

CERES MAIN REGULATING RESERVOIR

Initial Study/Mitigated Negative Declaration

Prepared for
Turlock Irrigation District

March 2021



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Acronyms and Other Abbreviations

°F	degrees Fahrenheit
AB	Assembly Bill
BAU	business-as-usual
BMP	best management practice
BP	Before Present
Caltrans	California Department of Transportation
CARB	California Air Resources Board
CCIC	Central California Information Center
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CNPS	California Native Plant Society
CO	carbon monoxide
Construction General Permit	Construction General Permit for Discharges of Stormwater Associated with Construction Activities
cy	cubic yards
dB	decibel(s)
dBA	A-weighted decibel(s)
Delta	Sacramento–San Joaquin Delta
DOC	California Department of Conservation
DPM	diesel particulate matter
DWR	California Department of Water Resources
EC	electrical conductivity
ESA	Environmental Science Associates
<i>g</i>	the acceleration speed of gravity
I-5	Interstate 5
in/sec	inches per second
MBTA	Migratory Bird Treaty Act
Mw	moment magnitude
NO ₂	nitrogen dioxide
NO _x	oxides of nitrogen
NPDES	National Pollutant Discharge Elimination System
PM _{2.5}	particulate matter measuring 2.5 microns or less in diameter
PM ₁₀	particulate matter measuring 10 microns or less in diameter
PPV	peak particle velocity
PRC	Public Resources Code
proposed Project	Turlock Irrigation District Ceres Main Regulating Reservoir Project
proposed Project site	location of the Turlock Irrigation District Ceres Main Regulating Reservoir Project
RMS	root mean square

ROG	reactive organic gases
SJVAB	San Joaquin Valley Air Basin
SJVAPCD	San Joaquin Valley Air Pollution Control District
SO ₂	sulfur dioxide
SVP	Society of Vertebrate Paleontology
SWPPP	storm water pollution prevention plan
TAC	toxic air contaminant
TID	Turlock Irrigation District
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
VdB	vibration decibels
VMT	vehicle miles traveled

ENVIRONMENTAL CHECKLIST

Initial Study

1. **Project Title:** Turlock Irrigation District Ceres Main Regulating Reservoir Project
2. **Lead Agency Name and Address:** Turlock Irrigation District
333 E. Canal Drive
Turlock, CA 95381
3. **Contact Person and Phone Number:** Phil Govea
(209) 883-3447
4. **Project Location:** Stanislaus County
5. **Project Sponsor's Name and Address:** Same as above
6. **General Plan Designation(s):** Agriculture
7. **Zoning:** General Agriculture
8. **Description of Project:** See Project Description
9. **Surrounding Land Uses and Setting:** See Project Description
10. **Other public agencies whose approval is required:** See Table 1-1
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, is there a plan for consultation that includes, for example, the determination of significance of impacts to tribal cultural resources, procedures regarding confidentiality, etc.? Yes**

Note: Conducting consultation early in the CEQA process allows tribal governments, lead agencies, and project proponents to discuss the level of environmental review, identify and address potential adverse impacts to tribal cultural resources, and reduce the potential for delay and conflict in the environmental review process. (See Public Resources Code section 21080.3.2.) Information may also be available from the California Native American Heritage Commission's Sacred Lands File per Public Resources Code section 5097.96 and the California Historical Resources Information System administered by the California Office of Historic Preservation. Please also note that Public Resources Code section 21082.3(c) contains provisions specific to confidentiality.

Environmental Factors Potentially Affected

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a “Potentially Significant Impact” as indicated by the checklist on the following pages.

- | | | |
|--|---|---|
| <input type="checkbox"/> Aesthetics | <input type="checkbox"/> Agriculture and Forestry Resources | <input type="checkbox"/> Air Quality |
| <input type="checkbox"/> Biological Resources | <input type="checkbox"/> Cultural Resources | <input type="checkbox"/> Energy |
| <input type="checkbox"/> Geology/Soils | <input type="checkbox"/> Greenhouse Gas Emissions | <input type="checkbox"/> Hazards & Hazardous Materials |
| <input type="checkbox"/> Hydrology/Water Quality | <input type="checkbox"/> Land Use/Planning | <input type="checkbox"/> Mineral Resources |
| <input type="checkbox"/> Noise | <input type="checkbox"/> Population/Housing | <input type="checkbox"/> Public Services |
| <input type="checkbox"/> Recreation | <input type="checkbox"/> Transportation | <input type="checkbox"/> Tribal Cultural Resources |
| <input type="checkbox"/> Utilities/Service Systems | <input type="checkbox"/> Wildfire | <input type="checkbox"/> Mandatory Findings of Significance |

DETERMINATION: (To be completed by the Lead Agency)

On the basis of this initial study:

- ☐ 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.

DocuSigned by:

 97C8E05DAE46490...

Signature

3/9/2021

Date

Signature

Date

CHAPTER 1

Project Description

1.1 Introduction

Turlock Irrigation District (TID) owns and maintains more than 250 miles of gravity-fed canals and laterals that serve more than 4,500 irrigation customers. TID's canal system includes the Ceres Main Canal, which runs west from the township of Hickman into the city of Ceres and then south past the township of Keyes until it reaches Harding Road, where it turns west and ends at the Harding Drain. The Lower Lateral 3 Canal, also a canal in TID's system, draws water from the Ceres Main Canal south of Keyes Road and west of the township of Keyes.

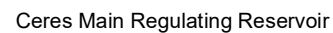
With the TID Ceres Main Regulating Reservoir Project (proposed Project), TID proposes to construct the Ceres Main Regulating Reservoir adjacent to the confluence of the Ceres Main Canal and the Lower Lateral 3 Canal to serve as a surface water regulation and storage facility. The proposed regulating reservoir would accept gravity-fed and pump-fed flows from the Ceres Main Canal during high flows, and then would pump the stored water back into the Ceres Main Canal and the Lower Lateral 3 Canal during water shortages in the canal system downstream of the reservoir.

1.2 Project Description

Project Location and Existing Facilities

The location of the proposed Project (referred to in this document as the *proposed Project site*) is a 38-acre parcel owned by TID that lies adjacent to the Ceres Main Canal and Lower Lateral 3 Canal, 0.25 mile south of Keyes Road and 0.25 mile west of Prairie Flower Road in Stanislaus County (**Figure 1-1**).

The proposed Project site is zoned agricultural and includes aging almond trees. Existing facilities on the site consist of a windmill, a 36-inch concrete pipeline that runs underground down the center of the property from north to south, and intermittent irrigation valves that provide water to the trees during the irrigation season.



Project Objectives

The objectives of the proposed Project are:

- Support water conservation by stabilizing flow rates in the Ceres Main Canal.
- Capture water that otherwise would spill to TID's drains.
- Reduce supplemental groundwater pumping.
- Improve operational flexibility.
- Improve customer service through stable flow rates, increased water supply reliability, and faster operational response times.

Project Construction

The proposed Project would involve removing existing facilities, almond trees, and the top 1 foot of native soil from the 38-acre proposed Project site. The total amount of cut (unsuitable fill material, cut to be used as fill for reservoir construction, and additional suitable fill to be off-hauled elsewhere) is 151,000 cubic yards (cy). The unsuitable cut material (approximately 61,000 cubic cy) would be hauled to TID's Shelansky's Yard, located on Bradbury Road north of the township of Delhi. The proposed Project site would then be graded and the regulating reservoir would be constructed by creating compacted earthen fill embankments (using approximately 50,000 cy of native cut) near the site's perimeter. The remaining 40,000 cy of clean dirt cut from the site would be hauled off-site to be used for local TID bank improvement projects. The interior banks and floor of the reservoir would be lined with 3-inch-thick fiber reinforced concrete.

A 30-foot by 40-foot reinforced concrete pump station, that would be powered by electricity, would be constructed at the southeast corner of the proposed Project site and would sit adjacent to and partially over a 12,400-square-foot (0.29-acre) depressed sump area in that corner of the reservoir. Two 72-inch-diameter, reinforced concrete pipes would connect the pump station and sump area to an adjacent 18-foot by 30-foot, reinforced concrete inlet and outlet structure on the Ceres Main Canal. A separate 30-inch pump line would run approximately 150 feet south from the pump station to an existing reinforced concrete canal structure below Drop 1 on the Lower Lateral 3 Canal at the southern border of the parcel. An approximately 5,000-foot-long security fence would be constructed around the proposed Project site to prevent unauthorized access.

The proposed Project would not involve in-water construction in either the Ceres Main Canal or the Lower Lateral 3 Canal. The proposed Project would have a design operational storage capacity of 220 acre-feet, a maximum storage capacity of 253 acre-feet, and a design inflow/outflow capacity of 100 cubic feet per second. See **Figure 1-2** for a plan view of the proposed Project.



SOURCE: Maxar, 2019; ESA, 2021

Ceres Main Regulating Reservoir

Figure 1-2
Project Site

Construction Equipment and Schedule

Construction activities for the proposed Project would last approximately 20 weeks and would use the following equipment:

- Excavators
- Graders
- Scrapers
- Rolling compactor
- Bulldozers
- Dump trucks
- Loaders
- Concrete mixer trucks
- Concrete pumper trucks
- Concrete laser screeds
- Cranes

1.3 Project Operations and Maintenance

Reservoir operation and maintenance activities would include driving to the site once every month to inspect the facility and assess reservoir integrity. Repairs would be completed as necessary.

Responsible Agencies, Permits, and Approvals

Table 1-1 summarizes the permits and/or approvals that may be required before construction of the proposed Project.

TABLE 1-1
REGULATORY REQUIREMENTS, PERMITS, AND AUTHORIZATIONS FOR PROJECT FACILITIES

Jurisdiction	Agency	Type of Approval
Federal Agencies	N/A	
State Agencies	Central Valley Regional Water Quality Control Board	NPDES General Permit for Stormwater Discharge Associated with Construction
	Cal/OSHA	Construction or Excavation Permit
Local Agencies	N/A	

NOTES:

Cal/OSHA = California Division of Occupational Safety and Health; N/A = not applicable; NPDES = National Pollutant Discharge Elimination System

SOURCE: Data compiled by Environmental Science Associates in 2021

1.4 Resources Not Considered in Detail

Land Use and Planning

The proposed Project site is located on a parcel adjacent to the Ceres Main Canal and the Lower Lateral 3 Canal in rural Stanislaus County. The site is zoned agricultural and includes aging almond trees. The proposed Project is not located in a city or community and would be consistent with existing land uses, plans, policies, and regulations. Therefore, no impacts related to land use and planning would occur.

Mineral Resources

The proposed Project is located on a site zoned agricultural, with aging almond trees. The proposed Project would not result in the loss of availability of a known mineral resource and would not affect a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan. No impacts on mineral resources would occur.

Population and Housing

The proposed Project would involve the construction and operation of a regulating reservoir and pump station that would accept gravity-fed flows from the Ceres Main Canal during unexpected high flows, and then would pump the stored water back into the Ceres Main Canal and the Lower Lateral 3 Canal during unexpected water shortages in the canal system downstream of the reservoir. The proposed Project would not include new homes. Construction would be short-term and would not require additional workers outside of the existing work force. Existing TID workers would be responsible for operation of the proposed Project. The proposed Project site is located on a parcel zoned for agriculture and would not displace any housing or people. Therefore, no impacts related to population and housing would occur.

Public Services

The proposed Project would not result in the construction of any new facilities or population that would generate a need for new or physically altered government facilities. Therefore, demand for police and fire protection and for community amenities such as schools and parks would not change relative to existing conditions, and no impacts would occur.

Recreation

The proposed Project would not increase demand for recreation facilities, as the Project proposes construction and operation of a regulating reservoir, pump station, and associated pipelines to regulate high and low flows in the Ceres Main Canal and the Lower Lateral 3 Canal. The proposed Project would not include recreational facilities or require the construction or expansion of recreational facilities. Therefore, no impacts on recreation would occur.

CHAPTER 2

Environmental Checklist

2.1 Aesthetics

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
I. AESTHETICS — Except as provided in Public Resources Code Section 21099, would the project:				
a) Have a substantial adverse effect on a scenic vista?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Create a new source of substantial light or glare which would adversely affect daytime or nighttime views in the area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

2.1.1 Environmental Setting

Aesthetic or visual resources include the “scenic character” of a particular region and site. Scenic features can be either natural (e.g., vegetation and topography) or man-made (e.g., historic structures). Areas that are more sensitive to potential effects are usually readily observable, such as land found adjacent to major roadways and hilltops.

Visual Environment

The proposed Project site is located in unincorporated Stanislaus County. The area is generally flat and used primarily for agriculture. Interstate 5 (I-5), the only officially designated scenic highway in Stanislaus County, is more than 14 miles to the west. The proposed Project site is surrounded by parcels with almond trees and no paved roads bound the property. The Ceres Main Canal borders the site on the north and east, and the Lower Lateral 3 Canal borders the site on the south.

2.1.2 Discussion

- a) **No Impact.** No designated scenic vistas or notable geographic features have been identified near the Project site in the Stanislaus County General Plan (Stanislaus County 2016). As a result, no impact on a scenic vista would occur.

- b) **No Impact.** A review of the current California Department of Transportation (Caltrans) Map of Designated Scenic Routes indicates one officially designated state scenic highway in Stanislaus County, which is I-5 (Caltrans 2019). I-5 is officially designated as a scenic route in Stanislaus County from the San Joaquin County line to the Merced County line; however, the interstate is more than 14 miles west of the proposed Project site. The proposed Project would not be visible to travelers on I-5 and would not affect the scenic quality of the landscape or intrude upon travelers' enjoyment of the view. Therefore, no impact on scenic resources would occur.
- c) **Less than Significant.** Construction of the proposed Project would result in the removal of existing facilities, almond trees, and the top 1 foot of native soil. Grading and excavation would occur to construct the regulating reservoir. After construction, the interior banks and floor of the reservoir would be lined with 3-inch-thick reinforced concrete. In addition, a pump station would be constructed in the southeast corner of the proposed Project site and fencing would be constructed around the site. Two segments of pipeline would be installed underground after construction. Although the proposed Project would alter the existing visual conditions of the Project site, the changes would be consistent with the area's agricultural nature, which includes canals and agricultural facilities. This impact would be less than significant.
- d) **No Impact.** Construction of the proposed Project would occur during the daytime and would not require nighttime lighting. The proposed Project does not propose any new light sources or reflective surfaces that would represent potential sources of glare. Therefore, no impact related to new sources of light and glare would occur.

2.1.3 References

California Department of Transportation (Caltrans). 2019. *List of Eligible and Officially Designated State Scenic Highways*. August 2019.

Stanislaus County. 2016. *Stanislaus County General Plan 2015*. Adopted on August 23, 2016, by the Board of Supervisors.

2.2 Agriculture and Forestry Resources

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
II. AGRICULTURE AND FORESTRY RESOURCES —				
In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. 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 of the California Resources Agency, to non-agricultural use?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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))?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Result in the loss of forest land or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

2.2.1 Environmental Setting

Stanislaus County is one of California's leading agricultural counties, with approximately 85 percent of the county's total land acreage currently being used for agricultural purposes (Stanislaus County 2016). Stanislaus County ranked fifth overall in California agricultural sales from 2018 to 2019 (Stanislaus County 2019).

The California Department of Conservation (DOC) administers the Farmland Mapping and Monitoring Program, California's statewide agricultural land inventory. Through this mapping effort, DOC classifies farmland under four categories: Prime Farmland, Farmland of Statewide Importance, Unique Farmland, and Farmland of Local Importance. Approximately 35 of the 38 acres of the proposed Project site are classified as Prime Farmland and the remaining 3 acres are classified as Unique Farmland (DOC 2021). The land adjacent to the proposed Project site is Prime Farmland (DOC 2021). There is no forest land in or adjacent to the proposed Project area. The proposed Project site is designated by the Stanislaus County General Plan as Agriculture.

The Williamson Act enables governments to enter into contracts with private landowners to restrict specific land parcels to agricultural or related open space use. The proposed Project site is currently in a Williamson Act contract, along with adjacent parcels, except the parcel to the east.

2.2.2 Discussion

a, b, e) **Less than Significant.** The proposed Project site is designated primarily as Prime Farmland and a small portion is designated as Unique Farmland. In addition, the site is currently in a Williamson Act contract. As of 2018, Stanislaus County contained 249,967 acres of Prime Farmland and 116,210 acres of Unique Farmland (DOC 2018). Implementing the proposed Project would result in a reduction of approximately 35 acres of Prime Farmland and 3 acres of Unique Farmland, or 0.014 percent of the county's Prime Farmland and 0.0026 percent of its Unique Farmland. Use of the 38-acre site for the proposed Project would also represent a reduction of 0.000697 percent of the 5,453,604 acres in Williamson Act contract in the San Joaquin Valley region in 2016 (DOC 2019).

The proposed Project would be considered a compatible agricultural use and improve the operation of the TID canals, which serve agricultural irrigation customers. The proposed regulating reservoir would accept gravity-fed flows from the Ceres Main Canal during unexpected high flows, and then would pump the stored water back into the Ceres Main Canal and the Lower Lateral 3 Canal during unexpected water shortages in the canal system downstream of the reservoir. The proposed Project would support water conservation, capture excess water, reduce supplemental groundwater pumping, improve operational flexibility, and improve customer service through stable flow rates, increased water supply, and faster operational response times. Therefore, impacts related to agriculture would be less than significant.

c, d) **No Impact.** The proposed Project site is not zoned as forest land or timberland or zoned for timberland production. Implementing the proposed Project would not conflict with existing zoning for, or cause rezoning of, forest land, timberland, or timberland zoned Timberland Production, nor would it result in the loss of forest land or conversion of forest land to non-forest use. Therefore, no impact would occur.

2.2.3 References

California Department of Conservation (DOC). 2018. *Stanislaus County 2004–2018 Land Use Summary*.

———. 2019. *The Williamson Act Status Report 2016-17*. Division of Land Resource Protection, Sacramento, CA. August 2019.

———. 2021. California Important Farmland Finder. Available: <https://maps.conservation.ca.gov/DLRP/CIFF/>. Accessed January 20, 2021.

Stanislaus County. 2016. *Stanislaus County General Plan and Airport Land Use Compatibility Plan Update, Draft Program Environmental Impact Report*. April 2016.

———. 2019. *Stanislaus County Agricultural Report 2019*. Agricultural Commissioner's Office and Sealer of Weights & Measures, Modesto, CA.

2.3 Air Quality

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
III. AIR QUALITY —				
Where available, the significance criteria established by the applicable air quality management district 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Expose sensitive receptors to substantial pollutant concentrations?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

2.3.1 Environmental Setting

General Climate and Meteorology

The proposed Project site is located in unincorporated Stanislaus County in the northern portion of the San Joaquin Valley Air Basin (SJVAB). The SJVAB is defined by the Sierra Nevada in the east (8,000–14,000 feet in elevation), the Coast Ranges in the west (averaging 3,000 feet in elevation), and the Tehachapi Mountains in the south (6,000–8,000 feet in elevation). The valley is basically flat, with a slight downward gradient to the northwest. The valley opens to the sea at the Carquinez Strait, where the waters of the Sacramento–San Joaquin Delta empty into San Francisco Bay.

The SJVAB has an inland Mediterranean climate, averaging more than 260 sunny days per year. The valley floor experiences 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 high 90s in the south. In the entire SJVAB, high daily temperature readings in summer average 95°F. Over the last 30 years, the SJVAB averaged 106 days per year of 90°F or hotter and 40 days per year of 100°F or hotter. The daily summer temperature variation can be as much as 30°F.

In winter, as the cyclonic storm track moves southward, the storm systems moving in from the Pacific Ocean bring a maritime influence to the SJVAB. The high mountains to the east prevent the cold, continental air masses of the interior from influencing the valley. Winters are mild and humid. Temperatures below freezing are unusual. Average high temperatures in the winter are in the 50s, but highs in the 30s and 40s can occur on days with persistent fog and low cloudiness. The average daily Winter low temperature is 45°F.

Criteria Air Pollutants

Concentrations of criteria air pollutants are used as indicators of ambient air quality conditions. Source types, health effects, and future trends associated with each air pollutant are described

below along with the most current attainment area designations and monitoring data for the Project area and vicinity.

Ozone

Short-term exposure to ozone can irritate the eyes and cause constriction of the airways. Besides causing shortness of breath, ozone can aggravate existing respiratory diseases such as asthma, bronchitis, and emphysema. Ozone is not emitted directly into the atmosphere, but is a secondary air pollutant produced in the atmosphere through a complex series of photochemical reactions involving reactive organic gases (ROG) and oxides of nitrogen (NO_x). ROG and NO_x are known as precursor compounds for ozone.

Significant ozone production generally requires ozone precursors to be present in a stable atmosphere with strong sunlight for approximately three hours. Ozone is considered both a secondary and regional air pollutant because it is not emitted directly by sources, but is formed downwind of sources of ROG and NO_x under the influence of wind and sunlight. Ozone concentrations tend to be higher in the late spring, summer, and fall, when the long sunny days combine with regional subsidence inversions to create conditions conducive to the formation and accumulation of secondary photochemical compounds, like ozone.

Carbon Monoxide

Ambient carbon monoxide (CO) concentrations normally are considered a local effect and typically correspond closely to the spatial and temporal distributions of vehicular traffic. Wind speed and atmospheric mixing also influence CO concentrations. Under inversion conditions, CO concentrations may be distributed more uniformly over an area that may extend some distance from vehicular sources. When inhaled at high concentrations, CO combines with hemoglobin in the blood and reduces the blood's oxygen-carrying capacity. This reduces the amount of oxygen that can reach the brain, heart, and other body tissues. This condition is especially critical for people with cardiovascular diseases, chronic lung disease, or anemia, and for fetuses.

CO concentrations have declined dramatically in California as a result of existing controls and programs. Most areas of the state, including the region surrounding the proposed Project site, have no problem meeting the state and federal standards for CO. Measurements and modeling for CO were important in the early 1980s when CO levels were regularly exceeded throughout California. In more recent years, CO measurements and modeling results have not been a priority in most California air districts, given the retirement of older polluting vehicles, lower emissions from new vehicles, and improvements in fuels.

Nitrogen Dioxide

Nitrogen dioxide (NO₂) is a reddish brown gas that is a byproduct of combustion processes. NO₂ may be visible as a coloring component of a brown cloud on high-pollution days, especially in conjunction with high ozone levels.

Vehicle internal combustion engines and industrial operations are the main sources of NO₂, which is an air quality concern because it acts a respiratory irritant and is a precursor of ozone. NO₂ is a major component of the group of gaseous nitrogen compounds commonly referred to as NO_x,

which are produced by fuel combustion in motor vehicles, industrial stationary sources, ships, aircraft, and rail transit. Typically, NO_x emitted from fuel combustion are in the form of nitric oxide and NO_2 . Nitric oxide is often converted to NO_2 when it reacts with ozone or undergoes photochemical reactions in the atmosphere. Therefore, NO_2 emissions from combustion sources are typically evaluated based on the amount of NO_x emitted from the source.

Sulfur Dioxide

Sulfur dioxide (SO_2) is a combustion product of sulfur or sulfur-containing fuels such as coal and diesel. SO_2 is also a precursor to the formation of atmospheric sulfate and particulate matter and contributes to the potential atmospheric formation of sulfuric acid that could precipitate downwind as acid rain. The concentration of SO_2 , rather than the duration of exposure, is an important determinant of respiratory effects. Exposure to high SO_2 concentrations may result in edema of the lungs or the glottis and respiratory paralysis.

Particulate Matter

PM_{10} and $\text{PM}_{2.5}$ are particulate matter measuring 10 microns or less in diameter and 2.5 microns or less in diameter, respectively. (A micron is one-millionth of a meter.) PM_{10} and $\text{PM}_{2.5}$ represent fractions of particulate matter that can be inhaled into the air passages and the lungs and can cause adverse health effects. Some sources of particulate matter, such as wood burning in fireplaces, demolition, and construction activities, are more local, while others, such as vehicular traffic, have a more regional effect. Very small particles of certain substances (e.g., sulfates and nitrates) can cause lung damage directly, or can contain adsorbed gases (e.g., chlorides or ammonium) that may be injurious to health. Particulates also can damage materials and reduce visibility.

