant Rank - 1B.2	190 190	29 S:1	0	0	0	0	1	0	1	0	0	1	0
Lasiurus cinereus hoary bat	G5 S4	None None	IUCN_LC-Least Concern WBWG_M-Medium Priority		235 S:1	0	0	0	0	0	1	1	0	1	0	0
Lepidurus packardi vernal pool tadpole shrimp	G4 S3S4	Endangered None	IUCN_EN-Endangered	125 200	320 S:4	0	0	1	0	0	3	3	1	4	0	0
Linderiella occidentalis California linderiella	G2G3 S2S3	None None	IUCN_NT-Near Threatened	200 200	432 S:1	0	0	0	0	0	1	1	0	1	0	0
Lytta moesta moestan blister beetle	G2 S2	None None		100 100	12 S:1	0	0	0	0	0	1	1	0	0	1	0
Mylopharodon conocephalus hardhead	G3 S3	None None	CDFW_SSC-Species of Special Concern USFS_S-Sensitive	60 70	32 S:2	0	0	0	0	0	2	0	2	2	0	0
Neostapfia colusana Colusa grass	G1 S1	Threatened Endangered	Rare Plant Rank - 1B.1	170 260	62 S:9	0	0	4	0	5	0	4	5	4	1	4
Northern Hardpan Vernal Pool Northern Hardpan Vernal Pool	G3 S3.1	None None		276 276	126 S:1	0	0	0	0	0	1	1	0	1	0	0

Summary Table Report

California Department of Fish and Wildlife

California Natural Diversity Database

Name (Scientific/Common)	CNDDB Ranks	Listing Status (Fed/State)	Other Lists	Elev. Range (ft.)	Total EO's	Element Occ. Ranks A	B	C	D	X	U	Population Status Historic > 20 yr	Recent <= 20 yr	Presence Extant	Poss. Extirp.	Extirp.
Oncorhynchus mykiss irideus steelhead - Central Valley DPS	G5T2Q S2	Threatened None	AFS_TH-Threatened		31 S:4	0	0	0	1	0	3	0	4	4	0	0
Orcuttia inaequalis San Joaquin Valley Orcutt grass	G1 S1	Threatened Endangered	Rare Plant Rank - 1B.1	160 200	45 S:4	0	0	0	0	4	0	4	0	0	0	4
Orcuttia pilosa hairy Orcutt grass	G1 S1	Endangered Endangered	Rare Plant Rank - 1B.1	190 200	33 S:5	0	0	1	0	4	0	4	1	1	0	4
Puccinellia simplex California alkali grass	G3 S2	None None	Rare Plant Rank - 1B.2	60 60	71 S:1	0	0	0	0	1	0	1	0	0	0	1
Spea hammondii western spadefoot	G3 S3	None None	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_NT-Near Threatened	195 195	450 S:1	0	0	0	0	0	1	1	0	1	0	0
Tuctoria greenei Greene's tuctoria	G1 S1	Endangered Rare	Rare Plant Rank - 1B.1	180 195	48 S:3	0	0	0	1	2	0	3	0	1	0	2

Appendix C

Cultural Resources Report (Confidential)

Office: 180 Grand Ave., Suite 1405, Oakland, CA 94612
Mailing: P.O. Box 2727, Oakland, CA 94602
(510) 986-1850; www.horizonh2o.com

May 9, 2017

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

Subject: Infiltration Gallery Testing Project

Dear Mr. Brinton:

This letter report describes the methods and results of a cultural resources assessment conducted by Horizon Water and Environment, LLC, (Horizon)for the proposed Infiltration Gallery Development and Testing Project (Project or Proposed Project) near Hughson, Stanislaus County, California (**Figure 1**). The Stanislaus Regional Water Authority (SRWA) is the Project proponent and lead State agency. The Project will require coordination with the U.S. Fish and Wildlife Service and the National Oceanic and Atmospheric Administration under the Endangered Species Act, and require issuance of a Clean Water Act Section 404 permit and 401 certification by the U.S. Army Corps of Engineers (Corps). This cultural resources assessment was completed in partial fulfillment of the requirements of the California Environmental Quality Act (CEQA) and in compliance with Section 106 of the National Historic Preservation Act (NHPA). The cultural resources assessment consisted of (1) a literature review to identify any previously recorded historical resources that could be impacted by the Proposed Project; and (2) a field survey to locate previously recorded historical resources, if present, and to identify any other historical resources that may exist but have not yet been recorded. The cultural resources survey was conducted, and this letter report was prepared, by Janis Offermann, Horizon's Cultural Resources Practice Leader, who meets the U.S. Secretary of the Interior's Professional Qualification standards in archaeology.

No cultural resources were identified within the Project study area. As a result, no historic properties or historical resources will be affected by the Proposed Project.

Project Location and Description

The Proposed Project is located in the on the south bank of the Tuolumne River, about 1 mile north of the town of Hughson, Stanislaus County, just west of Geer Road Bridge and Fox Grove Regional Park. The area is entirely rural, and the 3-acre Project site is bounded on the south by an orchard, on the east by Fox Grove Regional Park, on the west by open space, and on the north by the Tuolumne River. A large pond (the Nazareno pond), that was once a gravel quarry, is located directly west of the open space and orchard that are to the west and south, respectively, of the Project area. The legal description of the Project area is Township 4 South, Range 10 East, of the Denair, California, U.S. Geological Survey (USGS) 7.5-minute topographic quadrangle (**Figure 2**).

The Proposed Project has evolved through an extensive planning process that has been underway since the mid-1990s. In 2001, Tuolumne Irrigation District (TID) prepared and approved an environmental document for construction of an infiltration gallery in the

Tuolumne River. The TID infiltration gallery was constructed in the Tuolumne River in 2001 as part of the Tuolumne River Channel Restoration Project. The gallery was installed beneath the riverbed and fish habitat was restored in accordance with a Federal Energy Regulatory Commission Settlement Agreement for operation of Don Pedro Reservoir (FERC 1995). The gallery was intended to increase in-river flow to benefit salmonids and other fish species by allowing water to flow 26 miles through salmon spawning areas downstream of La Grange Dam before being diverted at the infiltration gallery site. Since it was constructed, the infiltration gallery has never been tested or operated due to regulatory circumstances, and changes in project participation that have caused TID to delay implementation of a larger project that would include the installation of the raw water pump station and pipelines to the Ceres Main Canal and a water treatment plant.

TID and SRWA are proposing to begin temporary operation of the infiltration gallery for a brief period to allow testing of the facility's pumping capacity and the resulting water quality. This is in preparation for a project under development by SRWA to provide surface water to the cities of Turlock and Ceres.

The Proposed Project includes construction of a wet well and associated facilities adjacent to and connecting with the existing infiltration gallery; development pumping of the gallery pipes to dislodge sediment; pumping of river water through the gallery and into settling basins to test pump capacity and water quality; and disposal of the water, once any entrained sediment has settled out.

To contain the pump station at the connection with the infiltration gallery and minimize the potential for contamination of the river during operation, a rectangular wet well would be excavated to a depth of approximately 50 feet at the unattached end of the infiltration gallery piping. Dimensions of the wet well will be 60 feet long by 36 feet wide by 52 feet deep. Water pumped through the infiltration gallery would be deposited into a lined, earthen settling basin adjacent to the Nazareno pond to allow entrained sediment to settle out. The size of the settling basin would be approximately 300 feet by 100 130 feet (approximately 0.9 acre), with a water depth of approximately 3 feet.

The Project study area includes the 3 acres that accommodates the access road from Fox Grove, the wet well and pumps, pipes from the wet well and pumps to the settling pond, and the settling pond. The maximum vertical extent of Project impacts is approximately 46 feet deep for construction of the wet well. This entire area had been excavated to a depth of 60 feet during installation of the infiltration system, and then backfilled. The settling pond will be constructed by forming a soil berm approximately 5 feet tall as the perimeter of the basin. The basin would be lined with a removable membrane (e.g., heavy-duty plastic sheeting). Some clearing of vegetation would be required prior to construction of the berm and installation of the membrane, but ground disturbance would not exceed 12 inches.

The area of potential effects, established for the purpose of Section 106 compliance related to the Corps permit, consists of 7 acres. The maximum vertical APE would be 46 feet.

Regulatory Setting

As previously mentioned, this cultural resources assessment was prepared in compliance with CEQA and the NHPA.

CEQA and CEQA Guidelines

Section 21083.2 of CEQA requires that the lead agency determine whether a project may have a significant effect on unique archaeological resources. A unique archaeological resource is defined in CEQA as an archaeological artifact, object, or site about which it can be clearly demonstrated that there is a high probability that it:

- Contains information needed to answer important scientific research questions, and there is demonstrable public interest in that information;
- Has a special or particular quality, such as being the oldest of its type or the best available example of its type; or
- Is directly associated with a scientifically recognized important prehistoric or historic event or person.

Section 15064.5 of the 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. 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) (Public Resources Code Section 5024.1);
- Are included in a local register of historical resources (Public Resources Code Section 5020.1(k)) or identified as significant in an historical resource survey meeting the requirements of Public Resources Code Section 5024.1(g); or
- Are determined by a lead agency to be historically significant.

CEQA Guidelines Section 15064.5 also prescribes the processes and procedures found under Health and Safety Code Section 7050.5 and Public Resources 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 project site. This includes consultation with the appropriate Native American tribes.

CEQA Guidelines Section 15126.4 provides further guidance about minimizing effects to historical resources through the application of mitigation measures. Mitigation measures must be legally binding and fully enforceable.

Tribal Cultural Resources

AB 52 was approved in September 2014 and went effect on January 1, 2015. This bill requires that state lead agencies consult with California Native American tribes that are traditionally and culturally affiliated with the geographic area of a proposed project, if so requested by the tribe. The bill, chaptered in CEQA Section 21084.2, specifies that a project that may cause a substantial adverse change in the significance of a tribal cultural resource (TCR) could have a significant effect on the environment. Also under AB 52, revisions to the CEQA Guidelines Appendix G Environmental Checklist went into effect on July 1, 2016, to include a consideration of substantial adverse change to TCRs.

TCRs are defined in CEQA Section 21074:

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

1. Sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe that are either of the following:

(a) Included or determined to be eligible for inclusion in the California Register of Historical Resources.

(b) Included in a local register of historical resources as defined in subdivision (k) of Section 5020.1.

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 with 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…."

California Register of Historical Resources

Public Resources 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 National Register of Historic Places, including properties evaluated under Section 106 of the National Historic Preservation Act (NHPA). The criteria for listing are similar to those of the National Register of Historic Places. 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.

National Historic Preservation Act

Capitalization grants from the EPA provide a portion of the SDWSRF financing that will be used for Project construction. As a result, the Project constitutes a federal undertaking as defined by Title 54 United States Code (USC) Section 300101 of the NHPA and mandates compliance with 54 USC Section 306108, commonly known as Section 106 of the NHPA and its implementing regulations found under Title 36 of the Code of Federal Regulations (CFR) Section 800, as amended in 2001. To comply with Section 106 of the NHPA, the Project proponent 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." Resources included in or eligible for inclusion in the NRHP are referred to as *historic properties*.

The implementing regulations of the NHPA require that cultural resources be evaluated for NRHP eligibility if they cannot be avoided by an undertaking (proposed project). To determine site significance through application of NRHP criteria, several levels of potential significance that reflect different (although not necessarily mutually exclusive) values must be considered. As provided in Title 36 CFR Section 60.4, "the quality of significance in American history, architecture, archaeology, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association" must be considered within its historic context. Resources must also be at least 50 years old, except in rare cases, and, to meet eligibility criteria of the NRHP, must:

(A) Be associated with events that have made a significant contribution to the broad patterns of our history; or

(B) Be associated with the lives of persons significant in our past; or

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

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

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.

Environmental Setting

The project area is on the south bank of the Tuolumne River, near the east edge of the northern San Joaquin Valley in what is often referred to as the Great Central Valley geomorphic province (Moratto 2004:13). The project area and valley are underlain by deep alluvial soils derived by erosion from the Sierra Nevada mountain range that rises to the east. The Tuolumne River is one of the many rivers that flow westerly out the mountains, transporting and depositing the eroded sediments. Natural levees were often created along the rivers, and the project sits on top of one of these features, though it has been enhanced due to the construction project that originally built the infiltration system. Immediately south of the natural levee is a flood plain area at a slightly lower elevation, which will contain the proposed settlement pond. The project area is generally at about 100 feet above mean sea level.

