Initial Study/Proposed Mitigated Negative Declaration

Hotchkiss Tract Levee Rehabilitation Project

Prepared for:

Reclamation District 799
6325 Bethel Island Road
Bethel Island, CA 94511

Reclamation District 799
Hotchkiss Tract

Prepared by:

GEI Consultants

Consulting
Engineers and
Scientists

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Proposed Mitigated Negative Declaration

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Prepared for:

Reclamation District 799
6325 Bethel Island Road
Bethel Island, CA 94511

Prepared by:

GEI Consultants
11010 White Rock Road, Suite 200
Rancho Cardova, CA 95670

January 2026

Project No. 1902371

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Reclamation District 799 *(Hotchkiss Tract)*

PO Box 353
6325 Bethel Island Road, Bethel Island, CA 94511
Phone: 925-684-2398 Fax: 925-684-2399
Website: www.rd799.com
Email: dholder@rd799.com

Notice of Intent to Adopt a Mitigated Negative Declaration

TO: Responsible Agencies, Trusted Agencies, and Interested Parties

LEAD AGENCY: Reclamation District 799

PROJECT TITLE: Hotchkiss Tract Levee Rehabilitation Project

REVIEW PERIOD: January 23, 2026 to February 22, 2026

PROJECT DESCRIPTION: Reclamation District (RD) 799, as the lead agency pursuant to the California Environmental Quality Act (CEQA), is proposing to implement the Hotchkiss Tract Levee Rehabilitation Project (project). In order to improve flood protection, the project would rehabilitate the existing Dutch Slough levee along Dutch Slough to meet the California Department of Water Resources Bulletin 192-82 Agricultural Standard, and incorporate habitat enhancements and vegetation management, where feasible.

PROJECT LOCATION: The project is located in eastern Contra Costa County, California. A portion of the project site is located in the city of Oakley, although the City's primary developed area lies west of the project area. The project area encompasses two primary segments within RD 799's levee system: the Dutch Slough and Sandmound Slough levees. The Dutch Slough levee is the continuation of the Little Dutch Slough levee near the Jersey Island Bridge. The project area is predominantly rural and surrounded by tidal wetlands, levee systems, and agricultural lands typical of the Delta region.

HAZARDOUS WASTE DISCLOSURE: The project site is not included on any lists enumerated under Government Code Section 65962,5, which includes but is not limited to lists of hazardous waste facilities, properties, and disposal sites.

FINDINGS/ENVIRONMENTAL EFFECTS: RD 799 as the lead agency has prepared an Initial Study (IS) to provide the public and trustee and responsible agencies with information about the potential effects on the local and regional environment associated with the project. The IS/Mitigated Negative Declaration (MND) describes potentially significant impacts on biological resources, cultural resources, tribal cultural resources, and utilities and service systems. Mitigation measures have been identified for these environmental topics to reduce impacts to less-than-significant levels. Effects found to be less than significant and those with no environmental impacts are also described in the IS/MND. RD 799 has reviewed and considered the project and has determined that the project will not have a significant effect on the environment; and therefore, RD 799 hereby proposes to adopt a MND for this project.

PUBLIC REVIEW PERIOD AND PROJECT DOCUMENT ACCESS: A 30-day public review period for the MND will commence on January 23, 2026 and end on February 22, 2026, for agencies and members of the public to submit written comments on the document. Any written comments on the MND must be received by RD 799 by **4:00 PM** on **February 22, 2026.** Copies of the MND are available for review at RD 799's office at 6325 Bethel Island Road, Bethel Island, CA 94511 or on RD 799's web site at: https://rd799.com/public-notices/.

Comments can be sent to Mike Alvarez at PO Box 353 Bethel Island, CA 94511, or email at dholder@rd799.com.

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Abbreviations and Acronyms

Abbreviation	Description
BAAQMD	Bay Area Air Quality Management District
BMP	best management practices
Caltrans	California Department of Transportation
CARB	California Air Resource Boards
CAAQS	California Ambient Air Quality Standards
CALFIRE	California Department of Foresty and Fire Protection
Cal/OSHA	California Division of Occupational Safety and Health
CCR	California Code of Regulations
CEQA	Californi Environmental Quality Act
CGS	California Geologic Survey
CRHR	California Register of Historical Resources
CDFW	California Department of Fish and Wildlife
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CO	carbon monoxide
CO_2e	carbon dioxide equivalent
County	Contra Costa County
CVFPB	Central Valley Flood Protection Board
CWA	California Water Act
CY	cubic yards
dBA	A-weighted decibel
DTSC	Department of Toxic Substance Control
DWR	California Department of Water Resources
EPA	United States Environmental Protection Agency
ESA	Endangered Species Act
FEMA	Federal Emergency Management Agency
GHG	greenhouse gas
HCP	Habitat Conservation Plan
IS/MND	Initial Study/ Mitigated Negative Declaration
MLD	most likely descendant
MRZ	Mineral Resource Zone
NAAQS	National Ambient Air Quality Standards
NAHC	Native American Heritage Comission

NCCP	Natural Communities Conservation Plan
NMFS	National Marine Fisheries Services
NO_2	nitrogen dioxide
NOx	nitrogen oxides
NRHP	National Register of Historic Places
NWIC	Northwest Information Center
O_3	ozone
OHP	Office of Historic Preservation
PM	particulate matter
PM_{10}	particulate matter less than 10 microns in diameter
$PM_{2.5}$	particulate matter less than 2.5 microns in diameter
PRC	Public Resources Code
ROG	reactive organic gases
RWQCB	Regional Water Quality Control Board
SFBAAB	San Francisco Bay Area Air Basin
SO_2	sulfur dioxide
SR	State Route
SWPPP	Storm Water Pollution Prevention Plan
SWRCB	State Water Resource Control Board
U.S.	United States
USACE	United States Army Corps of Engineers
USFWS	United States Fish and Wildlife Service
VMT	vehicle miles traveled

PROPOSED MITIGATED NEGATIVE DECLARATION

Project:	**Hotchkiss Tract Levee Rehabilitation Project**
Lead Agency:	Reclamation District 799

Project Location

Reclamation District (RD) 799 is proposing the Hotchkiss Tract Levee Rehabilitation Project (proposed project or project) within eastern Contra Costa County, California, near the city of Oakley, which lies just west of the project area. The project area encompasses two primary segments within the district's levee system: the Dutch Slough, and Sandmound Slough levees.

Project Description

RD 799 is proposing the project to rehabilitate the Dutch Slough levee. The proposed project would rehabilitate the existing levee along Dutch Slough to meet the California Department of Water Resources Bulletin 192-82 Agricultural Standard and incorporate habitat enhancements and vegetation management, where feasible.

Findings

An IS was prepared to assess the proposed project's potential effects on the environment and the significance of those effects. Based on the IS, it has been determined that the proposed project would not result in significant adverse effects on the physical environment after implementation of mitigation measures. This conclusion is supported by the following findings:

1. The proposed project would have no impacts on Land Use and Planning, Mineral Resources, Population and Housing, Public Services, and Recreation.
2. The proposed project would have less-than-significant impacts on Aesthetics, Agriculture and Forestry Resources, Air Quality, Energy, Greenhouse Gas Emissions, Geology and Soils, Hazards and Hazardous Materials, Hydrology and Water Quality, Noise, and Transportation.
3. The proposed project would have potentially significant impacts on Biological Resources, Cultural Resources, Tribal Cultural Resources, and Utilities and Service Systems.
4. The proposed project would not 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 an endangered, rare, or threatened species; or eliminate important examples of the major periods of California history or prehistory.
5. The proposed project would not have the potential to achieve short-term environmental goals to the disadvantage of long-term environmental goals.

6. The proposed project would not have possible environmental effects that are individually limited but cumulatively considerable and contribute to a significant cumulative impact. "Cumulatively considerable" means that the incremental effects of an individual project are significant when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.
7. The environmental effects of the proposed project would not cause substantial adverse effects on human beings, either directly or indirectly.

Following are the proposed mitigation measures that would be implemented by RD 799 to avoid or minimize environmental impacts. Implementation of these mitigation measures would reduce the environmental impacts of the proposed project to less-than-significant levels.

Mitigation Measure BIO-1: Conduct Rare Plant Survey and Avoid, Transplant, Salvage, Cultivate, Re-establish Species, or Compensate.

A qualified botanist shall be retained to perform focused surveys to determine the presence or absence of special-status plant species that were determined to have the potential to occur in and adjacent to (within 100 feet, where appropriate) the proposed impact areas. These surveys shall be conducted in accordance with CDFW *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities* (2009) or currently accepted resource agency protocols. These guidelines require that rare plant surveys be conducted at the proper time of year when rare or endangered species are both evident and identifiable. Field surveys shall be scheduled to coincide with known flowering periods, and/or during appropriate developmental periods that are necessary to identify the plant species of concern. If no special-status plant species are identified, no further actions are needed prior to ground disturbing activities to protect plant species.

If any state listed, federally listed, and/or CNPS List 1 or CNPS List 2 plant species are found within 100 feet of proposed impact areas during the surveys, these plant species shall be avoided to the greatest extent possible. If any identified special-status plant species cannot be fully avoided by all project activities, necessary authorizations would be acquired prior to any project activities that would have the potential to harm said species within the 100-foot buffer. If avoidance is not possible, upon necessary authorizations and permit approvals, populations shall be mitigated for through transplant, salvage, cultivate, or re-establish the species at suitable sites (if feasible), or through the purchase of credits from an approved mitigation bank, if available, at a minimum 1:1 ratio.

Any special-status plant species that are identified adjacent to the project areas but not proposed to be disturbed by the proposed project, they shall be protected by barrier fencing to provide that ground disturbing activities and material stockpiles do not impact any special-status plant species. These avoidance areas shall be identified on proposed project plans.

Timing: Before and during project activities

Responsibility: Reclamation District 799 and its contractor(s)

Mitigation Measure BIO-2: Minimize Effects on Biological Resources.

1. **Conduct a Worker Environmental Awareness Program (WEAP) Trainings to All Staff That Will be On-site During Project Activities.** A qualified biologist shall provide WEAP training to cover species identification, habitat, life history, and conservation measures for all special-status species with potential to occur within the project site. Training may consist of showing a video prepared by a qualified biologist, or an in-person presentation by a qualified biologist. In addition to the video or in-person presentation, training may be supplemented with the distribution of approved brochures and other materials that describe protected resources and methods for avoiding effects. The contractor shall be responsible for ensuring that all new personnel have received the WEAP training and is documented for reporting purposes. For multi-year projects, the WEAP shall be updated on a yearly basis to ensure project applicability and any lessons learned. All personnel are required to re-take the WEAP yearly.

2. **Biological Monitoring**. A designated and qualified biological monitor shall be present for all ground disturbing or vegetation removal activities. Depending on the timing of project activities after initial disturbance, a monitor may be necessary. Species-specific measures below delineate out those timings.

3. **Vehicle Speed.** Project-related vehicles shall observe a 10-mile-per-hour speed limit within project areas and along haul/access routes, except on county roads and State and federal highways.

4. **Site Best Management Practices.** Appropriate site-specific best management practices (e.g., fencing and other erosion controls) shall be implemented to avoid accidental encroachment of vehicles and personnel and to minimize and control runoff, erosion, and sediment deposition in aquatic habitat.

5. **Spill Protection.** Every reasonable precaution shall be implemented to protect soils and waters from pollution with fuels, oils, and other harmful materials. In the event of a spill in or adjacent to aquatic habitat (including seasonal wetlands), work shall stop, and the spill shall be addressed immediately with appropriate equipment to contain and absorb the spilled material.

6. **Staging Areas.** Any and all heavy equipment, vehicles, and supplies shall be stored at the designated staging areas at the end of each work period. Vehicles and equipment shall be properly maintained to prevent contamination of soil or water from external grease and oil or from leaking hydraulic fluid, fuel, oil, and grease. Vehicles and equipment shall be checked daily for leaks. If leaks are found, the equipment shall be removed from the site and shall not be used until the leaks are repaired. Equipment shall be refueled and serviced at designated refueling and staging sites located where a spill shall not drain directly toward aquatic habitat. Appropriate containment materials shall be installed to collect any discharge, and adequate materials for spill cleanup shall be maintained onsite.

7. **Revegetate All Disturbed Natural Surfaces.** After completion of ground disturbing activities, all disturbed soil surfaces shall be revegetated within the same

implementation season that disturbance occurs. These areas shall be recontoured, if appropriate, and revegetated with appropriate native plant species to promote restoration of the area to pre-project conditions or better.

8. **Erect and Maintain High-visibility Fencing during Ground Disturbing Activities to Protect Sensitive Biological Resource Areas.** Before beginning ground-disturbing project activities, high-visibility fencing shall be erected to protect areas of sensitive biological resources that are located adjacent to project areas that can be avoided. The fencing shall restrict encroachment of personnel and equipment into these areas. The fencing may be removed only when the ground disturbing activities within a given area is completed and shall be maintained by the contractor.

- **Timing:** Before, during, and after project activities.

Responsibility: Reclamation District 799 and its contractor(s)

Mitigation Measure BIO-3: Minimize Effects to Crotch Bumble Bee.

Conduct Pre-ground Disturbing Activities Surveys for Active Nests within the Ground Disturbance Footprint. The footprint of ground disturbance in the project areas shall be surveyed prior to project activities for any active bumble bee colony nests by a qualified biologist during the Colony Active Period (April to August). If a nest is identified as being active and is of a listed or candidate bumble bee species, an appropriately-sized no disturbance buffer zone (up to 50 feet) shall be established around the nest until the gyne flight season and the nest becomes inactive, and CDFW will be notified. A qualified biologist will monitor the nest multiple times over a 3-day period; if no Crotch bumble bees are observed entering or exiting the nest during these monitoring events, the nest will be determined inactive by the qualified biologist and the removal of the no-disturbance buffer can proceed.