Large dust particles (those with a diameter greater than 10 microns) settle out rapidly and are easily filtered by the human breathing passages. This large dust is of more concern as a soiling nuisance than as a health hazard. The remaining fraction, PM_{10} and $\text{PM}_{2.5}$, are a health concern, particularly when present at levels exceeding the federal and state ambient air quality standards. $\text{PM}_{2.5}$ (including diesel exhaust particles) is thought to have greater effects on health, because these particles are so small and thus can penetrate to the deepest parts of the lungs. Scientific studies have suggested links between fine particulate matter and numerous health problems including asthma, bronchitis, and acute and chronic respiratory symptoms such as shortness of breath and painful breathing. Diesel particulate is carcinogenic and considered a toxic as discussed below. Recent studies have shown an association between morbidity (suffering from a disease or medical condition) and mortality (premature deaths) and daily concentrations of particulate matter in the air. Children are more susceptible to the health risks of PM_{10} and $\text{PM}_{2.5}$ because their immune and respiratory systems are still developing.

Mortality studies conducted since the 1990s have shown a statistically significant direct association between mortality and daily concentrations of particulate matter in the air. Despite important gaps in scientific knowledge and continued reasons for some skepticism, a comprehensive evaluation of the research findings provides persuasive evidence that exposure to fine particulate air pollution has adverse effects on cardiopulmonary health (Pope and Dockery 2006). The California Air Resources Board (CARB) has estimated that achieving the ambient air

quality standards for PM₁₀ could reduce premature mortality rates by 6,500 cases per year (CARB 2002).

Lead

Ambient lead concentrations meet both the federal and state standards in the proposed Project area. Lead has a range of adverse neurotoxin health effects, and was formerly released into the atmosphere primarily via leaded gasoline products. The phase-out of leaded gasoline in California caused atmospheric lead levels to decrease.

The proposed Project would not introduce any new sources of lead emissions; consequently, quantification of lead emissions is not required, and such emissions are not evaluated further in this analysis.

Toxic Air Contaminants

Non-criteria air pollutants, or toxic air contaminants (TACs), are airborne substances that are capable of causing short-term (acute) and/or long-term (chronic or carcinogenic, i.e., cancer-causing) adverse effects on human health. TACs include both organic and inorganic chemical substances. They may be emitted by a variety of common sources including gasoline stations, automobiles, diesel engines, dry cleaners, industrial operations, and painting operations. TACs are regulated differently than criteria air pollutants at both the federal and state levels. At the federal level, these airborne substances are referred to as hazardous air pollutants. The state list of TACs identifies 243 substances and the federal list of hazardous air pollutants identifies 189 substances.

CARB identified diesel particulate matter (DPM) as a TAC in 1998, based primarily on evidence demonstrating cancer effects in humans. Exhaust from diesel engines includes hundreds of different gaseous and particulate components, many of which are toxic. Mobile sources such as trucks and buses are among the primary sources of diesel emissions, and DPM concentrations are higher near heavily traveled highways and rail lines with diesel locomotive operations. The risk from DPM, as determined by CARB, declined from 750 in 1 million in 1990 to 570 in 1 million in 1995; by 2000, CARB estimated the average statewide cancer risk from DPM to be 540 in 1 million (CARB 2009). These calculated cancer risk values from ambient air exposure can be compared against the lifetime probability of being diagnosed with cancer in the United States, from all causes, which is more than 40 percent (based on a sampling of 17 regions nationwide), or greater than 400,000 in 1 million, according to the National Cancer Institute (NCI 2012).

Odorous Emissions

Odors are generally regarded as an annoyance rather than a health hazard. Manifestations of a person's reaction to odors can range from psychological (e.g., irritation, anger, or anxiety) to physiological (e.g., circulatory and respiratory effects, nausea, vomiting, and headache). The ability to detect odors varies considerably among the population and is quite subjective. People may have different reactions to the same odor. An odor that is offensive to one person may be perfectly acceptable to another (e.g., coffee roaster). An unfamiliar odor is more easily detected and is more likely to cause complaints than a familiar one. In a phenomenon known as odor

fatigue, a person can become desensitized to almost any odor and recognition occurs only with an alteration in the intensity.

The occurrence and severity of odor impacts depend on the nature, frequency, and intensity of the source; wind speed and direction; and the sensitivity of receptors. Odor impacts should be considered for any proposed new odor sources located near existing receptors, and for any new sensitive receptors located near existing odor sources. Generally, increasing the distance between the receptor and the odor source will mitigate odor impacts.

Sensitive Receptors

Some receptors are considered more sensitive than others to air pollutants. The reasons for this greater sensitivity include preexisting health problems, proximity to an emissions source, or duration of exposure to air pollutants. Schools, hospitals, and convalescent homes are considered relatively sensitive to poor air quality because children, elderly people, and the infirm are more susceptible to respiratory infections and other air quality-related health problems than the general public. Residential areas are also sensitive to poor air quality because people usually stay home for extended periods of time. The closest sensitive receptor to the proposed Project site is a residence approximately 870 feet to the north.

2.3.2 Discussion

- a) **Less than Significant.** The applicable San Joaquin Valley Air Pollution Control District (SJVAPCD) air quality plans are the *2016 Ozone Plan for 2008 8-hour Ozone Standard* (SJVAPCD 2016) and *2018 Plan for the 1997, 2006, and 2012 PM_{2.5} Standards* (SJVAPCD 2018). The current SJVAPCD set of rules prescribes feasible control measures for SJVAPCD sources. SJVAPCD plans to achieve the California and national ambient air quality standards by the earliest practicable date as a result of local emissions reductions. Exceedance of SJVAPCD's current adopted thresholds of significance for criteria pollutant emissions would conflict with or obstruct the implementation of the *2016 Ozone Plan for 2008 8-hour Ozone Standard* and *2018 Plan for the 1997, 2006, and 2012 PM_{2.5} Standards*.

As described below under checklist item b), the proposed Project's emissions of NO_x (an ozone precursor) would not be expected to exceed SJVAPCD's significance threshold during construction activities. Construction of the proposed Project would be short-term and temporary and the increase in criteria pollutant emissions from off- and on-road equipment exhaust would not conflict with the applicable air quality plans. Because construction emissions are not expected to exceed the SJVAPCD or General Conformity *de minimis* thresholds for NO_x, this construction impact would be less than significant.

The proposed Project would result in an increase in criteria pollutant emissions, generated by employee trips during inspection activities. However, the increase in employee trips is not expected to be substantial. In addition, the pumps used for operation of the proposed Project would be electrically powered; therefore, no stationary-source emissions would occur at the proposed Project site. Thus, operation and maintenance of

the proposed Project would not conflict with or obstruct implementation of the *2016 Ozone Plan for 2008 8-hour Ozone Standard* and *2018 Plan for the 1997, 2006, and 2012 PM_{2.5} Standards*. This operational impact would be less than significant

- b) **Less than Significant with Mitigation Incorporated.** Construction activities are short term and typically result in combustion exhaust emissions (e.g., vehicle and equipment tailpipe emissions), including ozone precursors (ROG and NO_x), and PM from combustion and in the form of dust (fugitive dust). Emissions of ozone precursors and PM are primarily a result of the combustion of fuel from on-road vehicles and off-road equipment.

Pollutant emissions associated with construction of the Projects would be generated from the following general construction activities: (1) ground disturbance from grading, excavation, etc.; (2) vehicle trips from workers traveling to and from the construction areas; (3) trips associated with delivery of construction supplies to, and hauling debris from, the construction areas; and (4) fuel combustion by on-site construction equipment. These construction activities would temporarily generate air pollutant emissions, including dust and fumes. The amount of emissions that would be generated on a daily basis would vary, depending on the intensity and types of construction activities that would occur simultaneously. Overall, construction activities associated with the Projects components would occur over a period of approximately 20 weeks, starting in the early summer of 2021.

Project construction emissions were estimated using CalEEMod version 2016.3.2 and are presented in **Table 2.3-1**. The table shows total construction emissions, which occur within a year, and compares them to the SJVAPCD significance thresholds for construction.

**TABLE 2.3-1
UNMITIGATED PROJECT CONSTRUCTION EMISSIONS**

Project Construction Activities	Estimated Construction Emissions (tons/year)					
	CO	NO _x	ROG	SO _x	PM ₁₀	PM _{2.5}
2021	1.41	2.43	0.19	<0.01	0.14	0.09
SJVAPCD Significance Threshold	100	10	10	27	15	15
Exceed Threshold?	No	No	No	No	No	No

SOURCE: Appendix B (ESA 2021)

As shown in Table 2.3-1, the annual construction emissions of CO, NO_x, ROG, SO_x, PM₁₀, and PM_{2.5} would not exceed the SJVAPCD significance thresholds for construction. For projects in which construction-related activities would disturb equal to or greater than 1-acre of surface area, SJVAPCD recommends that demonstration of receipt of a District approved Dust Control Plan or Construction Notification form and the implementation of fugitive dust control measures. The fugitive dust control measures are included in **Mitigation Measure AQ-1** and would reduce fugitive dust emissions from construction activities, which would be implemented as part of the proposed Project (SJVAPCD

2015). Therefore, with implementation of **Mitigation Measure AQ-1**, this impact would be less than significant for construction.

The proposed Project would include vehicle trips during inspection activities. However, the employee trips required for periodic facility inspection to assess reservoir integrity would not be significantly more than existing employee trips, and would result in negligible increases in emissions. Therefore, this impact would be less than significant.

Mitigation Measure

Mitigation Measure AQ-1: TID and/or its contractor shall implement the following fugitive dust control standards for construction emissions (SJVAPCD 2015):

- (1) Apply water to unpaved surfaces and areas
- (2) Use non-toxic chemical or organic dust suppressants on unpaved roads and traffic areas
- (3) Limit or reduce vehicle speed on unpaved roads and traffic areas
- (4) Maintain areas in a stabilized condition by restricting vehicle access
- (5) Install wind barriers
- (6) During high winds, cease outdoor activities that disturb the soil.
- (7) Keep bulk materials sufficiently wet when handling
- (8) Store and handle materials in a three-sided structure
- (9) When storing bulk materials, apply water to the surface or cover the storage pile with a tarp
- (10) Do not overload haul trucks. Overloaded trucks are likely to spill bulk materials
- (11) Cover haul trucks with a tarp or other suitable cover. Or, wet the top of the load enough to limit visible dust emissions
- (12) Clean the interior of cargo compartments on emptied haul trucks prior to leaving a site
- (13) Prevent trackout by installing a trackout control device
- (14) Clean up trackout at least once a day. If along a busy road or highway, clean up trackout immediately
- (15) Monitor dust-generating activities and implement appropriate measures for maximum dust control

c) **Less than Significant.**

Construction

Construction of the proposed Project would result in the short-term generation of DPM emissions from the use of off-road diesel equipment and from construction material deliveries and debris removal using on-road heavy-duty trucks. As discussed above, DPM is a complex mixture of chemicals and particulate matter that has been identified by the State of California as a TAC with potential cancer and chronic non-cancer effects. The dose to which receptors are exposed is the primary factor affecting health risk from TACs. Dose is a function of the concentration of a substance in the environment and the duration of exposure to the substance. According to the Office of Environmental Health Hazard Assessment (OEHHA), health risk assessments (HRAs), which determine the exposure of sensitive receptors to TAC emissions, should be based on a 30-year exposure period when assessing TACs (such as DPM) that have only cancer or chronic non-cancer health effects (OEHHA 2015).

As identified above there is a resident located 870 feet to the north of the proposed project site. The increase in lifetime cancer risk and chronic non-cancer hazard index from exposure to DPM emissions generated by construction activities associated with the Ceres Main Regulating Reservoir at this nearest off-site sensitive receptor are shown in **Table 2.3-2**. Table 2.3-2 also includes the thresholds of significance that the SJVAPCD uses for evaluation of health risk impacts. Details of modeling assumptions and model outputs are included in Appendix B.

TABLE 2.3-2
UNMITIGATED CONSTRUCTION HEALTH RISKS AT NEAREST OFF-SITE SENSITIVE RECEPTOR

Project Component	Lifetime Excess Cancer Risk (per million)	Chronic Non-Cancer Hazard Index
Residential Receptor	16.5	0.11
SJVAPCD Significance Threshold	20	1.0
Significant Impact	No	No

SOURCE: Table compiled by ESA, 2021.

As shown in Table 2.3-2, increase in lifetime cancer risk and non-cancer hazard index from exposure to construction DPM emissions from the Project at the nearest receptor would be less than the respective SJVAPCD thresholds. This impact would be less than significant.

Operations

Normal operation of the proposed Project would consist of periodic facility inspection to assess reservoir integrity. However, the employee trips required for periodic facility inspection would not be significantly more than existing employee trips. As a result, the impact related to exposure of sensitive receptors to substantial TAC emissions from the proposed Project operations would be less than significant.

- d) **Less than Significant.** Construction of the proposed Project would last for approximately 20 weeks total, up to approximately 8 hours per day. The use of on-site diesel-powered

equipment can produce odorous exhaust; however, equipment use at the proposed Project site would be temporary, and potential odors would not affect a substantial number of people in the vicinity, given the rural nature of the Project site. Therefore, construction of the proposed Project would not create objectionable odors that would affect a substantial number of people, and odor impacts would be less than significant.

As a general matter, the types of land use development that pose potential odor problems include wastewater treatment plants, refineries, landfills, composting facilities, and transfer stations. Because the proposed Project would consist of a regulating reservoir, pump station, and associated pipelines and no uses known to pose potential odor problems would occupy the site, operation of the proposed Project would not create objectionable odors that would affect a substantial number of people. This impact would be less than significant.

2.3.3 References

- California Air Resources Board (CARB). 2002. *Staff Report: Public Hearing to Consider Amendments to the Ambient Air Quality Standards for Particulate Matter and Sulfates*. May 3, 2002.
- . 2009. *The California Almanac of Emissions and Air Quality—2009 Edition*. Chapter 5, “Toxic Air Contaminant Emissions, Air Quality and Health Risk.”
- National Cancer Institute (NCI). 2012. “Lifetime Risk (Percent) of Being Diagnosed with Cancer by Site and Race/Ethnicity, Both Sexes: 18 SEER Areas, 2007–2009.” Table 1.14 in *SEER Cancer Statistics Review 1975–2009*. Available: https://seer.cancer.gov/archive/csr/1975_2009_pops09/results_merged/topic_lifetime_risk_diagnosis.pdf. Accessed January 21, 2021.
- Office of Environmental Health Hazards Assessments (OEHHA). *Air Toxics Hot Spots Program Risk Assessment Guidelines: Guidance Manual for Preparation of Health Risk Assessments*. Adopted February, 2015.
- Pope, C. A. III, and D. W. Dockery. 2006. Health Effects of Fine Particulate Air Pollution: Lines that Connect. *Journal of the Air & Waste Management Association* 56(6):709–742.
- San Joaquin Valley Air Pollution Control District (SJVAPCD). 2015. *Guidance for Assessing and Mitigation Air Quality Impacts*. Adopted March 19, 2015.
- . 2016. *2016 Ozone Plan for 2008 8-Hour Ozone Standard*. Adopted June 16, 2016.
- . 2018. *2018 Plan for the 1997, 2006, and 2012 PM 2.5 Standards*. November 15, 2018.

2.4 Biological Resources

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
IV. BIOLOGICAL RESOURCES — 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 California Department of Fish and Game or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

2.4.1 Environmental Setting

Data Sources/Methodology

Biological resources within the proposed Project site were identified by an Environmental Science Associates (ESA) biologist through field reconnaissance on December 7, 2020. Before the survey, the biologist reviewed pertinent literature and conducted database queries for the proposed Project site and surrounding area. The survey was conducted on foot and existing habitat types, plants, and wildlife species within and adjacent to the proposed Project site were recorded. The biological resources survey focused on identifying habitat for special-status plant and wildlife species, although general habitat conditions were noted and incidental species observations were recorded. The survey included a floristic inventory of all vascular plants observed.

Habitats present on the proposed Project site were compared to the habitat requirements of the regionally occurring special-status species and used to determine which of these species have the potential to occur on or adjacent to the site. Plant nomenclature follows *The Jepson Manual: Vascular Plants of California (Second Edition)* (Baldwin et al. 2012), as revised by *Jepson eFlora* (Jepson Flora Project 2020). Common names of plant species are derived from *The Jepson Manual* or Calflora (2020).

The following primary data sources were referenced for this section:

- U.S. Fish and Wildlife Service (USFWS) *List of Federal Endangered and Threatened Species that May Occur in the Project Area* (USFWS 2020) (see **Appendix A**).
- California Natural Diversity Database, Rarefind 5 computer program (v5.2.14) (CDFW 2020) (see **Appendix A**).
- California Native Plant Society (CNPS) Inventory of Rare and Endangered Plants (v8-03 0.39) (CNPS 2020) (see **Appendix A**).
- California Department of Fish and Wildlife (CDFW) Special Vascular Plants, Bryophytes, and Lichens List (CDFW 2019).
- CDFW Special Animals List (CDFW 2018).

Regional Setting

The proposed Project site is located in the San Joaquin Valley, near the San Joaquin River. The surrounding area is dominated by agricultural land, primarily orchards.

Project Site Setting

The proposed Project site occurs on Section 36 of Township 4 South, Range 9 East of the Ceres, California U.S. Geological Survey 7.5-minute series quadrangle. The approximate centroid of the site is 37°32'37.61" North, 120°56'11.49" West. The topography of the proposed Project site is flat, with elevations ranging from approximately 85 feet in the southwest to 100 feet in the northeast.

Vegetation/Habitat Types

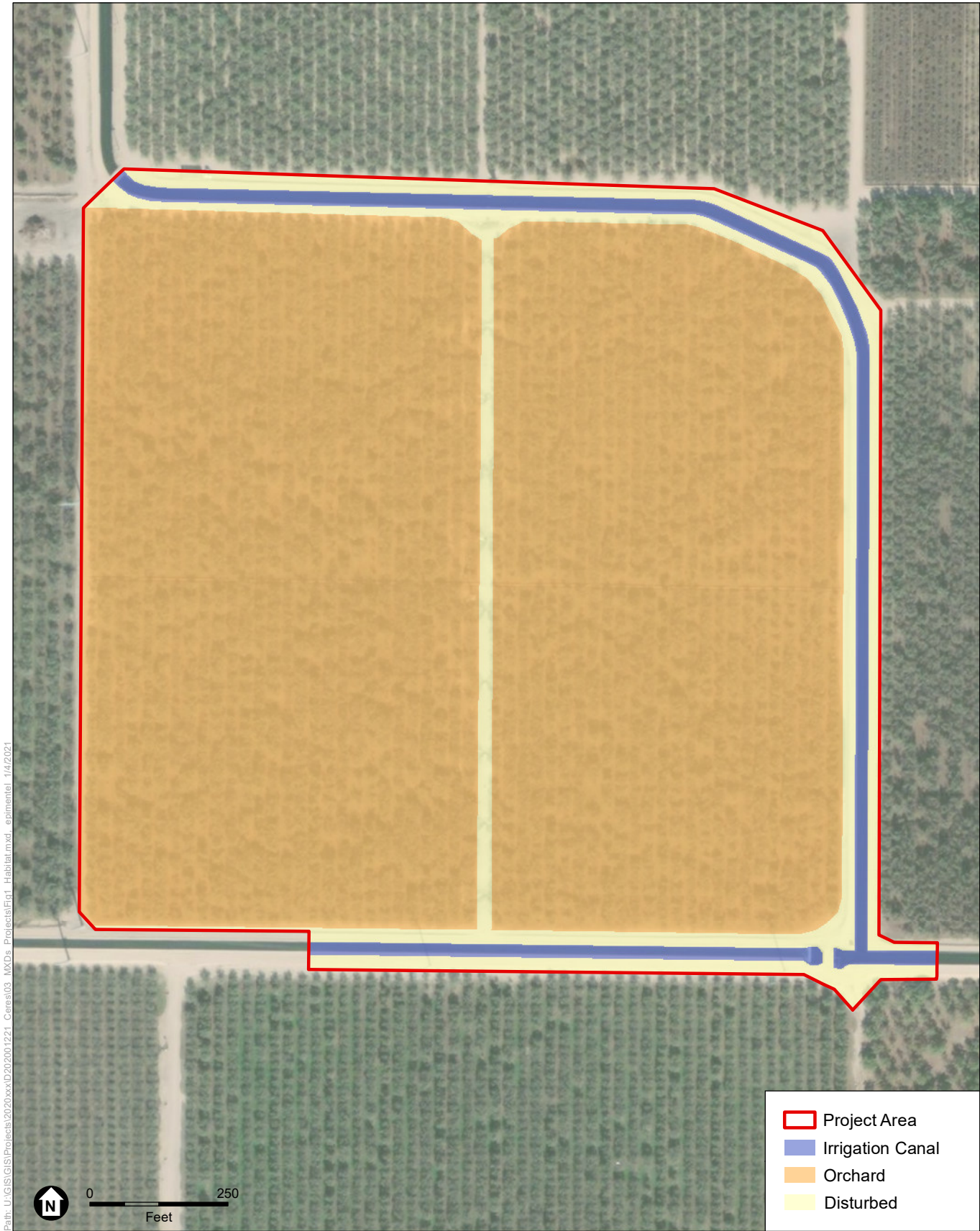
Habitat types within the proposed Project site consist of orchard, ruderal/developed areas, and man-made, cement-lined irrigation canal (**Figure 2-1**).

Orchard

Most of the Project site supports an almond orchard. Rows of almond trees were present during the December 7, 2020, biological resources survey. Herbaceous vegetation beneath the almond trees includes short-sock destroyer (*Torilis nodosa*), redstem filaree (*Erodium cicutarium*), greenstem filaree (*E. moschatum*), turkey-mullein (*Croton setigerus*), Kentucky blue grass (*Poa pratensis* ssp. *pratensis*), cheeseweed (*Malva parviflora*), tumbleweed (*Amaranthus albus*), peppergrass (*Lepidium nitidum*), and flax-leaved horseweed (*Erigeron bonariensis*).

Ruderal/Developed

Ruderal areas consist of graded dirt roads along the perimeter of the fallow orchard and east to west through the center of the proposed Project site, as well as irrigation pipes extending north to south through the center of the site. Developed areas consist of concrete and metal floodgates and a windmill in the center of the proposed Project site. The ruderal/developed areas mostly lack vegetation. Where vegetated, these areas support weedy species adapted to recurring disturbances such as cheeseweed and redstem filaree.



SOURCE: Maxar, 2019; ESA, 2020

Ceres Main Regulating Reservoir

Figure 2-1
Habitat Map



Irrigation Canal

Man-made, cement-lined irrigation canals border the north, east, and south sides of the proposed Project site. During the December 7, 2020, biological resources survey, the canals mostly lacked vegetation and contained no water or, where water was present, contained less than 3 inches of ponded water. When present, vegetation included hydrilla (*Hydrilla verticillata*).

Sensitive Natural Communities including Waters of the United States and Waters of the State

Sensitive natural communities are vegetation communities of limited distribution statewide or within a county or region and are often vulnerable to the environmental impacts of projects. Sensitive natural communities include those that are of special concern to resource agencies, such as CDFW, the U.S. Army Corps of Engineers (USACE), or USFWS, or are afforded specific consideration through the California Environmental Quality Act (CEQA), Section 1602 of the California Fish and Game Code, Section 404 of the federal Clean Water Act, and the Porter-Cologne Water Quality Control Act.

The man-made, cement-lined canals are aquatic features that were constructed in uplands to transfer irrigation water to the proposed Project site and surrounding orchards. These canals are not likely considered waters of the United States. In addition, projects impacting modified or channelized portions of previously natural streams and rivers such as canals, aqueducts, and water conveyance ditches may require a CDFW Lake and Streambed Alteration (LSAA) notification. However, features that were created in uplands and are hydrologically disconnected from downstream rivers, streams, or lakes generally do not require an LSAA Notification. The cement-lined ditches bordering the proposed Project site were constructed in uplands, experience artificial hydrology as a result of controlled transport of irrigation water to agricultural land throughout the region, do not appear to drain to downstream rivers based on a review of aerial imagery, and lack emergent vegetation and a riparian corridor. Therefore, impacts to the cement-lined irrigation ditch is unlikely to require an LSAA Notification.

Wildlife Movement Corridors

Wildlife movement corridors are considered an important ecological resource by various agencies (CDFW and USFWS) and under CEQA. Movement corridors may provide favorable locations for wildlife to travel between different habitat areas such as foraging sites, breeding sites, cover areas, and preferred summer and winter range locations. They may also function as dispersal corridors, allowing animals to move between various locations within their range.