Natural vegetation in the region would have consisted of plants associated with a Lower Sonoran grassland, or California prairie. The sea of tall grasses would have been broken only by groves of majestic Valley Oaks, and along the riparian corridors of the rivers and streams that supported dense woodlands of cottonwood, ash, sycamore, box elder, will, wild grape and blackberry, and elderberry (Moratto 2004:169-170). Today the project area along the Tuolumne River contains fairly sparse vegetation of elderberry, cottonwood, willow, box elder, and button bush with a low understory of various grasses and forbes. The location of the proposed settlement pond is a walnut orchard.

Cultural Setting

Prehistory

Very little archaeological work has been conducted in the Project area or in the San Joaquin Valley in general; therefore, the archaeology of the 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 1984:181). 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 time period.

The CCTS has continued to undergo significant 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 to differentiate between cultural periods. The current chronology (Rosenthal et al. 2010:150) for central California archaeology includes:

- 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

The Paleo-Indian Period (11,550–8,550 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 result, little is known about Paleo-Indian lifeways in the region (Moratto 1984:214).

Similar to the preceding period, 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* and *Olivella* shell ornaments and beads, respectively. 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 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 archeological 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 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 that the San Joaquin River takes 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 Northern Valley tribes closely resembled the Yokuts groups to the south, although there were some cultural 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 their north, such as the Miwok. While inhumation was the usual practice in the southern valley, the Northern Valley Yokuts either cremated their dead or buried them in a flexed position (Wallace 1978:464, 468). A chief headed the tribal villages, 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 1978:462-464).

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 heavy Sierra Nevada snow melts. Living beside rivers and streams provided plentiful river perch, Sacramento pike, salmon, and sturgeon. Hunting provided waterfowl such as geese and ducks, as well as terrestrial animals such as antelope, elk, and brown bear, although 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 neophytes. 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, Kings, and other rivers and streams that flowed from the Sierra. Smith was followed by fellow trappers such as Peter Ogden, Ewing Young, Kit Carson, and Joseph Walker.

The first permanent European settlement may have occurred in Stanislaus County 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 Tuolumne County near Rancho Pescadero (eReferenceDesk 2016).

Anglo-Americans started to arrive the territory that would become Stanislaus County during the Gold Rush, both as miners hungry for gold and as agricultural entrepreneurs who recognized the opportunity to raise livestock or grow food for the goldseekers. 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).

The Project area during the historic era was initially, and has remained, agricultural. The town of Hughson was originally a 2,080-acre ranch operated by Hiram Hughson, until the town was laid out and sub-divided 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 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 the County, today Stanislaus County 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).

Cultural Resources Study

Records Search

A records search was conducted in November 2016 by the Central California Information Center (CCIC) of the California Historical Resources Information System (CHRIS) at California State University at Stanislaus (CCIC File No. 10088N). The purpose of the records search was to identify the presence of any previously recorded cultural resources within the project's APE, and to determine if any portions of the project site had previously been surveyed for cultural resources. The records search encompassed the Project area and a ½-mile study radius around the project study area.

The record search found that five cultural resources studies were previously conducted within the Project study area (Table 1). As a result, nearly the entire project area had previously been surveyed; approximately 10 acres of orchard directly south of the levee and east of Nazareno pond had not previously been studied. No cultural resources were recorded within the Project area as the result of these surveys, although one previously recorded ranch complex resource was recorded on the opposite side of the Tuolumne River and about ¼-mile downstream of the Project area.

Table 1. Previous Cultural Resources Studies in the Project Study Area

CCIC No.	Author(s)	Year	Title
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
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	Geer Road Bridge Retrofit, Archaeological Survey
ST-06446	M.A. Peak	2006	Cultural Resources Assessment for the Turlock Irrigation Districts 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 (JRP) and Archaeological Survey Report

Archival research also involved an examination of historic topographic maps from the U.S. Geological Survey (USGS). The available maps (years 1915, 1939, 1953, 1969, and 1976) (USGS 2017) indicate that the project area was a flood plain of the Tuolumne River and remained undeveloped, though a house or structure appears to have been constructed at the north edge of what is now Nazareno Pond sometime between 1953 and 1969. The maps also indicate that, by 1976, an aggregate mine was in place at the location of the orchard that is currently located just south of the infiltration structure. A larger aggregate mine, which later became Nazareno pond, was eventually established directly to the west of the earlier aggregate mine sometime before 1987 (EDAW 2001).

Native American Coordination

An email request was made to the Native American Heritage Commission (NAHC) on November 14, 2016, to review its files for the presence of recorded sacred sites on the project site and for a list of tribes with a traditional and cultural affiliation to the project pursuant to PRC section 21080.3.1. The NAHC responded on November 15, 2016, stating that no sacred sites have been recorded within the Project area. The NAHC also provided a short list of individuals who a traditional and cultural affiliation with the project site. SRWA contacted these individuals (Table 2) by mail on February 14, 2017. The SRWA did not receive any responses to their request for consultation. Correspondence with the NAHC and the individuals listed in Table 1 is compiled in Attachment A.

Table 2. 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 04/07/2017; 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 04/07/2017. Chairperson Martin did not have any information about the project area.

Field Study

A field review of the Project study area, including the Corps' APE, was conducted by a Horizon archaeologist who meets the U.S. Secretary of the Interior's professional qualifications on October 18, 2016. Ground surface visibility was good to fair throughout the project area. No cultural resources were identified.

Conclusions and Recommendations

The SRWA proposes to test an existing infiltration system in the Tuolumne River in support of planning for construction of a new water delivery system to Turlock and Ceres. In order to conduct the test, a wet well and pumping system, a settling pond, and pipes from the wet well to the settling pond must be constructed.

No archaeological sites were observed during a survey of the Proposed Project's study area or Corps APE. As a result, the Proposed Project will not affect any observed archaeological resources.

Although no archaeological resources were identified as a result of this cultural resources assessment, archaeological sites may be buried with no surface manifestation, and the Project area has been identified as sensitive for Native American resources. Most of the study area and APE has been previously disturbed by construction of the existing infiltration system in the Tuolumne River, but in the unlikely event that prehistoric or historic-era materials are encountered, it is recommended that all work in the vicinity halt until a qualified archaeologist can evaluate the discovery and make recommendations. Prehistoric materials will most likely include obsidian and cryptocrystalline flaked-stone tools (e.g., projectile points, knives, choppers), tool-making debris, or milling equipment, such as mortars and pestles. Historic materials might include remains of agricultural implements; stone or concrete footings and walls; and deposits of metal, glass, and/or ceramic refuse. Should materials be discovered during construction, there must be a cessation of work within 50 feet of the finds until they can be examined by a qualified archaeologist. Work could not resume at the location until the nature of the finds have been addressed and clearance for work was provided by the qualified archaeologist.

There is also the remote possibility of encountering human remains. Section 7050.5 of the California Health and Safety Code states that it is a misdemeanor to knowingly disturb a human burial. If human remains are encountered, work should halt in the vicinity of the remains and, as required by law, the Tulare County Coroner should be notified immediately. A qualified archaeologist should also be contacted to evaluate the situation. If human remains are of Native American origin, the Coroner must notify the NAHC within 24 hours of that determination. Pursuant to California Public Resources Code 5097. 98, the NAHC, in turn, will immediately contact an individual who is most likely descended from the remains (aka a Most Likely Descendent, MLD). The MLD has 48 hours to inspect the site and recommend treatment of the remains. The landowner is obligated to work with the MLD in good faith to find a respectful resolution to the situation and consider all reasonable options regarding the descendants' preferences for treatment.

Should you have further questions or require additional information regarding this submittal, please contact me at (916) 553-4923 or janis@horizonh2o.com.

Sincerely,

Janis Offermann

Janis Offermann, MA, RPA
Senior Cultural Resources Specialist
(916) 553-4923 | janis@horizonh2o.com

Enclosures:

Figure 1: Project Vicinity Map
Figure 2: Project Location Map
Figure 3: Area of Potential Effects Map

Attachment A: Central California Information Center Records Search
Attachment B: Native American Consultation

References Cited

California Department of Transportation. 2016. Local Agencies Bridge Listing – Fresno County. Accessed October 20, 2016 at http://dot.ca.gov/hq/structur/strmaint/hs_local.pdf.

EDAW. 2001. Initial Study/Mitigated Negative Declaration, Infiltration Galley Project in Special Run Pool 9. Prepared for Turlock Irrigation District.

USGS. 2017. Online topographic maps for Denair (1916, 1953, 1969,and 1976) and Modesto East (1939). Accessed May 10, 2017 at http://historicalmaps.arcgis.com/usgs/