Timing: Before project activities

Responsibility: Reclamation District 799 and its contractor(s)

Mitigation Measure BIO-4: Minimize Effects to Valley Elderberry Longhorn Beetle.

The following measures shall be implemented in accordance with the Framework for Assessing Impacts to the Valley Elderberry Longhorn Beetle (USFWS 2017a) to reduce effects on valley elderberry longhorn beetle:

1. **Fencing**. All areas to be avoided during ground disturbing activities shall be fenced and/or flagged as close to ground disturbing limits as feasible.

2. **Avoidance area.** To the extent feasible, activities that may damage or kill an elderberry shrub (e.g., trenching, paving, etc.) shall be avoided within 20 feet from the dripline of the shrub, depending on the type of activity.

3. **Ground Disturbance Monitoring.** A qualified biologist shall monitor the work area at appropriate intervals to assure that all avoidance and minimization measures are implemented.

4. **Timing.** To the extent feasible, activities within 165 feet of an elderberry shrub shall be conducted outside of the valley elderberry longhorn beetle flight season (March to July).

5. **Trimming.** To the extent feasible, elderberry shrub trimming shall occur between November and February and avoid the removal of any branches or stems greater than or equal to 1-inch in diameter.

6. **Chemical Usage.** Herbicides shall not be used within the dripline, and insecticides shall not be used within 100 feet of an elderberry shrub. All chemicals shall be applied using a backpack sprayer or similar direct application method.

7. **Mowing.** Weed removal with machinery within the dripline of elderberry shrubs shall be limited to the season when adults are not active (August to February) and shall avoid damaging the shrub.

Additionally, if shrub removal is necessary to access project work areas, then the following measures shall be implemented:

1. **Transplanting.** To the extent feasible, elderberry shrubs shall be transplanted when the shrubs are dormant (November through the first 2 weeks in February) and after they have lost their leaves. Exit-hole surveys shall be completed immediately before transplanting. A qualified biologist shall be on-site for the duration of transplanting activities to assure compliance with avoidance and minimization measures and other conservation measures.

2. **Compensation.** Effects on elderberry shrubs shall be compensated at a minimum 1:1 ratio through the purchase of credits from a USFWS-approved mitigation bank, onsite restoration, or in-lieu fee program.

Timing: Before, during, and after project activities

Responsibility: Reclamation District 799 and its contractor(s)

Mitigation Measure BIO-5: Avoid and Minimize Impacts to Special-status Fish Species.

1. **In-water Work Limited to July through October.** In water work shall be limited to the months of July through October when listed fish species are least likely to be present within the Delta to minimize chances of fish being present near the project area.

2. **No Machinery Shall be Driven into the Wetted Channel Area.** Machinery being used for project work shall be limited to dry upland areas only and shall not be driven within the wetted channel.

3. **Work Shall Only Occur During Daylight Hours.** In-water rock placement shall only occur during daylight hours, as most listed fish species tend to have increased activity at night. If any listed fish are seen near the work area, work shall cease immediately until fish have left the area.

4. **Installation of a Block Net or Turbidity Curtain.** If feasible, a block net or turbidity curtain shall be installed around the area where rock shall be placed to ensure fish are excluded from the work area.

Timing: During project activities

Responsibility: Reclamation District 799 and its contractor(s)

Mitigation Measure BIO-6: Avoid and Minimize Impacts to Northwestern Pond Turtle and Its' Habitats.

1. **Initial Ground Disturbance Timing**. Initial ground disturbance (including vegetation removal and geotechnical boring) in suitable upland habitat within 500 feet of aquatic habitat for northwestern pond turtle shall be minimized to greatest extent feasible during the brumation season (December through February), when adult turtles may be in torpor and particularly susceptible to equipment strikes. The target period for riparian vegetation removal in these areas shall be fall (September through November), to the greatest extent practicable, when potential for turtle strikes and direct impacts on other special-status species are lowest.

2. **Direct Impact Avoidance**. Measures shall be implemented to minimize potential for heavy equipment to destroy northwestern pond turtle nests and to encounter hatchling turtles. Feasible measures may vary depending on site-specific circumstances and could include, but not be limited to:

    a. Minimizing heavy equipment operation in upland habitat within 500 feet of aquatic habitat in February and March, when hatchling turtles emerge from nests and travel to aquatic habitat.

    b. Placing artificial ground cover that prevents female turtles from excavating nests in most likely nesting areas where ground disturbing activities shall occur before the following hatchling turtle emergence period, typically May to July.

    c. Fencing most likely nesting areas to exclude access by female turtles and/or enclose hatchlings after emergence. If active nests and hatchlings may be present, the fenced area shall be inspected daily by a qualified biologist and hatchling turtles shall be captured and relocated to suitable habitat at a pre-determined location.

3. **Monitoring**. A qualified biologist shall be present during initial ground disturbance, in-water work, and the hatchling emergence period to search for western pond turtles and minimize encounters with heavy equipment. Disturbance activities will occur at a speed that allows the designated monitor to scan for turtles in brumation, nest, and avoid direct impacts.

4. **Stop Work if a Northwestern Pond Turtle is Observed in Ground Disturbing Area and Allow to Leave the Ground Disturbing Area on Their Own or Have Qualified Biologist Capture and Relocate.** If northwestern pond turtles or nests are observed on land within the project footprint during project activities, the contractor shall stop work within approximately 200 feet of the turtle, and a qualified biologist

shall be notified immediately. If possible, the turtle shall be allowed to leave on its own and the qualified biologist shall remain in the area until the biologist deems his or her presence no longer necessary to ensure that the turtle is not harmed. Alternatively, with prior CDFW approval, the qualified biologist may capture and relocate the turtle unharmed to suitable habitat at a pre-determined location.

5. **Unintentional Nests Uncovered**. If a northwestern pond turtle nest is unintentionally uncovered during project activities, work shall stop in the vicinity of the nest and appropriate next steps, depending on the circumstances, shall be determined by a qualified biologist. These may include fencing and buffering the nest and/or rescue, rehabilitation, and relocation of affected turtles.

6. **Daily In-water Work Timing and Disturbance.** Prior to in-water activities, water disturbance shall occur to allow turtles to move out of the area on their own accord. Water disturbance may include the use of an excavator bucket gently disrupting the surface of the water, it shall not include activities that could cause direct harm to aquatic species. Disturbance shall occur around 8 a.m. when turtles are about to begin basking. Wait at least 10 minutes after disturbance before beginning in-water activities to allow turtle movement out of area. If in-water activities stop for more than 45 min, in-water disturbance shall occur again to enable turtles to move out of harm's way.

Timing: Before and during project activities

Responsibility: Reclamation District 799 and its contractor(s)

Mitigation Measure BIO-7: Minimize Effects on Giant Garter Snake.

1. **Clearance Surveys 24 Hours Prior to Ground Disturbing Activities**. Suitable upland habitat for giant garter snake within the project footprint shall be surveyed by a qualified biologist within 24 hours before on-site project activities begin. Additional surveys shall be conducted within 24 hours before initial ground disturbance begins. Surveys shall be repeated after any lapse in ground disturbing activity of 2 weeks or longer.

2. **Conduct Initial Earth-movement Activities within Suitable Upland Habitat for Giant Garter Snake between May 1 and October 1.** When possible, initial ground-disturbing activities within suitable upland habitat for the giant garter snake shall occur between May 1 and October 1. Work in giant garter snake upland habitat may also occur between October 2 and November 1 or April 1 through April 30, provided that: (1) the project area is fenced off to prevent wildlife from moving into the project area and initial ground disturbance has already occurred; or (2) ambient air temperatures exceed approximately 75ºF during work and maximum daily air temperatures have exceeded approximately 75ºF for at least 3 consecutive days immediately preceding work. During these periods, giant garter snakes are more likely to be active in aquatic habitats and less likely to be found in upland habitats.

3. **Stop Work if a Giant Garter Snake is Observed in Ground Disturbing Area and Allow Snakes to Leave the Ground Disturbing Area on Their Own or Have**

Qualified Biologist Capture and Relocate Giant Garter Snake. If a possible giant garter snake is observed in the project area, all work shall stop until the snake moves out of the area of ground disturbing activities and notification of the qualified biologist immediately shall occur. If possible, the snake shall be allowed to leave on its own volition, and the qualified biologist shall remain in the area until the biologist deems his or her presence is no longer necessary to ensure that the snake is not harmed. Notification to CDFW and USFWS by telephone or email within 24 hours of a giant garter snake observation during ground disturbing activities shall be reported. If the snake does not voluntarily leave the project area and all project activities within approximately 200 feet of the snake shall stop to prevent harm to the snake, and CDFW and USFWS shall be consulted to identify next steps and the measures recommended by CDFW and USFWS shall be implemented before resuming ground disturbing activities in the area.

4. **Restore All Suitable Giant Garter Snake Habitat Subject to Temporary Ground-disturbance to Pre-project Conditions.** After project activities are complete, all suitable giant garter snake habitat subject to temporary earth-movement, shall be restored to pre-project conditions. These areas shall be recontoured, if appropriate, and revegetated with appropriate native plant species to promote restoration of the area to pre-project conditions or better. Appropriate methods and plant species used to revegetate such areas shall be determined in consultation with USFWS and CDFW.

Timing: Before, during, and after project activities

Responsibility: Reclamation District 799 and its contractor(s)

Mitigation Measure BIO-8a: Conduct Focused Surveys for Nesting Special-status Birds and Avoid Impacts.

Nesting bird surveys listed below shall be required prior to all project activities that occur within the nesting bird season, from February 1 through August 31.

1. **Conduct Vegetation Removal Outside of Nesting Bird Season.** To the extent feasible, vegetation removal shall be conducted between September 16 and January 31, outside of the nesting bird season.

2. **Conduct Pre-project Activity Surveys for Active Nests of Special-status Birds in Areas of Suitable Habitat.** If project activities that could affect suitable habitat for special-status birds cannot be conducted outside of the respective nesting seasons, pre-project activity surveys for nesting birds shall be conducted. Surveys of all potential nesting habitat in the area shall be conducted by a qualified biologist during the nesting season. Surveys shall be conducted within suitable nesting habitat that could be affected by project activities and shall include a minimum buffer of 250-feet for passerines and 1,000-feet for raptors (or larger area if required by established survey protocol) surrounding these areas. Where appropriate, pre-activity surveys shall be conducted according to established survey protocols or guidelines including, but not limited to, the following:

a. Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley (SHTAC 2000)

   i. Three (3) early season surveys shall be conducted in the period prior to the start of project's initiation (i.e., specific periods depend on start of project).

   ii. Surveys should be conducted for a 0.5-mile radius around all project activities, and if nesting activity is identified within the 0.5-mile radius, consultation is required.

   iii. Surveys shall be completed for at least two survey periods immediately prior to a project's initiation.

b. Staff Report on Burrowing Owl Mitigation (California Burrowing Owl Consortium 1993).

If no established survey protocol exists, the qualified biologist shall complete surveys no more than five (5) days prior to the start of the activity, and repeat surveys if activities lapse for a period of seven (7) days or longer. If no nesting birds are detected during pre-activity surveys, no additional mitigation measures are required.

Timing: Before and during project activities

Responsibility: Reclamation District 799 and its contractor(s)

Mitigation Measure BIO-8b: If Avoiding Project-related Effects on Nesting Special-status Birds is Infeasible, Implement Minimization Measures.

If the measures described above in Mitigation Measure BIO-8a have been completed and avoiding effects on nesting special-status birds is infeasible, the measures described below shall be implemented to minimize effects of the project on nesting special-status birds, such that there is no direct loss of individuals of these species or project-related nest failure.

1. **Establish, Maintain, and Monitor Buffers Around Active Nest.** If any active nests, or behaviors indicating active nests, are observed, appropriate-sized avoidance buffers shall be established around the nest sites, to avoid nest failure resulting from project activities. The size and shape of the buffer shall depend on the species, nest location, nest stage, and specific project activities to be performed while the nest is active. The buffer shall be expanded if the birds are exhibiting agitated behavior, or the buffers may be adjusted (reduced) if a qualified biologist determines it would not be likely to adversely affect the nest. If required, buffers shall be marked in the field by a qualified biologist using temporary fencing, high-visibility flagging, or other means that are equally effective in clearly delineating the buffer. Standard nest buffer sizes for migratory and common bird species include: 250-feet for passerine species, and 1,000-feet for raptors such as *Buteos*. Nesting special-status avian species, such as Swainson's hawk, shall have a nest buffer up to a half-mile, while burrowing owl would receive a buffer of 1,640-feet.

2. **Monitoring Nest Activity**. Nest monitoring shall be conducted by a qualified biologist, either continuously or periodically during work, to confirm that project activity is not resulting in detectable adverse impacts on nesting birds or their young. A determination on monitoring frequency shall be based on environmental conditions, such as physical barriers, project activities, and a species' tolerance to project activities. The qualified biologist shall be empowered to stop all project activities that, in the biologist's opinion, threaten to cause unanticipated and/or unpermitted adverse effects on special-status wildlife (e.g., nest abandonment). If project activities are stopped, the qualified biologist shall consult with CDFW to determine appropriate measures that shall be implemented to avoid adverse effects.

3. **Work Within Established Buffer Zones**. No project activity shall commence within the buffer areas until a qualified biologist has determined that the young have fledged or the nest site is otherwise no longer in use. If work must be conducted within a stated buffer zone a qualified biologist shall provide continuous monitoring to confirm that the project activity is not resulting in detectable adverse impacts.

Timing: Before and during project activities

Responsibility: Reclamation District 799 and its contractor(s)

Mitigation Measure BIO-9: Minimize Effects on Western Red Bat.