Topography and other natural factors, in combination with urbanization, can fragment or separate large open-space areas. Areas of human disturbance or urban development can fragment wildlife habitats and impede wildlife movement between areas of suitable habitat. This fragmentation creates isolated “islands” of vegetation that may not provide sufficient area to accommodate sustainable populations, and can adversely affect genetic and species diversity. Movement corridors mitigate the effects of this fragmentation by allowing animals to move between remaining habitats, which in turn allows depleted populations to be replenished and promotes genetic exchange between separate populations.

The proposed Project site does not serve as a wildlife movement corridor because it is surrounded on all sides by orchard land.

Special-Status Species

Special-status species are regulated under the federal and California Endangered Species Acts or other regulations or are species that are considered sufficiently rare by the scientific community to qualify for such listing. These species are classified under the following categories:

- (1) Species listed or proposed for listing as threatened or endangered under the federal Endangered Species Act (Code of Federal Regulations Title 50, Section 17.12 [listed plants] and Section 17.11 [listed animals], and various notices in the *Federal Register* [proposed species]).
- (2) Species that are candidates for possible future listing as threatened or endangered under the federal Endangered Species Act (*Federal Register* Title 61, Number 40, February 28, 1996).
- (3) Species listed or proposed for listing by the State of California as threatened or endangered under the California Endangered Species Act (California Code of Regulations Title 14, Section 670.5).
- (4) Plants listed as rare or endangered under the California Native Plant Protection Act (California Fish and Game Code, Section 1900 et seq.).
- (5) Animal species of special concern to CDFW.
- (6) Animals fully protected under the California Fish and Game Code (Sections 3511 [birds], 4700 [mammals], and 5050 [reptiles and amphibians]).
- (7) Species that meet the definitions of rare and endangered under CEQA. CEQA Section 15380 provides that a plant or animal species may be treated as “rare or endangered” even if not on one of the official lists (State CEQA Guidelines, Section 15380).
- (8) Plants considered by CNPS and CDFW to be “rare, threatened or endangered in California” (California Rare Plant Rank 1A, 1B, and 2 in CNPS 2020).

A list of regionally occurring special-status species in the vicinity of the proposed Project site was compiled based on data identified in the California Natural Diversity Database (CDFW 2020) and the USFWS (2020) and CNPS (2020) databases. A table documenting special-status species, identifying their general habitat requirements, and assessing their potential to occur at the proposed Project site is provided in **Appendix A**.

The “Potential to Occur” categories are defined as follows:

- **Unlikely:** The proposed Project site does not support suitable habitat for a particular species and/or the site is outside of the species’ known range.
- **Low Potential:** The proposed Project site only provides limited and/or low-quality habitat for a particular species. In addition, the known range for a particular species may be outside of the immediate Project site.

- **Medium Potential:** The proposed Project site and/or immediate vicinity provides suitable habitat for a particular species.
- **High Potential:** The proposed Project site and/or immediate Project area provide ideal habitat conditions for a particular species and/or known populations occur within or in the vicinity of the Project site.
- **Present:** The species was observed during the biological resources survey within the proposed Project site.

Conclusions regarding habitat suitability and species occurrence are based on the analysis of existing literature and databases described previously and known habitats occurring within the proposed Project site and regionally. Species considered unlikely or with low potential are not discussed further. As described in Appendix A, no special-status plants or wildlife species have the potential to occur within the proposed Project site because of a lack of suitable habitat. Nesting birds regulated by the federal Migratory Bird Treaty Act (MBTA) or California Fish and Game Code have the potential to occur within the proposed Project site.

Critical Habitat

Critical habitat is defined in Section 3(5)A of the federal Endangered Species Act as the specific portions of the geographic area occupied by the species in which physical or biological features essential to the conservation of the species are found, and that may require special management considerations or protection. Specific areas outside of the geographic area occupied by the species may also be included in critical habitat designations upon a determination that such areas are essential for the conservation of the species.

The proposed Project site does not occur within designated critical habitat for any federally listed species.

2.4.2 Discussion

- a) **Less than Significant with Mitigation Incorporated.** Nesting birds regulated by the MBTA and the California Fish and Game Code may be affected either directly or indirectly by implementation of the proposed Project.

Under the MBTA, most bird species and their nests and eggs are protected from injury or death. California Fish and Game Code Sections 3503, 3503.5, and 3800 prohibit the possession, incidental take, or needless destruction of birds and their nests and eggs.

Portions of the proposed Project site and the immediate vicinity have the potential to support nesting birds. Direct impacts on nesting birds or their habitat could occur during initial Project activities such as clearing and grubbing. Nesting birds could be adversely affected if active nesting, roosting, or foraging sites are either removed or exposed to a substantial increase in noise or human presence during proposed Project activities. The impact would be less than significant if construction activities were to occur during the non-breeding season (i.e., from September 1 through January 31). However, construction activities conducted during the breeding season between February 1 and August 31 could

adversely affect nesting birds. Therefore, this impact would be potentially significant. Implementation of **Mitigation Measure BIO-1** would reduce the impact to a less-than-significant level.

Mitigation Measures

Mitigation Measure BIO-1: Protect Special-Status Birds and Nesting Birds Regulated by the MBTA and California Fish and Game Code. For construction activities occurring during the nesting season (February 1 to August 31), a qualified biologist shall conduct a preconstruction pedestrian-level survey for active nests within 500 feet of the Project site. The survey shall be conducted using binoculars, from publicly accessible areas outside of the Project site, no more than seven days before the start of construction.

If no active nests are identified during the preconstruction survey, the biologist shall submit a letter report to TID for its records, and no further mitigation is necessary. If construction activities are to begin before February 1, it is assumed that no birds will nest on the Project site during active construction activities and no preconstruction surveys are required. If construction stops for a period of one week or longer at any time during the nesting season, preconstruction surveys shall be conducted before construction resumes.

If active nests are found within 500 feet of the Project site, TID shall wait until the nests are not active to start construction; or, if construction must occur while the nest is active, a qualified biologist shall prepare a plan for avoidance of impacts on active nests. The plan shall identify measures to avoid disturbance of the active nests. Depending on the conditions specific to each nest, and the relative location and rate of construction activities, it may be feasible for construction to occur as planned. Appropriate measures may include restricting construction activities, establishing appropriate buffers based on the species nesting, or having a qualified biologist with stop-work authority monitor the nest for evidence that parental behavior has changed during construction. The biologist would have the authority to stop work in the event that the birds are exhibiting unusual nesting behavior based on the construction activities. If construction activities are halted because of adverse effects on breeding efforts, construction shall not resume until a qualified biologist has determined that the birds have fledged and are no longer reliant upon the nest or parental care for survival.

- b) **Less than Significant.** The proposed Project would alter 0.01 acre of man-made cement-lined irrigation canals by constructing a reservoir to increase water supply and storage. The irrigation canals are not likely considered a sensitive natural community or waters of the United States. Therefore, this impact would be less than significant.
- c) **No Impact.** The proposed Project site does not contain state or federally protected wetlands. Therefore, no impact on wetlands would occur.
- d) **No Impact.** The proposed Project would not interfere with the movement of wildlife or fish and would not result in any barriers to the movement of upland wildlife. Therefore, no impact on wildlife movement would occur.

- e) **No Impact.** Stanislaus County does not have a tree ordinance. The proposed Project is consistent with policies in the Conservation/Open Space Element of the *Stanislaus County General Plan* (Stanislaus County 2015) that generally promote the conservation and improvement of riparian areas for wildlife. Therefore, no impact related to a conflict with local policies or ordinances for biological resources would occur.
- f) **No Impact.** No adopted habitat conservation plans, natural community conservation plans, or other local conservation plans cover the proposed Project site. Therefore, no impact would occur.

2.4.3 References

- Baldwin, B. G., D. H. Goldman, D. J. Keil, R. Patterson, T. J. Rosatti, and D. H. Wilken (eds.). 2012. *The Jepson Manual: Vascular Plants of California*, second edition. Berkeley: University of California Press.
- Calflora. 2020. Information on California Plants for Education, Research and Conservation [web application]. Berkeley, CA: The Calflora Database. Available: <http://www.calflora.org/>.
- California Department of Fish and Wildlife (CDFW). 2018. *Special Animals List*. Natural Diversity Database. Sacramento, CA. Periodic publication. Data dated November 2018.
- . 2019. *Special Vascular Plants, Bryophytes, and Lichens List*. Natural Diversity Database. Sacramento, CA. Quarterly publication. Data dated March 2019.
- . 2020. California Natural Diversity Database (CNDDB) Rarefind 5 computer program (v5.2.14). Biogeographic Data Branch, Sacramento, CA.
- California Native Plant Society (CNPS). 2020. *Inventory of Rare and Endangered Plants* (online edition, v8.03 0.39). Sacramento, CA.
- Jepson Flora Project (eds.). 2020. *Jepson eFlora*. Available: <http://ucjeps.berkeley.edu/eflora/>. Last updated December 21, 2020.
- Stanislaus County. 2015. *Stanislaus County General Plan*. Adopted August 23, 2016, by the Board of Supervisors.
- U.S. Fish and Wildlife Service (USFWS). 2020. *List of Federal Endangered and Threatened Species that May Occur in the Project Area*. Sacramento Fish and Wildlife Office, Endangered Species Division. Sacramento, CA.

2.5 Cultural Resources

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
V. CULTURAL RESOURCES — Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Disturb any human remains, including those interred outside of dedicated cemeteries?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

2.5.1 Discussion

- a) **No Impact.** A significant impact would occur if the proposed Project would cause a substantial adverse change to a historical resource through physical demolition, destruction, relocation, or alteration of the resource. As used in this analysis, *historical resources* refer to historic-era architectural resources or the built environment, including buildings, structures, and objects.

Staff members at the Central California Information Center (CCIC) of the California Historical Resources Information System completed a records search of the proposed Project site and surrounding one-half-mile area on December 2, 2020 (File No. 11577N). CCIC records indicate that one cultural resources investigation has been completed in the Project vicinity (Chavez 1976). The proposed Project site itself had not been subject to an intensive pedestrian survey. Two historic-era structural resources have been recorded adjacent to the site: the TID Ceres Main Canal (P-50-000073/CA-STA-426H) and the TID Laterals No. 3 (P-50-000072). Neither resource would be affected by the proposed Project. Various segments of the canals have been recorded and have been evaluated as not eligible for listing in the National Register of Historic Places or the California Register of Historical Resources and are not considered historical resources (Lawson 2009; Far Western 2019).

The proposed Project site is undeveloped, without any buildings or structures that could be considered historical resources as defined by CEQA Section 15064.5. Because no historical resources are located on or adjacent to the Project site, no impact on historical resources of the built environment would occur.

- b) **Less than Significant with Mitigation Incorporated.** Archaeological resources can be considered both historical resources, according to State CEQA Guidelines Section 15064.5, and unique archaeological resources, as defined in Public Resources Code (PRC) Section 21083.2(g). A significant impact could occur if the proposed Project would cause a substantial adverse change to an archaeological resource through physical demolition, destruction, relocation, or alteration of the resource.

Based on the results of the CCIC records search, no prehistoric or historic-period archaeological resources have been previously recorded within the proposed Project site or within a one-half-mile radius of the site.

Geologic maps show the proposed Project site mapped as Holocene-era Modesto Riverbank Formation, which is designated as the Dinuba sandy loam (NRCS 2020). Dinuba sandy loams consist of moderately deep, moderately well-drained soils formed in alluvium derived from mixed but dominantly granitic rocks. Dinuba sandy loams are on areas of low terraces commonly adjacent to channels, floodplains, or low stream terraces. In areas that have not been leveled, many shallow deranged drainage ways may dissect the area. Slopes are 0–1 percent. The geologic context indicates that there is moderate potential for archaeological resources buried by natural alluvial processes to be present in the proposed Project site; however, given the previous ground disturbance from agricultural activities, archaeological materials buried less than 4 feet below the existing surface would have been exposed during tilling.

On December 7, 2020, an ESA archaeologist conducted an intensive pedestrian survey of the proposed Project site, walking it in 30-foot transects and inspecting all exposed ground surface areas for evidence of cultural materials. The soil is composed of sand throughout—very dry along the roads around the canals, but moist within the orchard, which is situated 4–6 feet lower than the ditch access roads. The soil used around the TID canal system appears to be fill sand with gravel.

Overall ground visibility during the survey was 95 percent, as the grasses in the orchard had been kept low and detritus obstructed some portions of the ground surface. No cultural materials, either prehistoric (e.g., midden soils, artifacts, or faunal remains) or historic-era (e.g., glass or ceramic fragments or foundation remnants), were identified on the proposed Project site.

Based on the background research, the environmental context, and the negative results of the surface survey, the proposed Project has a low potential for uncovering archaeological resources. Despite this low potential, the discovery of archaeological materials during ground-disturbing activities cannot be entirely discounted. Because of the potential for an inadvertent discovery of archaeological resources during project implementation, this impact would be potentially significant. The impact would be reduced to a less-than-significant level with implementation of **Mitigation Measure CUL-1**, which requires avoidance measures or appropriate treatment of archaeological resources, if any such resources are discovered during Project construction.

Mitigation Measure CUL-1: Implement Avoidance or Appropriate Treatment Measures in Case of an Unanticipated Discovery of Archaeological Resources. If prehistoric or historic-era archaeological resources are encountered during Project implementation, all construction activities within 100 feet shall halt, and a qualified archaeologist, defined as an archaeologist meeting the U.S. Secretary of the Interior's Professional Qualification Standards for Archeology, shall inspect the find within 24 hours of the discovery and notify TID of their initial assessment.

Prehistoric archaeological materials might include obsidian and chert flaked-stone tools (e.g., projectile points, knives, scrapers) or toolmaking debris; culturally darkened soil (“midden”) containing heat-affected rocks, artifacts, or shellfish remains; stone milling equipment (e.g., mortars, pestles, handstones, or milling slabs); and battered stone tools, such as hammerstones and pitted stones. Historic-era materials might include building or structure footings and walls, and deposits of metal, glass, and/or ceramic refuse.

If TID determines, based on recommendations from a qualified archaeologist and a Native American representative (if the resource is Native American-related), that the resource may qualify as a historical resource or unique archaeological resource (as defined in State CEQA Guidelines Section 15064.5) or as a tribal cultural resource (as defined in PRC Section 21080.3), the resource shall be avoided if feasible. Consistent with Section 15126.4(b)(3), this avoidance may be accomplished by planning construction to avoid the resource; incorporating the resource within open space; capping and covering the resource; or deeding the site into a permanent conservation easement.

If avoidance is not feasible, TID shall consult with appropriate Native American tribes (if the resource is Native American-related) and other appropriate interested parties to determine treatment measures to avoid, minimize, or mitigate any potential impacts on the resource pursuant to PRC Section 21083.2 and State CEQA Guidelines Section 15126.4. Measures shall include documenting the resource and may include conducting data recovery (according to PRC Section 21083.2), if deemed appropriate, or other actions such as treating the resource with culturally appropriate dignity and protecting the resource’s cultural character and integrity (according to PRC Section 21084.3).

- c) **Less than Significant with Mitigation Incorporated.** There is no indication from the archival research that any part of the proposed Project site has been used for human burial purposes in the recent or distant past. Therefore, it is unlikely that human remains would be encountered during construction of the proposed Project. Despite this low potential, the possibility of inadvertent discovery cannot be entirely discounted. Therefore, this impact would be potentially significant. The impact would be reduced to a less-than-significant level with implementation of **Mitigation Measure CUL-2**, which requires avoidance measures or appropriate treatment of human remains, if any are accidentally discovered during Project construction.

Mitigation Measure CUL-2: Implement Avoidance or Appropriate Treatment Measures in Case of an Unanticipated Discovery of Human Remains. In the event of discovery or recognition of any human remains during Project implementation, construction activities within 100 feet of the find shall cease until the Stanislaus County Coroner has been contacted to determine that no investigation of the cause of death is required. The coroner shall contact the Native American Heritage Commission within 24 hours, if the coroner determines the remains to be Native American in origin. The Native American Heritage Commission will then identify the person or persons it believes to be the most likely descendant from the deceased Native American (PRC Section 5097.98), who in turn will make recommendations to TID regarding the appropriate means of

treating the human remains and any associated funerary objects (State CEQA Guidelines Section 15064.5[d]).

2.5.2 References

Chavez, D. 1976. *An Archaeological Reconnaissance of the Robert's Ferry Reservoir and Water Extraction and Conveyance Systems, Stanislaus County, California: Phase II*. Prepared for URS. On file (ST-00859) at Central California Information Center, California State University, Stanislaus.

Far Western Anthropological Research Group Inc. (Far Western). 2019. Department of Parks and Recreation 523 form for P-50-000073. On file at Central California Information Center, California State University, Stanislaus.

Lawson, N. 2009. Department of Parks and Recreation 523 form for P-50-000072. On file at Central California Information Center, California State University, Stanislaus.

U.S. Natural Resources Conservation Service (NRCS). 2020. Web Soil Survey. Available: <https://websoilsurvey.nrcs.usda.gov/app/>. Accessed December 9, 2020.

2.6 Energy

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
VI. ENERGY — Would the project:				
a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

2.6.1 Discussion

Consistent with Public Resources Code Section 21100(b)(3), this impact analysis evaluates the potential for construction, operation, and maintenance of the proposed Project to result in a substantial increase in energy demand and wasteful use of energy. The impact analysis is informed by Appendix G of the State CEQA Guidelines. The potential impacts are analyzed based on an evaluation of whether construction energy use estimates for the proposed Project would be considered excessive, wasteful, or inefficient.

- a) **Less than Significant.** During construction of the proposed Project, fuel consumption would result from the use of construction tools and equipment, truck trips to haul material, and construction workers' commutes to and from the proposed Project site. Construction of the proposed Project is anticipated to last for 20 weeks.

Construction activities and corresponding fuel energy consumption would be temporary and localized, as the use of diesel fuel and heavy-duty equipment would not be a long-term condition of the proposed Project. In addition, the proposed Project has no unusual characteristics that would require using construction equipment or haul vehicles that would be less energy efficient than equipment and vehicles used at similar construction sites elsewhere in California. In conclusion, construction-related fuel consumption by the proposed Project would not result in inefficient, wasteful, or unnecessary energy use compared with other construction sites in the region. This impact would be less than significant.

Once construction is complete, operational emissions would be minimal and related to periodic facility inspection to assess reservoir integrity. Because the proposed Project's operational impacts on energy resources would be driven primarily by limited maintenance activities, energy use would be negligible. This impact would be less than significant.

- b) **Less than Significant.** The transportation sector is a major end user of energy in California, accounting for approximately 39 percent of the state's total energy consumption in 2018 (U.S. Energy Information Administration 2020). Energy is also consumed in connection with construction and maintenance of transportation infrastructure, such as streets, highways, freeways, rail lines, and airport runways. In 2015, California's 30 million vehicles consumed more than 15 billion gallons of

gasoline and more than 4.2 billion gallons of diesel, making California the second largest consumer of gasoline in the world (CEC 2016).

Existing standards for transportation energy are promulgated through the regulation of fuel refineries and products, such as the Low Carbon Fuel Standard, which mandated a 10 percent reduction in the non-biogenic carbon content of vehicle fuels by 2020. In 2018, the Board approved amendments to the regulation, which included strengthening and smoothing the carbon intensity benchmarks through 2030 in-line with California's 2030 GHG emission reduction target enacted through SB 32, adding new crediting opportunities to promote zero emission vehicle adoption, alternative jet fuel, carbon capture and sequestration, and advanced technologies to achieve deep decarbonization in the transportation sector. Other regulatory programs with emissions and fuel efficiency standards have been established by the U.S. Environmental Protection Agency and the California Air Resources Board (CARB), such as Pavley II/Low Emission Vehicle III from California's Advanced Clean Cars Program and the Heavy-Duty (Tractor-Trailer) Greenhouse Gas Regulation. CARB has set a goal of 4.2 million Zero Emission Vehicles on the road by the year 2030 (CARB 2016). Further, construction sites need to comply with state requirements designed to minimize idling and associated emissions, which also minimizes fuel use. Specifically, idling of commercial vehicles and off-road equipment is limited to five minutes in accordance with the Commercial Motor Vehicle Idling Regulation and the Off-Road Regulation (California Code of Regulations Title 13, Section 2485).

Stanislaus County has not implemented energy action plans. The proposed Project is consistent with the state goals and would not impede progress toward achieving these goals.

The proposed Project would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency or impede progress toward achieving any goals and targets. This impact would be less than significant.

2.6.2 References

California Air Resources Board (CARB). 2016. *Mobile Source Strategy*. May 2016. Available: <https://www.arb.ca.gov/planning/sip/2016sip/2016mobsrc.htm>. Accessed January 19, 2021.

California Energy Commission (CEC). 2016. Summary of California Vehicle and Transportation Energy. Available: http://www.energy.ca.gov/almanac/transportation_data/summary.html#vehicles. Last updated June 2016. Accessed January 19, 2021.

U.S. Energy Information Administration. 2020. California State Profile and Energy Estimates: Consumption by Sector. Available: <https://www.eia.gov/state/?sid=CA#tabs-2>. Last updated January 16, 2020. Accessed January 19, 2021.

2.7 Geology and Soils

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
VII. GEOLOGY AND SOILS — Would the project:				
a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
ii) Strong seismic ground shaking?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iii) Seismic-related ground failure, including liquefaction?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
iv) Landslides?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Result in substantial soil erosion or the loss of topsoil?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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 on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

2.7.1 Environmental Setting

The proposed Project site is located within the Great Valley Geomorphic province. The province includes the area known as the Great Central Valley of California, which extends approximately 400 miles north to south and 50 miles east to west. The Great Central Valley is encompassed by the Coast Ranges (metamorphic), the Klamath Ranges (metamorphic), the Cascade Range (volcanic), and the Sierra Nevada (granitic and metamorphic). The majority of rocks and deposits found within the province are sedimentary. According to the U.S. Geological Survey, sedimentary rocks are formed from preexisting rocks or pieces of once-living organisms. They form from deposits that accumulate on the earth's surface. Sedimentary rocks often have distinctive layering or bedding.

Several known faults cross Stanislaus County. These faults are located in the western part of the counties and in the Diablo Range west of I-5. Surface fault rupture (or disruption at the ground surface as a result of fault activity) and seismic ground shaking are considered primary seismic

hazards by the State of California (Stanislaus County 2016a). The Ortigalita Fault crosses the southwest corner of Stanislaus County. Other nearby active faults outside of the county are the Greenville Fault Zone and the Corral Hollow–Carnegie Fault Zone, located east of Livermore in the Coast Ranges. The Marsh Creek–Greenville Fault Zone is a northwest-trending strike-slip fault zone along the western side of the Diablo Range that is approximately 55 miles long (Stanislaus County 2016a). The Corral Hollow–Carnegie Fault Zone is a relatively short fault segment, subparallel to and east of the Greenville Fault Zone.

The Ortigalita Fault Zone is situated approximately 26 miles southwest of the proposed Project site. The region of the Ortigalita Fault closest to the proposed Project site is estimated to have an approximately 1.89 percent chance of a moment magnitude (Mw) 6.7 or greater earthquake over the next 30 years (WGCEP 2015). The Marsh Creek–Greenville Fault Zone is situated approximately 32 miles west of the proposed Project site. The region of the Marsh Creek–Greenville Fault closest to the Project site is estimated to have an approximately 3.56 percent chance of an Mw 6.7 or greater earthquake over the next 30 years (WGCEP 2015). A designation of “active” means the fault has shown movement in the last 11,700 years (during the Holocene) and is sufficiently well defined. The proposed Project site is not located within and does not cross a delineated Alquist-Priolo earthquake fault zone (CGS 2010).

The nearest historically active fault (with movement in the last 700,000 years) is the Great Valley (Orestimba) Fault, located approximately 16 miles southwest of the proposed Project site. The region of the Great Valley Fault closest to the proposed Project site is estimated to have an approximately 0.26 percent chance of a Mw 6.7 or greater earthquake over the next 30 years (WGCEP 2015).

Unlike surface rupture, ground shaking is not confined to the trace of a fault, but rather propagates into the surrounding areas during an earthquake. The intensity of ground shaking typically diminishes with distance from the fault, but ground shaking may be locally amplified and/or prolonged by some types of substrate materials.

The ground-shaking hazard in Stanislaus County ranges from low to moderate. The hazard is highest on the west side of the county, which is closest to active faults as described previously. The ground-shaking hazard progressively decreases across the east side of the county as the distance from the active faults increases (Stanislaus County 2016a).