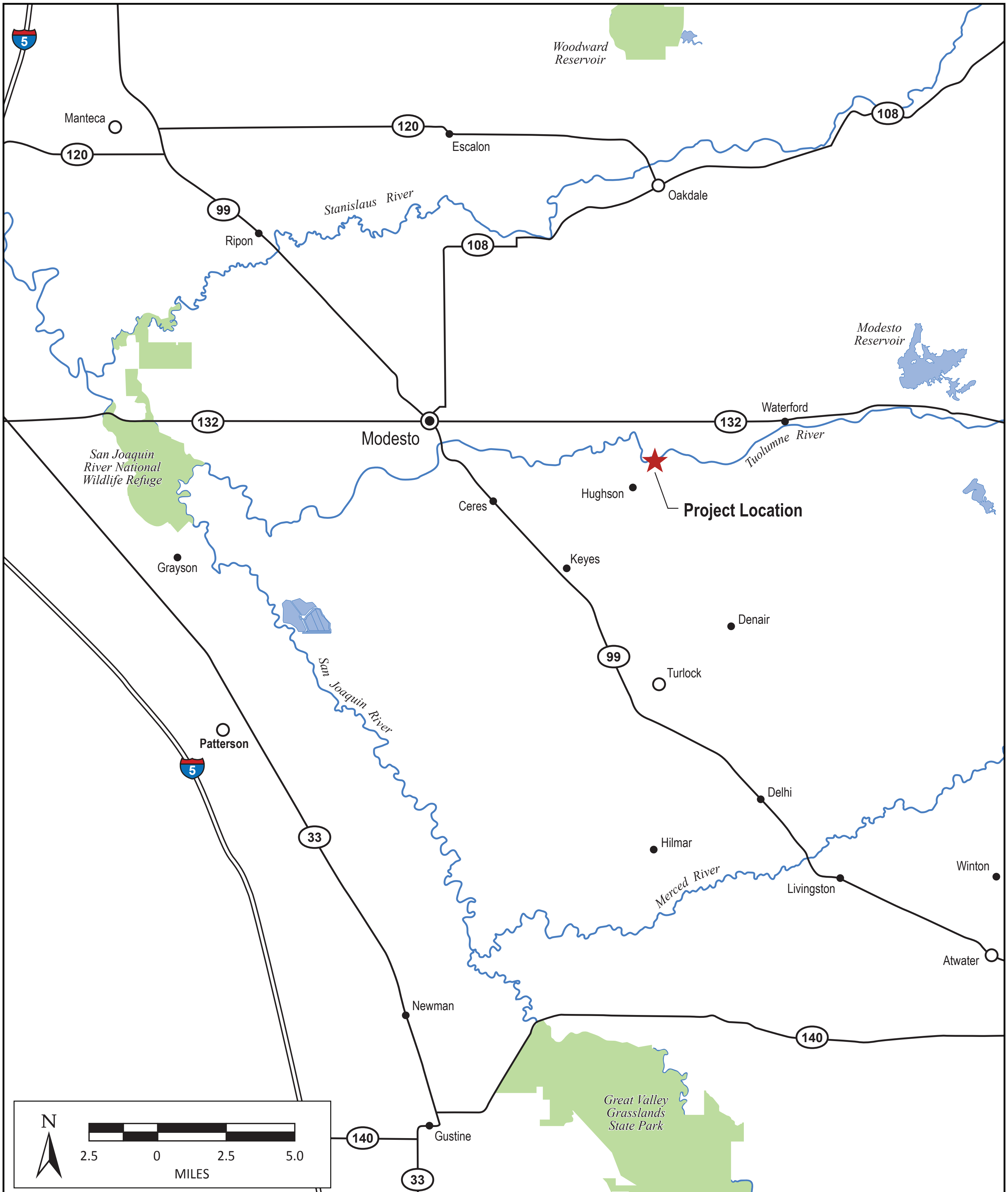


Figure 1.
Project Vicinity

Infiltration Gallery
Testing Project

Prepared by:
Horizon WATER and ENVIRONMENT

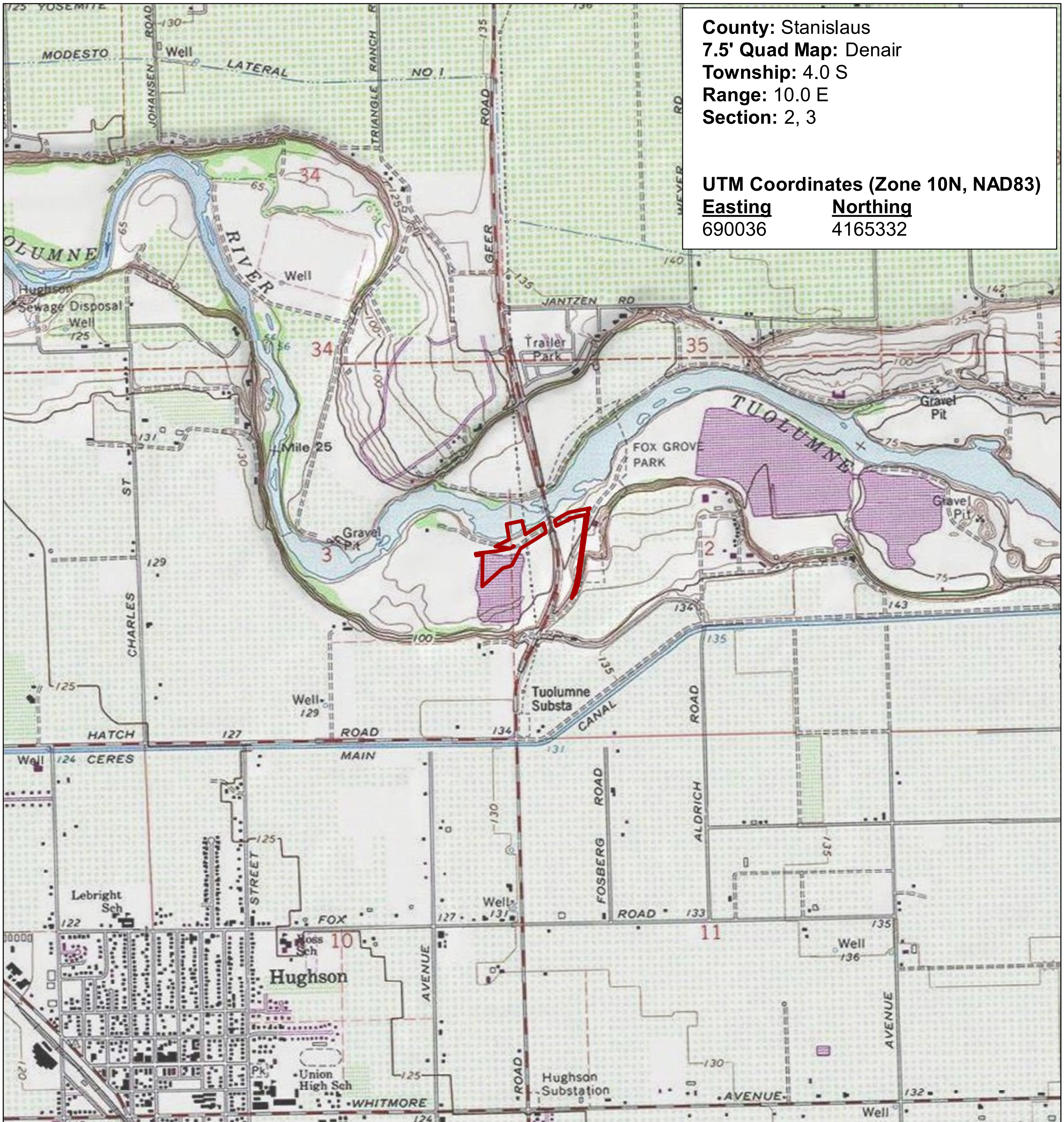


Figure 2
Project Location

Horizon WATER and ENVIRONMENT

Infiltration Gallery
Testing Project

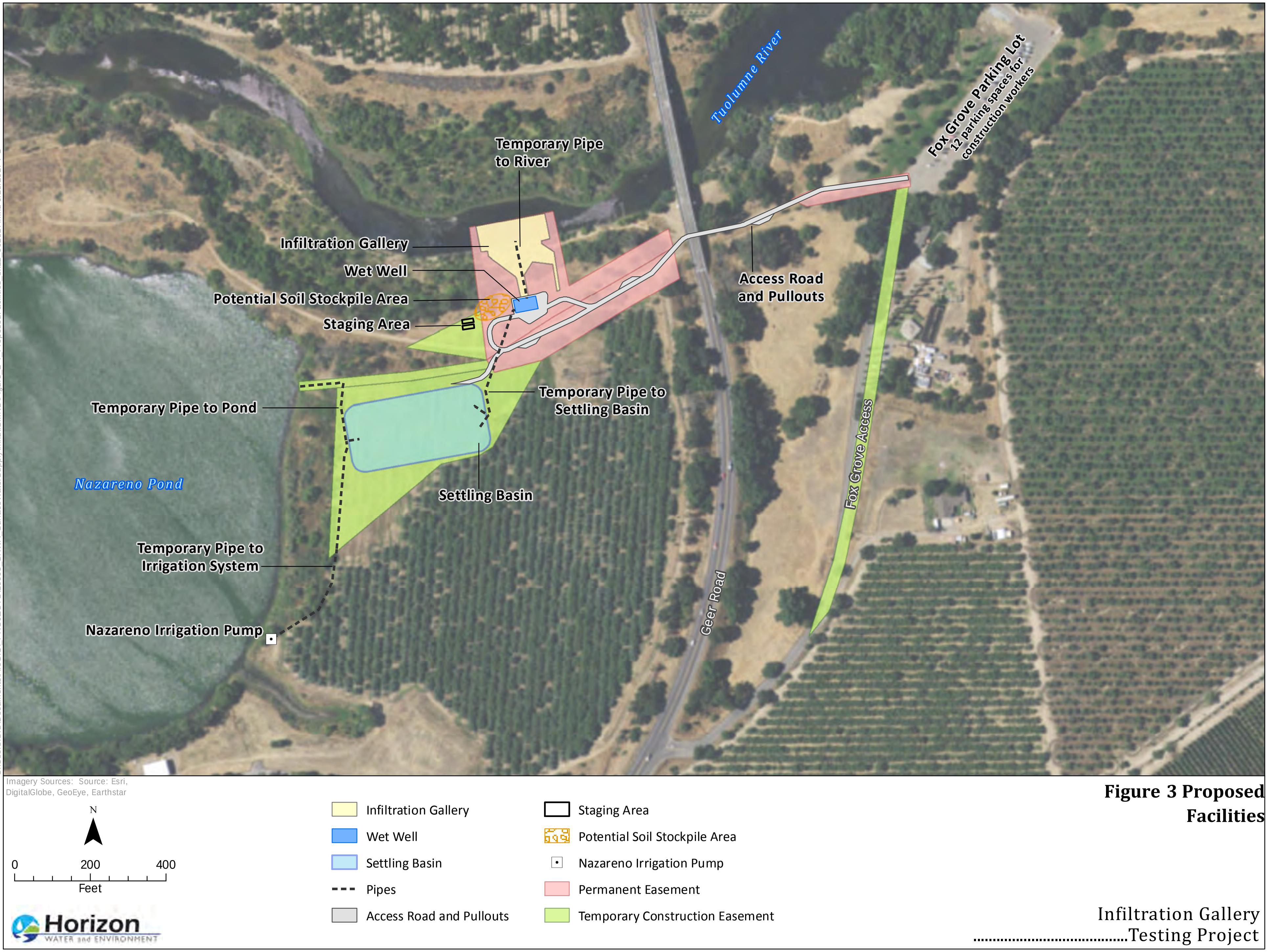


Figure 3 Proposed Facilities

Infiltration Gallery Testing Project

CONFIDENTIAL – NOT FOR PUBLIC RELEASE

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Attachment B

Native American Consultation

Local Government Tribal Consultation List Request

Native American Heritage Commission
1550 Harbor Blvd, Suite 100
West Sacramento, CA 95691
916-373-3710
916-373-5471 – Fax
nahc@nahc.ca.gov

Type of List Requested

☒ **CEQA Tribal Consultation List (AB 52)** *– Per Public Resources Code § 21080.3.1, subs. (b), (d), (e) and 21080.3.2*

☐ **General Plan (SB 18)** *- Per Government Code § 65352.3.*

Local Action Type:

___ **General Plan** ___ **General Plan Element** ___ **General Plan Amendment**

___ **Specific Plan** ___ **Specific Plan Amendment** ___ **Pre-planning Outreach Activity**

Required Information

Project Title: Raw Surface Water Supply Project

Local Government/Lead Agency: Stanislaus Regional Water Authority

Contact Person: Janis Offermann / Horizon Water and Environment

Street Address: 555 Capitol Mall, Suite 800

City: Sacramento, CA **Zip:** 95814

Phone: 916-553-4923 **Fax:** 916-443-9017

Email: janis@horizonh2o.com

Specific Area Subject to Proposed Action

County: Stanislaus **City/Community:** near Hughson

Project Description:

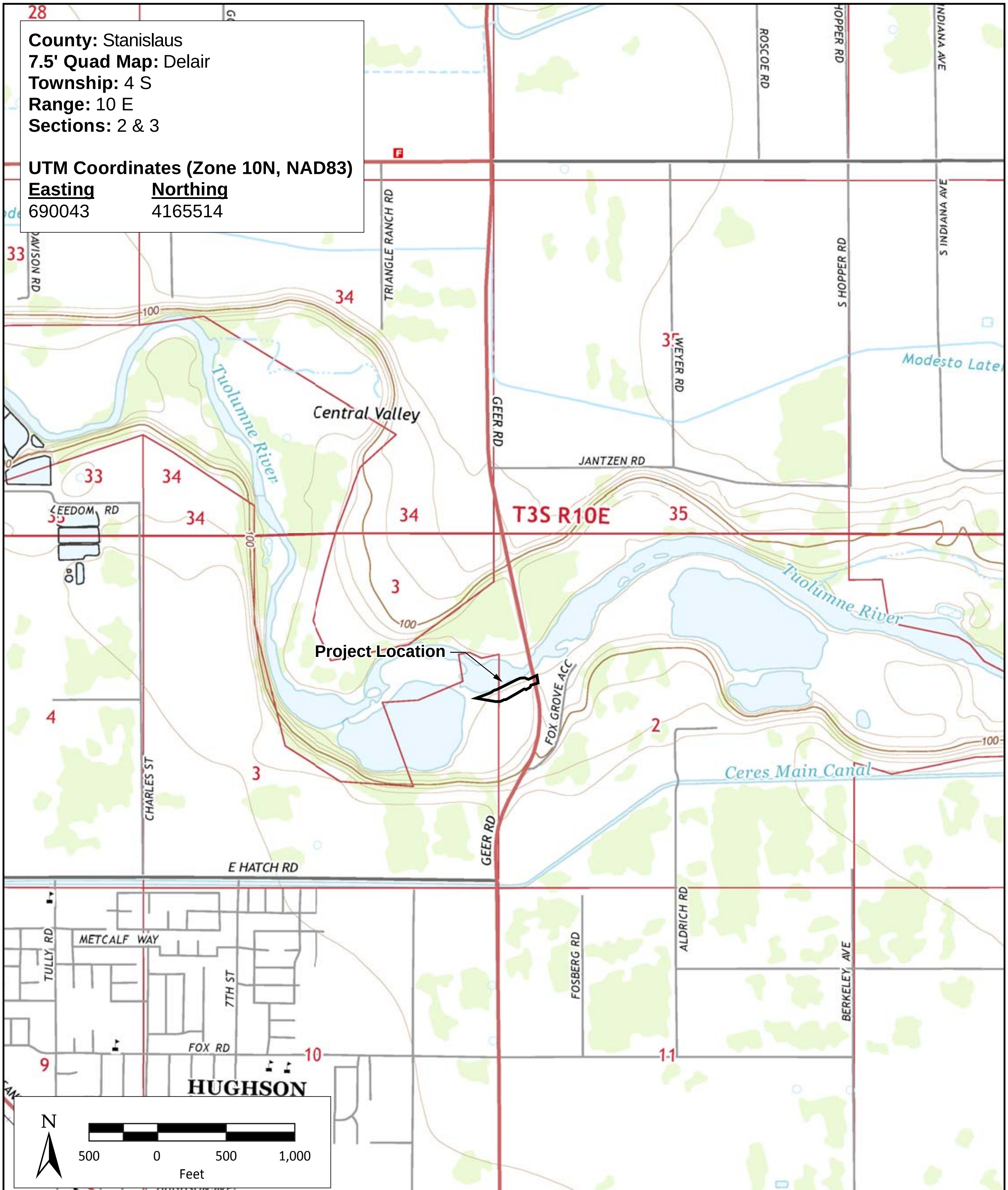
The project proposes to excavate down to an infilgration gallery that was installed on the bank of the Stanislaus River over 10 years ago. The infiltration system was never hooked up to a larger water distribution system, but the Stanislaus Regional Water Authority is now ready to build the distribution system. However, before beginning that project, they want to expose the infiltration intake, clean it out, and test it. All work will be conducted in an area that was previously disturbed to a depth of 40 feet. Cultural resources studies conducted at the time of the original construction did not identify any cultural resources.