1. **Vegetation Removal During Seasonal Periods of Bat Activity.** All vegetation shall be immediately inspected for bat occupancy by a qualified biologist prior to the initial step of trimming. If vegetation removal occurs from April 1 through October 31, bat roosting habitat assessment and surveys shall be conducted prior to tree trimming and removal; (*see "Roosting Bat Habitat Assessment and Surveys" below)*. If vegetation removal occurs during the hibernaculum seasonal period of bat activity, which is from November 1 through March 31, is occupied by bats in hibernaculum, a two-step tree removal process would be implemented; (*see "Two-step Tree Removal Process" below)*.

2. **Roosting Bat Habitat Assessment and Surveys.** If vegetation removal shall occur within the bat maternity activity period, from May 1 through August 31, a habitat assessment shall be conducted a minimum of 30 to 90 days prior to tree removal and shall include a visual inspection of potential roosting features (e.g., cavities, crevices in wood and bark, exfoliating bark, suitable canopy for foliage roosting species) on all trees slated for tree trimming or removal. If suitable habitat is identified on the impacted trees the qualified biologist can either conduct night emergence surveys or complete a visual examination of roost features that establishes absence of roosting bats. A temporary 300-foot buffer shall be established with no project activities allowed until the bats have vacated on their own accord and confirmed by a qualified biologist, or an alternative is determined by CDFW.

3. **Two-step Tree Removal Process.** If tree trimming and removal occur during the hibernaculum seasonal period of bat activity, from November 1 through March 31, a two-step tree removal process can occur without additional bat roosting surveys being conducted. Two-step tree removal shall be conducted over two consecutive days. The

first day (in the afternoon), under the direct supervision and instruction by a qualified biologist with experience conducting two-step tree removal, limbs and branches shall be removed by a tree cutter using chainsaws only; limbs with cavities, crevices or deep bark fissures shall be avoided. The second day the entire tree shall be removed.

4. **Bat Habitat Mitigation Program**. Bat roosts impacted by project-related effects shall be mitigated at a minimum 1:1 ratio through the purchase of credits at a CDFW approved mitigation bank, in-lieu fee program, installation of bat boxes, and/or onsite restoration activities. Mitigation as defined in a resource agency issued permit relevant to special-status bats may be used to fulfill this measure.

Timing: Before and during project activities

Responsibility: Reclamation District 799 and its contractor(s)

Mitigation Measure BIO-10: No Net Loss of Sensitive Natural Communities and Aquatic Resources.

No Net Loss of Sensitive Natural Communities or Aquatic Resources. No net loss of sensitive natural communities, including aquatic resources, would be achieved through impact avoidance, minimization, and/or compensatory mitigation. Mitigation for permanent impacts on sensitive natural communities shall be provided at a minimum 1:1 ratio. Mitigation can be achieved through on-site restoration, in-lieu fee payment, or purchase of mitigation credits at a USACE-, USFWS-, and/or CDFW-approved mitigation bank. Mitigation, as required in regulatory permits issued through CDFW, USACE, USFWS, and/or the Central Valley RWQCB, may be applied to satisfy this measure. If on-site restoration is chosen as the preferred method of mitigation, the development of a mitigation and monitoring plan (MMP) in which success criteria, monitoring periods, and adaptative management plans if success criteria are not met shall be developed prior to impacts.

Timing: Before project activities

Responsibility: Reclamation District 799 and its contractor(s)

Mitigation Measure BIO-11: Minimize Effects on Tree Resources.

1. **Tree Trimming and Removal Shall be Monitored**. All tree trimming and removal activities shall be monitored by an International Society of Arboriculture certified arborist. Activities that may occur that are not covered under the American National Standards Institute standards shall be directed by the International Society of Arboriculture certified arborist to ensure minimal impacts on trees.

2. **Prepare an Arborist Report Prior to Project Activities.** An arborist report meeting the standards for submittal shall be prepared prior to any project activities that require removal. The report shall include a site inventory, assessment and exhibit preparation. Obtaining a Tree Permit and payment of associated fees shall be required prior to any tree removals of protected species.

Timing: Before and during project activities

Responsibility: Reclamation District 799 and its construction contractor(s)

Mitigation Measure CR-1: Address Previously Undiscovered Historic Resources, Archaeological Resources, and Tribal Cultural Resources.

If cultural resources are identified during project-related ground-disturbing activities, all potentially destructive work in the immediate vicinity of the find should cease immediately and the District should be notified. In the event of an inadvertent discovery, additional CEQA review might be necessary to make a determination on a properties' eligibility for listing in the CRHR and any actions that would be necessary to avoid adverse effects. A qualified archaeologist (an archaeologist meeting the Secretary of the Interior's Standards for professional Archaeologist or Historian) should be retained to assess the significance of the find, make a preliminary determination, and if appropriate, provide recommendations for treatment. Any treatment plan should be reviewed by the District prior to implementation. Ground-disturbing activities should not resume near the find until treatment, if any is recommended, the find is complete or if the qualified archaeologist determines the find is not significant.

Timing: Before and during construction activities

Responsibility: Reclamation District 799 and its contractor(s)

Mitigation Measure CR-2: Avoid Potential Effects to Previously Unknown Human Remains.

If an inadvertent discovery of human remains is made at any time during project planning or project-related construction activities, the following measures will be implemented. The measures will be met prior to implementing or continuing actions such as ground disturbing activity that may result in damage to or destruction of human remains:

- In accordance with the California Health and Safety Code, if human remains are discovered during ground-disturbing activities, project-related, ground-disturbing activities that could potentially damage the remains will immediately halt in the area of the burial. The County Coroner will be immediately notified about the remains. The Coroner is required to examine all discoveries of human remains within 48 hours of receiving notice of a discovery on private or State lands (California Health and Safety Code Section 7050.5[b]). If the Coroner determines that the remains are those of a Native American, he or she must contact the Native American Heritage Commission (NAHC) by phone within 24 hours of making that determination (California Health and Safety Code Section 7050[c]).

- A qualified archaeologist meeting the Secretary of the Interior's Standards for Archeology will be retained to determine the nature of the remains. After the Coroner's findings have been made, the archaeologist and the NAHC-designated Most Likely Descendant (MLD), in consultation with the landowner, shall determine the ultimate treatment and disposition of the remains.

- Upon the discovery of Native American human remains, Reclamation District 799 will require that all construction work within 100 feet of the discovery stop, until

consultation with the MLD has taken place. The MLD will have 48 hours to complete a site inspection and make recommendations to the landowner after being granted access to the site. A range of possible treatments for the remains, including nondestructive removal, preservation in place, relinquishment of the remains and associated items to the descendants, or other culturally appropriate treatment may be discussed. PRC Section 5097.98(b)(2) suggests that the concerned parties may mutually agree to extend discussions beyond the initial 48 hours to allow for the discovery of additional remains.

- If the human remains are of historic age and are determined not to be of Native American origin, Reclamation District 799 will follow the provisions of the California Health and Safety Code Section 7000 (et seq.) regarding the disinterment and removal of non-Native American human remains.

Timing: During project construction activities

Responsibility: Reclamation District 799 and its contractor(s)

Mitigation Measure UTL-1: Verify Utility Locations, Coordinate with Affected Utility Providers, Prepare and Implement a Response Plan, and Conduct Worker Training with Respect to Accidental Utility Damage.

Reclamation District 799 will implement the following measures before construction begins to avoid and minimize potential damage to utilities, infrastructure, and service disruptions during construction.

- Coordinate with applicable utility and service providers to implement orderly relocation of utilities that need to be removed or relocated.

- Provide notification of any potential interruptions in service to the appropriate agencies and affected landowners.

- Verify through field surveys and Underground Service Alert service the locations of buried utilities in the project site, including natural gas, petroleum, and sewer pipelines. Any buried utility lines will be clearly marked in the area of construction (e.g., in the field) and on the construction specifications in advance of any earth-moving activities.

- Prepare and implement a response plan that addresses potential accidental damage to a utility line. The plan will identify chain-of-command rules for notification of authorities and appropriate actions and responsibilities regarding the safety of the public and workers. A component of the response plan will include worker education training in response to such situations.

- Stage utility relocations prior to and during construction to minimize interruptions in service.

Timing: Before and during construction activities

Responsibility: Reclamation District 799 and its contractor(s)

1.0 Introduction

RD 799 has prepared this Initial Study (IS) and proposed Mitigated Negative Declaration (MND) in compliance with the California Environmental Quality Act (CEQA) to address the potentially significant and significant environmental impacts of the proposed Hotchkiss Tract Levee Rehabilitation Project (project, proposed project) in Contra Costa County (County), California. RD 799 is the lead agency under CEQA.

To satisfy CEQA requirements, this document includes:

- a Notice of Intent to adopt a MND for the proposed project
- a proposed MND, and
- an IS

After the required public review of this document is complete, RD 799 will consider adopting the MND, all comments received on the IS/MND, and the entirety of the administrative record for the project, and decide whether to adopt the Proposed MND, adopt and incorporate into the proposed project the mitigation measures identified in the IS, adopt a Mitigation Monitoring and Reporting Program (MMRP), and approve the proposed project. The MMRP will be prepared after public review of the IS/MND is complete.

1.1 Purpose of the Initial Study

This document is an IS/MND prepared in accordance with CEQA (California Public Resources Code, Section 21000 et seq.) and the State CEQA Guidelines (Title 14, Section 15000 et seq. of the California Code of Regulations [CCR]) (CEQA Guidelines). The purpose of this IS is to: (1) determine whether the proposed project would result in potentially significant or significant impacts on the physical environment; and (2) whether mitigation measures identified in the IS and incorporated into the proposed project would avoid or reduce significant impacts to a less than significant level. A MND is prepared if the IS identifies potentially significant impacts, but: (1) revisions to the proposed project mitigate the impacts to a point where clearly no significant impacts would occur; and (2) there is no substantial evidence, in light of the whole record before the agency, that the proposed project, as revised, may have a significant impact on the physical environment.

An IS presents environmental analysis and substantial evidence in support of its conclusions regarding the significance of environmental impacts. Substantial evidence includes fact, a reasonable assumption based upon fact, or expert opinion supported by facts. An IS is neither intended nor required to include the level of detail required of an environmental impact report (EIR).

CEQA requires that all State and local government agencies consider the potentially significant and significant environmental impacts of projects they propose to carry out or projects over which

they have discretionary authority, before implementing or approving those projects. The public agency that has the principal responsibility for carrying out or approving a proposed project is the lead agency for CEQA compliance (CEQA Guidelines, Section 15367). RD 799 has the principal responsibility for funding, contractual oversight, and implementing the proposed project, and is therefore the lead agency for this IS/MND.

If there is substantial evidence that a proposed project, either individually or cumulatively, may have a significant impact (i.e., a significant or potentially significant effect on the physical environment), the lead agency must prepare an EIR (State CEQA Guidelines, Section 15064[a]). If the IS concludes that any impacts would be potentially significant, but that mitigation measures adopted by RD 799 would clearly reduce impacts to a less than significant level, a MND may be prepared.

RD 799 has prepared this IS to evaluate the potential environmental impacts of the proposed project and has identified mitigation measures to avoid or reduce any potentially significant project-related impacts to a less-than-significant level. Therefore, an MND has been prepared for the proposed project.

1.2 Summary of Findings

Chapter 3 of this document contains the analysis and discussion of potential environmental impacts of the proposed project based on the issues listed in the State CEQA Guidelines Appendix G Environmental Checklist Form. Based on the evaluation of these issues in Chapter 3, below, it was determined that:

The proposed project would result in no impacts on the following issue areas:

- Land Use and Planning
- Mineral Resources
- Population and Housing
- Public Services
- Recreation

The proposed project would result in less-than-significant impacts on the following issue areas:

- Aesthetics
- Agriculture and Forestry Resources
- Air Quality
- Energy
- Greenhouse Gas Emissions
- Geology and Soils
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Noise
- Transportation

- Wildfire

The proposed project would result in less-than-significant impacts on the following issue areas *with implementation of* mitigation identified in the IS/MND:

- Biological Resources
- Cultural Resources
- Tribal Cultural Resources
- Utilities and Service Systems

1.3 Document Organization

This document is divided into the following three key sections required under CEQA:

Notice of Intent to Adopt a Proposed Mitigated Negative Declaration for the Hotchkiss Tract Levee Rehabilitation Project. The Notice of Intent to Consider Adoption of a Proposed MND for the proposed project provides notice to responsible and trustee agencies and the public the availability of this IS/MND and of RD 799 intent to consider adopting an MND for the proposed project.

Proposed Mitigated Negative Declaration. The MND, which precedes the presentation of the IS analysis in this document, briefly summarizes the proposed project, summarizes the environmental conclusions, and identifies mitigation measures that would be implemented in conjunction with the proposed project.

Initial Study. The Initial Study, referred to as "IS," constitutes the remaining portion of this document and includes an introduction, project description, environmental checklist, references cited, and report preparers as briefly summarized below:

- **Chapter 1, "Introduction."** This chapter describes the purpose of the IS/MND, summarizes findings, and describes the organization of this IS/MND.
- **Chapter 2, "Project Description."** This chapter describes the project location and background, project objectives, project characteristics, project activities (including ground disturbing activities), project operations and maintenance (O&M), and discretionary actions and approvals required to implement the project.
- **Chapter 3, "Environmental Checklist."** This chapter presents an analysis of environmental issues identified in the CEQA environmental checklist and determines whether project implementation would result in a potentially significant impact, a less-than-significant impact with mitigation incorporated, a less-than-significant impact, or no impact on the physical environment in each topic area. Should any impacts be determined to be potentially significant or significant, an EIR would be required. For this proposed project, however, mitigation measures have been identified and would be adopted and incorporated into the project to reduce all potentially significant and significant impacts to a less than significant level.

- **Chapter 4, "References Cited."** This chapter lists the references used to prepare this IS/MND.

- **Chapter 5, "Report Preparers."** This chapter identifies report preparers who contributed to the preparation of this document.

2.0 Project Description

This chapter describes the project background, location and setting, project objectives, project elements and characteristics, project implementation, operation and maintenance (O&M), and discretionary actions and approvals that may be required.