The proposed Project site is located in an area distant from known, active faults and experiences lower levels of shaking less frequently. In most earthquakes, only weaker masonry buildings would be damaged. However, very infrequent earthquakes could cause strong shaking. Based on a probabilistic seismic hazard map that depicts the peak horizontal ground-acceleration values exceeded at a 10 percent probability in 50 years, the probabilistic peak horizontal ground-acceleration value for the Project area is approximately 0.25 *g* (where *g* equals the acceleration speed of gravity) (Stanislaus County 2016b). As a point of comparison, probabilistic peak horizontal ground-acceleration values for the San Francisco Bay Area range from 0.4 *g* to more than 0.8 *g*.

The soil on the proposed Project site is composed primarily of Dinuba sandy loam (NRCS 2021). Dinuba sandy loam soils are moderately well drained with slow permeability, very slow runoff, and slight water erosion hazard.

Slope failures, commonly referred to as landslides, include many phenomena that involve the downslope displacement and movement of material, triggered by either static forces (i.e., gravity) or dynamic forces (i.e., earthquakes). Exposed rock slopes undergo rockfalls, rockslides, or rock avalanches, while soil slopes experience shallow soil slides, rapid debris flows, and deep-seated rotational slides. The California Geological Survey has not designated any part of Stanislaus County as a Zone of Required Investigation for landslide hazard (Stanislaus County 2016a). The greatest risk for landslides is in the western portion of the county within the Coast Ranges.

Liquefaction is the process in which the soil is transformed to a fluid form during intense and prolonged ground shaking. The areas most prone to liquefaction are those that are water saturated and consist of relatively uniform sands that are of loose to medium density. As with landslides, the potential for liquefaction is highest in the western part of Stanislaus County (Stanislaus County 2016a).

Expansive soils can undergo significant volume change (shrink and swell) as their soil moisture content varies. Soil moisture content can change as a result of many factors, including perched groundwater, landscape irrigation, rainfall, and utility leakage. The soils in the Project area have a slight shrink-swell potential.

Subsidence occurs when a large land area settles as a result of oversaturation or extensive withdrawal of groundwater, oil, or natural gas. No areas of substantial subsidence have been identified in Stanislaus County (Stanislaus County 2016a).

2.7.2 Discussion

- a.i) **No Impact.** The proposed Project site is not located within an Alquist-Priolo earthquake fault zone. Therefore, no impact related to rupture of a known earthquake fault would occur.
- a.ii) **Less than Significant.** Earthquakes associated with the active faults in the Project area may cause strong ground shaking at the proposed Project site. Movement on the Ortigalita Fault could result in a maximum credible earthquake of 7.0 (WGCEP 2015). The region of the Great Valley Fault closest to the proposed Project site is estimated to have an approximately 0.26 percent chance of a Mw 6.7 or greater earthquake over the next 30 years (WGCEP 2015). Based on a probabilistic seismic hazard map that depicts the peak horizontal ground-acceleration values exceeded at a 10 percent probability in 50 years, the probabilistic peak horizontal ground-acceleration value for the Project area is approximately 0.25 g (where g equals the acceleration speed of gravity) (Stanislaus County 2016a).

The proposed Project would be constructed to industry standards to protect against potential adverse geological impacts of seismic activity and other site-specific soils and

geology constraints, including compliance with the California Building Code and American Society of Civil Engineers standards. With compliance with these standards, the impact related to seismic shaking would be less than significant.

- a.iii, iv) **No Impact.** As discussed in Section 2.7.1, *Environmental Setting*, the Project area is not known to be susceptible to landslides or liquefaction. In addition, the proposed Project would be subject to compliance with the California Building Code and American Society of Civil Engineers standards. Therefore, no impact would occur.
- b) **Less than Significant.** Soils in the Project area have low potential for erosion; however, earthmoving and grading activities during construction of the proposed Project have the potential to cause erosion. Routine Project operations and maintenance activities are not anticipated to result in substantial soil erosion or loss of topsoil. Construction would be required to adhere to best management practices (BMPs) associated with the National Pollutant Discharge Elimination System (NPDES) Construction General Permit for Discharges of Stormwater Associated with Construction Activities, also known as the Construction General Permit, to control sediment in stormwater runoff from the Project area (see checklist item a in Section 2.10, *Hydrology and Water Quality*). Therefore, impacts of Project construction related to soil erosion would be less than significant.
- c, d) **Less than Significant.** As described previously, the soils in the Project area are not known to have liquefaction potential, and they have a slight shrink-swell potential. In addition, no new buildings or habitable structures would be constructed as part of the proposed Project. Therefore, no impact on life or property would occur.
- e) **No Impact.** The proposed Project would not include the use of septic tanks or alternative wastewater disposal systems. Therefore, no impact would occur.
- f) **Less than Significant with Mitigation Incorporated.** Paleontological resources are the fossilized evidence of past life found in the geologic record. Despite the tremendous volume of sedimentary rock deposits preserved worldwide, and the enormous number of organisms that have lived through time, the preservation of plant or animal remains as fossils is extremely rare. Because of the infrequency of fossil preservation, fossils—particularly vertebrate fossils—are considered nonrenewable resources. Because of their rarity and the scientific information they can provide, fossils are highly significant records of ancient life.

Rock formations that are considered paleontologically sensitive are those rock units that have yielded significant vertebrate or invertebrate fossil remains (SVP 2010). Stanislaus County has high potential for containing paleontological resources (Stanislaus County 2016a). If any previously unrecorded paleontological resources were encountered during project construction and any were found to be a unique paleontological resource, any impact of the proposed Project on the resource could be potentially significant. Any such potentially significant impacts would be reduced to a less-than-significant level by implementing Mitigation Measures GEO-1 and GEO-2.

Mitigation Measures

Mitigation Measure GEO-1: Train Construction Workers Regarding

Paleontological Resources. A qualified paleontologist, defined as one meeting the Society of Vertebrate Paleontology (SVP) Standards (SVP 2010), shall present a paleontological resources sensitivity training to Project construction workers before the start of ground-disturbing activities (e.g., vegetation removal, pavement removal). The training session shall focus on recognition of the types of paleontological resources that could be encountered within the Project site and the procedures to follow if they are found. TID shall retain documentation demonstrating that construction personnel have attended the training.

Mitigation Measure GEO-2: Implement Appropriate Treatment Measures in Case of a Potential Fossil Discovery. If construction or other Project personnel discover any potential fossils during construction, regardless of the depth of work or location, work at the discovery location shall cease within a 50-foot radius of the discovery until the qualified paleontologist has assessed the discovery and recommended the appropriate treatment. If the find is deemed significant, it shall be salvaged following the standards of the SVP (SVP 2010) and curated with a certified repository.

2.7.3 References

- California Geological Survey (CGS). 2010. 2010 Fault Activity Map of California. California Geological Survey, Geologic Data Map No. 6. Compilation and Interpretation by Charles W. Jennings and William A. Bryant. Graphics by: M. Patel, E. Sander, J. Thompson, B. Wanish, and M. Fonseca. Available: <https://maps.conservation.ca.gov/cgs/fam/>. Accessed January 19, 2021.
- Society of Vertebrate Paleontology (SVP). 2010. *Assessment and Mitigation of Adverse Impacts to Nonrenewable Paleontologic Resources: Standard Guidelines*. Society of Vertebrate Paleontology News Bulletin, 2010.
- Stanislaus County. 2016a. *Stanislaus County General Plan and Airport Land Use Compatibility Plan Update, Draft Program Environmental Impact Report*. April 2016.
- . 2016b. *Stanislaus County General Plan 2015*. Adopted on August 23, 2016, by the Board of Supervisors.
- U.S. Natural Resources Conservation Service (NRCS). 2021. Web Soil Survey. Available: <https://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx>. Accessed January 19, 2021.
- Working Group on California Earthquake Probabilities (WGCEP). 2015. The Third California Earthquake Rupture Forecast (UCERF3): Output from Google Earth file with fault probabilities.
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2.8 Greenhouse Gas Emissions

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
VIII. GREENHOUSE GAS EMISSIONS —				
Would the project:				
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

2.8.1 Discussion

- a, b) **Less than Significant with Mitigation Incorporated.** The San Joaquin Valley Air Pollution Control District's (SVJAPCD's) greenhouse gas (GHG) guidance is intended to streamline CEQA review by pre-quantifying emissions reductions that would be achieved through the implementation of Best Performance Standards. A project is considered to have a less-than-significant cumulative impact on climate change if it meets any of the following conditions:

- (1) Comply with an approved GHG reduction plan.
- (2) Achieve a score of at least 29 using any combination of approved operational Best Performance Standards.
- (3) Reduce operational GHG emissions by at least 29 percent over business-as-usual (BAU) conditions (demonstrated quantitatively).

Because Stanislaus County currently has no adopted GHG reduction plan, Option 1 (listed above) cannot be applied. Options 2 and 3 both require projects to achieve GHG reductions consistent with the goals of Assembly Bill (AB) 32, which is to reduce statewide GHG emissions to 1990 levels by 2020 (equivalent to a 29 percent reduction over BAU conditions).

However, since publication of SVJAPCD's GHG guidance in 2009, the California Supreme Court has considered the CEQA issue of determining the significance of GHG emissions, in its decision in *Center for Biological Diversity v. CDFW and Newhall Land and Farming (Center for Biological Diversity v. Department of Fish & Wildlife (2015) 62 Cal.4th 204)*. In the *Newhall* decision, the court questioned a common CEQA approach to GHG analyses for development projects that compared project emissions to the reductions from BAU that would be needed statewide to reduce emissions to 1990 levels by 2020, as required by AB 32. The court upheld the BAU method as valid in theory, but concluded that the method was applied improperly in the case of the *Newhall* project: The project's target was incorrectly deemed consistent with the statewide emission target of 29 percent below BAU for the year 2020. In other words, the court said that the percent-below-BAU target developed by the AB 32 Scoping Plan is intended as a

measure of the GHG reduction effort required by the state as a whole, and it cannot necessarily be applied to the impacts of a specific project in a specific location.

The California Supreme Court provided some guidance for evaluating the cumulative significance of a proposed land use project's GHG emissions, but noted that none of the approaches could be guaranteed to satisfy CEQA for a particular project. The court's suggested "pathways to compliance" include:

- Use a geographically specific GHG emissions reduction plan (e.g., climate action plan) that outlines how the jurisdiction will reduce emissions consistent with state reduction targets, to provide the basis for streamlining project-level CEQA analysis, as described in State CEQA Guidelines Section 15183.5.
- Use the Scoping Plan's BAU reduction goal, but provide substantial evidence to bridge the gap between the statewide goal and the project's emissions reductions.
- Assess consistency with AB 32's goal in whole or part by looking to comply with regulatory programs designed to reduce GHG emissions from particular activities. As an example, the court points out that projects consistent with a Senate Bill 375 sustainable communities strategy may need to reevaluate GHG emissions from cars and light trucks.
- Rely on existing numerical thresholds of significance for GHG emissions, such as those developed by an air district.

In light of the *Newhall* decision and the reliance of SVJAPCD's GHG guidance on the statewide percentage reduction of GHG emissions by 2020, the following assessment of the proposed Project's potential GHG emissions impacts under CEQA uses a twofold approach:

- (1) Does the proposed Project include reasonably feasible measures (i.e., Best Performance Standards) to reduce GHG emissions?
- (2) Although not strictly applicable to projects within the SJVAB, would the proposed Project's emissions exceed the Bay Area Air Quality Management District's GHG mass emissions (or "bright line") threshold of 1,100 metric tons of carbon dioxide equivalent per year?

As discussed previously, operational GHG emissions for the proposed Project would be generated primarily by on-road vehicular traffic for maintenance trips. However, employee trips required for periodic facility inspection to assess reservoir integrity would not be significantly greater than the trips generated under current operations. These trips would emit negligible amounts of GHGs. The pump station would be electrically powered and would not emit GHGs. Therefore, the impact of operation of the proposed Project would be less than significant.

Given the short construction period, total GHG emissions from Project construction amortized over a 30-year period would be below 1,100 metric tons of carbon dioxide equivalent per year. Construction of the proposed Project would not result in a

cumulatively considerable increase in GHG emissions and this impact would be less than significant. However, to be consistent with the intent of SJVAPCD's GHG guidance, available Best Performance Standards would be implemented as part of **Mitigation Measure GHG-1** to further minimize this impact.

Mitigation Measure

Mitigation Measure GHG-1: TID and/or its contractor shall implement the following best performance standards for construction emissions (AEP 2016):

- (16) Use alternatively fueled vehicles and equipment, including electrification as well as alternative fuels where reasonably available and certified for use in construction equipment and vehicles (e.g., biodiesel blends, renewable diesel).
- (17) Reduce worker trips through organized ride sharing, where appropriate.
- (18) Use local sources of construction materials when economically feasible.

2.8.2 References

Association of Environmental Professionals (AEP). 2016. *Final White Paper Beyond 2020 and Newhall, A Field Guide to New CEQA Greenhouse Gas Thresholds and Climate Action Plan Targets for California*. October 18, 2016. Page 36.

2.9 Hazards and Hazardous Materials

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
IX. HAZARDS AND HAZARDOUS MATERIALS — Would the project:				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

2.9.1 Environmental Setting

The proposed Project site is located in Stanislaus County on a parcel zoned for agriculture and is adjacent to the Ceres Main Canal and the Lower Lateral 3 Canal. No schools are located within 1 mile of the site. The proposed Project site is in an area with dispersed rural residences.

Hazardous Materials

Materials and waste may be considered hazardous if they are poisonous (toxic), can be ignited by open flame (ignitable), corrode other materials (corrosive), or react violently, explode, or generate vapors when mixed with water (reactive). The term *hazardous material* is defined in law as any material that, because of its quantity, concentration, or physical or chemical characteristics, poses a significant present or potential hazard to human health and safety or to the environment (California Health and Safety Code, Section 25501[o]). In some cases, past uses can result in spills or leaks of hazardous materials to the ground, resulting in soil and groundwater contamination. The use, storage, transportation, and disposal of hazardous materials are subject to numerous federal, state, and local laws and regulations.

Information about hazardous materials sites on the proposed Project site was collected by reviewing the California Environmental Protection Agency's Cortese List data resources and the State Water Resources Control Board's GeoTracker list. The Cortese List data resources provide information regarding facilities or sites identified as meeting the requirements for inclusion on the Cortese List. The Cortese List is updated at least annually, in compliance with California regulations (California Government Code Section 65964.6[a][4]), and includes federal Superfund sites, state response sites, non-operating hazardous waste sites, voluntary cleanup sites, and school cleanup sites. The GeoTracker list shows underground storage tanks. Based on a review of the Cortese List conducted in January 2021, no listed sites are located within 1 mile of the proposed Project site (DTSC 2021).

Fire Suppression

The proposed Project site is located within a Local Responsibility Area where Stanislaus County is responsible for fire suppression. The site is also in an Unzoned Fire Hazard Severity Zone (CAL FIRE 2007).

2.9.2 Discussion

- a, b) **Less than Significant with Mitigation Incorporated.** The proposed Project's construction equipment and materials would include fuels, oils and lubricants, cement, and concrete, which are all commonly used in construction. The routine use or an accidental spill of hazardous materials used in construction could result in inadvertent releases, which could adversely affect construction workers, the public, and the environment.

Project construction activities would be required to comply with numerous regulations to ensure that construction-related fuels and other hazardous materials are transported, used, stored, and disposed of safely to protect worker safety, and to reduce the potential for such fuels or other hazardous materials to be released into the environment, including stormwater and downstream receiving water bodies. Contractors would be required to prepare and implement hazardous-materials business plans that would require proper use of hazardous materials during construction and storage of such materials in appropriate containers with secondary containment, as needed, to contain a potential release.

In addition, construction contractors would be required to acquire coverage under the National Pollutant Discharge Elimination System (NPDES) General Stormwater Permit, which requires the preparation and implementation of a storm water pollution prevention plan (SWPPP) for construction activities. The SWPPP would list the hazardous materials (including petroleum products) proposed for use during construction; describe spill prevention measures, equipment inspections, and equipment and fuel storage; describe protocols for responding immediately to spills; and describe best management practices (BMPs) for controlling site run-on and runoff. Details regarding BMPs designed to minimize erosion are discussed in Section 2.10, *Hydrology and Water Quality*. Construction would be required to adhere to BMPs associated with the NPDES Construction General Permit for Discharges of Stormwater Associated with Construction Activities, also known as the Construction General Permit, to control sediment in stormwater runoff from the Project area.

Lastly, the transportation of hazardous materials would be regulated by the U.S. Department of Transportation, the California Department of Transportation, and the California Highway Patrol. Together, federal and state agencies determine driver-training requirements, load-labeling procedures, and container specifications designed to minimize the risk of an accidental release.

During operations after construction of the proposed Project has been completed, periodic facility inspection would also include the limited use of equipment that would use fuel. Repairs would be completed as necessary and could require fuels, oils, and/or lubricants. The proposed Project would be required to comply with the numerous laws and regulations discussed above that govern transportation, use, handling, and disposal of hazardous materials, which would limit the potential for creation of hazardous conditions due to the use or accidental release of hazardous materials. As a result, this impact would be less than significant.

- c) **No Impact.** No schools are located within one-quarter mile of the proposed Project site. Therefore, no impact on schools would occur.
- d) **No Impact.** As discussed previously, based on a review of the Cortese List conducted in January 2021, no listed sites are located within 1 mile of the proposed Project site (DTSC 2021). Therefore, no impact related to being located on a listed hazardous materials site would occur.
- e) **No Impact.** No public airports or public use airports are located within 2 miles of the proposed Project site. Therefore, no impact related to airport safety hazards would occur.
- f) **No Impact.** The construction activity and the staging of equipment and materials for the proposed Project would occur on or adjacent to the Project parcel, which would not require road closures or lane restrictions. Therefore, no impact on emergency response and evacuation plans would occur.
- g) **Less than Significant.** The proposed Project site is located in a Local Responsibility Area and an Unzoned Fire Hazard Severity Zone (CAL FIRE 2007). The proposed Project site is currently planted with aging almond trees, which would be removed. In addition, the surrounding areas are used for irrigated agriculture, further reducing fire risk. The addition of the regulating reservoir, pump station, and associated pipelines would not result in structures that could catch fire. Therefore, the impact related to wildland fires would be less than significant.

2.9.3 References

California Department of Forestry and Fire Protection (CAL FIRE). 2007. Fire Hazard Severity Zones in SRA, Stanislaus County. October 2007.

California Department of Toxic Substances Control (DTSC). 2021. DTSC's Hazardous Waste and Substances Site List—Site Cleanup (Cortese List). Available: <https://calepa.ca.gov/sitecleanup/corteselist/>. Accessed January 13, 2021.

2.10 Hydrology and Water Quality

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
X. HYDROLOGY AND WATER QUALITY — Would the project:				
a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:				
i) result in substantial erosion or siltation on- or off-site;	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iii) create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iv) impede or redirect flood flows?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

2.10.1 Environmental Setting

Surface Water Hydrology

The San Joaquin River Hydrologic Region is in California's Central Valley, and is generally the northern portion of the San Joaquin Valley, including the proposed Project site. The region is south of the Sacramento River Hydrologic Region and north of the Tulare Lake Hydrologic Region. The region includes approximately half of the Sacramento–San Joaquin Delta (Delta). The San Joaquin River basin has average annual runoff of approximately 4 million acre-feet (DWR 2014).

San Joaquin River

The San Joaquin River is the principal river in the region, running through Stanislaus County from south to north; all other streams in the area are tributaries to the San Joaquin. The major tributaries of the San Joaquin River include the Cosumnes, Mokelumne, Calaveras, Stanislaus, Tuolumne, Merced, Chowchilla, and Fresno Rivers. The San Joaquin, Stanislaus, and Tuolumne Rivers are the largest surface water features that have their origins in the Sierra Nevada. The San Joaquin River and its tributaries eventually drain to the Delta.

Water Quality

San Joaquin River

The water quality of the San Joaquin River is affected by agricultural return flows during the dry season. These return flows frequently transport pesticides, nutrients, and sediment from agricultural areas into the south Delta. In addition, many pesticides are applied during the dormant spray season, typically November to January, and can be transported to water bodies during rainfall events. The San Joaquin River from the Merced River to the Tuolumne River is impaired on the state's 2014/2016 Clean Water Act Section 303(d) list for all of the following: alpha-BHC (benzenehexachloride or alpha-HCH), chlorpyrifos, dichlorodiphenyldichloroethylene, dichlorodiphenyltrichloroethane, electrical conductivity (EC), Group A pesticides, mercury, pH), specific conductivity, water temperature, total dissolved solids, and toxicity (EPA 2018).

Groundwater Hydrology and Water Quality

The San Joaquin River Hydrologic Region has 11 alluvial groundwater basins and subbasins. The proposed Project site is located within the San Joaquin Valley groundwater basin and the Turlock subbasin (DWR 2004).

The California Department of Water Resources (DWR) described the characteristics of the Turlock Subbasin in *California's Groundwater*, Bulletin 118: San Joaquin Valley Groundwater Basin, Turlock Subbasin (DWR 2006):

The Turlock Subbasin (Basin Number 5-22.03) has a total surface area of 347,000 acres (542 square miles). It 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 northern, western, and southern boundaries are shared with the Modesto, Delta-Mendota, and Merced Groundwater subbasins, respectively. Similar to the Modesto Subbasin, groundwater flow is primarily to the southwest, following the regional dip of basement rock and sedimentary units. Based on recent groundwater measurements, a paired groundwater mound and depression appear beneath the city of Turlock and to its east, respectively.

The groundwater in this subbasin is predominately of the sodium-calcium bicarbonate type, with sodium bicarbonate and sodium chloride types at the western margin and a small area in the north-central portion. TDS [total dissolved solids] values range from 100 to 8,300 mg/L [milligrams per liter], with a typical range of 200 to 500 mg/L. The Department of Health Services [now known as the California Department of Public Health] reports TDS values in 71 wells ranging from 100 to 930 mg/L, with an average value of 335 mg/L. EC values range from 168 to 1,000 μ mhos/cm [micromhos per centimeter], with a typical range of 244 to 707 μ mhos/cm. There are localized areas of hard groundwater, nitrate, chloride, boron, and DBCP [dibromochloropropane]. Some sodium chloride type water of high TDS is found along the west side of the subbasin.

Groundwater levels have generally declined in the Turlock Subbasin but also have had periods of rebounding. Measured groundwater depth at the proposed Project site is approximately 26 feet below the existing ground surface (DWR 2021).

Flood Control and Flood Management Facilities

Flood risks in the Sacramento–San Joaquin Valley are among the highest in the nation. To address these risks, the Central Valley Flood Protection Act of 2008 directed DWR to prepare the Central Valley Flood Protection Plan for adoption by the Central Valley Flood Protection Board. The plan lays out a strategy to prioritize the state’s investment in flood management over the next three decades, as well as strategies to promote multi-benefit projects and to integrate and improve ecosystem functions associated with flood risk reduction projects. The Central Valley Flood Protection Plan also incorporates information about systemwide and regional flood management needs, advancements in the best available science, and new policy considerations.

The Central Valley Flood Protection Board is the state regulatory agency responsible for ensuring that appropriate standards are met for the construction, maintenance, and protection of the flood control system that protects life, property, and wildlife habitat in California’s Central Valley from the effects of flooding. The San Joaquin River in the vicinity of the proposed Project site is located within the Sacramento–San Joaquin Drainage District under the jurisdiction of the Central Valley Flood Protection Board.

Dams on the Tuolumne and Stanislaus Rivers help to regulate the rivers and reduce the risk of flooding in Stanislaus County. An extensive network of levees also exists along the rivers, including along the San Joaquin River, to protect surrounding buildings and agricultural operations. Despite these measures to control flood flows, major flooding occurs along the San Joaquin River, and along portions of the Tuolumne River, Stanislaus River, and tributaries (Stanislaus County 2016). Damaging floods occurred in the Project area in 1937–1938, 1950–1951, 1952, 1955–1956, 1962–1963, 1982–1983, 1986, 1995, 1996–1997, and 1998.

2.10.2 Discussion

- a, b) **Less than Significant.** Construction of the proposed Project would involve the use of heavy equipment, such as excavation, grading, earthmoving, movement of spoils, installation of pipelines and a pump station, and placement of concrete. Even though soil erosion potential on the proposed Project site is generally low, construction activities have the potential to increase rates of erosion, which could increase turbidity in downstream receiving waters. In addition, the use of heavy machinery during construction would have the potential to result in an accidental release of fuels, oils, solvents, hydraulic fluid, and other construction-related fluids to the environment, thereby degrading water quality.