Additional Request

☐ **Sacred Lands File Search** - ***Required Information:*** Already received this information

USGS Quadrangle Name(s):____________________

Township:__________ **Range:**__________ **Section(s):**__________



Map Source: USGS Waterford and Delair Quads 2015

Figure #-#
Project Location Map

Horizon WATER and ENVIRONMENT

Raw Surface Water Supply Project

NATIVE AMERICAN HERITAGE COMMISSION
1550 Harbor Blvd., Suite 100
West Sacramento, CA 95691
(916) 373-3710
(916) 373-5471 FAX

November 23, 2016

Michael F. Brinton, Deputy Director
City of Ceres, Department of Public Works

Sent by E-mail: Michael.brinton@ci.ceres.ca.us
Cc: Janis@horizonh2o.com

RE: Proposed Raw Surface Water Supply Project, City of Ceres; Waterford and Delair USGS Quadrangles, Stanislaus County, California

Dear Mr. Brinton:

Attached is a consultation list of tribes with traditional lands or cultural places located within the boundaries of the above referenced counties. Please note that the intent of the reference codes below is to avoid or mitigate impacts to tribal cultural resources, as defined, for California Environmental Quality Act (CEQA) projects under AB-52.

As of July 1, 2015, Public Resources Code Sections 21080.3.1 and 21080.3.2 **require public agencies** to consult with California Native American tribes identified by the Native American Heritage Commission (NAHC) for the purpose mitigating impacts to tribal cultural resources:

> **Within 14 days** of determining that an application for a project is complete or a decision by a public agency to undertake a project, the lead agency shall provide formal notification to the designated contact of, or a tribal representative of, traditionally and culturally affiliated California Native American tribes that have requested notice, which shall be accomplished by means of at least one written notification that includes a brief description of the proposed project and its location, the lead agency contact information, and a notification that the California Native American tribe has 30 days to request consultation pursuant to this section. (Public Resources Code Section 21080.3.1(d))

The law does not preclude agencies from initiating consultation with the tribes that are culturally and traditionally affiliated with their jurisdictions. The NAHC believes that in fact that this is the best practice to ensure that tribes are consulted commensurate with the intent of the law.

In accordance with Public Resources Code Section 21080.3.1(d), formal notification must include a brief description of the proposed project and its location, the lead agency contact information, and a notification that the California Native American tribe has 30 days to request consultation. The NAHC believes that agencies should also include with their notification letters information regarding any cultural resources assessment that has been completed on the APE, such as:

1. The results of any record search that may have been conducted at an Information Center of the California Historical Resources Information System (CHRIS), including, but not limited to:
    - A listing of any and all known cultural resources have already been recorded on or adjacent to the APE;
    - Copies of any and all cultural resource records and study reports that may have been provided by the Information Center as part of the records search response;
    - If the probability is low, moderate, or high that cultural resources are located in the APE.
    - Whether the records search indicates a low, moderate or high probability that unrecorded cultural resources are located in the potential APE; and
    - If a survey is recommended by the Information Center to determine whether previously unrecorded cultural resources are present.

2. The results of any archaeological inventory survey that was conducted, including:

   - Any report that may contain site forms, site significance, and suggested mitigation measurers.

     All information regarding site locations, Native American human remains, and associated funerary objects should be in a separate confidential addendum, and not be made available for pubic disclosure in accordance with Government Code Section 6254.10.

3. The results of any Sacred Lands File (SFL) check conducted through Native American Heritage Commission. A search of the SFL was completed for the project with negative results.

4. Any ethnographic studies conducted for any area including all or part of the potential APE; and

5. Any geotechnical reports regarding all or part of the potential APE.

Lead agencies should be aware that records maintained by the NAHC and CHRIS is not exhaustive, and a negative response to these searches does not preclude the existence of a cultural place. A tribe may be the only source of information regarding the existence of a tribal cultural resource.

This information will aid tribes in determining whether to request formal consultation. In the case that they do, having the information beforehand well help to facilitate the consultation process.

If you receive notification of change of addresses and phone numbers from tribes, please notify me. With your assistance we are able to assure that our consultation list contains current information.

If you have any questions, please contact me at my email address: gayle.totton@nahc.ca.gov.

Sincerely,

Gayle Totton

Gayle Totton, M.A., PhD.
Associate Governmental Program Analyst

Native American Heritage Commission
Tribal Consultation List
Stanislaus County
11/23/2016

North Valley Yokuts Tribe

Katherine Erolinda Perez, Chairperson P.O. Box 717 Linden, CA, 95236 Phone: (209)887-3415 canutes@verizon.net	Costanoan Northern Valley Yokut

Southern Sierra Miwuk Nation

Lois Martin, Chairperson P.O. Box 186 Mariposa, CA, 95338 Phone: (209)742-6867	Miwok Northern Valley Yokut Paiute

This list is current only as of the date of this document. Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and Section 5097.98 of the Public Resources Code and section 5097.98 of the Public Resources Code.

This list is only applicable for consultation with Native American tribes under Public Resources Code Sections 21080.3.1 for the proposed Raw Surface Water Supply Project, Stanislaus County.

SRWA
Stanislaus Regional Water Authority

STANISLAUS REGIONAL WATER AUTHORITY
156 S. Broadway, Ste. 270, Turlock, CA 95380
(209) 668-5490 (phone) (209) 668-5695 (fax)

February 14, 2017

Katherine Erolinda Perez, Chairperson
P.O. Box 717
Linden, CA 95236

SUBJECT: Stanislaus Regional Water Authority Surface Water Treatment Project Tribal Cultural Resources Consultation

Dear Chairperson Perez:

The Stanislaus Regional Water Authority (SRWA) is a Joint Powers Authority comprised of the Cities of Ceres and Turlock (Cities) and is responsible for the planning, procurement, and operation of new surface water supply facilities to serve municipal and industrial customers within the Cities' respective service areas. SRWA is proposing to construct a new water treatment plant and associated facilities to provide additional water supply to each of the Cities (**Figure 1**). The proposed project would involve construction and operation of the following facilities:

- a raw water pump station to draw water from an existing infiltration gallery (see further description below) adjacent to the Tuolumne River, west of the Geer Road Bridge;
- raw water transmission pipelines to convey the water to a water treatment plant;
- a water treatment plant east of Fox Grove Regional Park that would treat the raw water to drinking water standards;
- treated water transmission mains to transport water from the water treatment plant to the Turlock Irrigation District (TID) Main Canal and to terminal storage facilities in Turlock and Ceres; and
- storage and distribution facilities at each of the terminal sites.

In 2002, TID constructed an infiltration gallery west of the Geer Road Bridge with the intent of constructing a raw water pump station and drawing water from the river for agricultural use, when needed. To date, that infiltration gallery has not been tested or operated. As part of the proposed Surface Water Treatment Project, SRWA proposes to construct a wet well and sedimentation basin adjacent to the infiltration gallery (**Figure 2**) and conduct development pumping and water quality testing. Testing results would provide information about the operational capacity of the infiltration gallery and the types of treatment that might be required at the water treatment plant.

Archaeological surveys were conducted at the infiltration gallery area in 2000 and the proposed water treatment plant location in 2006. No archaeological resources were identified in these project areas during either study. The routes for the water transmission mains will be surveyed as the environmental studies for the project proceed.

In accordance with Public Resources Code Section 21080.3.1 et seq., SWRA is notifying you of our intent to consider the proposed project. If you wish to initiate formal consultation with SWRA regarding any potential impacts of this project on tribal cultural resources, Public Resources Code Section 21080.3.1(e) requires that you contact SRWA within 30 days from your receipt of this letter. If you wish to request consultation, or if you have any questions, please contact:

Michael F. Brinton, Interim General Manager
Stanislaus Regional Water Authority
c/o City of Turlock Municipal Services
156 S. Broadway, Suite 230
Turlock, CA 95380
Email: Michael.Brinton@ci.ceres.ca.us

If you do not contact SRWA within 30 days following receipt of this letter, SWRA will proceed with environmental review for the above-referenced project with the assumption that the project would not have a potential effect on tribal cultural resources. If consultation is requested, please provide the name and contact information of the designated lead contact person as part of your request. SWRA will contact the designated person to set a meeting date to begin consultation within 30 days of our receipt of your request.

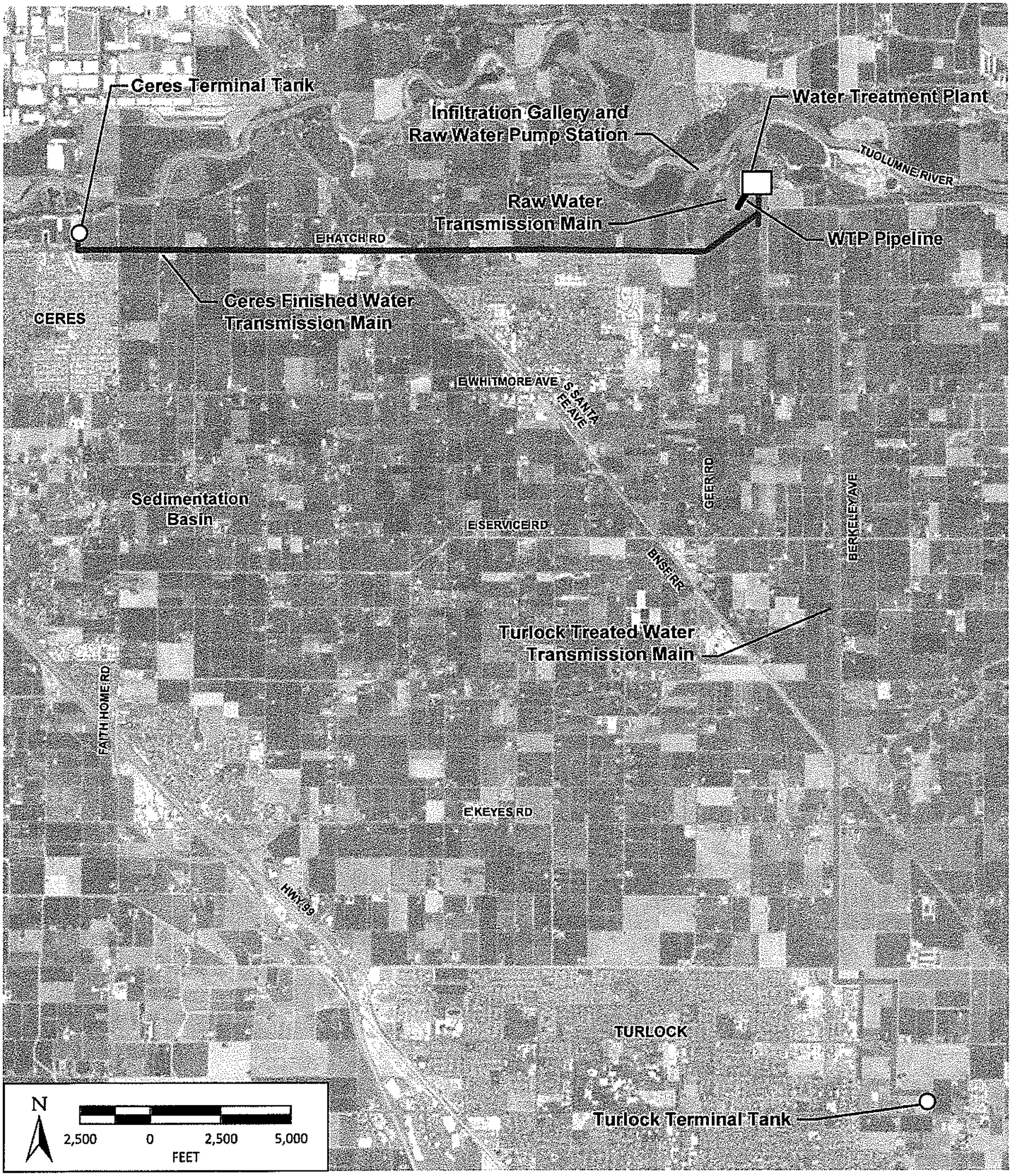
More detailed information about this proposed project is available at your request. Thank you for giving this matter your prompt attention.