2.1 Project Background and Purpose

RD 799 was established in 1901 by the California State Legislature to provide drainage and irrigation, and complete reclamation of lands within RD 799 boundaries. RD 799 works closely with local, state, and federal agencies, in particular the Central Valley Flood Protection Board (CVFPB), the California Department of Water Resources (DWR), and California Department of Fish and Wildlife (CDFW). The RD 799 is the levee maintaining agency and is predominantly funded through property tax money collected by Contra Costa County. A major portion of this baseline revenue is leveraged to meet local cost share requirements of the State of California through work agreements to repair, rehabilitate and maintain levee integrity as well as to maintain proper drainage of the island. In 2024, the RD 799 was awarded funding from the DWR Delta Levees Program to prepare, planning documents and design drawings for rehabilitation of the Dutch Slough and Sandmound Slough levees and creation of new waterside habitat. This funding was secured through the Project Funding Agreement (PFA) HO-24-1.0 SP committing RD 799 to deliver a multi-benefits project by December 31, 2026. The original scope of the PFA was amended after RD 799 was informed that the Restoration Project may be expanding its footprint to cover the entire Burroughs property located on the east of the Little Dutch Slough. This ISMND analyzes the amended project as approved in the subsequent amendments executed by both DWR and RD 799.

The proposed project is coordinated with the DWR restoration project call the “Dutch Slough Tidal Marsh Restoration Project” (Restoration Project). The overall goal of the Restoration Project is to restore a mosaic of tidal marsh, riparian woodland, open water, managed marsh, and upland habitats. Construction of the Restoration Project has started, with additional planning for the wetland component underway.

2.2 Project Location

The proposed project is located in eastern Contra Costa County, California. A portion of the project site is located in the city of Oakley, although the City’s primary developed area lies west of the project area (**Figure 2-1**). The project area encompasses two primary segments within RD 799’s levee system: the Dutch Slough and Sandmound Slough levees (**Figure 2-2**). The Dutch Slough levee is the continuation of the Little Dutch Slough levee near the Jersey Island Bridge. The work along the Dutch Slough levee segment begins at the northwest corner of the Burroughs parcel and is adjacent to the completed portion of the Restoration Project and the neighboring Reclamation District 2137. The Sandmound Slough levee runs from the end of the Dutch Slough for the full

length of the Sandmound Slough. The project area is predominantly rural and surrounded by tidal wetlands, levee systems, and agricultural lands typical of the Delta region. The work along the Sandmound Slough levee is very minor and limited to removal of invasive ice plant and some leveling of the levee landside slope and crown.

2.3 Project Objectives

The main objective of the proposed project is rehabilitation of the Dutch Slough levee. Additional project objectives include the following:

- Improving the Dutch Slough levee to Bulletin 192-82 Agricultural Standard to increase flood protection.
- Widening the Dutch Slough levees crest, where feasible, to better facilitate flood fight.
- Creating waterside habitat enhancements and providing vegetation management, designed in consultation with DWR and CDFW, to meet the intent of the larger Restoration Project.

2.4 Project Components

The proposed project includes rehabilitation of existing levee along Dutch Slough to meet the DWR Bulletin 192-82 Agricultural Standard and incorporating habitat enhancements and vegetation management (Figure 2-2). A detailed description of each project component is provided below.

2.4.1 Dutch Slough Levee Rehabilitation

Rehabilitation along Dutch Slough would involve raising the levee crown to elevation 9.1 feet[1] in areas where it is currently deficient (**Figure 2-4**). Rehabilitation would prioritize widening the levee crown to achieve a minimum crown width of 16 feet, while maintaining a minimum 3:1 Horizontal: Vertical (H:V) landside slope and 2H:1V waterside slope (**Figure 2-5**). All grading would begin at the waterside hinge, with widening and raising performed landward to avoid waterside impacts. Landside slopes may vary to minimize environmental impacts but would not be steeper than 2H:1V. The levee crown would be surfaced with a 6-inch aggregate making it an all-weather road to support maintenance activities. Installing riprap erosion protection at select waterside locations above the mean high-water elevation would reduce potential erosion. Levee slopes would be hydroseeded with native grass to promote vegetation and prevent erosion.

2.4.2 Dutch Slough Levee Habitat Enhancements

Approximately 1,000 linear feet of waterside habitat enhancement is proposed within the Dutch Slough levee segment between Levee Station 435+00 and the Jersey Island Road Bridge (Figure 2-2). This work would include enhancement of fish habitat by creating an approximately 3-foot-wide bench of tidal marsh habitat along the waterside toe of the levee. The tidal marsh bench would be planted with hardstem bulrush and California bulrush. Additionally, a small wave-break

[1] Unless otherwise stated, National Geodetic Vertical Datum of 1929 is used.

constructed of riprap would be installed to protect the bench from erosion (**Figure 2-6** through **Figure 2-8**). This approach was selected in consultation and coordination with DWR and CDFW. The project would also bring connectivity with the Restoration Project.

2.4.3 Sandmound Slough Vegetation Management

A portion of the northern segment of Sandmound Slough landside slope is currently overgrown with invasive ice plants. As part of the proposed project, this invasive ice plant would be removed, and the landslide slope would be hydroseeded with native seed mix (**Figure 2-9**).

2.5 Project Implementation

2.5.1 Construction Schedule and Sequencing

It is likely that the proposed project can be constructed during one season, beginning Summer 2027. If two seasons of work are required, the proposed levee raise and grading would occur in Season 1 and the waterside habitat enhancement and Sandmound Slough vegetation management would be constructed in Season 2 (Summer 2027 to Fall 2027). Construction would occur between 7:30 a.m. and 7:00 p.m., Monday through Friday, and 9:00 a.m. to 7:00 p.m. on weekends and holidays. Nighttime construction is not expected to be required.

2.5.2 Construction Equipment and Personnel

A summary of the proposed project construction activities, estimated durations, equipment mix, maximum number of workers required, and import and export quantities, is shown in **Table 2-1**. Construction workers are expected to come from the local workforce within the County. The primary import materials would be soil, quarry rock, and aggregate base. Borrow is planned to be obtained from a parcel on Bethel Island, owned by Bethel Island Municipal Improvement District, approximately 6 miles from the project site and imported to the project site. Approximately 6 inches of topsoil stripping would be performed for the levee work on all areas receiving fill. The project does not anticipate needing to dispose of soil materials. Soil stripping would be stockpiled at the staging area and respread on the landside slope of the levee. Existing aggregate is planned to be stockpiled in the staging area. Ice plant would be disposed of on Hotchkiss Tract.

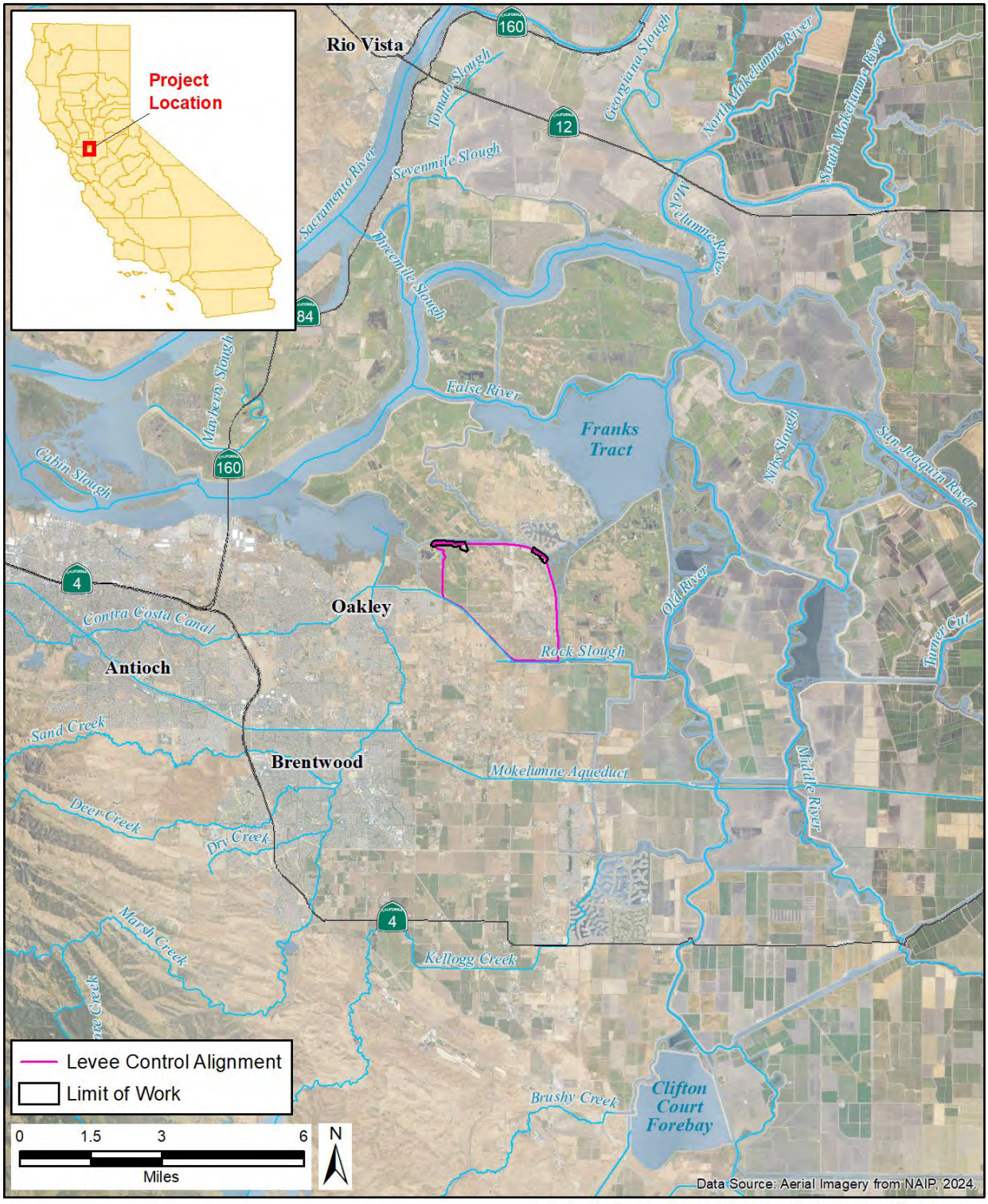

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Figure 2-1. Regional Location

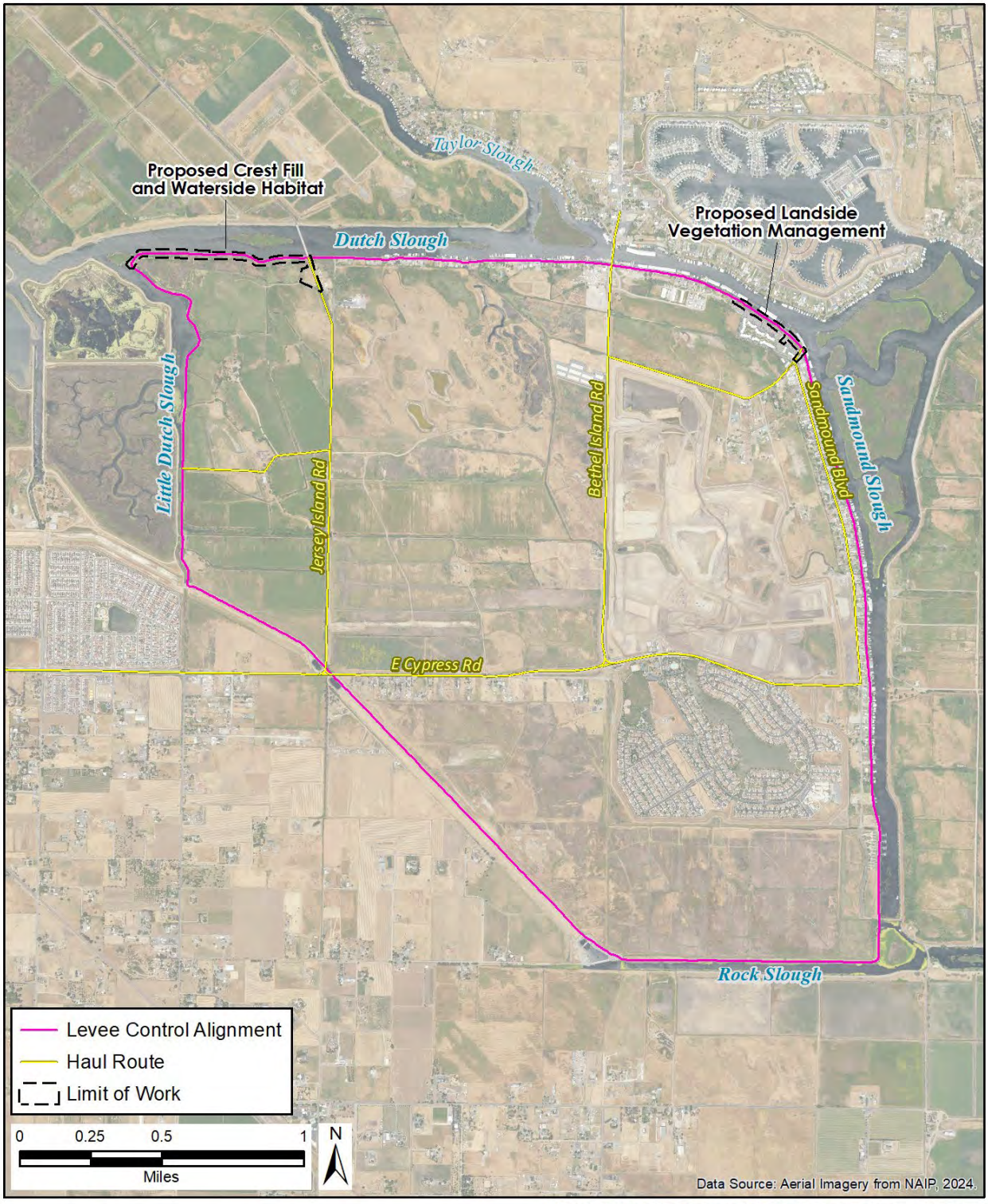

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Figure 2-2. Project Location