As described previously, soils in the Project area have low potential for erosion; however, earthmoving and grading activities during construction have the potential to cause erosion. Routine Project operations and maintenance activities are not anticipated to result in substantial soil erosion or loss of topsoil.

TID would be required to obtain a National Pollutant Discharge Elimination System (NPDES) Construction General Permit for Discharges of Stormwater Associated with Construction Activities (Construction General Permit) from the Central Valley Regional Water Quality Control Board before initiating ground-disturbing activities. Among the permit's conditions would be preparation and implementation of a storm water pollution prevention plan (SWPPP) that would identify and require implementation of best management practices (BMPs) to prevent sediment and other construction-related compounds (e.g., fuel, oil) from entering stormwater runoff. Compliance with the NPDES Construction General Permit, including the implementation of BMPs described in the SWPPP, would ensure that the proposed Project would avoid and/or minimize the potential impact of soil erosion or the loss of topsoil during construction. Therefore, this impact would be less than significant.

Routine operation and maintenance activities for the proposed Project would include driving to the site once every month to inspect the facility and assess reservoir integrity. There would be no significant increase in sediment or other potential pollutants discharged into receiving waters. As a result, impacts on water quality from the proposed Project's operation and maintenance activities would be less than significant.

- c.i-iv) **Less than Significant.** The proposed Project would construct a new regulating reservoir that would be used to stabilize flow rates in the Ceres Main Canal. Once constructed, the regulating reservoir and pump station would accept gravity-fed flows from the Ceres Main Canal during unexpected high flows, and then would pump the stored water back into the Ceres Main Canal and the Lower Lateral 3 Canal during unexpected water shortages in the canal system downstream of the reservoir. The reservoir would be concrete-lined and would reduce erosion and siltation. The regulating reservoir would not increase the amount of water in the TID canal system, but would capture water that would otherwise spill to TID's drains, would improve operational flexibility, and would improve customer service through stable flow rates, increased water supply reliability, and faster operational response times. Therefore, this impact would be less than significant.
- d) **Less than Significant.** The proposed Project would construct a regulating reservoir adjacent to the confluence of the Ceres Main Canal and the Lower Lateral 3 Canal to serve as a surface water regulating and storage facility. Once constructed, routine operation and maintenance activities for the proposed Project would include driving to the site once every month to inspect the facility and assess reservoir integrity and only a limited quantity of pump oil would be stored on site. Therefore, this impact would be less than significant.
- e) **Less than Significant.** As described previously under checklist items a) and b), the proposed Project would comply with the NPDES Construction General Permit, including the implementation of BMPs described in the SWPPP to prevent water quality pollutants such as silt, sediment, hazardous materials, and construction-related fluids from entering receiving waters. Implementing the proposed Project would result in the addition of

impervious surfaces from construction of the concrete-lined regulation reservoir; however, the proposed Project would capture water that would otherwise be spilled to TID's drains, would improve operational flexibility, would improve customer service through stable flow rates increased water supply reliability, and would reduce supplemental groundwater pumping. Therefore, this impact would be less than significant.

2.10.3 References

California Department of Water Resources (DWR). 2004. California's Groundwater Bulletin 118, San Joaquin Valley Groundwater Basin, Turlock Subbasin.

———. 2006 (January). *California's Groundwater*, Bulletin 118: San Joaquin Valley Groundwater Basin, Turlock Subbasin.

———. 2014. California Water Plan Update 2013. October 2013.

———. 2021. SGMA Data Viewer. Available: <https://sgma.water.ca.gov/webgis/?appid=SGMADataViewer#gwlevels>. Accessed January 19, 2021.

Stanislaus County. 2016. *Stanislaus County General Plan and Airport Land Use Compatibility Plan Update, Draft Program Environmental Impact Report*. April 2016.

U.S. Environmental Protection Agency (EPA). 2018. Final 2014/2016 California Integrated Report (Clean Water Act Section 303(d) List/305(b) Report). Approved by EPA April 6, 2018. Available: https://www.waterboards.ca.gov/water_issues/programs/tmdl/integrated2014_2016.shtml. Accessed January 20, 2021.

2.11 Noise

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
XI. NOISE — Would the project result in:				
a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Generation of excessive groundborne vibration or groundborne noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

2.11.1 Environmental Setting

Sound is mechanical energy transmitted by pressure waves through a medium such as air, while noise is defined as unwanted sound. Sound pressure level is measured in decibels (dB), with 0 dB corresponding roughly to the threshold of human hearing and 120–140 dB corresponding to the threshold of pain.

The typical human ear is not equally sensitive to all frequencies of the audible sound spectrum. As a consequence, during assessments of potential noise impacts, sound is measured using an electronic filter that deemphasizes the frequencies below 1,000 Hertz¹ and above 5,000 Hertz in a manner corresponding to the human ear's decreased sensitivity to low and extremely high frequencies instead of the frequency mid-range. This method of frequency weighting is referred to as *A-weighting* and is expressed in units of A-weighted decibels (dBA).²

Effects of Noise on People

The effects of noise on people fall into three categories:

- Subjective effects of annoyance, nuisance, and dissatisfaction.
- Interference with activities such as speech, sleep, and learning.
- Physiological effects such as hearing loss or sudden startling.

Environmental noise typically produces effects in the first two categories. Workers in industrial plants generally experience noise in the last category. There is no completely satisfactory way to measure the subjective effects of noise, or the corresponding reactions of annoyance and dissatisfaction. A wide variation exists in individual thresholds of annoyance; different tolerances to noise tend to develop based on individuals' past experiences with noise.

¹ Hertz is a unit of frequency equivalent to one cycle per second.

² All noise levels reported herein reflect A-weighted decibels unless otherwise stated.

Thus, an important way to predict a human reaction to a new noise environment is the way it compares to the existing environment to which one has adapted: the so-called “ambient noise” level. In general, the more a new noise exceeds the previously existing ambient noise level, the less acceptable the new noise will be judged by those hearing it. With regard to increases in A-weighted noise levels, the following relationships occur:

- In carefully controlled laboratory experiments, a change of 1 dBA cannot be perceived.
- Outside of the laboratory, a 3-dBA change is considered a just-perceivable difference when the change in noise is perceived but does not cause a human response.
- A change in level of at least 5 dBA is required before any noticeable change in human response would be expected.
- A 10-dBA change is subjectively heard as approximately a doubling in loudness, and can cause adverse response.

The human ear perceives sound in a nonlinear fashion; hence, the decibel scale was developed. Because the decibel scale is nonlinear, two noise sources do not combine in a simple additive fashion, rather logarithmically. For example, if two identical noise sources produce noise levels of 50 dBA, the combined sound level would be 53 dBA, not 100 dBA.

Noise Attenuation

Stationary “point” sources of noise, including stationary mobile sources such as idling vehicles, attenuate (lessen) at a rate of 6 to 7.5 dBA per doubling of distance from the source, depending on environmental conditions (e.g., atmospheric conditions and noise barriers, either vegetative or manufactured). Widely distributed noises, such as a large industrial facility spread over many acres or a street with moving vehicles (a “line” source), would typically attenuate at a lower rate, approximately 3 to 4.5 dBA per doubling of distance from the source (also depending on environmental conditions) (Caltrans 2013). Noise from large construction sites would have characteristics of both point and line sources, so attenuation would generally range between 4.5 and 7.5 dBA per doubling of distance.

Vibration

Vibration is an oscillatory motion through a solid medium in which the motion’s amplitude can be described in terms of displacement, velocity, or acceleration. Several different methods are used to quantify vibration (FTA 2018):

- *Peak particle velocity* (PPV) is defined as the maximum instantaneous peak of the vibration signal. The PPV is most frequently used to describe vibration impacts to buildings.
- The *root mean square* (RMS) amplitude is most frequently used to describe the effect of vibration on the human body. The RMS amplitude is defined as the average of the squared amplitude of the signal.
- Decibel notation, expressed as *vibration decibels* (VdB), is commonly used to measure RMS. The decibel notation acts to compress the range of numbers required to describe vibration.

Typically, groundborne vibration generated by man-made activities attenuates rapidly with distance from the source of the vibration.

Existing Ambient Noise Environment

The noise environment in the area surrounding the proposed Project site is characterized by rural roadways, rural agricultural noise, and scattered residences. It includes low-volume traffic noise from tractors, large trucks, and other farm equipment, and both on- and off-road passenger vehicles. The ambient noise environment in the vicinity of the proposed Project site was estimated using a relationship between population density and ambient noise that was determined during a research program by the U.S. Environmental Protection Agency. The agency estimated that residents of rural or other non-urban areas are exposed to outdoor ambient noise levels ranging from 35 to 50 dBA L_{dn} ³ (EPA 1974). Because the area surrounding the proposed Project site can be categorized as a rural or other non-urban area, it is assumed that ambient noise levels would range between 35 and 50 dBA L_{dn} .

Sensitive Receptors

Human response to noise varies considerably from one individual to another. Effects of noise at various levels can include interference with sleep, concentration, and communication; physiological and psychological stress; and hearing loss. Given these effects, some land uses are considered more sensitive to ambient noise levels than others. In general, residences, schools, hotels, hospitals, and nursing homes are considered to be the most sensitive to noise. Commercial and industrial uses are considered the least noise-sensitive. Sensitive receptor land uses in the vicinity of the proposed Project site include residences; the closest sensitive receptor is a residence located approximately 870 feet north of the site.

2.11.2 Discussion

- a) **Less than Significant.** For the assessment of temporary construction noise impacts, construction activities that would occur outside of Stanislaus County's construction-exempt hours would result in a significant impact. Chapter 10.46 of the Stanislaus County Code limits construction noise to 75 dBA at any receiving property line between 7 p.m. and 7 a.m. Compliance with this code requirement would limit the proposed Project's construction noise to a level determined to be acceptable by Stanislaus County. Therefore, the noise impact of Project construction activity would be less than significant.

On-site construction activities would only occur within Stanislaus County's construction-exempt hours and would not violate the County's noise standards. In addition, construction activities would occur only during daytime hours, when the existing ambient noise level is at its highest (e.g., traffic noise); no nighttime hours as defined by the

³ Also abbreviated "DNL," L_{dn} is a 24-hour day and night A-weighted noise exposure level that accounts for the greater sensitivity of most people to nighttime noise by weighting noise levels at night ("penalizing" nighttime noises). Noise between 10 p.m. and 7 a.m. is weighted (penalized) by adding 10 dB to take into account the greater annoyance of nighttime noises.

Stanislaus County Code would occur, and the activities would be limited in duration. This impact would be less than significant.

The proposed Project site is located in a rural area adjacent to land that is in agricultural use. In the Project area, low-volume traffic noise from tractors, large trucks, and other farm equipment, and from both on- and off-road passenger vehicles, is normal.

Normal operation of the regulating reservoir would consist of periodic facility inspection to assess reservoir integrity. The proposed regulating reservoir would accept gravity-fed flows from the Ceres Main Canal during unexpected high flows, and then would pump the stored water back into the Ceres Main Canal and the Lower Lateral 3 Canal during unexpected water shortages in the canal system downstream of the reservoir

In the Project area, existing conditions include ambient noise from rural agricultural operations and scattered residences. Operation of the proposed Project would not involve noise that would differ from what is currently experienced under existing conditions. Consequently, the proposed Project is not expected to result in any permanent substantial noise increases relative to existing conditions, nor would noise levels generated by Project maintenance activities exceed Stanislaus County's exterior noise standards at the nearest sensitive receptor. Therefore, this impact would be less than significant.

- b) **Less than Significant.** Operation of the proposed Project would not include any activities that would generate significant levels of vibration. Therefore, it is not anticipated that Project operation would expose the nearest sensitive receptor or structure to vibration levels that would result in annoyance. For this reason, the following analysis of the proposed Project's vibration impacts evaluates only the effects of on-site construction activities.

For adverse human reaction, the analysis applies the "strongly perceptible" threshold of 0.9 inch per second (in/sec) PPV for transient sources. For risk of architectural damage to historic buildings and structures, the analysis applies a threshold of 0.12 in/sec PPV (Caltrans 2013). A threshold of 0.3 in/sec PPV is used to assess damage risk for all other buildings. There are no historic structures in the vicinity of the proposed Project site that could be adversely affected by vibration related to Project construction.

Construction of the proposed Project would involve the use of excavators, graders, bulldozers, dump trucks, loaders, concrete mixer trucks, concrete pumper trucks, concrete laser screeds, and cranes. The use of bulldozers would be expected to generate the highest vibration levels during construction. Vibration levels of bulldozers are typically 0.089 in/sec PPV at 25 feet, which is typical for a wide range of soils. Under typical propagation conditions, vibration levels at 175 feet would be approximately 0.0048 in/sec PPV, which is well below the Federal Transit Administration's threshold of 0.20 in/sec PPV for building damage and 72 VdB for human annoyance. Therefore, this impact would be less than significant.

- c) **No Impact.** No private airstrips, public airports, or public use airports are located within 2 miles of the proposed Project site. Therefore, the proposed Project would not expose people working in the Project area to excessive noise levels, and no impact would occur.

2.11.3 References

California Department of Transportation (Caltrans). 2013. *Technical Noise Supplement to the Traffic Noise Analysis Protocol*. September 2013.

Federal Transit Administration (FTA). 2018. *Transit Noise and Vibration Impact Assessment Manual*. September 2018.

Stanislaus County. 2016. *Stanislaus County General Plan and Airport Land Use Compatibility Plan Update, Draft Program Environmental Impact Report*. April 2016.

U.S. Environmental Protection Agency (EPA). 1974. Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety. March, 1974.

2.12 Transportation

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
XII. TRANSPORTATION — Would the project:				
a) Conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Would the project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Result in inadequate emergency access?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

2.12.1 Environmental Setting

Highways

The proposed Project site is located approximately 1.70 miles west of State Route 99.

County Roadways/Traffic Types

As described previously, the proposed Project site is located in a rural area. The roadways immediately around the site are dirt roads. Keyes Road, the closest paved road, is approximately 0.25 miles north of the proposed Project site and is classified as a Minor Arterial by Stanislaus County (Stanislaus County 2016). The other largest roadways in the Project area are Central Avenue (approximately 1 mile west of the proposed Project site) and Faith Home Road (0.76 mile to the east), both classified as Major Collectors by Stanislaus County (Stanislaus County 2016).

Airports

The nearest airport to the proposed Project site is the Modesto City-County Airport, approximately 5.4 miles to the northwest.

2.12.2 Discussion

- a) **Less than Significant.** Construction of the Proposed Project would temporarily generate increases in vehicle trips by workers and vehicles on area roadways. There could be a minimal increase in truck trips for construction; however, given the scale of the proposed Project and the length of the construction period, the capacity of local roads used to access the proposed Project site would not likely be substantially reduced. Project operation would require periodic facility inspection to assess reservoir integrity and would result in only a marginal increase in vehicle trips. Because the increase in traffic during construction would be minimal, there would be no decreased levels of service. Therefore, this impact would be less than significant.

- b) **Less than Significant.** Section 15064.3 of the State CEQA Guidelines establishes specific considerations for evaluating a project's transportation impacts. The State CEQA Guidelines identify vehicle miles traveled (VMT)—the amount and distance of automobile travel attributable to a project—as the most appropriate measure of transportation impacts. Other relevant considerations may include the effects of the project on transit and nonmotorized travel. Construction of the proposed Project would last approximately 20 weeks and would use existing construction crews. Operation of the proposed Project would not add a substantial amount of VMT to the Project area. In addition, Stanislaus County's VMT per capita is projected to decrease. Therefore, this impact would be less than significant.
- c) **Less than Significant.** Trucks accessing the proposed Project site would use local rural roadways. Based on the low number of anticipated construction trips relative to traffic volumes on local roadways and their limited duration, this impact of Project construction would be less than significant.

Construction of the proposed Project would not result in new design features on roads in the area. Further, the Project would not result in in potential traffic safety hazards for vehicles, bicyclists, and pedestrians on public roadways, given the intermittent and temporary nature of construction activities. Therefore, this impact would be less than significant.

- d) **Less than Significant.** Temporary construction staging would not block or interfere with emergency response vehicles. Increases in traffic volumes on local roadways providing access to the proposed Project site could cause intermittent and temporary slowdowns in traffic flow during construction, although truck trips associated with Project operation are not expected to cause access on local roadways to deteriorate. For these reasons, the proposed Project would not result in inadequate emergency access, and this impact would be less than significant.

2.12.3 References

Stanislaus County. 2016. *Stanislaus County General Plan and Airport Land Use Compatibility Plan Update, Draft Program Environmental Impact Report*. April 2016.

2.13 Tribal Cultural Resources

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
XIII. TRIBAL CULTURAL RESOURCES —				
a) 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:				
i) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code Section 5020.1(k), or	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
ii) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

2.13.1 Discussion

a.i, a.ii) **Less than Significant with Mitigation Incorporated.** Tribal cultural resources are:

(1) Sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe that are listed, or determined to be eligible for listing in the California Register of Historical Resources, or a local register of historical resources, as defined in Public Resources Code (PRC) Section 5020.1(k); or

(2) Resources determined by the lead CEQA agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in PRC Section 5024.1(c).

For a cultural landscape to be considered a tribal cultural resource, it must be geographically defined in terms of the size and scope of the landscape (PRC Section 21074[b]). A historical resource as defined in PRC Section 21084.1, a unique archaeological resource as defined in PRC Section 21083.2(g), or a non-unique archaeological resource as defined in PRC Section 21083.2(h) may also be a tribal cultural resource.

Categorizing the prehistoric period into cultural stages allows researchers to describe a broad range of archaeological resources with similar cultural patterns and components during a given time frame, thereby creating a regional chronology. Rosenthal et al. (2007) provide a framework for interpretation of the Central Valley's prehistoric record. They

have divided human history in the region into three basic periods: Paleo-Indian (13,550 to 10,550 years Before Present [BP]), Archaic (10,550 to 900 BP), and Emergent (900 to 300 BP). The Archaic period is subdivided into three sub-periods: Lower Archaic (10,550 to 7550 BP), Middle Archaic (7,550 to 2,550 BP), and Upper Archaic (2,550 to 900 BP). Economic patterns, stylistic aspects, and regional phases further subdivide cultural patterns into shorter phases. This scheme uses economic and technological types, socio-politics, trade networks, population density, and variations of artifact types to differentiate between cultural periods.

At the time of European contact, the proposed Project site was inhabited by the Northern Valley Yokuts. Because of the early decimation of the aboriginal populations in the San Joaquin Valley, most information regarding the Northern Valley Yokuts is gleaned from translated accounts by the Spanish military and missionaries (Wallace 1978). Northern Valley Yokuts territory is defined roughly by the crest of the Diablo Range on the west and the Sierra Nevada foothills on the east. The southern boundary is located approximately where the San Joaquin River bends northward, and the northern boundary is roughly halfway between the Calaveras and Mokelumne Rivers.

Most Northern Valley Yokuts groups had their first contact with Europeans in the early 1800s, when the Spanish began exploring the Sacramento–San Joaquin Delta. The gradual erosion of Yokuts culture began during the mission period. Epidemics of European diseases played a large role in decimating the native population. With the secularization of the missions and the release of neophytes, tribal and territorial adjustments were set in motion. People returned to other groups, and a number of polyglot tribes were formed.

The final blow to the aboriginal population came with the Gold Rush and its aftermath. In the rush to the southern mines, native populations were pushed out of the way, and out of their existing territories. Ex-miners settling in the fertile valley applied further pressure to the native groups and altered the valley's landforms and waterways. Many Yokuts resorted to wage labor on farms and ranches. Others were settled on land set aside for them on the Fresno and Tule River Reserves.

As determined through background research conducted at the Central California Center of the California Historical Resources Information System and a survey, the proposed Project would not affect any known archaeological resources that could be considered tribal cultural resources, listed or determined eligible for listing in the California Register of Historical Resources, or included in a local register of historical resources as defined in PRC Section 5020.1(k), pursuant to PRC Section 21074(a)(1).

On December 2, 2020, ESA contacted the Native American Heritage Commission by email to request a search of its Sacred Lands File and a list of local Native Americans who might have knowledge of cultural resources in the vicinity of the proposed Project

site. In a letter response dated December 22, 2020, the Native American Heritage Commission responded that a records search of the Sacred Lands File had been completed and the results were negative. The commission recommended contacting the Northern Valley Yokuts Tribe, the Southern Sierra Miwuk Nation, and the Tule River Indian Tribe for more information on potential archaeological sites and tribal cultural resources in the Project vicinity. [Note to Reviewer: Native American communication efforts will be included here as received.] In addition, TID did not determine any resource with potential to be affected by the proposed Project to be a significant tribal cultural resource pursuant to criteria set forth in PRC Section 5024.1(c).

If any previously unrecorded archaeological resource were to be identified during ground-disturbing construction activities, and should the resource be found to qualify as a tribal cultural resource pursuant to PRC Section 21074(a)(1) (determined to be eligible for listing in the California Register of Historical Resources or in a local register of historical resources), any impacts of the proposed Project on the resource could be potentially significant. Any such potentially significant impacts would be reduced to a less-than-significant level by implementing **Mitigation Measure CUL-1**. This mitigation measure requires that work halt in the vicinity of a find until a qualified archaeologist can make an assessment and provide additional recommendations if necessary, including contacting Native American tribes (refer to Section 2.5, *Cultural Resources*).

2.13.2 References

- Rosenthal, J. S., G. G. White, and M. Q. Sutton. 2007. The Central Valley: A View from the Catbird's Seat. In *California Prehistory: Colonization, Culture, and Complexity*, ed. T. L. Jones and K. A. Klar, 147–163. Lanham, MD: AltaMira Press.
- Wallace, W. J. 1978. Northern Valley Yokuts. In *California*, ed. R. F. Heizer. Volume 8, *Handbook of North American Indians*, W. G. Sturtevant (gen. ed.), 462–470. Washington, D.C.: Smithsonian Institution.

2.14 Utilities and Service Systems

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
XIV. UTILITIES AND SERVICE SYSTEMS —				
Would the project:				
a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

2.14.1 Environmental Setting

Residential uses in the Project area pump groundwater from privately owned wells. Nonpotable water supply in the Project area is provided by TID (Stanislaus County 2016). Wastewater is treated and disposed of through septic systems in the vicinity of the proposed Project site.

Electricity is provided to the Project area by TID. In Stanislaus County, electrical power is carried mostly through aboveground lines. TID currently has sufficient energy supplies and distribution facilities to support the proposed Project.

Residential and commercial garbage service in the unincorporated areas of Stanislaus County is provided by three franchised garbage collection companies: Bertolotti Disposal, Gilton Solid Waste, and Turlock Scavenger (Stanislaus County 2016). The Fink Road Sanitary Landfill in the Project vicinity is a Class III landfill for nonhazardous municipal solid waste; the facility is owned by Stanislaus County and operated by the Stanislaus County Department of Environmental Resources. The landfill has adequate capacity.

2.14.2 Discussion

- a–d) **Less than Significant.** The proposed Project would install a regulating reservoir, pump station, and associated pipelines, the effects of which are analyzed throughout this document. The proposed Project would not include or require the relocation or construction of new or expanded wastewater treatment or stormwater drainage, natural

gas, or telecommunications facilities as a result of the proposed Project. The proposed Project would not require additional water supplies or expanded wastewater treatment capacity. Construction of the proposed Project would comply with all wastewater requirements of the Central Valley Regional Water Quality Control Board (see Section 2.10, *Hydrology and Water Quality*, for more information), as well as all federal, state, and local statutes and regulations related to solid waste. Therefore, these impacts would be less than significant.

- e) **Less than Significant.** The proposed Project would generate minimal waste during temporary construction activities. Although almond trees, native soil, and unsuitable fill material would be hauled off-site, approximately 61,000 cubic yards (cy) of unsuitable fill material would be hauled to TID's Shelanskies Yard; 50,000 cy of material from the proposed Project site would be used to construct earthen fill embankments at the regulating reservoir; and 40,000 cy of clean fill dirt would be hauled to local canal embankments for use in bank improvement projects. As of March 1, 2017, the Fink Road Sanitary Landfill, the sole permitted landfill in Stanislaus County, had a permitted capacity of 14,640,000 cubic yards and a remaining capacity of 7,184,701, and the landfill is permitted through 2023 (CalRecycle 2021). The landfill that serves the Project area has the capacity to accept the minimal amount of waste generated by the proposed Project. Therefore, this impact would be less than significant.