Sincerely,

Michael F. Brinton

Michael F. Brinton, Interim General Manager
Stanislaus Regional Water Authority

Enclosures: Figure 1. Project Overview
Figure 2. Proposed Project Facilities – Infiltration Gallery Development and Testing



Source: West Yost 2016

Figure 1.
Project Overview

Legend

- Raw Water Transmission Main
- Turlock Treated Water Transmission Main
- Ceres Treated Water Transmission Main
- WTP Pipeline

Prepared by:
Horizon

Surface Water Supply Project

Aerial Image: © 2016 Google

Figure 2.
Proposed Project Facilities

Prepared by:
Horizon

Infiltration Gallery
Development and Testing

SRWA
Stanislaus Regional Water Authority
STANISLAUS REGIONAL WATER AUTHORITY
156 S. Broadway, Ste. 270, Turlock, CA 95380
(209) 668-5490 (phone) (209) 668-5695 (fax)

February 14, 2017

Lois Martin, Chairperson
Southern Sierra Miwuk Nation
P.O. Box 186
Mariposa, CA 95338

SUBJECT: Stanislaus Regional Water Authority Surface Water Treatment Project Tribal Cultural Resources Consultation

Dear Chairperson Martin:

The Stanislaus Regional Water Authority (SRWA) is a Joint Powers Authority comprised of the Cities of Ceres and Turlock (Cities) and is responsible for the planning, procurement, and operation of new surface water supply facilities to serve municipal and industrial customers within the Cities' respective service areas. SRWA is proposing to construct a new water treatment plant and associated facilities to provide additional water supply to each of the Cities (**Figure 1**). The proposed project would involve construction and operation of the following facilities:

- a raw water pump station to draw water from an existing infiltration gallery (see further description below) adjacent to the Tuolumne River, west of the Geer Road Bridge;
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- a water treatment plant east of Fox Grove Regional Park that would treat the raw water to drinking water standards;
- treated water transmission mains to transport water from the water treatment plant to the Turlock Irrigation District (TID) Main Canal and to terminal storage facilities in Turlock and Ceres; and
- storage and distribution facilities at each of the terminal sites.

In 2002, TID constructed an infiltration gallery west of the Geer Road Bridge with the intent of constructing a raw water pump station and drawing water from the river for agricultural use, when needed. To date, that infiltration gallery has not been tested or operated. As part of the proposed Surface Water Treatment Project, SRWA proposes to construct a wet well and sedimentation basin adjacent to the infiltration gallery (**Figure 2**) and conduct development pumping and water quality testing. Testing results would provide information about the operational capacity of the infiltration gallery and the types of treatment that might be required at the water treatment plant.

Archaeological surveys were conducted at the infiltration gallery area in 2000 and the proposed water treatment plant location in 2006. No archaeological resources were identified in these project areas during either study. The routes for the water transmission mains will be surveyed as the environmental studies for the project proceed.

In accordance with Public Resources Code Section 21080.3.1 et seq., SWRA is notifying you of our intent to consider the proposed project. If you wish to initiate formal consultation with SWRA regarding any potential impacts of this project on tribal cultural resources, Public Resources Code Section 21080.3.1(e) requires that you contact SRWA within 30 days from your receipt of this letter. If you wish to request consultation, or if you have any questions, please contact:

Michael F. Brinton, Interim General Manager
Stanislaus Regional Water Authority
c/o City of Turlock Municipal Services
156 S. Broadway, Suite 230
Turlock, CA 95380
Email: Michael.Brinton@ci.ceres.ca.us

If you do not contact SRWA within 30 days following receipt of this letter, SWRA will proceed with environmental review for the above-referenced project with the assumption that the project would not have a potential effect on tribal cultural resources. If consultation is requested, please provide the name and contact information of the designated lead contact person as part of your request. SWRA will contact the designated person to set a meeting date to begin consultation within 30 days of our receipt of your request.

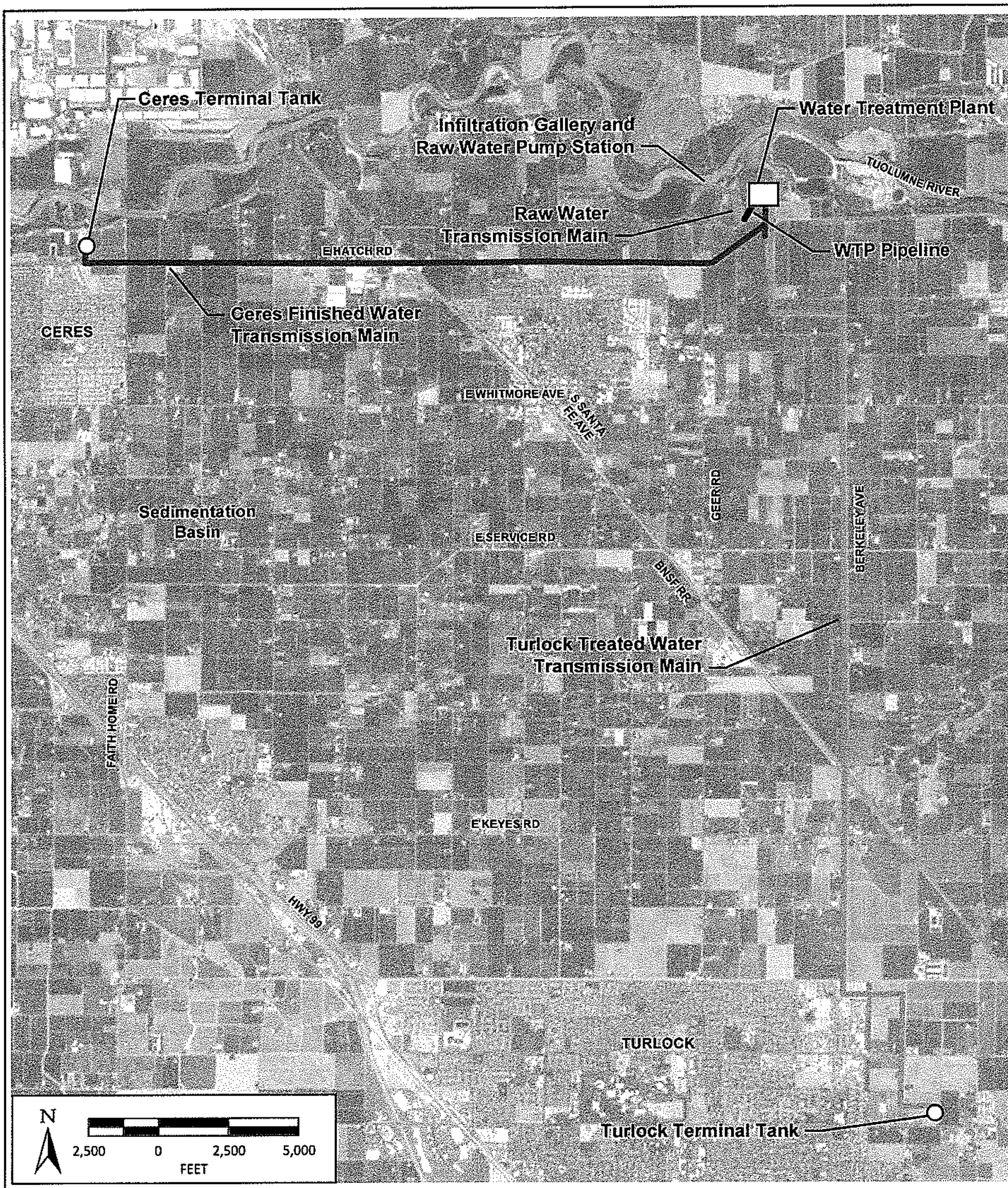
More detailed information about this proposed project is available at your request. Thank you for giving this matter your prompt attention.

Sincerely,

Michael F. Brinton

Michael F. Brinton, Interim General Manager
Stanislaus Regional Water Authority

Enclosures: Figure 1. Project Overview
Figure 2. Proposed Project Facilities – Infiltration Gallery Development and Testing



Source: West Yost 2016

Legend

- Raw Water Transmission Main
- Turlock Treated Water Transmission Main
- Ceres Treated Water Transmission Main
- WTP Pipeline

Prepared by:

Horizon

Figure 1.
Project Overview

Surface Water Supply Project

Aerial Image: © 2016 Google

Figure 2.
Proposed Project Facilities

Infiltration Gallery
Development and Testing

Prepared by:
Horizon

SRWA
Stanislaus Regional Water Authority

STANISLAUS REGIONAL WATER AUTHORITY
156 S. Broadway, Ste. 270, Turlock, CA 95380
(209) 668-5490 (phone) (209) 668-5695 (fax)

February 14, 2017

Michael Mirelez
Cultural Resource Coordinator
Torres Martinez Desert Cahuilla Indians
P.O. Box 1160
Thermal, CA 92274

SUBJECT: Stanislaus Regional Water Authority Surface Water Treatment Project Tribal Cultural Resources Consultation

Dear Mr. Mirelez:

The Stanislaus Regional Water Authority (SRWA) is a Joint Powers Authority comprised of the Cities of Ceres and Turlock (Cities) and serves as the lead agency for preparation of environmental review documents under the California Environmental Quality Act (CEQA).

The SRWA received a letter from the Torres Martinez Desert Cahuilla Indians requesting formal notification of all proposed projects within the SRWA's jurisdiction that could impact geographic areas traditionally and culturally affiliated with the Torres Martinez Desert Cahuilla Indians.

According to the records before the SRWA, there is no evidence to indicate that the Torres Martinez Desert Cahuilla Indians are traditionally and culturally affiliated with any geographic area within the SRWA's jurisdiction.

Pursuant to Public Resources Code Section 21080.3.1 *et seq.*, the SRWA is only required to formally notify and consult with California tribes traditionally and culturally affiliated with geographic areas of proposed projects within the SRWA's jurisdiction. For this reason, the SRWA respectfully requests that you provide all evidence indicating the geographic areas within the SRWA's jurisdiction that are traditionally and culturally affiliated with the Torres Martinez Desert Cahuilla Indians.

Please contact:

> Michael F. Brinton, Interim General Manager
> Stanislaus Regional Water Authority
> c/o City of Turlock Municipal Services
> 156 S. Broadway, Suite 230
> Turlock, CA 95380
> Email: Michael.Brinton@ci.ceres.ca.us

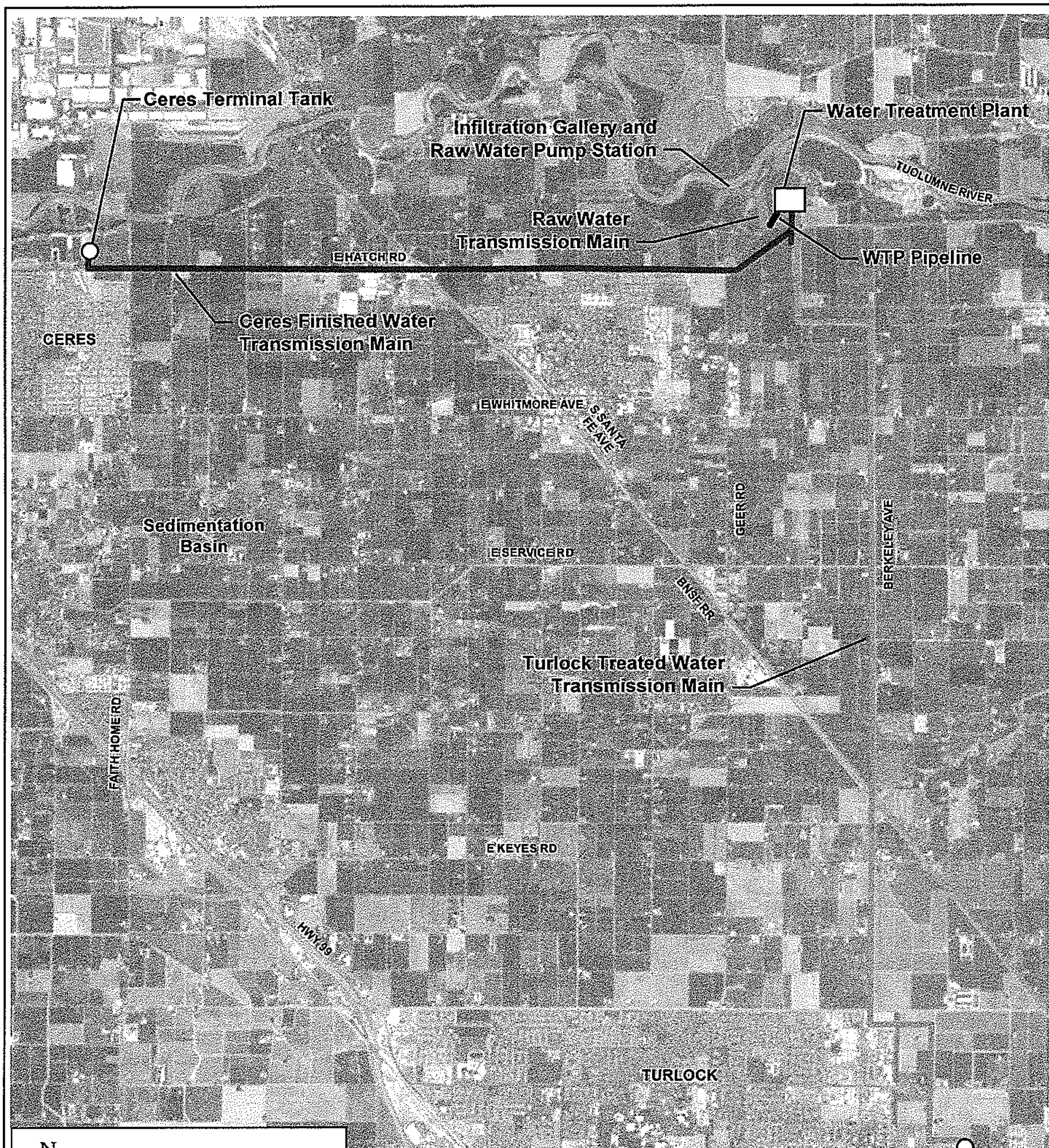
If you do not contact the SRWA within 30 days following receipt of this letter, we will consider the above referenced letter moot on the assumption that all geographic areas within the SRWA's jurisdiction are not traditionally and culturally affiliated with the Torres Martinez Desert Cahuilla Indians.