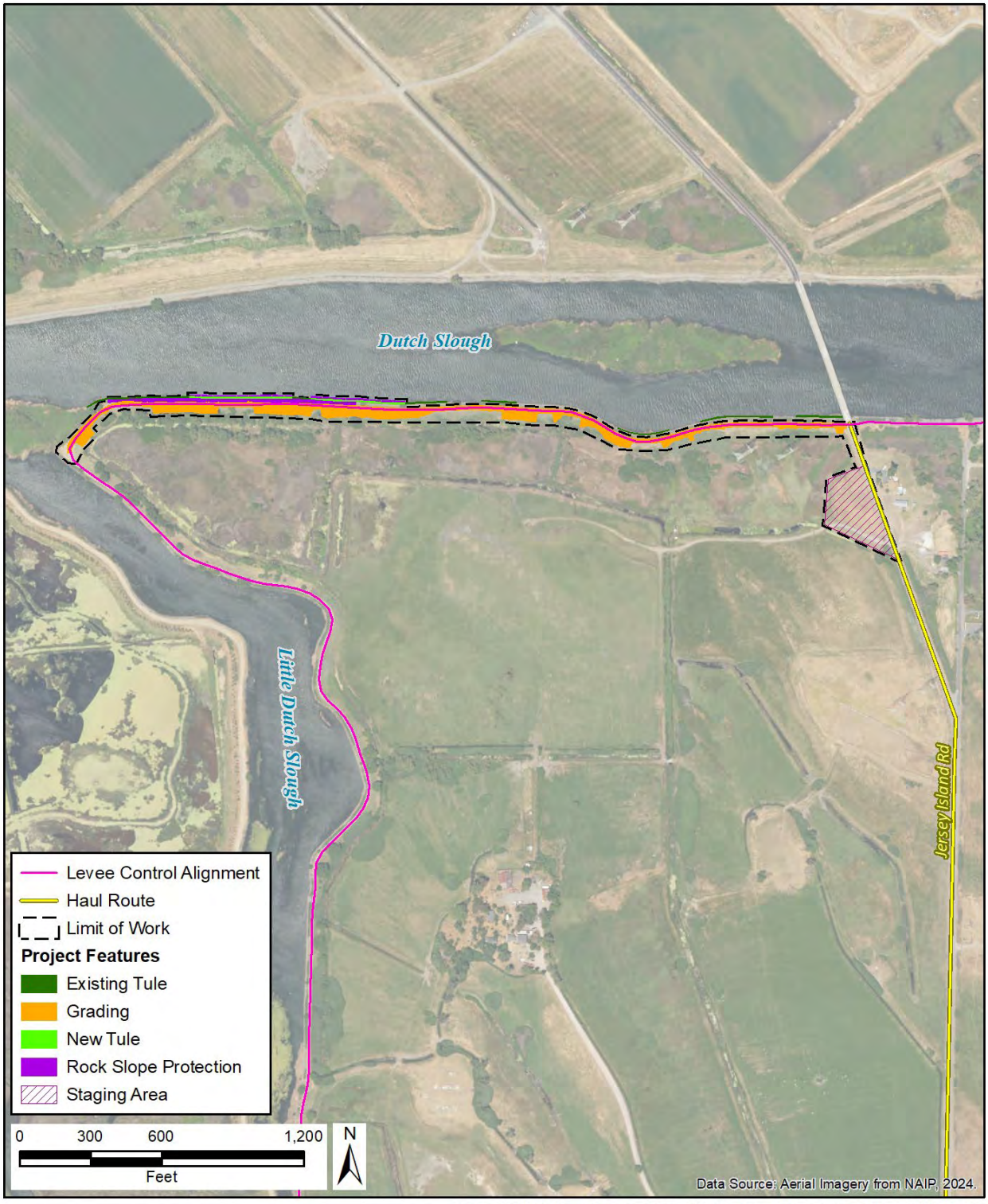

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Figure 2-3. Dutch Slough Project Features

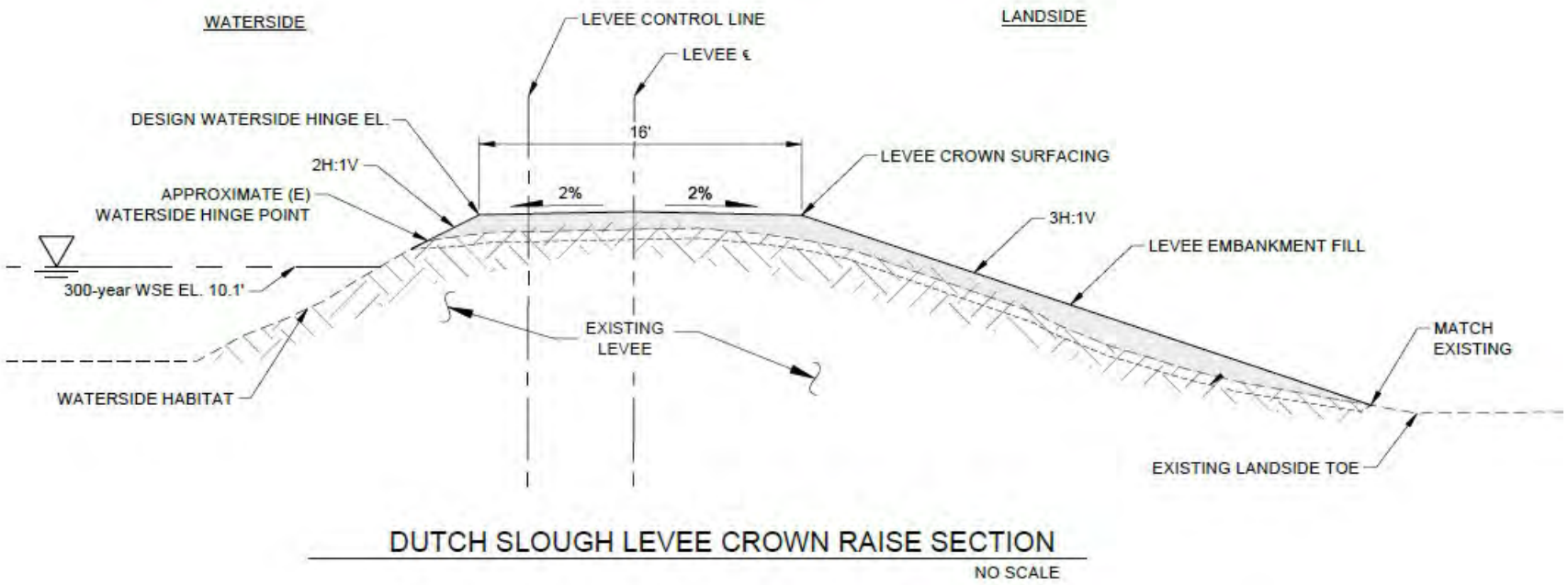

Figure 2-4. Dutch Slough Levee Raise Cross Section

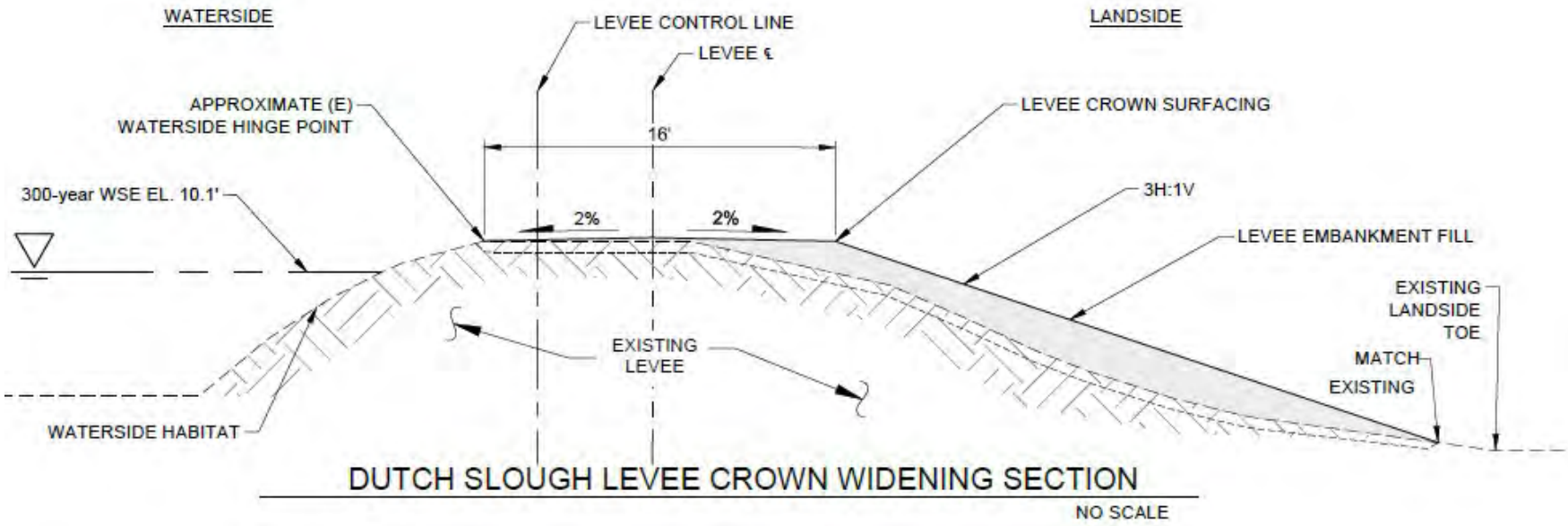

Figure 2-5. Dutch Slough Levee Widening Cross Section

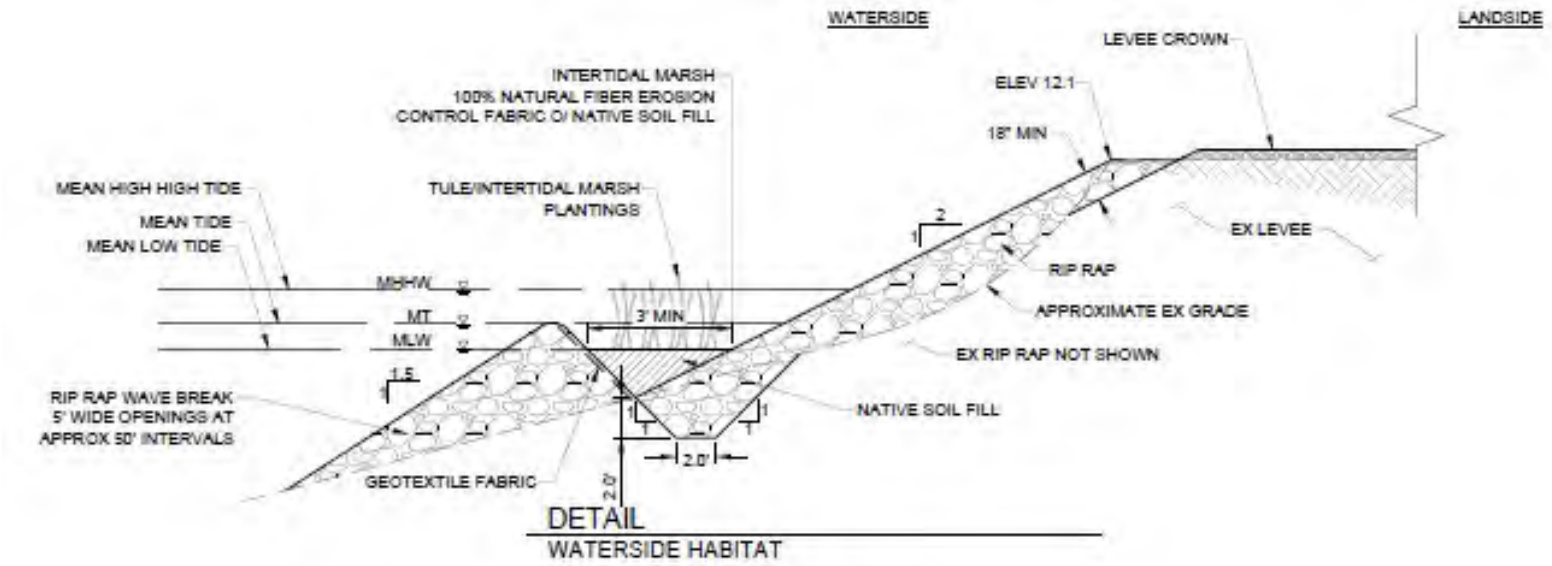

Figure 2-6. Dutch Slough Levee Habitat Enhancements (1 of 3)