2.14.3 References

California Department of Resources Recycling and Recovery (CalRecycle). 2021. Facility/Site Summary Details: Fink Road Landfill (50-AA-0001). Available: <https://www2.calrecycle.ca.gov/SolidWaste/SiteActivity/Details/992?siteID=3733>. Accessed January 20, 2021.

Stanislaus County. 2016. *Stanislaus County General Plan and Airport Land Use Compatibility Plan Update, Draft Program Environmental Impact Report*. April 2016.

2.15 Wildfire

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
XV. WILDFIRE — If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:				
a) Substantially impair an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

2.15.1 Environmental Setting

The Project site is located within a Local Responsibility Area and Stanislaus County is responsible for fire suppression in the Project area. The proposed Project site is located in an Unzoned Fire Hazard Severity Zone (CAL FIRE 2007).

2.15.2 Discussion

- a) **Less than Significant.** The proposed Project site is adjacent to lands occupied by irrigated agriculture. The vegetation and land use types have a low potential for wildland fires and the proposed Project is not expected to expose people or structures to a significant risk of loss, injury, or death involving wildland fires. Proposed Project activities would be contained within the boundaries of the Project area and would not impair emergency response access on roadways or to areas within or adjacent to the Project area. Therefore, this impact would be less than significant.
- b) **Less than Significant.** The proposed Project would require removal of almond trees before construction activities. Removing vegetation would lower on-site fuel sources for wildfires. The proposed Project would not exacerbate wildfire risks that would expose on-site employees to pollutants or uncontrolled wildfires. This impact would be less than significant.
- c) **Less than Significant.** The proposed Project would include the construction of a 30-foot by 40-foot reinforced concrete pump station that would be powered by electricity. Given the low wildfire potential because of the irrigated agricultural lands surrounding the Project site and the limited size of the pump station, the proposed Project is not expected to result in temporary or ongoing impacts to the environment from the installation or

maintenance of infrastructure that would exacerbate wildfire risks. This impact would be less than significant.

- d) **No Impact.** The proposed Project would serve as a surface water regulating and storage facility. The Project would support water conservation by stabilizing flow rates in the Ceres Main Canal; would capture water that otherwise would spill to TID's drains; and would improve customer service through stable flow rates, increased water supply reliability, and faster operational response times. Therefore, the proposed Project would not expose people or structures to risks of downstream flooding or landslide, and no impact would occur.

2.15.3 References

California Department of Forestry and Fire Protection (CAL FIRE). 2007. Fire Hazard Severity Zones in SRA, Stanislaus County. October 2007.

2.16 Mandatory Findings of Significance

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
XVI. MANDATORY FINDINGS OF SIGNIFICANCE —				
a) Does the project have the potential to substantially 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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) 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)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

2.16.1 Discussion

- a) **Less than Significant with Mitigation Incorporated.** As described in the preceding impact discussions, the impacts related to the potential of the proposed Project to substantially degrade the environment would be less than significant with incorporated mitigation measures. As described in this initial study, the proposed Project has the potential for impacts related to biological resources, cultural resources, geology and soils, and greenhouse gas emissions. However, these impacts would be avoided or reduced to a less-than-significant level with the incorporation of avoidance and mitigation measures discussed in each section.
- b) **Less than Significant with Mitigation Incorporated.** This section provides a description of other actions in the area and a discussion of the cumulative impacts of those projects, in combination with the previously identified effects of the proposed Project. State CEQA Guidelines Section 15355 states that "cumulative impacts refer to two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts":
- (a) The individual effects may be changes resulting from a single project or a number of separate projects.
- (b) The cumulative impact from several projects is the change in the environment which results from the incremental impact of the 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.

The past, present, and reasonably foreseeable future conditions of the proposed Project site and vicinity were considered for the cumulative analysis.

Aesthetics. Completion of the proposed Project would result in some permanent visual changes to the proposed Project site from installation of the regulating reservoir, pump station, and associated pipelines. The aging almond trees on the site would be removed and replaced with the regulating reservoir. The proposed Project would be consistent with the rural agricultural nature of the existing setting. Further, these changes would be surrounded by parcels still in use as agriculture and would not be easily visible from the adjacent area. Therefore, cumulative impacts on aesthetics would be less than significant.

Agriculture and Forestry Resources. The proposed Project would result in a reduction of 0.014 percent of Stanislaus County's Prime Farmland and a 0.0026 percent reduction of the county's Unique Farmland. The proposed Project would also result in a reduction of 0.000697 percent of the acreage in Williamson Act contract in the San Joaquin Valley region as of 2016. However, the proposed Project would improve the operation of the TID canals which serve irrigation customers. The proposed Project would support water conservation, capture excess water, reduce supplemental groundwater pumping, improve operation flexibility, and improve customer service through stable flow rates, increased water supply, and faster operation response times. Therefore, impacts related to agriculture would be less than significant. As such, cumulative impacts to agricultural resources would be less than significant. The proposed Project would have no impact on forestry resources and thus would not contribute to cumulative impacts.

Air Quality and Greenhouse Gas Emissions. A number of individual projects in the vicinity of the proposed Project may be under construction simultaneously with the proposed Project. Depending on construction schedules and actual implementation of projects in and around Stanislaus County, generation of fugitive dust and pollutant emissions during construction may result in short-term air pollutants, which would contribute to short-term cumulative impacts on air quality. However, each individual project would be subject to San Joaquin Valley Air Pollution Control District rules, regulations, and other mitigation requirements during construction. For cumulative impacts on air quality and greenhouse gas emissions, see Section 2.3, *Air Quality*, and Section 2.8, *Greenhouse Gas Emissions*, above. The thresholds used consider the contributions of other projects in the air basin. Additionally, greenhouse gas emissions are considered cumulative in nature because it is unlikely that a single project would contribute significantly to climate change.

Biological Resources, Cultural Resources, Tribal Cultural Resources, Geology and Soils, and Hazards and Hazardous Materials. The proposed Project's impacts for these environmental issues would be limited to the proposed Project site, and any significant impacts would be reduced to a less-than-significant level by implementing proposed mitigation measures. Thus, the proposed Project would not contribute to cumulative impacts for these topics.

Energy. Construction of the proposed Project would result in fuel consumption from the use of construction tools and equipment, truck trips to haul materials, and vehicle trips by construction workers commuting to and from the proposed Project site. This impact would be temporary and localized. Operational energy impacts are not anticipated. Construction-related fuel consumption by the proposed Project would not result in inefficient, wasteful, or unnecessary energy use compared with other construction sites in the region.

Hydrology and Water Quality. Implementing the proposed Project would result in an increase in the amount of stormwater generated on the proposed Project site; however, the Project's purpose is to regulate and store excess water from the Ceres Main Canal for later use when it is needed. Construction contractors would be required to acquire coverage under the National Pollutant Discharge Elimination System General Stormwater Permit, which requires the preparation and implementation of a storm water pollution prevention plan (SWPPP) for construction activities. The SWPPP would list the hazardous materials (including petroleum products) proposed for use during construction; describe spill prevention measures, equipment inspections, and equipment and fuel storage; describe protocols for responding immediately to spills; and describe best management practices for controlling site run-on and runoff. Therefore, cumulative impacts would be less than significant.

Land Use and Land Use Planning. The proposed Project would have no impact on land use and land use planning; therefore, it would not contribute to cumulative land use issues.

Mineral Resources. The proposed Project would have no impact on mineral resources and thus would not contribute to cumulative impacts.

Noise. The proposed Project's noise impacts are anticipated to be minor and the proposed Project would comply with the noise standards in the Noise Element of the Stanislaus County General Plan. Operation of the proposed Project would not result in a substantial permanent increase in ambient noise levels in the Project vicinity above levels existing without the proposed Project. Thus, cumulative noise impacts would be less than significant.

Population and Housing. The proposed Project would have no impact on population growth in the area because it would not include any new residential or commercial development. The proposed Project also would not result in temporary employment during construction and would not result in the permanent creation of a significant number of new jobs that would induce substantial population growth. Therefore, cumulative population and housing impacts would be less than significant.

Public Services. No commercial or residential development is proposed as part of the proposed Project; therefore, the proposed Project would not increase demands on fire protection or police services, nor would it affect the response time of these services. Therefore, cumulative public services impacts would be less than significant.

Recreation. The proposed Project would have no impact on recreation and thus would not contribute to cumulative impacts.

Transportation. For cumulative impacts, see Section 2.12, *Transportation*.

Utilities and Service Systems. The proposed Project does not include and would not require the relocation or construction of new or expanded wastewater treatment or stormwater drainage, natural gas, or telecommunications facilities. The proposed Project also would not require stormwater treatment. Therefore, cumulative impacts related to utilities and service systems would be less than significant.

The analyses in this draft initial study/mitigated negative declaration found that the proposed Project and associated activities would have the potential to result in impacts on the environment in the areas of biological resources, cultural resources, geology and soils, greenhouse gas emissions, hazards and hazardous materials, hydrology and water quality, and tribal cultural resources. However, these potential impacts would be reduced to a less-than-significant level with implementation of the mitigation measures included in this document, and most impacts would be temporary (i.e., would occur only during construction). Other future projects proposed in the region and vicinity may increase the impacts identified herein, or the proposed Project may contribute to other impacts. However, the proposed Project is not anticipated to contribute substantially to any one impact, and the proposed Project's impacts are not anticipated to be cumulatively considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of future projects. Thus, this impact would be less than significant with mitigation incorporated.

- c) **Less than Significant with Mitigation Incorporated.** The proposed Project would not result in any substantial adverse effects on human beings, either directly or indirectly, because each potentially significant impact can be reduced to a less-than-significant level with the implementation of the mitigation measures provided in this document. No other substantial adverse effects on human beings are anticipated as a result of the proposed Project, resulting in a less-than-significant impact with mitigation incorporated.
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Appendix A

Species Lists

REGIONALLY OCCURRING SPECIAL-STATUS SPECIES

Scientific Name	Common Name	Listing Status: Federal/State/Other	Habitat Description	Potential for Occurrence within the Project Site
Amphibians				
<i>Ambystoma californiense</i>	California tiger salamander	FT/ST/--	Found in vernal pools, ephemeral wetlands, and seasonal ponds, including constructed stock ponds, in grassland and oak savannah plant communities from 3 to 1,054 meters.	None. The Project site does not contain suitable aquatic habitat.
<i>Rana draytonii</i>	California red-legged frog	FT/CSC/--	Found in permanent and temporary pools of streams, marshes, and ponds with dense grassy and/or shrubby vegetation from 0 to 1,500 meters.	None. The Project site does not contain suitable aquatic habitat.
Birds				
<i>Agelaius tricolor</i>	tricolored blackbird	FC/ST/--	Highly colonial species, most numerous in the 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.	None. The Project site does not provide suitable habitat for this species.
<i>Athene cunicularia</i>	burrowing owl	--/CSC/--	Nests and forages in grasslands, agricultural fields, and low scrub habitats, especially where ground squirrel burrows are present; occasionally inhabits artificial structures and small patches of disturbed habitat.	Low. Suitable habitat may be present along the edges of the orchard within the Project site. Nearest presumed extant CNDDB occurrences of this species located 12 miles northwest of the Project site in similar habitat.
<i>Buteo swainsoni</i>	Swainson's hawk	--/ST/--	In the Central Valley, nests in isolated trees, small groves, or large woodlands next to open grasslands or agricultural fields. Usually nests near riparian areas; however, it has been known to nest in urban areas as well. Nest locations are usually near suitable foraging habitats, which include fallow fields, annual grasslands, irrigated pastures, alfalfa and other hay crops, and low-growing row crops. The CDFW considers 5 or more vacant acres within 10 miles of an active nest within the last 5 years to be significant foraging habitat for Swainson's hawk, the conversion of which to urban uses is considered a significant impact, in accordance with CDFW 1994.	Unlikely. The Project site does not contain suitable foraging or nesting habitat for this species. No suitable nesting trees are present within 0.5 miles of the Project site. The nearest CNDDB occurrence is from 2007 and is located 3 miles southeast of the Project site. The occurrence (#1680) states that two Swainson's hawk were defending a territory from a red-shouldered hawk, but no nest was observed.
<i>Vireo bellii pusillus</i>	Least Bell's vireo	FE/SE/--	Summer resident of Southern California in low riparian habitat in vicinity of water or in dry river bottoms; below 2000 feet. Nests placed along margins of bushes or on twigs projecting into pathways, usually willow, <i>Baccharis</i> sp., and mesquite.	Unlikely. The Project site does not provide suitable nesting habitat for this species.
Fish				
<i>Hypomesus transpacificus</i>	Delta smelt	FT/SE/--	Open surface waters in the Sacramento/San Joaquin Delta. Seasonally in Suisun Bay, Carquinez Strait and San Pablo Bay. Found in Delta estuaries with dense aquatic vegetation and low occurrence of predators. May be affected by downstream sedimentation.	Unlikely. The Project site does not provide habitat for this species.

REGIONALLY OCCURRING SPECIAL-STATUS SPECIES

Scientific Name	Common Name	Listing Status: Federal/State/Other	Habitat Description	Potential for Occurrence within the Project Site
<i>Mylopharodon conocephalus</i>	Hardhead	--/CSC/--	Inhabits deep pools over rocky and sandy substrates in small to large rivers. Known from the drainages of the Sacramento and San Joaquin rivers.	Unlikely. The Project site does not provide habitat for this species.
<i>Oncorhynchus mykiss irideus</i> pop. 11	Central Valley DPS steelhead	FT/--/--	This ESU enters the Sacramento and San Joaquin Rivers and their tributaries from July to May; spawning from December to April. Young move to rearing areas in and through the Sacramento and San Joaquin Rivers, Delta, and San Pablo and San Francisco Bays.	Unlikely. The Project site does not provide habitat for this species.
<i>Pogonichthys macrolepidotus</i>	Sacramento splittail	--/CSC/--	Splittail spawn in shallow water over flooded vegetated habitat with a detectable water flow. Splittail larvae and juveniles remain in riparian or annual vegetation along shallow edges on floodplains	Unlikely. The Project site does not provide habitat for this species.
Invertebrates				
<i>Bombus crotchii</i>	Crotch bumble bee	--/SCE/--	Inhabits the grassland and scrub areas in the Mediterranean region, Pacific coast, western desert, great valley and southwestern foothills in California. Nests underground, often in abandoned rodent dens. Feeds on milkweed, lupine, phacelia, sage, snapdragon, clarkia, poppy, and buckwheat.	Unlikely. The Project site does not provide habitat for this species.
<i>Branchinecta lynchi</i>	vernal pool fairy shrimp	FT/--/--	Endemic to the grasslands of the Central Valley, central coast mountains, and south coast mountains, in astatic rain-filled pools. Inhabit small, clear-water sandstone-depression pools and grassed swales, earth slumps, or basalt-flow depression pools.	Unlikely. The Project site does not provide habitat for this species.
<i>Desmocerus californicus dimorphus</i>	valley elderberry longhorn beetle	FT/--/--	Occurs only in the Central Valley of California, in association with blue elderberry (<i>Sambucus nigra</i> ssp. <i>caerulea</i>). Prefers to lay eggs in elderberries 2-8 inches in diameter; some preference shown for "stressed" elderberries.	Unlikely. The Project site does not contain elderberries, the host plant for the species.
<i>Lepidurus packardii</i>	vernal pool tadpole shrimp	FE/--/--	Inhabits vernal pools and swales in the Sacramento Valley containing clear to highly turbid water. Pools commonly found in grass bottomed swales of unplowed grasslands. Some pools are mud-bottomed and highly turbid.	Unlikely. The Project site does not provide habitat for this species.
Mammals				
<i>Corynorhinus townsendii</i>	Townsend's big-eared bat	--/CSC/--	Found in all but subalpine and alpine habitats throughout California. Roost in caves, mines, tunnels, buildings, or other human structures. Most abundant in mesic habitats. This species gleans from brush or trees along habitat edges.	Unlikely. The Project site does not provide habitat for this species.

REGIONALLY OCCURRING SPECIAL-STATUS SPECIES

Scientific Name	Common Name	Listing Status: Federal/State/Other	Habitat Description	Potential for Occurrence within the Project Site
Reptiles				
<i>Anniella pulchra</i>	Northern California legless lizard	--/CSC/--	Commonly occur in coastal dune, valley-foothill, chaparral, and coastal scrub habitats. Prefers areas with sandy or loose organic soils with plenty of leaf litter. Often burrow in leaf litter or loose soil for cover.	Unlikely. The Project site does not provide habitat for this species.
<i>Emys marmorata</i>	western pond turtle	--/CSC/--	A thoroughly aquatic turtle of ponds, marshes, rivers, streams, and irrigation ditches, usually with aquatic vegetation, below 6,000 feet. Need basking sites and suitable (sandy banks or grassy open fields) upland habitat up to 0.5 km from water for egg-laying.	Unlikely. The manmade cement-lined irrigation canals on the Project site provide potential aquatic habitat for this species. The habitat is marginal because it lacks riparian vegetation and basking sites. There are no known records or extant populations within 5 miles of the Project site.
<i>Thamnophis gigas</i>	giant garter snake	FT/ST/--	Prefers marshes, ponds, sloughs, small lakes, low-gradient streams, and other waterways and agricultural wetlands, including irrigation and drainage canals with emergent vegetation, rice fields, and the adjacent uplands. Utilize adjacent uplands including small mammal burrows and crevices in grasslands.	Unlikely. The Project site does not provide aquatic or adjacent upland habitat for this species. The cement-lined irrigation canals lack emergent vegetation. In addition, this species does not utilize orchards for upland habitat. There are no known records or extant populations within 5 miles of the Project site.
Plants				
<i>Astragalus tener</i> var. <i>tener</i>	alkali milk-vetch	--/--/1B.2	Annual herb found in alkaline playas, vernal pools, and valley and foothill grasslands with adobe clay soils from 1 to 60 meters elevation. Blooms March through June.	Unlikely. The Project site does not provide habitat for this species.
<i>Atriplex cordulata</i> var. <i>cordulata</i>	heartscale	--/--/1B.2	Annual herb found in saline or alkaline soils of chenopod scrub, meadows and seeps, and sandy valley and foothill grasslands from 0 to 560 meters. Blooms April through October.	Unlikely. While the Project site has slightly alkaline sandy loam soils, the orchards and ruderal/developed areas lack suitable habitat for this species.
<i>Atriplex minuscula</i>	lesser saltscale	--/--/1B.1	Annual herb found in alkaline, sandy soils of chenopod scrub, playas, and valley and foothill grasslands from 15 to 200 meters. Blooms May through October.	Unlikely. While the Project site has slightly alkaline sandy loam soils, the orchards and ruderal/developed areas lack suitable habitat for this species.
<i>Atriplex persistens</i>	vernal pool smallscale	--/--/1B.2	Annual herb found in alkaline vernal pools from 10 to 115 meters. Blooms June through October.	Unlikely. The Project site does not provide habitat for this species.
<i>Atriplex subtilis</i>	subtle orache	--/--/1B.2	Annual herb found in alkaline valley and foothill grasslands from 40 to 110 meters. Blooms June through September, sometimes into October.	Unlikely. While the Project site has slightly alkaline sandy loam soils, the orchards and ruderal/developed areas lack suitable habitat for this species.
<i>Clarkia rostrata</i>	beaked clarkia	--/--/1B.3	Annual herb found in cismontane woodland and valley and foothill grassland from 60 to 500 meters. Blooms April through May.	Unlikely. While the Project site has slightly alkaline sandy loam soils, the orchards and ruderal/developed areas lack suitable habitat for this species. In addition, the Project site is outside of the extant elevation range for this species.
<i>Eryngium racemosum</i>	Delta button-celery	--/SE/1B.1	Annual or perennial herb found in vernal mesic clay depressions in riparian scrub from 3 to 30 meters. Blooms June through October.	Unlikely. The Project site does not provide habitat for this species.

REGIONALLY OCCURRING SPECIAL-STATUS SPECIES

Scientific Name	Common Name	Listing Status: Federal/State/Other	Habitat Description	Potential for Occurrence within the Project Site
<i>Lasthenia chrysantha</i>	alkali-sink goldfields	--/--/1B.1	Annual herb found in vernal pools and wet saline flats under 100 meters. Blooms February through April.	Unlikely. The Project site does not provide habitat for this species.
<i>Monardella leucocephala</i>	Merced monardella	--/--/1A	Annual herb found in sandy, mesic valley and foothill grassland from 35 to 100 meters. Blooms May through August.	Unlikely. While the Project site has slightly alkaline sandy loam soils, the orchards and ruderal/developed areas lack suitable habitat for this species.
<i>Neostapfia colusana</i>	Colusa grass	FT/SE/1B.1	Annual herb found in large, adobe vernal pools from 5 to 200 meters. Blooms May through August.	Unlikely. The Project site does not provide habitat for this species.
<i>Orcuttia inaequalis</i>	San Joaquin Valley Orcutt grass	FT/SE/1B.1	Annual herb found in vernal pools from 10 to 755 meters. Blooms April through September.	Unlikely. The Project site does not provide habitat for this species.
<i>Puccinellia simplex</i>	California alkali grass	--/--/1B.2	Annual herb found in alkaline, vernal mesic sinks, flats and lake margins within chenopod scrub, meadows and seeps, valley and foothill grassland, and vernal pool habitats from 2 to 930 meters. Blooms March through May.	Unlikely. The Project site does not provide habitat for this species.
<i>Sphenopholis obtusata</i>	prairie wedge grass	--/--/2B.2	Perennial herb found in mesic areas in cismontane woodland and meadows and seeps from 300 to 2000 meters. Blooms April through July.	Unlikely. The Project site does not provide habitat for this species.
<i>Tuctoria greenei</i>	Greene's tuctoria	FE/SR/1B.1	Annual herb found in vernal pools from 20 to 1070 meters. Blooms May through July and sometimes into September.	Unlikely. The Project site does not provide habitat for this species.

KEY:

Federal: (USFWS)

FE = Listed as Endangered by the Federal Government

FT = Listed as Threatened by the Federal Government

FC = Candidate for listing by the Federal Government

State: (CDFW)

SE = Listed as Endangered by the State of California

ST = Listed as Threatened by the State of California

SR = Listed as Rare by the State of California (plants only)

SCE = Candidate for Endangered by the State of California

CSC = California Species of Special Concern

CRPR: (California Rare Plant Rank)

Rank 1A = Plants presumed extinct in California

Rank 1B = Plants rare, threatened, or endangered in California and elsewhere

Rank 2A = Plants presumed extirpated in California but common elsewhere

Rank 2B = Plants rare, threatened, or endangered in California but more common elsewhere

Note: Ranks at each level also includes a threat rank (e.g., CRPR 2B.2) and are determined as follows:

0.1 – Seriously threatened in California (over 80% of occurrences threatened / high degree and immediacy of threat)

0.2 – Moderately threatened in California (20-80% occurrences threatened / moderate degree and immediacy of threat)

0.3 – Not very threatened in California (less than 20% of occurrences threatened / low degree and immediacy of threat or no current threats known)

SOURCES: CDFW, 2020; CNPS, 2020; and USFWS, 2020.

IPaC Information for Planning and Consultation U.S. Fish & Wildlife Service

IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

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 does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population, even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

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 from either the Regulatory Review section in IPaC (see directions below) 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 doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species

¹ and their critical habitats are managed by the [Ecological Services Program](#) of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries²).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact [NOAA Fisheries](#) for [species under their jurisdiction](#).

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.
2. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

Reptiles

NAME	STATUS
Giant Garter Snake <i>Thamnophis gigas</i> No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/4482	Threatened

Amphibians

NAME	STATUS
California Red-legged Frog <i>Rana draytonii</i> There is final critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/2891	Threatened
California Tiger Salamander <i>Ambystoma californiense</i> There is final critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/2076	Threatened

Fishes

NAME	STATUS
Delta Smelt <i>Hypomesus transpacificus</i> There is final critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/321	Threatened

Insects

NAME	STATUS
Valley Elderberry Longhorn Beetle <i>Desmocerus californicus dimorphus</i> There is final critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/7850	Threatened

Crustaceans

NAME	STATUS
Vernal Pool Fairy Shrimp <i>Branchinecta lynchi</i> There is final critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/498	Threatened

Vernal Pool Tadpole Shrimp *Lepidurus packardii*

Endangered

There is **final** critical habitat for this species. Your location is outside the critical habitat.