Sincerely,

Michael F. Brinton

Michael F. Brinton, Interim General Manager
Stanislaus Regional Water Authority

Enclosures: Figure 1. Project Overview
Figure 2. Proposed Project Facilities – Infiltration Gallery Development and Testing



Source: West Yost 2016

Legend

- Raw Water Transmission Main
- Turlock Treated Water Transmission Main
- Ceres Treated Water Transmission Main
- WTP Pipeline

Figure 1.
Project Overview

Prepared by:
Horizon

Surface Water Supply Project

Aerial Image: © 2016 Google

Figure 2.
Proposed Project Facilities

Prepared by:
Horizon

Infiltration Gallery
Development and Testing

Appendix D

Noise Calculations

Noise Calculations for SRWA Infiltration Gallery Project

Daytime calculations

Construction Equipment 1 (Vibratory Pile Driver)	96	dBA at 50 feet
Construction Equipment 2 (Truck)	88	dBA at 50 feet

Combined Daytime Noise at 50 feet (Ltotal at 50 96.6 dBA

Ltotal=10 log(10^L1/10+10^L2/10)

Nighttime calculations

Construction Equipment 1 (Generator)	82	dBA at 50 feet
Construction Equipment 2 (Generator)	82	dBA at 50 feet

Combined Nighttime Noise at 50 feet (Ltotal at 5 85.0 dBA

Ltotal=10 log(10^L1/10+10^L2/10)

Stanislaus County Noise Threshold Limits and Distances from Project Sites to those Limits for Construction Equipment

Noise Threshold	Threshold Level - Leq (dBA)	Distance to Leq Threshold from Middle of Project Site (feet)	
Daytime Limit (7 am-7 pm)	70	1,074	Noise Element - Residential CNEL Daytime Max - 70 dB
Nighttime Limit (7 pm - 7 am)	65	501	

County code: Exemptions: 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.

Source: County General Plan (2016) Noise Element

Nearest Sensitive Receptors and Approximate Distances from Middle of Nearest Work Area

Sensitive Receptor	Distance (feet)
Nearest residences to center of work area	1070

Vibration Source Levels for Construction Equipment (FTA 2006)

Equipment	PPV at 25 feet	VBA
Vibratory Roller	0.21	94
Pile Driver (sonic, typical range)	0.17	93

Noise Calculations for SRWA Infiltration Gallery Project

Vibration Calculations with Equations for Vibration-Causing Equipment (use of vibratory roller) for Project Site

Threshold	Distance to Threshold from Middle of Project Site (feet)	Notes	
PPV=PPVref * (25/d)^1.5	36.3	Building damage threshold (sensitive buildings)	
Lvd=Lvref-30log(D/25)	73.2	Annoyance (Federal)	Federal - Annoyance 80 VdB, Damage 0.12 PPV for sensitive buildings

Vibration Calculations with Equations for Vibration-Causing Equipment (use of sonic pile driver) for Project Site

Threshold	Distance to Threshold from Middle of Project Site (feet)	Notes
PPV=PPVref * (25/d)^1.5	31.5	Building damage threshold (sensitive buildings)
Lvd=Lvref-30log(D/25)	67.8	Annoyance (Federal)

Mitigation for Noise Impacts of Proposed Project

Construction Equipment 1 (Scraper)	89	dBA at 50 feet	Only use a drill rig and not a pile driver.
Construction Equipment 2 (Truck)	88	dBA at 50 feet	

Combined Noise at 50 feet (Ltotal at 50 feet) 91.5 dBA

Daytime Noise Calculation with Mitigation

Distance (feet) from Middle of Project Site to Sensitive Receptors	Construction Noise level dBA	Noise Level Equation: Leq = EL50-20*log(D/50)
1070	64.9	Nearest residence to nearest excavation areas.

Noise Calculations for SRWA Infiltration Gallery Project

Distance (feet) from Middle of Project Site to Sensitive Receptors	Construction Noise level dBA	Noise Level Equation: Leq = EL50-20*log(D/50)
655	74.3	Daytime Noise Level. Fox Grove Regional Park
1042	70.3	Daytime Noise Level. Stanislaus Wildlife Care Center.
1070	70.0	Daytime Noise Level. Nearest residence to nearest excavation areas.
655	62.7	Nighttime Noise Level. Fox Grove Regional Park.
1042	58.6	Nighttime Noise Level. Stanislaus Wildlife Care Center.
1070	58.4	Nighttime Noise Level. Nearest residence to nearest excavation areas.

Noise Calculations for SRWA Infiltration Gallery Project

Equipment List	Similar name used	dBA 50 from:		FTA 2006	
		FTA 2006	FHWA Handbook	PPV at 25 feet	VBA
Pickup Truck			55		
Air Compressors	Compressor (air)	81	80		
Boom Trucks	Truck	88			
Hydraulic Cranes	Crane	83	85		
Flatbed Truck			84		
Backhoe		80	80		
Large Motor Graders	Grader		85		
Large Excavator	Excavator		85		
Crawler Loader	Loader	85			
Bulldozer	Dozer	85	85	0.089	87
Rubber Tired Loaders	Loader	85			
Drilling Rig			84		
Watertrucks					
Concrete Trucks	Concrete mixer truck		85		
Concrete Pumper Trucks			82		
Hand Compaction Equipment	Compactor (ground)	82	80		
Diesel Generators	Generator		82		
Nuisance Groundwater Dewatering Pumps			77		
Roller		74	85	0.21	94
Vibratory Pile Driver	(Sonic) Pile-driver	96	95	0.17	93
Scraper		89	85		
Off-road forklift					

www.fhwa.dot.gov/environment/noise/construction_noise/handbook/handbook09.cfm

Two loudest (not used during same phase)

Loudest conditions given phasing would be Pile Driver and Trucks (88 instead of 89 for scrapers)

Two largest vibration sources

Noise Calculations for SRWA Infiltration Gallery Project

Phase	Equipment Quantity	Schedule	Soil Cu. yds.	Truck trips (total, round trips)	Worker Trips (round trips)
Site Access and Prep					
Front end loaders	2	22 days (1 month)		50	7 daily/ 154 total
Scrapers	2	22 days (1 month)			
bulldozers	2	22 days (1 month)			
rollers	2	22 days (1 month)			
Trucks	2	22 days (1 month)			
Water trucks	2	22 days (1 month)			
Misc. Equipment	1	22 days (1 month)			
Soil Stabilization					
Drilling Rig	1	66 days (3 months)	4,600	120	7 daily / 462 total
Trucks	2	66 days (3 months)			
Water Trucks	2	66 days (3 months)			
generators	2	66 days (3 months)			
Sheet pile driving e	1	66 days (3 months)			
Misc. Equipment	2	66 days (3 months)			
Excavation			No soil liste	120	7 daily / 462 total
Excavators	2	66 (3 months, 1 overlap w/ next phase)			
Trucks	2	66 days (3 months)			
bulldozers	2	66 days (3 months)			
front-end loaders	2	66 days (3 months)			
Groundwater pump	4	66 days (3 months)			
Crane (clam shell)	1	66 days (3 months)			
Water trucks	2	66 days (3 months)			
Wet Well Construction			7,800	260	7 daily / 924 total
Cranes	2	132 (6 months)			
Concrete Trucks	2	132 (6 months)			
Concrete Pumpers	2	132 (6 months)			
Welding	1	132 (6 months)			
Small Tools	1	132 (6 months)			
Pumps	6	132 (6 months)			
Water Trucks	2	132 (6 months)			
Testing - Gallery dev. and testing				50	7 daily/ 154 total
Development Pumping	4 days (96 hours)				
Gallery Testing	2-3 days				
Pumps	16	22 days (1 month)	only 3 aboveground for sound		
air compressors	2	22 days (1 month)			
cranes	2	22 days (1 month)			
gradall forklift	1	22 days (1 month)			
generators	2	22 days (1 month)			

Noise Calculations for SRWA Infiltration Gallery Project

Site Cleanup, demobilization			2900	100	7 daily / 308 total
front-end loaders	2	44 days (2 months)			
scrapers	2	44 days (2 months)			
Trucks	2	44 days (2 months)			
Rollers	2	44 days (2 months)			
Bulldozers	2	44 days (2 months)			
Water Trucks	2	44 days (2 months)			
Misc. Equipment	1	44 days (2 months)			

Appendix E

Mitigation Monitoring and Reporting Program

MITIGATION MONITORING AND REPORTING PROGRAM

The following mitigation monitoring and reporting program (MMRP) summary table includes the mitigation measures identified in the Stanislaus Regional Water Authority's (SRWA's) Infiltration Gallery Development and Testing Project initial study/mitigated negative declaration (IS/MND). For each mitigation measure, this table identifies monitoring and reporting actions that shall be carried out and the monitoring schedule. This table also includes a column where responsible parties can check off monitoring and reporting actions as they are completed.

As lead agency, SRWA will be responsible for ensuring that mitigation measures identified in this IS/MND are fully implemented. However, some mitigation measures would be implemented by the contractor(s) on behalf of SRWA. Contract documents for the proposed project will identify the obligations of the contractor, including relevant mitigation measures. SRWA will require that the contractor provide SRWA with documentation that it has adequately implemented its contractual obligations, including applicable mitigation measures.

Thus, in the descriptions of the mitigation measures provided in the table which follows, while SRWA may be the only party referenced in implementing a mitigation measure (i.e., where the measure states "SRWA shall"), this is intended to be inclusive of the contractor's role in implementing certain mitigation measures during construction or as part of design.