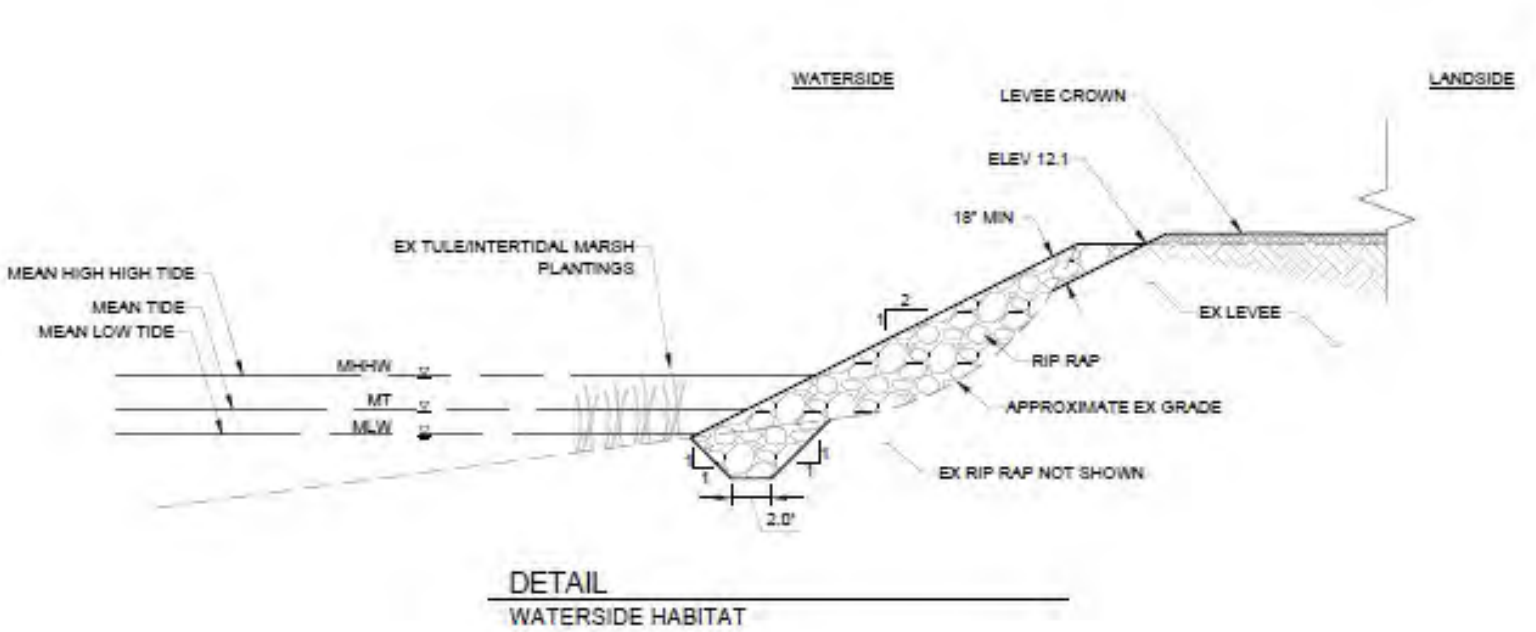

Figure 2-7. Dutch Slough Levee Habitat Enhancements (2 of 3)

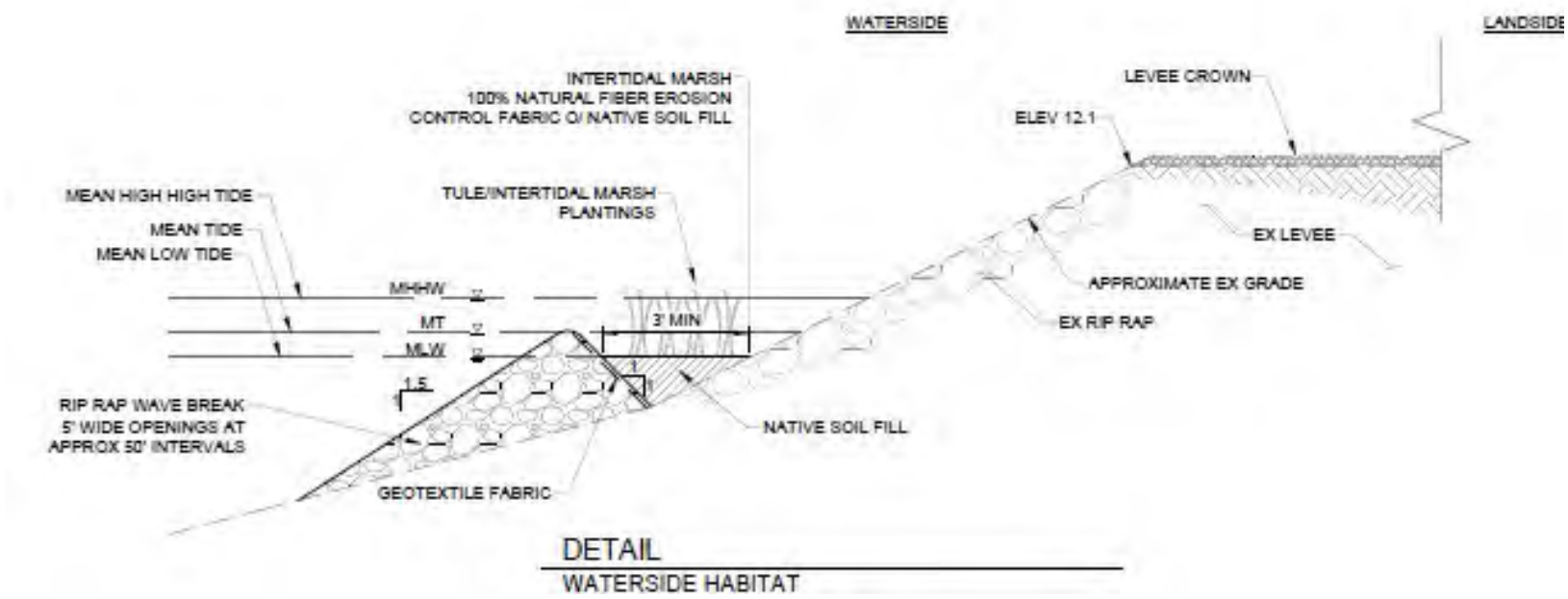

Figure 2-8. Dutch Slough Levee Habitat Enhancements (3 of 3)

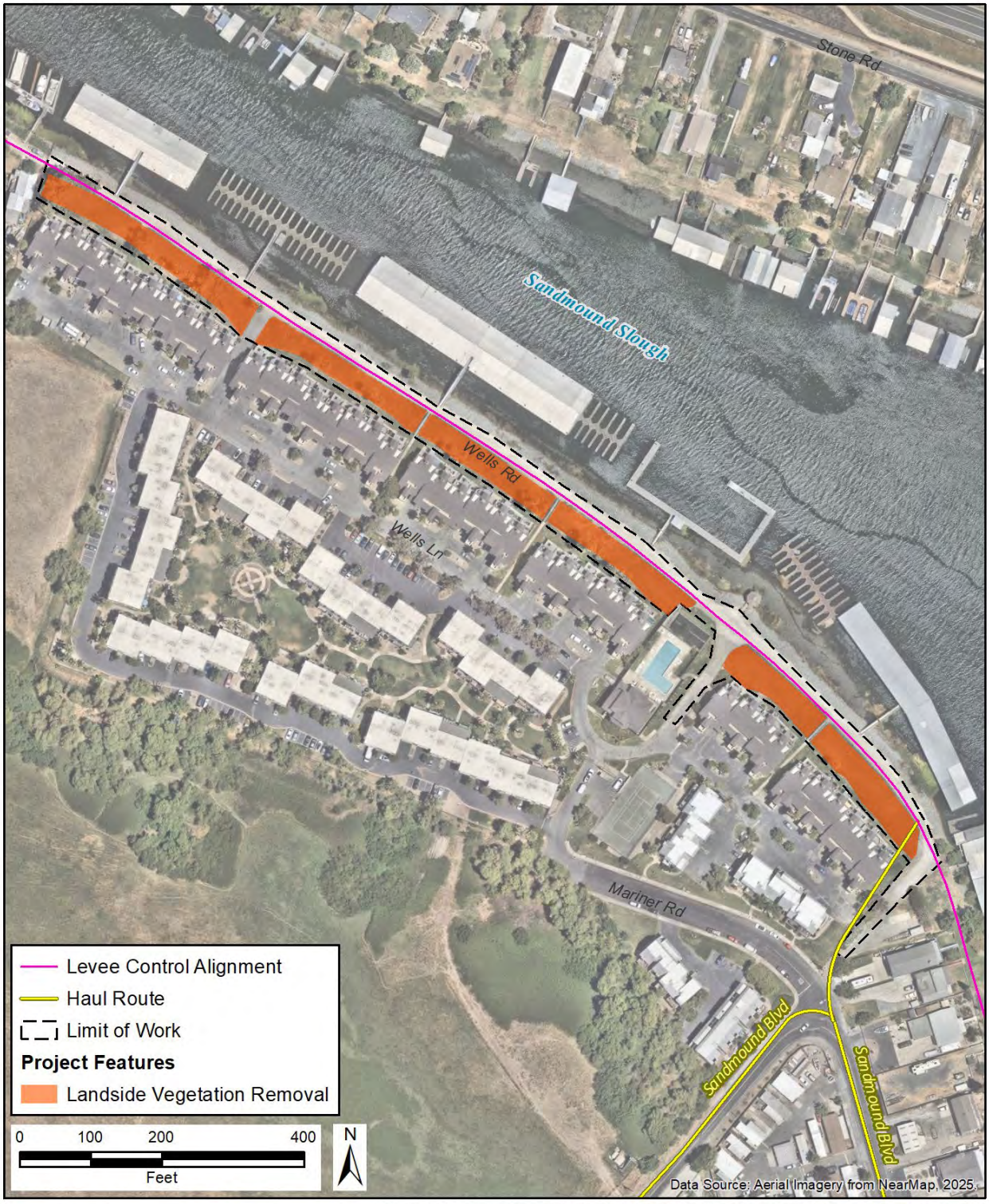

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Figure 2-9. Sandmound Slough Project Features

Table 2-1. Construction Activity Overview

Construction Activity	Construction Equipment Used (Number)	Anticipated Use Duration (days)	Workers Required	Material Import Quantities	Excavation/ Sediment Quantities
Season 1					
Mobilization	Mechanic Truck (1), Excavator (1), Loader (1)	5	5	-	-
Clearing, Grubbing, Stripping, Earthwork	Dozer (1), Grader (1) Excavator (1) Loader (1)	15	5	-	3,185 CY
Tree Removal	Excavator (1), Loader (1),	14	3		23 trees – approximately 115 CY
Pipe Gate Removal and Installation	Excavator (1), Pickup Truck (1)	2	3	-	-
Season 2					
Import Materials	Roller (1), Compactor (1), Haul Trucks, Dozer (1), Excavator (2), Water Truck (1)	60	10	Levee Fill - 6,030 CY, Aggregate Road Base – 2,500 tons	850 tons aggregate base
Habitat Enhancements	Dozer (1), Water Truck (1), Pick-up Truck (5), Drill Seeder (1), Tractor (1). Long Reach Excavator (1), Haul Truck (1)	60	10	Quarry Rock - 6,630 tons, Marsh native soil fil -307 CY	-
Ice Plant Removal	Excavator (1), Loader (1)	5	3	-	650 CY
Project Cleanup/General Site Erosion Control, including Hydroseeding	Dozer (1), Roller (1), Cat 14 Blade (1), Hydroseeder (1)	10	5	5 CY	-

Notes: CY= cubic yards, LF= linear feet, LS= lump sum, TN= tons, SY= square yard

2.5.3 Mobilization, Construction Access, and Staging

Construction access would be primarily from regional highways and local roadways, as shown in Figure 2-1 and Figure 2-2. Staging areas would be used for equipment storage and maintenance, construction materials, fuels, lubricants, solvents, and other possible contaminants in compliance with permits obtained for the proposed project. Staging areas would have a stabilized entrance and exit, designed to be consistent with the California Department of Transportation (Caltrans) Type 1 or 2 construction entrances. Constructing the stabilized entrances and exits would be with rock and/or aggregate to assist in removing mud and dirt off construction equipment and personal vehicles before entering paved roadways from the construction site. No equipment refueling or fuel storage would take place within 100 feet of waterways, including Little Dutch Slough, Dutch Slough, and Sandmound Slough. Access and staging areas would be cleared or grubbed, as needed. A small amount of tree trimming may be required for staging areas, however, staging areas would be reseeded/revegetated to pre-project conditions or better following ground disturbance activities. Staging areas and access routes would be regraded, topped, and recontoured.

Haul Routes

Transporting borrow material to the project site would be via haul trucks primarily using major highways such as State Route 160 and Interstate 5, as well as local roadways such as Jersey Island Road, Bethel Island Road, East Cypress Road, and Sandmound Boulevard, as shown on Figure 2-2.

2.6 Operation and Maintenance

Operation and maintenance activities associated with levees would remain similar to current conditions. RD 799's levee maintenance work is covered under the DWR Delta Levees Maintenance Subventions Program, an annual funding program, and includes all repair and maintenance work on RD 799 levees. Project operation and maintenance activities would not require any new staff.

2.7 Regulatory Requirements, Permits, and Approvals

As lead agency under CEQA, RD 799 has the principal responsibility for approving and carrying out the proposed project and for ensuring that CEQA requirements and other applicable regulations are met. See below for a list of permits or approvals anticipated to be required for the project.

- **U.S. Army Corps of Engineers (USACE).** 404 Clean Water Act Nationwide Permit for discharge of material into Waters of the U.S.
- **National Marine Fisheries Service (NMFS)/U.S. Fish and Wildlife Service (USFWS).** Section 7 Consultation for potential effects on federally endangered species and their habitats.
- **State Historic Preservation Officer (SHPO).** Section 106 Consultation for potential effects on historic properties.
- **Central Valley Regional Water Quality Control Board (RWQCB).** 401 Water Quality Certification for discharge of material into Waters of the State.
- **California Department of Fish and Wildlife (CDFW).** 1602 Lake and Streambed Alteration Agreement for alteration of bed and bank and associated riparian vegetation.
- **California Department of Water Resources (DWR).** Approval of grant funding for construction of the proposed project.
- **RD 799.** Adopting the ISMND by RD 799's Board of Directors at its public meeting.
- **Delta Stewardship Council (DSC).** Delta Plan Consistency and Covered Actions.