<https://ecos.fws.gov/ecp/species/2246>

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

Certain birds are protected under the Migratory Bird Treaty Act

¹ and the Bald and Golden Eagle Protection Act².

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described [below](#).

1. The [Migratory Birds Treaty Act](#) of 1918.
2. The [Bald and Golden Eagle Protection Act](#) of 1940.

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>
- Measures for avoiding and minimizing impacts to birds <http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php>
- Nationwide conservation measures for birds <http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf>

The birds listed below are birds of particular concern either because they occur on the [USFWS Birds of Conservation Concern](#) (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ [below](#). This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the [E-bird data mapping tool](#) (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found [below](#).

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME

BREEDING SEASON (IF A BREEDING SEASON IS INDICATED FOR A BIRD ON YOUR LIST, THE BIRD MAY BREED IN YOUR PROJECT AREA SOMETIME WITHIN THE TIMEFRAME SPECIFIED, WHICH IS A VERY LIBERAL ESTIMATE OF THE DATES INSIDE WHICH THE BIRD BREEDS ACROSS ITS ENTIRE RANGE. "BREEDS ELSEWHERE" INDICATES THAT THE BIRD DOES NOT LIKELY BREED IN YOUR PROJECT AREA.)

Nuttall's Woodpecker *Picoides nuttallii*

Breeds Apr 1 to Jul 20

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA

<https://ecos.fws.gov/ecp/species/9410>

Oak Titmouse *Baeolophus inornatus*

Breeds Mar 15 to Jul 15

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

<https://ecos.fws.gov/ecp/species/9656>

Yellow-billed Magpie *Pica nuttalli*

Breeds Apr 1 to Jul 31

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

<https://ecos.fws.gov/ecp/species/9726>

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is $0.25/0.25 = 1$; at week 20 it is $0.05/0.25 = 0.2$.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

Breeding Season (■)

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)

Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

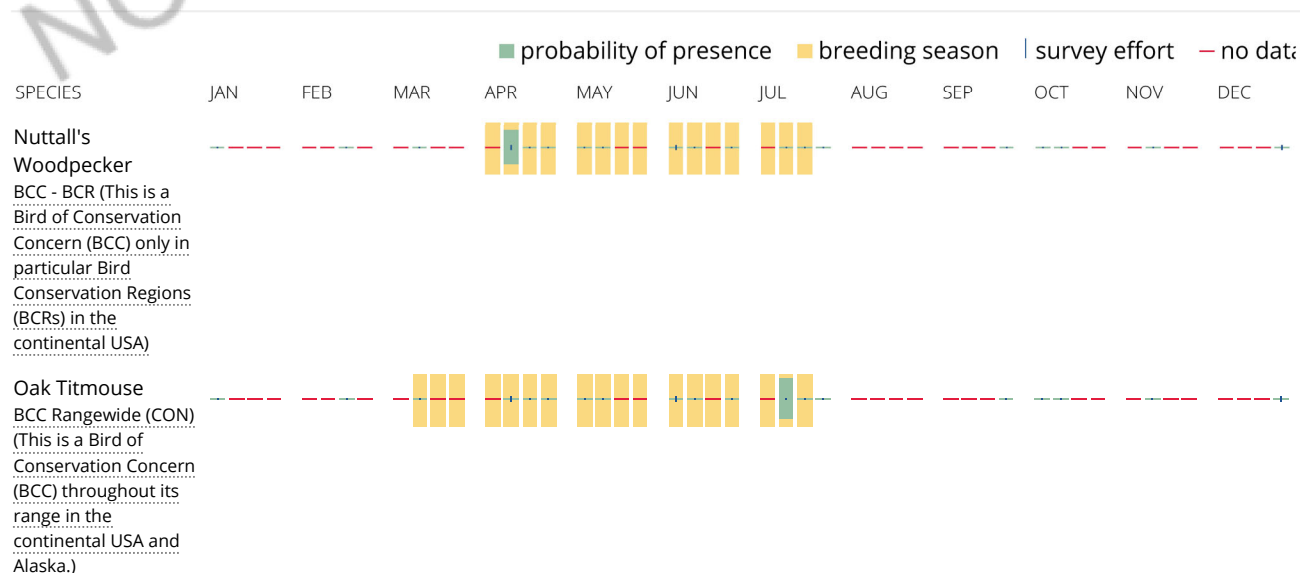
To see a bar's survey effort range, simply hover your mouse cursor over the bar.

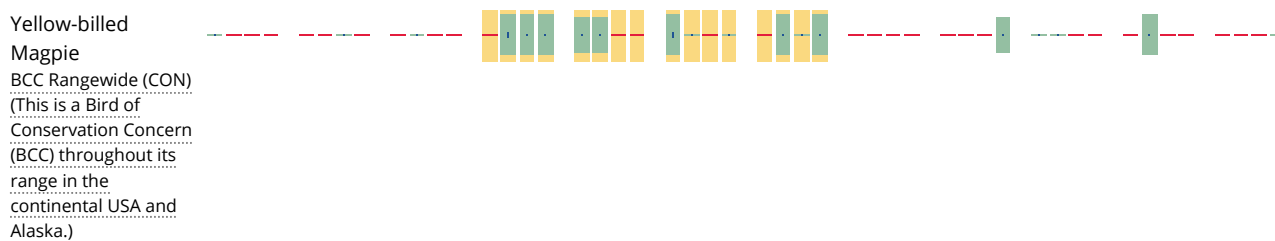
No Data (—)

A week is marked as having no data if there were no survey events for that week.

Survey Timeframe

Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.





Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

[Nationwide Conservation Measures](#) describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. [Additional measures](#) and/or [permits](#) may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the migratory birds potentially occurring in my specified location?

The Migratory Bird Resource List is comprised of USFWS [Birds of Conservation Concern \(BCC\)](#) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the [Avian Knowledge Network \(AKN\)](#). The AKN data is based on a growing collection of [survey, banding, and citizen science datasets](#) and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle ([Eagle Act](#) requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the [AKN Phenology Tool](#).

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the [Avian Knowledge Network \(AKN\)](#). This data is derived from a growing collection of [survey, banding, and citizen science datasets](#).

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: [The Cornell Lab of Ornithology All About Birds Bird Guide](#), or (if you are unsuccessful in locating the bird of interest there), the [Cornell Lab of Ornithology Neotropical Birds guide](#). If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are [Birds of Conservation Concern](#) (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the [Eagle Act](#) requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the [Northeast Ocean Data Portal](#). The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review.

Alternately, you may download the bird model results files underlying the portal maps through the [NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf](#) project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the [Diving Bird Study](#) and the [nanotag studies](#) or contact [Caleb Spiegel](#) or [Pam Loring](#).

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to [obtain a permit](#) to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the [National Wildlife Refuge](#) system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS AT THIS LOCATION.

Fish hatcheries

THERE ARE NO FISH HATCHERIES AT THIS LOCATION.

Wetlands in the National Wetlands Inventory

Impacts to [NWI wetlands](#) and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local [U.S. Army Corps of Engineers District](#).

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

This location overlaps the following wetlands:

RIVERINE

[R2UBHx](#)

[R4SBCx](#)

A full description for each wetland code can be found at the [National Wetlands Inventory website](#)

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tubercid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

NOT FOR CONSULTATION



Selected Elements by Scientific Name

California Department of Fish and Wildlife

California Natural Diversity Database



Query Criteria: Quad< IS (Ceres (3712058) OR Salida (3712161) OR Riverbank (3712068) OR Waterford (3712067) OR Brush Lake (3712151) OR Denair (3712057) OR Crows Landing (3712141) OR Hatch (3712048) OR Turlock (3712047))

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
<i>Agelaius tricolor</i> tricolored blackbird	ABPBXB0020	None	Threatened	G2G3	S1S2	SSC
<i>Ambystoma californiense</i> California tiger salamander	AAAAA01180	Threatened	Threatened	G2G3	S2S3	WL
<i>Anniella pulchra</i> Northern California legless lizard	ARACC01020	None	None	G3	S3	SSC
<i>Ardea herodias</i> great blue heron	ABNGA04010	None	None	G5	S4	
<i>Astragalus tener</i> var. <i>tener</i> alkali milk-vetch	PDFAB0F8R1	None	None	G2T1	S1	1B.2
<i>Athene cunicularia</i> burrowing owl	ABNSB10010	None	None	G4	S3	SSC
<i>Atriplex cordulata</i> var. <i>cordulata</i> heartscale	PDCHE040B0	None	None	G3T2	S2	1B.2
<i>Atriplex minuscula</i> lesser saltscale	PDCHE042M0	None	None	G2	S2	1B.1
<i>Atriplex persistens</i> vernal pool smallscale	PDCHE042P0	None	None	G2	S2	1B.2
<i>Atriplex subtilis</i> subtle orache	PDCHE042T0	None	None	G1	S1	1B.2
<i>Bombus caliginosus</i> obscure bumble bee	IIHYM24380	None	None	G4?	S1S2	
<i>Bombus crotchii</i> Crotch bumble bee	IIHYM24480	None	Candidate Endangered	G3G4	S1S2	
<i>Branchinecta lynchi</i> vernal pool fairy shrimp	ICBRA03030	Threatened	None	G3	S3	
<i>Branta hutchinsii leucopareia</i> cackling (=Aleutian Canada) goose	ABNJB05035	Delisted	None	G5T3	S3	WL
<i>Buteo swainsoni</i> Swainson's hawk	ABNKC19070	None	Threatened	G5	S3	
<i>Clarkia rostrata</i> beaked clarkia	PDONA050Y0	None	None	G2G3	S2S3	1B.3
<i>Corynorhinus townsendii</i> Townsend's big-eared bat	AMACC08010	None	None	G3G4	S2	SSC
<i>Desmocerus californicus dimorphus</i> valley elderberry longhorn beetle	IICOL48011	Threatened	None	G3T2	S3	
<i>Dipodomys heermanni dixonii</i> Merced kangaroo rat	AMAFD03062	None	None	G3G4T2T3	S2S3	



Selected Elements by Scientific Name

California Department of Fish and Wildlife

California Natural Diversity Database



Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
<i>Egretta thula</i> snowy egret	ABNGA06030	None	None	G5	S4	
<i>Emys marmorata</i> western pond turtle	ARAAD02030	None	None	G3G4	S3	SSC
<i>Eryngium racemosum</i> Delta button-celery	PDAP10Z0S0	None	Endangered	G1	S1	1B.1
<i>Gonidea angulata</i> western ridged mussel	IMBIV19010	None	None	G3	S1S2	
<i>Lasiurus cinereus</i> hoary bat	AMACC05030	None	None	G5	S4	
<i>Lasthenia chrysantha</i> alkali-sink goldfields	PDAST5L030	None	None	G2	S2	1B.1
<i>Lepidurus packardii</i> vernal pool tadpole shrimp	ICBRA10010	Endangered	None	G4	S3S4	
<i>Lytta moesta</i> moestan blister beetle	IICOL4C020	None	None	G2	S2	
<i>Monardella leucocephala</i> Merced monardella	PDLAM180C0	None	None	GX	SX	1A
<i>Mylopharodon conocephalus</i> hardhead	AFCJB25010	None	None	G3	S3	SSC
<i>Neostapfia colusana</i> Colusa grass	PMPOA4C010	Threatened	Endangered	G1	S1	1B.1
<i>Oncorhynchus mykiss irideus pop. 11</i> steelhead - Central Valley DPS	AFCHA0209K	Threatened	None	G5T2Q	S2	
<i>Orcuttia inaequalis</i> San Joaquin Valley Orcutt grass	PMPOA4G060	Threatened	Endangered	G1	S1	1B.1
<i>Pogonichthys macrolepidotus</i> Sacramento splittail	AFCJB34020	None	None	GNR	S3	SSC
<i>Puccinellia simplex</i> California alkali grass	PMPOA53110	None	None	G3	S2	1B.2
<i>Sphenopholis obtusata</i> prairie wedge grass	PMPOA5T030	None	None	G5	S2	2B.2
<i>Tuctoria greenei</i> Greene's tuctoria	PMPOA6N010	Endangered	Rare	G1	S1	1B.1
<i>Vireo bellii pusillus</i> least Bell's vireo	ABPBW01114	Endangered	Endangered	G5T2	S2	

Record Count: 37



*The database used to provide updates to the Online Inventory is under construction. [View updates and changes made since May 2019 here.](#)

Plant List

13 matches found. *Click on scientific name for details*

Search Criteria

California Rare Plant Rank is one of [1A, 1B, 2A, 2B], Found in Quads 3712161, 3712068, 3712067, 3712151, 3712058, 3712057, 3712141 3712048 and 3712047;

[Modify Search Criteria](#) [Export to Excel](#) [Modify Columns](#) [Modify Sort](#) [Display Photos](#)

Scientific Name	Common Name	Family	Lifeform	Blooming Period	CA Rare Plant Rank	State Rank	Global Rank
Astragalus tener var. tener	alkali milk-vetch	Fabaceae	annual herb	Mar-Jun	1B.2	S1	G2T1
Atriplex cordulata var. cordulata	heartscale	Chenopodiaceae	annual herb	Apr-Oct	1B.2	S2	G3T2
Atriplex minuscule	lesser saltscale	Chenopodiaceae	annual herb	May-Oct	1B.1	S2	G2
Atriplex persistens	vernal pool smallscale	Chenopodiaceae	annual herb	Jun, Aug, Sep, Oct	1B.2	S2	G2
Atriplex subtilis	subtle orache	Chenopodiaceae	annual herb	Jun, Aug, Sep (Oct)	1B.2	S1	G1
Clarkia rostrata	beaked clarkia	Onagraceae	annual herb	Apr-May	1B.3	S2S3	G2G3
Eryngium racemosum	Delta button-celery	Apiaceae	annual / perennial herb	Jun-Oct	1B.1	S1	G1
Monardella leucocephala	Merced monardella	Lamiaceae	annual herb	May-Aug	1A	SH	GH
Neostapfia colusana	Colusa grass	Poaceae	annual herb	May-Aug	1B.1	S1	G1
Orcuttia inaequalis	San Joaquin Valley Orcutt grass	Poaceae	annual herb	Apr-Sep	1B.1	S1	G1
Puccinellia simplex	California alkali grass	Poaceae	annual herb	Mar-May	1B.2	S2	G3
Sphenopholis obtusata	prairie wedge grass	Poaceae	perennial herb	Apr-Jul	2B.2	S2	G5
Tuctoria greenei	Greene's tuctoria	Poaceae	annual herb	May-Jul(Sep)	1B.1	S1	G1

Suggested Citation

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Appendix B

Air Quality

Ceres Main Regulating Reservoir

Criteria Air Pollutant (CAP) Summary

Construction

		Unmitigated Construction Emissions (total tons)					
		CO	NOx	ROG	SOx	PM ₁₀	PM _{2.5}
Grading	Off-Road	1.28	1.79	0.17	0.00	0.08	0.07
	Hauling	0.09	0.62	0.02	0.00	0.04	0.01
	Vendor	0.00	0.01	0.00	0.00	0.00	0.00
	Worker	0.04	0.00	0.01	0.00	0.01	0.00
2021	Total	1.41	2.43	0.19	4.49E-03	0.14	0.09
SJVAPCD Threshold		100	10	10	27	15	15

Source

ESA, 2021. CalEEMod_Output_Annual

SJVAPCD, 2015. Air Quality Thresholds of Significance- Criteria Pollutants. March 19, 2015.

<http://www.valleyair.org/transportation/0714-GAMAQI-Criteria-Pollutant-Thresholds-of-Significance.pdf>

Ceres Main Regulating Reservoir - San Joaquin Valley Air Basin, Annual

Ceres Main Regulating Reservoir
San Joaquin Valley Air Basin, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
City Park	38.00	Acre	38.00	1,655,280.00	0

1.2 Other Project Characteristics

Urbanization	Rural	Wind Speed (m/s)	2.7	Precipitation Freq (Days)	45
Climate Zone	3			Operational Year	2021
Utility Company	Turlock Irrigation District				
CO2 Intensity (lb/MW hr)	790	CH4 Intensity (lb/MW hr)	0.029	N2O Intensity (lb/MW hr)	0.006

1.3 User Entered Comments & Non-Default Data

Ceres Main Regulating Reservoir - San Joaquin Valley Air Basin, Annual

Project Characteristics - From PD

Land Use - Regulating Reservoir

Construction Phase - Demo proportioned off of defaults. Assume remaining days under building construction/cement work

Off-road Equipment - Building + concrete work. Other = concrete laser screeds

Off-road Equipment - No Concete/Industrial Saws in PD

Off-road Equipment -

Off-road Equipment - Onsite grading requires 2 scrapers, 1 grader, 1 rolling compactor

Off-road Equipment - Onsite grading requires 2 scrapers, 1 grader, 1 rolling compactor

Trips and VMT - Haul trips and distance in PD. Building construction worker trips to match assumptions with other phases.

Demolition -

Grading - Project site = 38 acres

Energy Use -

Operational Off-Road Equipment - pump station

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	740.00	35.00
tblConstructionPhase	NumDays	50.00	6.00
tblConstructionPhase	NumDays	75.00	35.00
tblConstructionPhase	NumDays	75.00	25.00
tblGrading	AcresOfGrading	87.50	19.00
tblGrading	AcresOfGrading	62.50	19.00
tblGrading	MaterialExported	0.00	61,000.00
tblGrading	MaterialExported	0.00	40,000.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00

Ceres Main Regulating Reservoir - San Joaquin Valley Air Basin, Annual

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	1.00
tblOffRoadEquipment	PhaseName		Building Construction
tblOffRoadEquipment	PhaseName		Building Construction
tblOffRoadEquipment	PhaseName		Building Construction
tblOffRoadEquipment	PhaseName		Grading - S. Yard
tblOffRoadEquipment	PhaseName		Grading - Canal
tblOperationalOffRoadEquipment	OperFuelType	Diesel	Electrical
tblOperationalOffRoadEquipment	OperOffRoadEquipmentNumber	0.00	1.00
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblTripsAndVMT	HaulingTripLength	20.00	30.00
tblTripsAndVMT	HaulingTripLength	20.00	2.00
tblTripsAndVMT	HaulingTripNumber	7,625.00	3,050.00
tblTripsAndVMT	HaulingTripNumber	5,000.00	2,000.00
tblTripsAndVMT	VendorTripNumber	271.00	6.00
tblTripsAndVMT	WorkerTripNumber	695.00	18.00

2.0 Emissions Summary

Ceres Main Regulating Reservoir - San Joaquin Valley Air Basin, Annual

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	5-1-2021	7-31-2021	2.2836	2.2836
2	8-1-2021	9-30-2021	0.3435	0.3435
		Highest	2.2836	2.2836

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	0.0156	0.0000	3.5000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	6.8000e-004	6.8000e-004	0.0000	0.0000	7.2000e-004
Energy	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
Mobile	0.0940	1.0068	0.9230	4.2800e-003	0.2499	3.9100e-003	0.2538	0.0672	3.7000e-003	0.0709	0.0000	397.5910	397.5910	0.0287	0.0000	398.3094
Offroad	0.0495	0.4173	0.4863	8.6000e-004		0.0231	0.0231		0.0231	0.0231	0.0000	73.4771	73.4771	4.0100e-003	0.0000	73.5773
Waste						0.0000	0.0000		0.0000	0.0000	0.6638	0.0000	0.6638	0.0392	0.0000	1.6445
Water						0.0000	0.0000		0.0000	0.0000	0.0000	56.7848	56.7848	2.0800e-003	4.3000e-004	56.9654
Total	0.1591	1.4241	1.4097	5.1400e-003	0.2499	0.0270	0.2769	0.0672	0.0268	0.0940	0.6638	527.8536	528.5173	0.0741	4.3000e-004	530.4973

Ceres Main Regulating Reservoir - San Joaquin Valley Air Basin, Annual

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	0.0156	0.0000	3.5000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	6.8000e-004	6.8000e-004	0.0000	0.0000	7.2000e-004
Energy	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
Mobile	0.0940	1.0068	0.9230	4.2800e-003	0.2499	3.9100e-003	0.2538	0.0672	3.7000e-003	0.0709	0.0000	397.5910	397.5910	0.0287	0.0000	398.3094
Offroad	0.0495	0.4173	0.4863	8.6000e-004		0.0231	0.0231		0.0231	0.0231	0.0000	73.4771	73.4771	4.0100e-003	0.0000	73.5773
Waste						0.0000	0.0000		0.0000	0.0000	0.6638	0.0000	0.6638	0.0392	0.0000	1.6445
Water						0.0000	0.0000		0.0000	0.0000	0.0000	56.7848	56.7848	2.0800e-003	4.3000e-004	56.9654
Total	0.1591	1.4241	1.4097	5.1400e-003	0.2499	0.0270	0.2769	0.0672	0.0268	0.0940	0.6638	527.8536	528.5173	0.0741	4.3000e-004	530.4973

	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
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**

Ceres Main Regulating Reservoir - San Joaquin Valley Air Basin, Annual

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	5/1/2021	5/10/2021	5	6	
2	Grading - S. Yard	Grading	5/11/2021	6/28/2021	5	35	
3	Grading - Canal	Grading	6/29/2021	8/2/2021	5	25	
4	Building Construction	Building Construction	8/3/2021	9/20/2021	5	35	

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: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Ceres Main Regulating Reservoir - San Joaquin Valley Air Basin, Annual

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	0	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Grading - S. Yard	Excavators	2	8.00	158	0.38
Grading - S. Yard	Graders	1	8.00	187	0.41
Grading - S. Yard	Rollers	1	8.00	80	0.38
Grading - S. Yard	Rubber Tired Dozers	1	8.00	247	0.40
Grading - S. Yard	Scrapers	2	8.00	367	0.48
Grading - S. Yard	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Grading - Canal	Excavators	2	8.00	158	0.38
Grading - Canal	Graders	1	8.00	187	0.41
Grading - Canal	Rollers	1	8.00	80	0.38
Grading - Canal	Rubber Tired Dozers	1	8.00	247	0.40
Grading - Canal	Scrapers	2	8.00	367	0.48
Grading - Canal	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cement and Mortar Mixers	1	8.00	9	0.56
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	0	8.00	89	0.20
Building Construction	Generator Sets	0	8.00	84	0.74
Building Construction	Other General Industrial Equipment	1	8.00	88	0.34
Building Construction	Pumps	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	0	8.00	46	0.45

Trips and VMT

Ceres Main Regulating Reservoir - San Joaquin Valley Air Basin, Annual

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
Demolition	5	13.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Grading - S. Yard	9	23.00	0.00	3,050.00	16.80	6.60	30.00	LD_Mix	HDT_Mix	HHDT
Grading - Canal	9	23.00	0.00	2,000.00	16.80	6.60	2.00	LD_Mix	HDT_Mix	HHDT
Building Construction	7	18.00	6.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction**3.2 Demolition - 2021****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	8.3400e-003	0.0852	0.0537	1.0000e-004		4.1300e-003	4.1300e-003		3.8000e-003	3.8000e-003	0.0000	8.5873	8.5873	2.7800e-003	0.0000	8.6567
Total	8.3400e-003	0.0852	0.0537	1.0000e-004		4.1300e-003	4.1300e-003		3.8000e-003	3.8000e-003	0.0000	8.5873	8.5873	2.7800e-003	0.0000	8.6567

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3.2 Demolition - 2021**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	2.1000e-004	1.5000e-004	1.5000e-003	0.0000	4.8000e-004	0.0000	4.9000e-004	1.3000e-004	0.0000	1.3000e-004	0.0000	0.4161	0.4161	1.0000e-005	0.0000	0.4163
Total	2.1000e-004	1.5000e-004	1.5000e-003	0.0000	4.8000e-004	0.0000	4.9000e-004	1.3000e-004	0.0000	1.3000e-004	0.0000	0.4161	0.4161	1.0000e-005	0.0000	0.4163

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	8.3400e-003	0.0852	0.0537	1.0000e-004		4.1300e-003	4.1300e-003		3.8000e-003	3.8000e-003	0.0000	8.5873	8.5873	2.7800e-003	0.0000	8.6567
Total	8.3400e-003	0.0852	0.0537	1.0000e-004		4.1300e-003	4.1300e-003		3.8000e-003	3.8000e-003	0.0000	8.5873	8.5873	2.7800e-003	0.0000	8.6567