ACRONYMS AND ABBREVIATIONS USED IN APPENDIX E

CDFG	California Department of Fish and Game
CDFW	California Department of Fish and Wildlife
CEAT	Contractor Environmental Awareness training
CEQA	California Environmental Quality Act
CRHR	California Register of Historical Resources
dbh	diameter at breast height
GHG	greenhouse gas
IS/MND	initial study/mitigated negative declaration
MLD	Most Likely Descendant
MMRP	mitigation monitoring and reporting program
NAHC	Native American Heritage Commission
NMFS	National Marine Fisheries Service
PRC	Public Resources Code
SWPPP	Stormwater Pollution Prevention Plan
TCR	tribal cultural resource
USFWS	U.S. Fish and Wildlife Service
VELB	valley elderberry longhorn beetle
WPT	western pond turtle

	Mitigation Measure	Monitoring and Reporting Action	Monitoring Schedule	Completion Date and Initials
Aesthetics				
	None Required			
Agriculture and Forestry Resources				
	None Required			
Air Quality				
	None Required			
Biological Resources				
BIO-1	**Schedule Air Purging to Avoid and Minimize Impacts on Special-status Fish.** To the extent feasible, SRWA and its contractor(s) shall limit air purging of the gallery to the work period between April 1 and September 30 to avoid peak salmonid spawning migration and sensitive development stages. If air purging cannot be conducted between April 1 and September 30, SRWA shall consult with the National Marine Fisheries Service (NMFS), U.S. Fish and Wildlife Service (USFWS), and California Department of Fish and Wildlife (CDFW) to identify a work period that will not result in substantial adverse effects on special-status fish based on the hydrologic and biological conditions for the year of testing.	▪ Limit air purging of the gallery to between April 1 and September 30. ▪ SRWA to consult with NMFS, USFWS, and CDFW to identify an alternative testing period if air purging cannot be conducted between June 1 and September 30.	▪ Before and during construction ▪ Before construction	
BIO-2	**Implement Measures to Avoid Impacts on Valley Elderberry Longhorn Beetle.**	▪ Identify locations of elderberry plants within 100 feet of construction areas no less than 15 days	▪ Before construction	

Mitigation Measure		Monitoring and Reporting Action	Monitoring Schedule	Completion Date and Initials
	SRWA and its contractor(s) shall implement the following VELB avoidance measures: a. No less than 15 days prior to commencing construction, document the locations and condition of elderberry plants within 100 feet of construction areas, including photographing the base, stems, and canopy of those shrubs. b. To the extent feasible, schedule construction activities that would occur within 100 feet of elderberry shrubs during August-February to avoid the VELB flight season (March-July). c. 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 100 feet of the access road. d. Unload aggregate base for the access road surface at strategic locations more than 100 feet from elderberry shrubs and spread in a manner to minimize dust (e.g., wet road base during unloading). e. Install speed bumps at strategic intervals on the access road and implement a 15-mile-per-hour speed limit to minimize dust. f. Mowing may occur from July through April to reduce fire hazard. No mowing will occur within 5 feet of elderberry stems to avoid damaging shrubs (e.g., stripping away bark through careless use of mowing equipment).	prior to commencing construction. ▪ Schedule construction activities during August-February to the extent feasible. ▪ Fence and flag areas where elderberry plants are found in accordance with the 100-foot rule stated above. ▪ Unload aggregate base more than 100 feet from elderberry shrubs and spread in a manner to minimize dust (e.g., wet road base during unloading). ▪ Install speed bumps on the access road and limit speeds to 15 mph to minimize dust. ▪ Limit mowing to July-April to reduce fire hazard. No mowing will occur within 5 feet of elderberry stems. ▪ Construction personnel shall participate in a CEAT.	▪ Before construction ▪ During construction ▪ Before construction ▪ Before construction ▪ Before and during construction	

Mitigation Measure	Monitoring and Reporting Action	Monitoring Schedule	Completion Date and Initials
g. Construction personnel shall participate in a Contractor Environmental Awareness Training (CEAT). The CEAT will instruct work crews about the status of the VELB and the need to protect its elderberry host plant. The CEAT shall communicate the need to avoid damaging the elderberry plants and the possible penalties for not complying with these requirements. The engineering specifications and site plans will reference specific avoidance and protection measures for VELB and elderberry shrubs. h. 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. i. No insecticides, herbicides, fertilizers, or other chemicals that might harm the beetle or its host plant will be used within 100 feet of any elderberry plant. j. A qualified biologist will conduct weekly site inspections during the VELB flight season (March-July) to examine elderberry shrub condition. If impacts on elderberry shrubs are observed, work will stop immediately and USFWS will be notified. k. Continue to protect buffer areas upon completion of construction from adverse effects of the proposed project. Maintain fencing and signage as needed and	▪ Signs shall be erected every 50 feet along the edge of the avoidance area. ▪ Prohibit the use of insecticides, herbicides, fertilizers, or other chemicals that might harm the elderberry beetle or its host plant within 100 feet of any elderberry plant. ▪ A qualified biologist will conduct weekly site inspections during the VELB flight season (March-July) and will halt work and contact USFWS if impacts on elderberry shrubs are observed. ▪ Buffer areas will be protected through fencing and signage as needed, and post-construction erosion control and re-vegetation with appropriate native plants will be implemented, when necessary.		

Mitigation Measure		Monitoring and Reporting Action	Monitoring Schedule	Completion Date and Initials
	implement post-construction erosion control and re-vegetation with appropriate native plants, when necessary.			
BIO-3	**Conduct Nesting Bird Surveys for Work between February 15 and August 31 and Implement Avoidance Measures.** If vegetation clearing or ground-disturbing activities commence between February 15 and August 31, a qualified biologist shall 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, 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. A qualified biologist may identify an alternative buffer based on a site-specific evaluation and in consultation with CDFW. Work shall not commence within the buffer until fledglings are fully mobile and no longer reliant upon the nest or parental care for survival.	▪ Qualified biologist shall conduct a nesting bird survey within 2 weeks prior to work start if vegetation clearing or ground-disturbing activities begin between February 15 and August 31. ▪ Survey will be conducted again if a lapse in project-related work of 2 weeks or longer occurs. ▪ 300-ft buffer for non-listed raptors and special-status passerines and a 100-ft buffer for non-listed passerines will be established around nests if nesting birds are found. These buffers will be maintained until young have fledged. ▪ Qualified biologist may identify an alternative buffer based on a site-	▪ Before construction ▪ Before construction ▪ Before and during construction ▪ Before construction	

Mitigation Measure		Monitoring and Reporting Action	Monitoring Schedule	Completion Date and Initials
		specific evaluation and in consultation with CDFW.		
BIO-4	**Conduct Burrowing Owl Surveys, Establish Buffers, and Implement Passive or Active Relocation Techniques to Avoid or Minimize Impacts on Burrowing Owls.** Before initiating ground-disturbing activities, surveys for Burrowing Owls shall be conducted in accordance with protocols established in the *Staff Report on Burrowing Owl Mitigation* (California Department of Fish and Game [CDFG] 2012 or current version). If ground-disturbing activities are delayed or suspended for more than 30 days after the preconstruction surveys, the site shall be resurveyed. If Burrowing Owls are detected, disturbance to burrows shall be avoided during the nesting season (February 1 through August 31). Buffers shall be established around occupied burrows in accordance with guidance provided in the *Staff Report on Burrowing Owl Mitigation* (CDFG 2012). Buffers around occupied burrows shall be a minimum of 656 feet (200 meters) during the breeding season, and 160 feet (100 meters) during the non-breeding season. Outside of the nesting season (February 1 through August 31), passive relocation techniques may be implemented. Owls can be excluded from burrows within 160 feet of construction by installing one-way doors in burrow entrances. The work area shall be monitored daily for 1 week to confirm that owls have departed from burrows before any ground-disturbing activities. Where feasible, burrows shall be excavated using hand tools and refilled	▪ Conduct pre-construction surveys for Burrowing Owls in accordance with protocols established in the *Staff Report on Burrowing Owl Mitigation* (CDFG 2012 or current version). ▪ Surveys will be redone if ground-disturbing activities are delayed or suspended for more than 30 days after preconstruction surveys. ▪ Disturbance to any burrows, if detected, shall be avoided during the nesting season (February 1 through August 31). ▪ If Burrowing Owls are found, buffers shall be established around occupied burrows with a minimum of 656 feet during the breeding season, and 160 feet	▪ Before construction ▪ Before construction ▪ During construction ▪ Before construction ▪ During construction ▪ Before construction ▪ Before construction ▪ During construction	

Mitigation Measure		Monitoring and Reporting Action	Monitoring Schedule	Completion Date and Initials
	to prevent reoccupation. Sections of flexible plastic pipe shall be inserted into the tunnels during excavation to maintain an escape route for any animals inside the burrow. If occupied burrows cannot be avoided during the non-breeding season, new burrows shall be created or enhanced at a 1:1 ratio one week before implementation of passive relocation techniques, in adjacent habitat within the dispersal range of the owls. If Burrowing Owl habitat is enhanced or created, a monitoring and management plan shall be implemented to assess the effectiveness of the mitigation, subject to the approval of CDFW.	during the non-breeding season. ▪ Monitor work area daily for 1 week to confirm that owls have departed from burrows before any ground-disturbing activities if one-way doors are installed in burrow entrances. ▪ Where feasible, burrows shall be excavated using hand tools and refilled to prevent reoccupation. ▪ New burrows shall be created or enhanced at a 1:1 ration one week before implementation of passive relocation techniques and in an adjacent habitat within the dispersal range of the owls if occupied burrows cannot be avoided during non-breeding season. ▪ Implement monitoring and management plan to assess new burrow creation or		

Mitigation Measure		Monitoring and Reporting Action	Monitoring Schedule	Completion Date and Initials
		implementation mitigation, subject to approval of CDFW.		
BIO-5	**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, surveys for Swainson's Hawk and White-tailed Kite shall be conducted. 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 that smaller buffers will be 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.	▪ Surveys shall be conducted if construction occurs between February 1 and August 31. ▪ If nesting Swainson's Hawk or White-tailed Kite are detected, 0.5-mile 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 shall be maintained until qualified biologist has determined that the young have fledged.	▪ Before construction ▪ Before construction ▪ During construction	
BIO-6	**Conduct Preconstruction Surveys, Establish Buffers around Nests, and Implement Measures to Avoid or Minimize Impacts on Western Pond Turtle.**	▪ Preconstruction surveys shall be conducted by qualified biologist 14 days before and 24 hours before	▪ Before construction	

Mitigation Measure		Monitoring and Reporting Action	Monitoring Schedule	Completion Date and Initials
	Preconstruction surveys for Western Pond Turtle (WPT) shall be conducted by a qualified biologist 14 days before and 24 hours before the start of construction activities 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 the 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. 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.	the start of construction activities. ▪ Contact CDFW for authorization to capture and relocate any turtles found within the construction area. ▪ If active nests are identified in the work area during preconstruction surveying, (March to August), establish a 50-foot no-disturbance buffer around the active nest.	▪ Before and during construction ▪ Before construction	
BIO-7	**Conduct Preconstruction Surveys and Implement Measures to Avoid or Minimize Impacts on Special-status Bats.** A preconstruction survey shall be conducted by a qualified bat biologist between May 1 and July 15 to maximize detection of bats during maternity season. The survey	▪ Retain a qualified bat biologist to conduct surveys between May 1 and July 15 (maternity season).	▪ Before construction ▪ Before construction	

	Mitigation Measure	Monitoring and Reporting Action	Monitoring Schedule	Completion Date and Initials
	shall 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. 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, excluding bats from the roost site prior to the maternity season (May 1-July 15) during the year(s) of construction, or other measures developed by a qualified bat biologist that will minimize the disturbance to a level that would not cause roost abandonment.	▪ Bat biologist shall conduct surveys of Geer Road Bridge. ▪ If structures are occupied, ensure that measures to minimize impacts on the roost (established in Mitigation Measure BIO-7) are implemented. These measures include: minimize construction activity under the bridge during maternity season.	▪ Before and during construction	
BIO-8	**Implement Revegetation within Riparian Habitat and Sensitive Natural Communities Disturbed during Construction.** 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 diameter at breast height (dbh) or greater that are damaged or removed as 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. Revegetated areas shall be maintained and monitored to ensure a minimum of 65 percent survival of woody plantings after 3 years.	▪ Native woody species plants of 4 inches dbh will be replaced at a 1:1 ratio, and a 3:1 ratio for native trees of 24 inches dbh or greater. ▪ Maintain and monitor revegetated areas to ensure a minimum of 65% survival of woody plantings after 3 years.	▪ After construction ▪ After construction	

Mitigation Measure		Monitoring and Reporting Action	Monitoring Schedule	Completion Date and Initials
Cultural Resources				
CR-1	**Suspend Construction Immediately if Cultural Resources Are Discovered, Evaluate All Identified Cultural Resources for California Register of Historical Resources (CRHR) Eligibility, and Implement Appropriate Mitigation Measures for Eligible Resources.** Not all cultural resources are visible on the ground surface. As a result, construction of some of the proposed project facilities (e.g., the access road) has the potential to uncover buried archaeological materials. If any cultural resources, including structural features, unusual amounts of bone or shell, flaked or ground stone artifacts, historic-era artifacts, 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 shall be contacted. All cultural resources uncovered during construction within the project site shall be evaluated for eligibility for inclusion in the CRHR. Resource evaluations shall be conducted by individuals who meet the U.S. Secretary of the Interior's professional standards in archaeology, history, or architectural history, as appropriate. If any of the resources meet the eligibility criteria identified in Public Resources Code (PRC) Section 5024.1 or State California Environmental Quality Act (CEQA) Guidelines Section 21083.2(g), mitigation measures will be developed in consultation with SRWA and Native American tribes, if	▪ Halt construction activities in the event any cultural resources are encountered. ▪ If cultural resources are uncovered, retain a qualified individual who meets the U.S. Secretary of the Interior's standards to conduct resource evaluations. ▪ If uncovered resources meet eligibility criteria, implement mitigation measures consistent with State CEQA Guidelines Section 15126.4(b). ▪ If cultural resources are uncovered, mitigation measures will be developed in consultation with SRWA and Native American tribes before construction resumes.	▪ During construction ▪ During construction ▪ During construction ▪ During construction	