3.0 Environmental Checklist

Evaluation of Environmental Impacts

1. A brief explanation is required for all answers except “No Impact” answers that are adequately supported by the information sources a lead agency cites in the parentheses following each question. A “No Impact” answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g., the project falls outside a fault rupture zone). A “No Impact” answer should be explained where it is based on project-specific factors as well as general standards (e.g., the project will not expose sensitive receptors to pollutants, based on a project-specific screening analysis).
2. All answers must take account of the whole action involved, including off-site as well as on-site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts. Operations and maintenance impacts of the proposed project are routine, minimal, and essentially the same as current operations and maintenance of the existing facilities. There is no potential for a significant impact to any resource category from project operations and maintenance of the existing and proposed facilities.
3. Once the lead agency has determined that a particular physical impact may occur, then the checklist answers must indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant. "Potentially Significant Impact" is appropriate if there is substantial evidence that an effect may be significant. If there are one or more “Potentially Significant Impact” entries when the determination is made, an EIR is required. “Beneficial impact” is also identified where appropriate to provide full disclosure of any benefits from implementing the proposed project.
4. “Less-than-Significant Impact with Mitigation Incorporated” applies where the incorporation of mitigation measures has reduced an effect from "Potentially Significant Impact" to a “Less-than-Significant Impact.” The lead agency must describe the mitigation measures and briefly explain how they reduce the effect to a less-than-significant level (mitigation measures from “Earlier Analyses,” as described in (5) below, may be cross-referenced).
5. Earlier analyses may be used where, pursuant to the tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR or negative declaration (Section 15063[c][3][D]). In this case, a brief discussion should identify the following:
    a. Earlier Analysis Used. Identify and state where they are available for review.
    b. Impacts Adequately Addressed. Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards, and state whether such effects were addressed by mitigation measures based on the earlier analysis.

c. Mitigation Measures. For effects that are a "Less-than-Significant Impact with Mitigation Measures Incorporated," describe the mitigation measures which were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the project.

6. Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g., general plans, zoning ordinances). Reference to a previously prepared or outside document should, where appropriate, include a reference to the page or pages where the statement is substantiated.

7. Supporting Information Sources: A source list should be attached, and other sources used or individuals contacted should be cited in the discussion.

8. This is only a suggested form, and lead agencies are free to use different formats; however, lead agencies should normally address the questions from this checklist that are relevant to a project's environmental effects in whatever format is selected.

9. The explanation of each issue should identify:

   a. the significance criteria or threshold, if any, used to evaluate each question; and

   b. the mitigation measure identified, if any, to reduce the impact to less than significance.

Significance thresholds are identified for certain resources, but others are not explicitly identified because there is clearly no impact or the checklist question itself serves as the significance threshold.

3.1 Aesthetics

#1. AESTHETICS. Except as provided in PRC Section 21099.

Would the project:	Have Potentially Significant Impact?	Have Less-than-Significant Impact with Mitigation Incorporated?	Have Less-than-Significant Impact?	Have No Impact?	Have Beneficial Impact?
#1 -a. Have a substantial adverse effect on a scenic vista?	no	no	**yes**	no	no
#1 -b. Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	no	no	no	**yes**	no
#1 -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 a 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?	no	no	**yes**	no	no
#1 -d. Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	no	no	no	**yes**	no

3.1.1 Environmental Setting

Project Area Characteristics

The visual character of a project site and its immediate surroundings is defined by existing land uses and the associated natural or built environment, including vegetation, landforms, and structural features. The primary natural visual characters for the project area are tidal wetlands and agricultural fields. The area is low-lying with significant water inundation mixed with vegetated areas. The majority of the project area contains agricultural fields, with scattered access roads, paths, and structures with residential, recreational, and commercial uses. Immediately adjacent to the project site is the more-developed City of Oakley, undeveloped open space areas, and to the north, Bethel Island, with similar uses as the project area. Project components and construction activities would be visible during project construction.

Scenic Vistas

Scenic vistas are defined as expansive views of distant landforms and aesthetic features from public vantage points, including areas designated as official scenic vistas along roadway corridors or otherwise designated by local jurisdictions. The project site and surrounding areas do not have any designated scenic vistas; however, the portion of Jersey Island Road north of Dutch Slough is a county-designated scenic route (Contra Costa County 2024).

Scenic Highways

A scenic highway is officially designated as a State Scenic Highway when a local jurisdiction adopts a scenic corridor protection program, applies to the California Department of Transportation (Caltrans) for scenic highway approval, and receives notification from Caltrans that the highway has been designated as an official Scenic Highway. The County supports the eligibility of State Route (SR) 4, located approximately 3.2 miles southwest of the project site, as a State Scenic Highway. SR160/84 located approximately 3.31-miles west of the project site is designated as an Eligible State Scenic Highway. However, the nearest officially designated State Scenic Highway is SR 680, located approximately 20 miles west of the project site (Caltrans 2019).

Light and Glare

There are two primary sources of artificial light: light emanating from building interiors that pass-through windows and light from exterior sources (e.g., street lighting, parking lot lighting, building illumination, security lighting, and landscape lighting). Depending upon the location of the light source and its proximity to adjacent light-sensitive uses, light introduction can be a nuisance, affecting adjacent areas and diminishing the view of the clear night sky. Light spillage is typically defined as unwanted illumination from light fixtures on adjacent properties. Existing light sources in the vicinity of the project site include limited exterior lighting of residential, commercial, and agricultural structures. The project site contains few, if any, existing on-site uses that involve lighting.

3.1.2 Discussion

a) Have a substantial adverse effect on a scenic vista?

There are no designated scenic vistas within the project area. However, the county-designated scenic route, a portion of Jersey Island Road, is located just north across Dutch Slough. It is likely that construction activities in the Dutch Slough portion of the project site would be visible to motorists traveling south along Jersey Island Road.

Typically, scenic vistas include natural areas and features such as mountains, waterbodies, open, undeveloped land, or unique or historic built structures, etc. Therefore, the project site and local vicinity, which includes tidal wetlands, are visual resources that contribute to the scenic qualities within the viewshed of motorists traveling along Jersey Island Road or recreationalists in the general vicinity of the project site. Full road closures are not anticipated, therefore, public access along Jersey Island Road would remain available during construction. Construction activities associated with the proposed Dutch Slough levee raise and widening, and habitat enhancements would include a mix of equipment ranging in size and scale, some of which may be partially visible from Jersey Island Road to the north.

While construction equipment and materials may be partially visible from Jersey Island Road, the equipment would not have the scale or massing to significantly obstruct or provide contrast of views of the tidal marsh/agricultural areas to the south. Additionally, the project area would be partially shielded from motorists, pedestrians or bicyclists traveling south by existing topography and foliage. Furthermore, motorists, bicyclists, pedestrians, and/or recreationalists would only experience temporary view obstruction for brief moments of time while passing by the project site.

Once construction is complete, the project site would be restored and enhanced ecologically, benefiting the overall scenic quality of the project area. The presence of construction equipment would not permanently affect expansive views of the project area. Additionally, O&M activities would not require a significant amount of vehicles or equipment onsite, as compared to existing O&M activities. Given the short-term and temporary presence of construction equipment and materials coupled with low levels of view obstruction from motorists traveling south along Jersey Island Road, impacts to scenic views within the project area during construction and operation would be **less than significant**.

b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a State Scenic Highway?

There are no designated State Scenic Highways located within or near the project site. The nearest designated State Scenic Highway is Interstate 680, located approximately 20 miles west of the project site. State Route 160/84 located approximately 3.31-miles west of the project site is designated as an Eligible State Scenic Highway; however, the project site and immediate area would not be visible from this stretch of highway. There would be no work conducted within or along a State Scenic Highway, therefore, **no impact** would occur.

c) In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings?

As described above for Impact 3.2 (a), project construction activities would result in the short-term presence of construction equipment and ground disturbance in certain portions of the project site that could be visible form public vantage points including motorists traveling along Jersey Island Road, as well as recreational users of the project vicinity. As discussed previously, all staging and disturbed areas would be restored upon completion of construction and equipment would be removed from the project site.

Once construction is complete, the project site would be enhanced ecologically, and would appear similar to existing visual conditions. Further, O&M activities would remain consistent with existing conditions. Therefore, implementation of the project would not permanently or significantly impact the existing visual characters and quality of public views of the project site and immediate vicinity. Impacts would be **less than significant**.

d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?

The project design does not include new permanent sources of light. Construction would occur during daylight hours, and no nighttime lighting would be required, except for limited security lighting within staging areas overnight during construction, which would be shielded and pointed down to only illuminate areas where trailers or materials may be stored. Furthermore, implementation of the project does not include structures built with reflective materials such as glass or metal; therefore, implementation of the project would not create a new source of glare in the area. Potential impacts regarding new light or glare in- the project site and surrounding area would not occur and therefore, there would be **no impact**.

3.2 Agriculture and Forestry Resources

#2. 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, as updated) prepared by the California Department 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:	Have Potentially Significant Impact?	Have Less-than-Significant Impact with Mitigation Incorporated?	Have Less-than-Significant Impact?	Have No Impact?	Have Beneficial Impact?
#2 -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?	no	no	**yes**	no	no
#2 -b. Conflict with existing zoning for agricultural use, or a Williamson Act contract?	no	no	no	**yes**	no
#2 -c. Conflict with existing zoning for, or cause rezoning of, forest land (as defined in PRC Section 12220(g)), timberland (as defined by PRC Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))?	no	no	no	**yes**	no
#2 -d. Result in the loss of forest land or conversion of forest land to non-forest use?	no	no	no	**yes**	no
#2 -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?	no	no	no	**yes**	no

3.2.1 Environmental Setting

The project site is designated as Agriculture Limited, Public Space, Commercial Recreation, and Residential Medium, and zoned as Delta Recreation, Parks and Recreation, Agricultural Preserve, Multi-Family, Retal Business, and General Commercial by the City of Oakley; however, the limit

of work for the project includes areas that contain the existing levee, inundated tidal wetlands, and agriculture. The proposed levee repair and habitat enhancements are consistent with these land use designations (City of Oakley 2015).

Important Farmland

The California Department of Conservation Farmland Mapping and Monitoring Program (FMMP) identifies lands that have agricultural value and maintains a Statewide map of agricultural lands in its Important Farmland Inventory System (DOC 2004). The Important Farmland Inventory System classifies land based upon its productive capabilities, which is based on many characteristics, including fertility, slope, texture, drainage, depth, salt content, and availability of water for irrigation. The California Department of Conservation maintains the FMMP and monitors the conversion of farmland to and from agricultural use through its Important Farmland Inventory. Farmlands are divided into the following categories: Prime Farmland; Farmland of Statewide Importance; Unique Farmland; Farmland of Local Importance; Grazing Land; Urban and Built-up Land; and Other Land. The project site is designated as Prime Farmland, Farmland of Statewide Importance, and Farmland of Local Importance on maps prepared for the FMMP (DOC 2022).

Williamson Act Contracts

The California Land Conservation Act of 1965, also known as the Williamson Act, is designed to preserve agricultural and open space lands by discouraging their premature and unnecessary conversion to urban uses. Williamson Act contracts, also known as agricultural preserves, create an arrangement whereby private landowners' contract with counties and cities to voluntarily restrict their land to agricultural and compatible open-space uses (DOC 2023). The project site and surrounding area consist of rural, low-density communities, and the project site does not operate under a Williamson Act Contract (Contra Costa County 2024).

Forestry Resources

Public Resources Code (PRC) Section 12220(g) defines "forest land" as land that can support 10 percent native tree cover and forest vegetation of any species, including hardwoods, under natural conditions, and that allows for management of one or more forest resources including timber, aesthetics, fish and wildlife, biodiversity, water quality, recreation, and other public benefits.

3.2.2 Discussion

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?

The project area contains Prime Farmland, Farmland of Statewide Importance, Farmland of Local Importance (Farmland), and Urban and Built-up Land as shown on FMMP maps (DOC 2022). The limit of work (active construction/ground disturbing activities) would occur within and area designated Farmland of Local Importance; however, the proposed levee repair and habitat enhancements along Dutch Slough would not remove, convert, or permanently impact areas of active Farmland. Furthermore, staging areas were sited in areas that are already disturbed and do

not contain active Farmland and would be restored to pre-project conditions. Therefore, the project would result in a **less-than-significant** impact to Farmland.

a) Conflict with existing zoning for agricultural use, or a Williamson Act contract?

The project is not zoned for agriculture and is not located within an area regulated by a Williamson Act Contract (County of Contra Costa 2024). The project would restore the site ecologically; however, implementation of the project would not change or alter any existing uses of the area. Therefore, the project would not conflict with existing zoning or agricultural use, or a Willaimson Act Contract. **No impact** would occur.

b) 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))

The project site contains low-density wetland vegetation but does not meet the definition of forestland as defined above. The project site is not zoned as forest land, timberland, or timberland zoned as timberland production, therefore, no loss or conversion of forest land to non-forest land would result from implementation of the project. There would be **no impact**.

c) Result in the loss of forest land or conversion of forest land to non-forest use?

Refer to Impact 3.3(c), above. The project would not remove forest land or convert forest land to non-forest use. **No impact** would occur.

d) 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 conversation of forest land to non-forest use?

Refer to Impact 3.3(a), above. There is no forest land within the project site. The project would include construction activities within areas of Farmland but would not change or alter active agricultural operations or uses of the project site or immediate vicinity. Therefore, **no impact** would occur.

3.3 Air Quality

#3. AIR QUALITY. Where available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied on to make the following determinations.