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3.2 Demolition - 2021**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	2.1000e-004	1.5000e-004	1.5000e-003	0.0000	4.8000e-004	0.0000	4.9000e-004	1.3000e-004	0.0000	1.3000e-004	0.0000	0.4161	0.4161	1.0000e-005	0.0000	0.4163
Total	2.1000e-004	1.5000e-004	1.5000e-003	0.0000	4.8000e-004	0.0000	4.9000e-004	1.3000e-004	0.0000	1.3000e-004	0.0000	0.4161	0.4161	1.0000e-005	0.0000	0.4163

3.3 Grading - S. Yard - 2021**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					0.1200	0.0000	0.1200	0.0597	0.0000	0.0597	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0767	0.8457	0.5733	1.1300e-003		0.0368	0.0368		0.0339	0.0339	0.0000	99.4001	99.4001	0.0322	0.0000	100.2038
Total	0.0767	0.8457	0.5733	1.1300e-003	0.1200	0.0368	0.1568	0.0597	0.0339	0.0936	0.0000	99.4001	99.4001	0.0322	0.0000	100.2038

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3.3 Grading - S. Yard - 2021**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	0.0157	0.5096	0.0814	1.7100e-003	0.0391	1.8700e-003	0.0410	0.0108	1.7900e-003	0.0125	0.0000	162.4342	162.4342	6.6300e-003	0.0000	162.6001
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	2.1900e-003	1.5200e-003	0.0155	5.0000e-005	5.0000e-003	3.0000e-005	5.0400e-003	1.3300e-003	3.0000e-005	1.3600e-003	0.0000	4.2941	4.2941	1.1000e-004	0.0000	4.2968
Total	0.0179	0.5111	0.0968	1.7600e-003	0.0441	1.9000e-003	0.0460	0.0121	1.8200e-003	0.0139	0.0000	166.7283	166.7283	6.7400e-003	0.0000	166.8969

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					0.1200	0.0000	0.1200	0.0597	0.0000	0.0597	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0767	0.8457	0.5733	1.1300e-003		0.0368	0.0368		0.0339	0.0339	0.0000	99.4000	99.4000	0.0322	0.0000	100.2037
Total	0.0767	0.8457	0.5733	1.1300e-003	0.1200	0.0368	0.1568	0.0597	0.0339	0.0936	0.0000	99.4000	99.4000	0.0322	0.0000	100.2037

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3.3 Grading - S. Yard - 2021**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	0.0157	0.5096	0.0814	1.7100e-003	0.0391	1.8700e-003	0.0410	0.0108	1.7900e-003	0.0125	0.0000	162.4342	162.4342	6.6300e-003	0.0000	162.6001
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	2.1900e-003	1.5200e-003	0.0155	5.0000e-005	5.0000e-003	3.0000e-005	5.0400e-003	1.3300e-003	3.0000e-005	1.3600e-003	0.0000	4.2941	4.2941	1.1000e-004	0.0000	4.2968
Total	0.0179	0.5111	0.0968	1.7600e-003	0.0441	1.9000e-003	0.0460	0.0121	1.8200e-003	0.0139	0.0000	166.7283	166.7283	6.7400e-003	0.0000	166.8969

3.4 Grading - Canal - 2021**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					0.0883	0.0000	0.0883	0.0429	0.0000	0.0429	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0548	0.6041	0.4095	8.1000e-004		0.0263	0.0263		0.0242	0.0242	0.0000	71.0001	71.0001	0.0230	0.0000	71.5741
Total	0.0548	0.6041	0.4095	8.1000e-004	0.0883	0.0263	0.1146	0.0429	0.0242	0.0671	0.0000	71.0001	71.0001	0.0230	0.0000	71.5741

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3.4 Grading - Canal - 2021**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	2.4900e-003	0.1151	0.0125	1.9000e-004	1.7300e-003	1.4000e-004	1.8700e-003	4.8000e-004	1.3000e-004	6.1000e-004	0.0000	18.4512	18.4512	3.6900e-003	0.0000	18.5436
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	1.5600e-003	1.0900e-003	0.0110	3.0000e-005	3.5700e-003	2.0000e-005	3.6000e-003	9.5000e-004	2.0000e-005	9.7000e-004	0.0000	3.0672	3.0672	8.0000e-005	0.0000	3.0691
Total	4.0500e-003	0.1162	0.0235	2.2000e-004	5.3000e-003	1.6000e-004	5.4700e-003	1.4300e-003	1.5000e-004	1.5800e-003	0.0000	21.5184	21.5184	3.7700e-003	0.0000	21.6127

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					0.0883	0.0000	0.0883	0.0429	0.0000	0.0429	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0548	0.6041	0.4095	8.1000e-004		0.0263	0.0263		0.0242	0.0242	0.0000	71.0000	71.0000	0.0230	0.0000	71.5740
Total	0.0548	0.6041	0.4095	8.1000e-004	0.0883	0.0263	0.1146	0.0429	0.0242	0.0671	0.0000	71.0000	71.0000	0.0230	0.0000	71.5740

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3.4 Grading - Canal - 2021**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	2.4900e-003	0.1151	0.0125	1.9000e-004	1.7300e-003	1.4000e-004	1.8700e-003	4.8000e-004	1.3000e-004	6.1000e-004	0.0000	18.4512	18.4512	3.6900e-003	0.0000	18.5436
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	1.5600e-003	1.0900e-003	0.0110	3.0000e-005	3.5700e-003	2.0000e-005	3.6000e-003	9.5000e-004	2.0000e-005	9.7000e-004	0.0000	3.0672	3.0672	8.0000e-005	0.0000	3.0691
Total	4.0500e-003	0.1162	0.0235	2.2000e-004	5.3000e-003	1.6000e-004	5.4700e-003	1.4300e-003	1.5000e-004	1.5800e-003	0.0000	21.5184	21.5184	3.7700e-003	0.0000	21.6127

3.5 Building Construction - 2021**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	0.0263	0.2583	0.2396	4.0000e-004		0.0139	0.0139		0.0130	0.0130	0.0000	34.9318	34.9318	8.4600e-003	0.0000	35.1434
Total	0.0263	0.2583	0.2396	4.0000e-004		0.0139	0.0139		0.0130	0.0130	0.0000	34.9318	34.9318	8.4600e-003	0.0000	35.1434

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3.5 Building Construction - 2021**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	3.2000e-004	0.0111	2.0200e-003	3.0000e-005	6.3000e-004	3.0000e-005	6.6000e-004	1.8000e-004	3.0000e-005	2.1000e-004	0.0000	2.6042	2.6042	2.1000e-004	0.0000	2.6096
Worker	1.7100e-003	1.1900e-003	0.0121	4.0000e-005	3.9200e-003	3.0000e-005	3.9400e-003	1.0400e-003	2.0000e-005	1.0600e-003	0.0000	3.3606	3.3606	9.0000e-005	0.0000	3.3627
Total	2.0300e-003	0.0123	0.0141	7.0000e-005	4.5500e-003	6.0000e-005	4.6000e-003	1.2200e-003	5.0000e-005	1.2700e-003	0.0000	5.9648	5.9648	3.0000e-004	0.0000	5.9723

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	0.0263	0.2583	0.2396	4.0000e-004		0.0139	0.0139		0.0130	0.0130	0.0000	34.9318	34.9318	8.4600e-003	0.0000	35.1434
Total	0.0263	0.2583	0.2396	4.0000e-004		0.0139	0.0139		0.0130	0.0130	0.0000	34.9318	34.9318	8.4600e-003	0.0000	35.1434

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3.5 Building Construction - 2021**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	3.2000e-004	0.0111	2.0200e-003	3.0000e-005	6.3000e-004	3.0000e-005	6.6000e-004	1.8000e-004	3.0000e-005	2.1000e-004	0.0000	2.6042	2.6042	2.1000e-004	0.0000	2.6096
Worker	1.7100e-003	1.1900e-003	0.0121	4.0000e-005	3.9200e-003	3.0000e-005	3.9400e-003	1.0400e-003	2.0000e-005	1.0600e-003	0.0000	3.3606	3.3606	9.0000e-005	0.0000	3.3627
Total	2.0300e-003	0.0123	0.0141	7.0000e-005	4.5500e-003	6.0000e-005	4.6000e-003	1.2200e-003	5.0000e-005	1.2700e-003	0.0000	5.9648	5.9648	3.0000e-004	0.0000	5.9723

4.0 Operational Detail - Mobile**4.1 Mitigation Measures Mobile**

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	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	0.0940	1.0068	0.9230	4.2800e-003	0.2499	3.9100e-003	0.2538	0.0672	3.7000e-003	0.0709	0.0000	397.5910	397.5910	0.0287	0.0000	398.3094
Unmitigated	0.0940	1.0068	0.9230	4.2800e-003	0.2499	3.9100e-003	0.2538	0.0672	3.7000e-003	0.0709	0.0000	397.5910	397.5910	0.0287	0.0000	398.3094

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	71.82	864.50	636.12	655,207	655,207
Total	71.82	864.50	636.12	655,207	655,207

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
City Park	14.70	6.60	6.60	33.00	48.00	19.00	66	28	6

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.506092	0.032602	0.169295	0.124521	0.019914	0.005374	0.021664	0.110051	0.001797	0.001623	0.005307	0.000969	0.000792

5.0 Energy Detail

Historical Energy Use: N

[illegible]

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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					
City Park	0	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

5.3 Energy by Land Use - Electricity**Unmitigated**

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

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5.3 Energy by Land Use - Electricity**Mitigated**

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

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	0.0156	0.0000	3.5000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	6.8000e-004	6.8000e-004	0.0000	0.0000	7.2000e-004
Unmitigated	0.0156	0.0000	3.5000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	6.8000e-004	6.8000e-004	0.0000	0.0000	7.2000e-004

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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	0.0156					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	3.0000e-005	0.0000	3.5000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	6.8000e-004	6.8000e-004	0.0000	0.0000	7.2000e-004
Total	0.0156	0.0000	3.5000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	6.8000e-004	6.8000e-004	0.0000	0.0000	7.2000e-004

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	0.0156					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	3.0000e-005	0.0000	3.5000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	6.8000e-004	6.8000e-004	0.0000	0.0000	7.2000e-004
Total	0.0156	0.0000	3.5000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	6.8000e-004	6.8000e-004	0.0000	0.0000	7.2000e-004

7.0 Water Detail

Ceres Main Regulating Reservoir - San Joaquin Valley Air Basin, Annual

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	56.7848	2.0800e-003	4.3000e-004	56.9654
Unmitigated	56.7848	2.0800e-003	4.3000e-004	56.9654

7.2 Water by Land Use**Unmitigated**

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 45.2763	56.7848	2.0800e-003	4.3000e-004	56.9654
Total		56.7848	2.0800e-003	4.3000e-004	56.9654

Ceres Main Regulating Reservoir - San Joaquin Valley Air Basin, Annual

7.2 Water by Land Use**Mitigated**

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 45.2763	56.7848	2.0800e-003	4.3000e-004	56.9654
Total		56.7848	2.0800e-003	4.3000e-004	56.9654

8.0 Waste Detail**8.1 Mitigation Measures Waste****Category/Year**

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.6638	0.0392	0.0000	1.6445
Unmitigated	0.6638	0.0392	0.0000	1.6445

Ceres Main Regulating Reservoir - San Joaquin Valley Air Basin, Annual

8.2 Waste by Land Use**Unmitigated**

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	3.27	0.6638	0.0392	0.0000	1.6445
Total		0.6638	0.0392	0.0000	1.6445

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	3.27	0.6638	0.0392	0.0000	1.6445
Total		0.6638	0.0392	0.0000	1.6445

9.0 Operational Offroad

Ceres Main Regulating Reservoir - San Joaquin Valley Air Basin, Annual

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
Pumps	1	8.00	260	84	0.74	Electrical

UnMitigated/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
Equipment Type	tons/yr										MT/yr					
Pumps	0.0495	0.4173	0.4863	8.6000e-004		0.0231	0.0231		0.0231	0.0231	0.0000	73.4771	73.4771	4.0100e-003	0.0000	73.5773
Total	0.0495	0.4173	0.4863	8.6000e-004		0.0231	0.0231		0.0231	0.0231	0.0000	73.4771	73.4771	4.0100e-003	0.0000	73.5773

10.0 Stationary Equipment**Fire Pumps and Emergency Generators**

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

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

Equipment Type	Number
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11.0 Vegetation

CeresMainRegRes

AERSCREEN 16216 / AERMOD 18081

01/29/21

13:33:37

TITLE: CeresMainRegRes

 ***** AREA PARAMETERS *****

SOURCE EMISSION RATE:	1.0000 g/s	7.937 lb/hr
AREA EMISSION RATE:	0.649E-05 g/(s-m2)	0.515E-04 lb/(hr-m2)
AREA HEIGHT:	5.00 meters	16.40 feet
AREA SOURCE LONG SIDE:	400.00 meters	1312.34 feet
AREA SOURCE SHORT SIDE:	385.00 meters	1263.12 feet
INITIAL VERTICAL DIMENSION:	1.40 meters	4.59 feet
RURAL OR URBAN:	RURAL	
FLAGPOLE RECEPTOR HEIGHT:	1.50 meters	4.92 feet
INITIAL PROBE DISTANCE =	5000. meters	16404. feet

 ***** BUILDING DOWNWASH PARAMETERS *****

BUILDING DOWNWASH NOT USED FOR NON-POINT SOURCES

 ***** FLOW SECTOR ANALYSIS *****
 25 meter receptor spacing: 1. meters - 5000. meters

MAXIMUM IMPACT RECEPTOR

Zo SECTOR	SURFACE ROUGHNESS	1-HR CONC (ug/m3)	RADIAL (deg)	DIST (m)	TEMPORAL PERIOD
1*	0.010	935.6	45	350.0	WIN

* = worst case diagonal

CeresMainRegRes

 ***** MAKEMET METEOROLOGY PARAMETERS *****

MIN/MAX TEMPERATURE: 250.0 / 310.0 (K)

MINIMUM WIND SPEED: 0.5 m/s

ANEMOMETER HEIGHT: 10.000 meters

SURFACE CHARACTERISTICS INPUT: AERMET SEASONAL TABLES

DOMINANT SURFACE PROFILE: Cultivated Land

DOMINANT CLIMATE TYPE: Average Moisture

DOMINANT SEASON: Winter

ALBEDO: 0.60

BOWEN RATIO: 1.50

ROUGHNESS LENGTH: 0.010 (meters)

SURFACE FRICTION VELOCITY (U*) ADJUSTED

METEOROLOGY CONDITIONS USED TO PREDICT OVERALL MAXIMUM IMPACT

YR MO DY JDY HR

-- -- -- -- --

10 01 07 7 01

H0	U*	W*	DT/DZ	ZICNV	ZIMCH	M-O	LEN	Z0	BOWEN	ALBEDO	REF WS
-0.12	0.026	-9.000	0.020	-999.	10.	11.0	0.010	1.50	0.60	0.50	

HT	REF TA	HT
10.0	250.0	2.0

 ***** AERSCREEN AUTOMATED DISTANCES *****
 OVERALL MAXIMUM CONCENTRATIONS BY DISTANCE

CeresMainRegRes

DIST (m)	MAXIMUM 1-HR CONC (ug/m3)	DIST (m)	MAXIMUM 1-HR CONC (ug/m3)
1.00	450.2	2525.00	252.2
25.00	490.3	2550.00	250.4
50.01	530.9	2575.00	248.7
75.00	570.2	2600.00	247.1
100.00	612.4	2625.00	245.4
125.00	654.0	2650.00	243.8
150.01	694.7	2675.00	242.2
174.99	734.5	2700.00	240.6
200.00	773.4	2725.00	239.1
225.00	811.5	2750.00	237.5
250.00	848.7	2775.00	236.0
274.99	884.3	2800.00	234.6
300.00	915.2	2825.00	233.1
325.00	930.7	2850.00	231.7
350.00	935.6	2875.00	230.3
375.01	932.7	2900.00	228.9
400.00	924.6	2925.00	227.5
425.00	912.7	2950.00	226.1
450.00	898.3	2975.00	224.8
475.01	882.4	3000.00	223.5
500.00	865.2	3025.00	222.2
525.00	847.5	3050.00	220.9
550.00	829.7	3075.00	219.7
575.01	811.9	3100.00	218.4
599.99	793.1	3125.00	217.2
625.00	773.8	3150.00	216.0
650.00	755.2	3175.00	214.8
675.00	737.2	3200.00	213.6
699.99	719.8	3225.00	212.4
725.00	703.1	3250.00	211.3
750.00	687.0	3274.99	210.2
775.00	671.6	3300.00	209.1
800.01	656.7	3325.00	207.9
825.00	642.3	3350.00	206.9
850.00	628.4	3375.00	205.8
875.00	615.1	3400.00	204.7
900.01	602.2	3425.00	203.7
925.00	589.9	3450.00	202.6
950.00	577.9	3475.00	201.6
975.00	566.4	3500.00	200.6
1000.00	555.3	3525.00	199.6
1025.01	544.4	3550.00	198.6
1050.00	534.1	3575.00	197.7
1075.00	523.9	3600.00	196.7

CeresMainRegRes

1100.00	514.0	3625.00	195.7
1125.00	504.6	3650.00	194.8
1150.00	495.3	3675.00	193.9
1175.00	486.4	3700.00	192.9
1200.00	477.7	3725.00	192.0
1224.99	469.4	3750.00	191.1
1250.00	461.1	3775.00	190.3
1275.00	453.2	3800.00	189.4
1300.00	445.5	3825.00	188.5
1325.00	438.0	3850.00	187.7
1350.00	430.7	3875.00	186.8
1375.00	423.5	3900.00	186.0
1400.00	416.6	3925.00	185.1
1425.00	409.9	3950.00	184.3
1450.00	403.4	3975.00	183.5
1475.00	397.0	4000.00	182.7
1500.00	390.8	4025.00	181.9
1525.00	384.7	4050.00	181.1
1550.00	378.8	4075.00	180.3
1575.00	373.0	4100.00	179.6
1600.00	367.4	4125.00	178.8
1625.00	362.0	4150.00	178.0
1650.00	356.7	4175.00	177.3
1675.00	351.4	4200.00	176.6
1700.00	346.3	4225.00	175.8
1725.00	341.4	4250.00	175.1
1750.00	336.5	4275.00	174.4
1775.00	331.8	4300.00	173.7
1800.00	327.2	4325.00	173.0
1825.00	322.7	4350.00	172.3
1850.00	318.3	4375.00	171.6
1875.00	314.0	4400.00	170.9
1900.00	309.8	4425.00	170.2
1925.00	305.7	4450.00	169.5
1950.00	302.2	4475.00	168.9
1975.00	299.6	4500.00	168.2
2000.00	296.9	4525.00	167.6
2025.00	294.4	4550.00	166.9
2050.00	291.8	4575.00	166.3
2075.00	289.4	4600.00	165.7
2100.00	286.9	4625.00	165.0
2125.00	284.6	4650.00	164.4
2150.00	282.3	4675.00	163.8
2175.00	280.0	4700.00	163.2
2200.00	277.7	4725.00	162.6
2225.00	275.5	4750.00	162.0
2250.00	273.4	4774.99	161.4
2275.00	271.3	4800.00	160.8

CeresMainRegRes

2300.00	269.2	4825.00	160.2
2325.00	267.2	4850.00	159.6
2350.00	265.2	4875.00	159.1
2375.00	263.2	4900.00	158.5
2400.00	261.3	4925.00	157.9
2425.00	259.4	4950.00	157.4
2450.00	257.6	4975.00	156.8
2475.00	255.7	5000.00	156.3
2500.00	253.9		

***** AERSCREEN MAXIMUM IMPACT SUMMARY *****

3-hour, 8-hour, and 24-hour scaled concentrations are equal to the 1-hour concentration as referenced in SCREENING PROCEDURES FOR ESTIMATING THE AIR QUALITY IMPACT OF STATIONARY SOURCES, REVISED (Section 4.5.4) Report number EPA-454/R-92-019 http://www.epa.gov/scram001/guidance_permit.htm under Screening Guidance

CALCULATION PROCEDURE	MAXIMUM 1-HOUR CONC (ug/m3)	SCALED 3-HOUR CONC (ug/m3)	SCALED 8-HOUR CONC (ug/m3)	SCALED 24-HOUR CONC (ug/m3)	SCALED ANNUAL CONC (ug/m3)
FLAT TERRAIN	935.6	935.6	935.6	935.6	N/A
DISTANCE FROM SOURCE	352.00 meters				
IMPACT AT THE AMBIENT BOUNDARY	450.2	450.2	450.2	450.2	N/A
DISTANCE FROM SOURCE	1.00 meters				

Ceres Main Regulating Reservoir

Health Risk Assessment for Nearby Resident

MEIR

	Distance to MEIR		AERSCREEN OUT [ug/m ³]/[g/s]	
	(ft)	(m)	max	annual
Graded Area	1526	465	888.5	88.9

	PM ₁₀ Exhaust (tons)	Start Date	End Date	Duration
	Grading			Days
Construction	0.0811	5/1/2021	9/20/2021	142

	DPM Exhaust (g/s)
	Grading
Construction	0.0060

$$\text{Cancer Risk} = \text{Dose inhalation} \times \text{Inhalation CPF} \times \text{ASF} \times \text{ED/AT} \times \text{FAH}$$

(Equation 8.2.4 A)

Where:

Cancer Risk = residential inhalation cancer risk

$$\text{Dose inhalation (mg/kg-day)} = C_{\text{AIR}} \times \text{DBR} \times A \times \text{EF} \times 10^{-6}$$

(Equation 5.4.1.1)

Inhalation CPF = inhalation cancer potency factor ([mg/kg/day]⁻¹)

ASF = age sensitivity factor for a specified age group (unitless)

ED = exposure duration for a specified age group (years)

AT = averaging time period over which exposure is averaged in days (years)

FAH = fraction of time at home (unitless)

Where:

 C_{AIR} = concentration of compound in air in micrograms per cubic meter (µg/m³)

DBR = daily breathing rate in liter per kilogram of body weight per day (L/kg-body weight/day)

A = inhalation absorption factor (1 for DPM, unitless)

EF = exposure frequency in days per year (unitless, days/365 days)

10⁻⁶ = micrograms to milligrams conversion, liters to cubic meters conversion

$$\text{Hazard Quotient} = C_{\text{air}} / \text{REL}$$

(Section 8.3.1)

Where:

Hazard Quotient = chronic non-cancer hazard

 C_{AIR} = concentration of compound in air in micrograms per cubic meter (µg/m³)REL = Chronic non-cancer Reference Exposure Level for substance (µg/m³)**Dose Inhalation Inputs**

Receptor Type	Exposure Scenario	Receptor Group Age	C_{AIR} (µg/m ³)	DBR (L/kg-day)	A (unitless)	EF (days/year)
Off-Site Child Resident	Construction	3rd Trimester	5.33E-01	361	1	0.96
		Age 0<2	5.33E-01	1090	1	0.96

Dose Inhalation Outputs

Receptor Type	Exposure Scenario	Receptor Group Age	Dose inhalation (mg/kg-day)
Off-Site Child Resident	Construction	3rd Trimester	1.85E-04
		Age 0<2	5.58E-04

Risk Inputs

Receptor Type	Exposure Scenario	Receptor Group Age	CPF (mg/kg-day ⁻¹)	ASF (unitless)	ED (years)	AT (years)	FAH (unitless)
Off-Site Child Resident	Construction	3rd Trimester	1.1	10	0.25	70.00	0.85
		Age 0<2	1.1	10	0.14	70.00	0.85

Ceres Main Regulating Reservoir

Health Risk Assessment for Nearby Resident

Risk Outputs

Receptor Type	Exposure Scenario	Receptor Group Age	Cancer Risk	Hazard Risk
Off-Site Child Resident	Construction	3rd Trimester	6.16E-06	0.11
		Age 0<2	1.04E-05	
Total Cancer Risk (per million)			16.52	

SOURCE: Office of Environmental Health Hazard Assessment, 2015. *Air Toxics Hot Spots Program Guidance Manual for the Preparation of Health Risk Assessments* . February.

Daily breathing rate for school receptor is based on the OEHHA 95th percentile 8-hour moderate intensity breathing rates (Table 5.8).

Fraction of time at home is set to 0.85 for residential since the nearest school unmitigated cancer risk is <1 per million, per OEHHA Table 8.4.

Inhalation cancer potency factor from Table 7.1