Mitigation Measure		Monitoring and Reporting Action	Monitoring Schedule	Completion Date and Initials
	appropriate, and implemented in accordance with State CEQA Guidelines Section 15126.4(b) before construction resumes.			
CR-2	**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. Any discovery of paleontological resources during construction shall be evaluated by a qualified paleontologist, as defined in *Standard Procedures for the Assessment and Mitigation of Adverse Impacts to Paleontological Resources* (Society of Vertebrate Paleontology 2010). If it is determined that the proposed project could damage a unique paleontological resource, mitigation shall be implemented in accordance with PRC Section 21083.2 and State CEQA Guidelines Section 15126.4. If avoidance is not feasible, the paleontologist shall develop a treatment plan, following the guidelines of the *Standard Procedures for the Assessment and Mitigation of Adverse Impacts to Paleontological Resources* (Society of Vertebrate Paleontology 2010) and in consultation with SRWA. Work shall not resume until	▪ In the event a paleontological item is discovered, halt construction activities within 50 feet of discovery site, or to the extent needed to protect the site, and notify SRWA. ▪ Ensure that qualified paleontologist evaluates the discovery. ▪ If the proposed project is determined to cause damage to a unique paleontological resource, mitigation shall be implemented. ▪ Paleontologist shall develop a treatment plan if avoidance is not feasible. ▪ Authorization will be required from SRWA before work resumes.	▪ Prior to construction ▪ During construction ▪ During construction	

Mitigation Measure		Monitoring and Reporting Action	Monitoring Schedule	Completion Date and Initials
	authorization is received from SRWA and any recommendations received from the qualified paleontologist are implemented.			
CR-3	**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 Native American Heritage Commission (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.	▪ In the event that human remains are encountered, halt work and contact the County Coroner. ▪ If discovered remains are those of a Native American, he or she must contact the NAHC by phone within 24 hours of making that determination. ▪ NAHC shall identify a MLD, upon which this person shall be notified and given at least 48 hours to inspect the site and propose treatment and disposition of the remains and any associated grave goods. ▪ Cooperation with MLD is required.	▪ During preparation of plans and specifications ▪ During construction ▪ During construction ▪ During construction	

	Mitigation Measure	Monitoring and Reporting Action	Monitoring Schedule	Completion Date and Initials
Geology and Soils				
	None Required			
Greenhouse Gas Emissions				
	None Required			
Hazards and Hazardous Materials				
TRANS-1	**Prepare and Implement a Construction Traffic Management Plan.** SRWA shall require that the construction contractor prepare and implement a construction traffic management plan to reduce potential interference with local emergency response plans, as well as to reduce potential traffic safety hazards and ensure adequate access for emergency responders. Development and implementation of this plan shall be coordinated with Stanislaus County. SRWA (or the construction contractor) 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 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. Identified haul routes will be recorded in the contract documents. ▪ Implement comprehensive traffic control measures, including scheduling of major truck trips and	▪ SRWA will ensure that the Construction Traffic Management Plan is implemented during construction. ▪ Identified haul routes will be recorded in the contract documents. ▪ Implement traffic control measures. ▪ Evaluate need for traffic control flaggers. ▪ Notify adjacent property owners and public safety personnel regarding timing of major deliveries, detours, and lane closures. ▪ Develop process for responding and tracking	▪ During construction ▪ During construction ▪ During construction ▪ Before and during construction ▪ Before construction ▪ Before construction ▪ Before construction ▪ Before construction	

Mitigation Measure		Monitoring and Reporting Action	Monitoring Schedule	Completion Date and Initials
	deliveries to avoid peak traffic hours, warning and detour signs (if required), lane closure procedures (if required), and cones for drivers. ▪ Evaluate the need to provide flaggers or temporary traffic control on Geer Road or at key intersections along the haul route during all or some portion of the construction period. ▪ Notify 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, including identification of an on-site traffic manager. Post 24-hour contact information for the traffic manager on the site. ▪ 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.	issues related to construction activity. ▪ Post 24-hour contact information for the traffic manager on site. ▪ Document road pavement conditions for all routes used for construction.		
Hydrology and Water Quality				
HYDRO-1	**Locate Staging and Storage Areas Outside of the Floodplain, and Winterize Areas Subject to Winter Inundation.**	▪ Provide in-construction drawings and specifications that staging/storage areas will	▪ Before construction	

Mitigation Measure		Monitoring and Reporting Action	Monitoring Schedule	Completion Date and Initials
	SRWA shall require in construction drawings and specifications that staging/storage areas for construction vehicles, equipment, parts, and materials, including fuels, lubricants, and solvents, will be located outside of the floodplain where inundation of high flows will not cause these items to be deposited into the river. In addition, project facilities located within the floodplain, and subject to inundation during periods of high flow in the Tuolumne River, such as the access road from Fox Grove Regional Park to the project site, and the proposed detention basin, will be winterized prior to the onset of the rainy season (October through April) to ensure that sediment or other contaminants are not discharged to surface waters in the event that the facilities are inundated. This may include decommissioning the detention basin (i.e., filling and revegetating), or use of other measures to stabilize the basin substrate. These measures shall also be incorporated into the SWPPP, as appropriate.	be located outside of the floodplain.		
Land Use and Planning				
	None Required			
Mineral Resources				
	None Required			
Noise				

Mitigation Measure		Monitoring and Reporting Action	Monitoring Schedule	Completion Date and Initials
NOISE-1	**Implement Noise Reduction Measures.** SRWA shall require its contractor(s) to implement noise-reducing measures to limit construction-related noise in the project area to the levels required by Table IV-24 of the *Stanislaus County General Plan* Noise Element (Table 3.12-3 of this Initial Study/Mitigated Negative Declaration [IS/MND]). Measures that may be implemented may include, but will not be limited to, the following: a. All noise-producing equipment and vehicles using internal combustion engines shall be equipped with mufflers; air-inlet silencers, where appropriate; and any other shrouds, shields, or noise-reducing features in good operating condition that meet or exceed original factory specification. Mobile or fixed “package” equipment (e.g., arc-welders, air compressors) shall be equipped with shrouds and noise control features that are readily available for those types of equipment. b. Mobile noise-generating equipment and machinery shall be shut off when not in use (i.e., idling time 5 minutes maximum). c. Stationary noise-generating equipment shall be located as far as practicable from noise-sensitive land uses.	▪ Equip all noise-producing equipment and vehicles using internal combustion engines with noise-dampening equipment such as mufflers and air-inlet silencers. ▪ Shut off mobile noise-generating equipment and machinery when not in use with an idle time of 5 minutes maximum. ▪ Locate stationary noise-generating equipment as far away as possible from noise-sensitive land uses. ▪ Utilize low-noise equipment when practicable. ▪ Utilize noise-reducing enclosures when possible. ▪ Utilize barriers when possible. ▪ Comply with noise minimization measures outlined in Mitigation Measure NOISE-1.	▪ Before construction ▪ During construction ▪ During construction ▪ During construction ▪ During construction ▪ During construction ▪ During construction	

Mitigation Measure		Monitoring and Reporting Action	Monitoring Schedule	Completion Date and Initials
	d. When practicable, the contractor shall select construction equipment that generates lower noise levels (e.g., drill rig instead of pile driver). e. When practicable, the contractor shall use noise-reducing enclosures around stationary noise-generating equipment. f. When practicable, the contractor shall construct barriers between noise sources and noise-sensitive land uses or utilize existing barrier features (terrain) or material stockpiles to block sound transmission.			
Population and Housing				
	None Required			
Public Services				
	None Required			
Recreation				
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 access is maintained to the park. SRWA or its contractor shall also consult with the County to identify any potential conflicts with proposed improvements/enhancements at Fox Grove Regional Park	▪ Coordinate construction activities with the Stanislaus County Parks and Recreation Department to ensure	▪ Before construction ▪ Before construction ▪ Before construction	

Mitigation Measure		Monitoring and Reporting Action	Monitoring Schedule	Completion Date and Initials
	(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 will not prevent or restrict the progress of these improvements.	access for routine maintenance activities. ▪ Consult with the County to identify any conflicts with the proposed improvements/ enhancements to the park. ▪ If conflicts are determined, SRWA and the County shall coordinate their schedules where project-related construction traffic will not prevent or restrict access to the progress of these improvements.		
Transportation and Traffic				
TRANS-1	**Prepare and Implement a Construction Traffic Management Plan.** SRWA shall require that the construction contractor prepare and implement a construction traffic management plan to reduce potential interference with local emergency response plans, as well as to reduce potential traffic safety hazards and ensure adequate access for emergency responders. Development and implementation of this plan shall be coordinated with	▪ SRWA will ensure that the Construction Traffic Management Plan is implemented during construction. ▪ Identified haul routes will be recorded in the contract documents.	▪ During construction ▪ During construction ▪ During construction ▪ Before and during construction	

Mitigation Measure		Monitoring and Reporting Action	Monitoring Schedule	Completion Date and Initials
	Stanislaus County. SRWA (or the construction contractor) 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 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. Identified haul routes will be recorded in the contract documents. ▪ 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 cones for drivers. ▪ Evaluate the need to provide flaggers or temporary traffic control on Geer Road or at key intersections along the haul route during all or some portion of the construction period. ▪ Notify 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, including identification of an on-site traffic manager. Post 24-hour contact information for the traffic manager on the site.	▪ Implement traffic control measures. ▪ Evaluate need for traffic control flaggers. ▪ Notify adjacent property owners and public safety personnel regarding timing of major deliveries, detours, and lane closures. ▪ Develop process for responding and tracking issues related to construction activity. ▪ Post 24-hour contact information for the traffic manager on site. ▪ Document road pavement conditions for all routes used for construction.	▪ Before construction ▪ Before construction ▪ Before construction Before construction	

	Mitigation Measure	Monitoring and Reporting Action	Monitoring Schedule	Completion Date and Initials
	▪ 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.			
Tribal Cultural Resources				
CR-1	**Suspend Construction Immediately if Cultural Resources Are Discovered, Evaluate All Identified Cultural Resources for California Register of Historical Resources (CRHR) Eligibility, and Implement Appropriate Mitigation Measures for Eligible Resources.** Not all cultural resources are visible on the ground surface. As a result, construction of some of the proposed project facilities (e.g., the access road) has the potential to uncover buried archaeological materials. If any cultural resources, including structural features, unusual amounts of bone or shell, flaked or ground stone artifacts, historic-era artifacts, 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 shall be contacted. All cultural resources uncovered during construction within the project site shall be evaluated for eligibility for inclusion in the CRHR. Resource evaluations shall be	▪ Halt construction activities in the event any cultural resources are encountered. ▪ If cultural resources are uncovered, retain a qualified individual who meets the U.S. Secretary of the Interior's standards to conduct resource evaluations. ▪ If uncovered resources meet eligibility criteria, implement mitigation measures consistent with State CEQA Guidelines Section 15126.4(b). ▪ If cultural resources are uncovered, mitigation measures will be developed	▪ During construction ▪ During construction ▪ During construction ▪ During construction	

Mitigation Measure		Monitoring and Reporting Action	Monitoring Schedule	Completion Date and Initials
	conducted by individuals who meet the U.S. Secretary of the Interior's professional standards in archaeology, history, or architectural history, as appropriate. If any of the resources meet the eligibility criteria identified in Public Resources Code (PRC) Section 5024.1 or State California Environmental Quality Act (CEQA) Guidelines Section 21083.2(g), mitigation measures will be developed in consultation with SRWA and Native American tribes, if appropriate, and implemented in accordance with State CEQA Guidelines Section 15126.4(b) before construction resumes.	in consultation with SRWA and Native American tribes before construction resumes.		
CR-3	**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	▪ In the event that human remains are encountered, halt work and contact the County Coroner. ▪ If discovered remains are those of a Native American, he or she must contact the NAHC by phone within 24 hours of making that determination. ▪ NAHC shall identify a MLD, upon which this person shall be notified and given at least 48 hours to inspect the site and propose treatment and disposition	▪ During preparation of plans and specifications ▪ During construction ▪ During construction ▪ During construction	

Mitigation Measure		Monitoring and Reporting Action	Monitoring Schedule	Completion Date and Initials
	Likely Descendent (MLD). The MLD designated by the Native American Heritage Commission (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.	of the remains and any associated grave goods. ▪ Cooperation with MLD is required.		
Utilities and Service Systems				
	None Required			

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