Would the project:	Have Potentially Significant Impact?	Have Less-than-Significant Impact with Mitigation Incorporated?	Have Less-than-Significant Impact?	Have No Impact?	Have Beneficial Impact?
#3 -a. Conflict with or obstruct implementation of the applicable air quality plan?	no	no	**yes**	no	no
#3 -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?	no	no	**yes**	no	no
#3 -c. Expose sensitive receptors to substantial pollutant concentrations?	no	no	**yes**	no	no
#3 -d. Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	no	no	**yes**	no	no

3.3.1 Environmental Setting

The proposed project is in the San Francisco Bay Area Air Basin (SFBAAB) within Contra Costa County. The Bay Area Air Quality Management District (BAAQMD) is responsible for obtaining and maintaining air quality conditions in Contra Costa County. The Federal Clean Air Act and California Clean Air Act required the U.S. Environmental Protection Agency (EPA) and California Air Resource Boards (CARB) to establish health-based air quality standards at the federal and state levels. National Ambient Air Quality Standards (NAAQS) and California Ambient Air Quality Standards (CAAQS) were established for the following criteria pollutants: carbon monoxide (CO), ozone (O3), sulfur dioxide (SO2), nitrogen dioxide (NO2), particulate matter less than 10 microns in diameter (PM10), particulate matter less than 2.5 microns in diameter (PM2.5), and lead. Areas of the state are designated as attainment, nonattainment, maintenance, or unclassified for the various pollutant standards according to the Federal Clean Air Act and California Clean Air Act.

An “attainment” designation for an area signifies that pollutant concentrations did not violate the NAAQS or CAAQS for that pollutant in that area. A “nonattainment” designation indicates that a pollutant concentration violated the standard at least once, excluding those occasions when a violation was caused by an exceptional event, as identified in the criteria. A “maintenance” designation indicated that the area previously categorized as nonattainment is currently categorized as attainment for the applicable pollutant; though the area must demonstrate continued attainment for a specific number of years before it can be re-designated as an attainment area. An “unclassified” designation signifies that data does not support either an attainment or a

nonattainment status. The EPA is responsible for enforcing the NAAQS, primarily through their review of the State Implementation Plans (SIPs). In California, the CARB is responsible for the establishment of the SIP. The local air quality management district (BAAQMD) is responsible for the enforcement of the SIP, as well as the NAAQS and CAAQS. If an area is meeting the NAAQS and CAAQS, that area is considered in "attainment"; however, areas that are noncompliant are designated "non-attainment" areas. Once attainment has been achieved, the air basin may be placed under a maintenance plan to demonstrate long-term compliance with the NAAQS. The state and federal-attainment status for SFBAAB is shown in **Tables 3.3-1**.

Table 3.3-1. Bay Area Air Quality Management District Pollutant Attainment Status

Pollutant	Federal Attainment Status	State Attainment Status
1-hour Ozone	Non-attainment	Non-attainment
8-hour Ozone	Non-attainment	Non-attainment
24-hour PM_{10}	Unclassified	Non-attainment
Annual PM_{10}	Not Applicable	Non-attainment
24-hour $PM_{2.5}$	Non-attainment	Not Applicable
Annual $PM_{2.5}$	Unclassified	Non-attainment
1-hour Carbon Monoxide	Attainment	Attainment
8-hour Carbon Monoxide	Attainment	Attainment
1-hour Nitrogen Dioxide	Not Applicable	Attainment
Annual Nitrogen Dioxide	Attainment	Not Applicable
3-hour Sulfur Dioxide	Attainment	Not Applicable
24-hour Sulfur Dioxide	Attainment	Attainment
Annual Sulfur Dioxide	Attainment	Not Applicable
30-day Lead	Not Applicable	Unclassified
Quarter Lead	Attainment	Not Applicable

Notes: PM_{10} = respirable particulate matter with an aerodynamic resistance diameter of 10 micrometers or less; $PM_{2.5}$ = fine particulate matter with an aerodynamic resistance diameter of 2.5 micrometers or less
Source: BAAQMD 2017

The BAAQMD has prepared the 2017 Bay Area Clean Air Plan as an update to the Bay Area 2010 Clean Air Plan, pursuant to air quality planning requirements defined in the California Health & Safety Code. To fulfill state ozone planning requirements, the 2017 control strategy includes all feasible measures to reduce emissions of ozone precursors; reactive organic gases (ROG) and nitrogen oxides (NOx) and reduce transport of ozone and its precursors to neighboring air basins. In addition, the 2017 Bay Area Clean Air Plan builds upon and enhances the BAAQMD's efforts to reduce emissions of fine particulate matter and toxic air contaminants.

The BAAQMD has established recommended thresholds of significance for air quality, as shown in **Table 3.3-2.**

Table 3.3-2. BAAQMD Air Quality Thresholds of Significance

Criteria Air Pollutant	Construction[1] (Average Daily - pounds per day)	Operational (Average Daily - pounds per day)	Operations (Maximum Annual Emissions – tons per year)
ROG	54	54	10
NO_x	54	54	10
PM_{10}	82 (exhaust)	82	15
$PM_{2.5}$	52 (exhaust)	54	10
$PM_{10/2.5}$ (fugitive dust)	Best Management Practices[2]	None	None
Local CO	None	9.0 parts per million (ppm) (8-hour average), 20.0 ppm (1-hour average)	9.0 parts per million (ppm) (8-hour average), 20.0 ppm (1-hour average)

Notes: Notes: CO = carbon monoxide; NO_X = oxides of nitrogen; $PM_{2.5}$= fine particulate matter with an aerodynamic resistance diameter of 2.5 micrometers or less; PM_{10} = respirable particulate matter with an aerodynamic resistance diameter of 10 micrometers or less; ROG = reactive organic gases.

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

[2] PM10/PM2.5 (fugitive dust) is also recognized to impact local communities. The BAAQMD strongly recommends implementing all feasible fugitive dust management practices especially when construction projects are located near sensitive communities, including schools, residential areas, or other sensitive land uses. These measures are detailed in the BAAQMD 2022 CEQA Guidebook.

Source: BAAQMD 2022

BAAQMD Best Management Practices

The BAAQMD Best Management Practices (BMPs), which are strongly recommended for all construction projects, regardless of the amount of emissions generated, include the following:

- B-1 All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day.
- B-2 All haul trucks transporting soil, sand, or other loose material off-site shall be covered.
- B-3 All visible mud or dirt trackout onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.
- B-4 All vehicle speeds on unpaved roads shall be limited to 15 mph.
- B-5 All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used.
- B-6 All excavation, grading, and/or demolition activities shall be suspended when average wind speeds exceed 20 mph.
- B-7 All trucks and equipment, including their tires, shall be washed off prior to leaving the site. B-8 Unpaved roads providing access to sites located 100 feet or further from a paved road shall be treated with a 6- to 12-inch layer of compacted layer of wood chips, mulch, or gravel.

- B-9 Publicly visible signs shall be posted with the telephone number and name of the person to contact at the lead agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. The Air District's General Air Pollution Complaints number shall also be visible to ensure compliance with applicable regulations.

3.3.2 Discussion

b) Conflict with or obstruct implementation of the applicable air quality plan?

As of June 2022, the BAAQMD most current air quality plan is the 2017 Bay Area Clean Air Plan, the primary goals of which are to protect public health and the climate. The 2017 Bay Area Clean Air Plan includes a wide range of control measures and actions to reduce combustion-related activities, decrease combustion of fossil fuels, improve energy efficiency, and reduce emissions of potent greenhouse gases. Several measures address the reduction of multiple pollutants such as O_3 precursors, PM, air toxics, and greenhouse gas (GHG) emissions.

Determination of whether a project supports the goals in the 2017 Bay Area Clean Air Plan is achieved by a comparison of project-estimated emissions with BAAQMD thresholds of significance. If project emissions would not exceed the thresholds of significance after the application of all feasible mitigation measures, the project is consistent with the goals of the 2017 Bay Area Clean Air Plan. As shown in **Table 3.3-3** below, emissions generated during project construction would not exceed the BAAQMD's significance thresholds. Once construction is complete, the project would contribute a minimal amount of operational air quality emissions due to maintenance of habitat enhancements features. Maintenance and operation of the levee segments would be similar to current conditions. Therefore, the project would not conflict with or obstruct reduction measures presented in the 2017 Bay Area Clean Air Plan. The project would generate **less-than-significant** impacts.

a) 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?

By its very nature, air pollution is largely a cumulative impact. No single project is sufficient in size, by itself, to result in nonattainment of ambient air quality standards. Instead, a project's individual emissions contribute to existing cumulatively significant adverse air quality impacts. If a project's individual emissions exceed its identified significance thresholds, the project would be cumulatively considerable. Projects that do not exceed significance thresholds would not be considered cumulative considerable.

Project construction would temporarily generate criteria air pollutant emissions from exhaust associated with on-site equipment operation, material hauling, and worker vehicle trips, as well as fugitive dust from ground-disturbing activities. O&M activities would be minimal and result in negligible emissions. Construction-related emissions were modeled using the California Emissions Estimator Model (CalEEMod) (see Appendix A, "Air Quality and Greenhouse Gases Data"). **Table 3.3-3** provides estimates of unmitigated and mitigated daily average construction-related pollutant emissions, based on maximum anticipated material hauling, equipment usage, and

numbers of workdays described in Section 2.5 “Project Implementation," as well implementation of BAAQMD Basic Construction BMPs.

The SFBAAB is currently designated as a nonattainment area for California and national ambient air quality standards for ozone and particulate matter. Therefore, if a project exceeds the BAAQMD identified project-level thresholds of significance (as shown in Table 3.3-2), its emissions would result in a significant adverse air quality impact.

Table 3.3-3. Estimated Construction-related Criteria Pollutant Emissions

Construction year	ROG (average pounds per day)	NOx (average pounds per day)	PM10-exhaust (average pounds per day)	PM2.5 – exhaust (average pounds per day)	PM10 – fugitive dust (average pounds per day)	PM2.5 – fugitive dust (average pounds per day)
2027	1.0	8.7	1.9	1.7	49	11
BAAQMD Threshold	54	54	82	82	Basic Construction Best Management Practices	Basic Construction Best Management Practices
Exceeds Threshold?	No	No	No	No	No	No

Notes: BAAQMD = Bay Area Air Quality Management District; NOx = Nitric Oxide; PM2.5 = Fine Particulate Matter; PM10 = Coarse Particulate Matter; ROG = Reactive Organic Gas
Source: CalEEMod version 2022.1. Refer to Appendix A for Model Data Outputs.

As shown in Table 3.3-3, emissions generated during project construction would not exceed the BAAQMD’s thresholds of significance during construction. The BAAQMD does not establish numeric thresholds for fugitive dust emissions, instead relying on the implementation of BAAQMD BMPs as discussed in Section 3.3.1 “Environmental Setting,” to be considered less than significant. Thus, the project would need to incorporate BAAQMD Basic BMPs to be considered less than significant. With implementation of BAAQMD BMPs, this impact is less than significant, and criteria pollutant emissions generated during project construction would not result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable state ambient air quality standard, and no health effects from project-criteria pollutants would occur. Therefore, this impact is considered **less than significant**.

b) Expose sensitive receptors to substantial pollutant concentrations?

Some members of the population are especially sensitive to emissions of air pollutants and should be given special consideration during the evaluation of a project’s air quality impacts. These people include children, older adults, people with pre-existing respiratory or cardiovascular illness, and athletes and others who engage in frequent exercise. Sensitive receptors include residences, schools, playgrounds, childcare centers, athletic facilities, long-term health care facilities, rehabilitation centers, convalescent centers, and retirement homes.

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

pose a threat to public health even at low concentrations. Diesel PM emissions associated with activity by heavy-duty construction equipment represent the greatest potential for TAC emissions. Construction activities would occur in proximity to residential areas and would involve the use of a variety of gasoline- or diesel-powered equipment that emit exhaust fumes (diesel PM), which could negatively affect sensitive receptors in the project area. However, the duration of exposure would be short and exhaust from construction equipment dissipates rapidly. Because of the temporary and intermittent use of off-road construction equipment, the dispersive properties of diesel PM (Zhu et al. 2002), and the relatively low exposure period, temporary and short-term construction activities would not result in the exposure of sensitive receptors to substantial TAC concentrations. This impact would be **less than significant**.

c) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

Project construction activities could result in odorous emissions from diesel exhaust associated with construction equipment in proximity to sensitive receptors, however, odorous emissions from project-related diesel exhaust emissions would be temporary in nature and because of the highly diffusive properties of diesel exhaust, exposure of sensitive receptors to these emissions would be limited. Therefore, this impact would be **less than significant**.

3.4 Biological Resources

#4. BIOLOGICAL RESOURCES.

Would the project:	Have Potentially Significant Impact?	Have Less-than-Significant Impact with Mitigation Incorporated?	Have Less-than-Significant Impact?	Have No Impact?	Have Beneficial Impact?
#4 -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 Wildlife or United States Fish and Wildlife Service?	no	**yes**	no	no	no
#4 -b. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by the California Department of Fish and Wildlife or United States Fish and Wildlife Service?	no	**yes**	no	no	no
#4 -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?	no	**yes**	no	no	no
#4 -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?	no	no	**yes**	no	no
#4 -e. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	no	**yes**	no	no	no
#4 -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?	no	no	no	**yes**	no

Database searches, site-specific documentation, field work, and other compiled sources on sensitive biological resources in the project area were utilized to prepare this section of the IS/MND. The entire project area is in the Jersey Island, California, U.S. Geological Survey (USGS) 7.5-minute quadrangle. Most database searches included this quadrangle and all adjacent quadrangles including: Birds Landing, Rio Vista, Isleton, Antioch North, Bouldin Island, Antioch

South, Brentwood, and Woodward Island. The following information sources were reviewed to identify regulated species that have the potential to occur in the project area or vicinity:

- California Department of Fish and Wildlife (CDFW) California Natural Diversity Database (CNDDB) RareFind 5 (CDFW 2025)
- Google Earth™ mapping service aerial imagery (Google Earth 2025)
- U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory Wetlands Mapper (USFWS 2025a)
- USFWS Information for Planning and Consultation System (IPaC) (USFWS 2025b)
- USFWS Threatened and Endangered Species Active Critical Habitat Report (USFWS 2025c)
- California Native Plant Society Rare Plant Inventory (CNPS 2025)
- National Oceanic and Atmospheric Administration (NOAA) Essential Fish Habitat Mapper (NOAA 2025)
- NOAA Endangered Species Act (ESA) Designated Critical Habitat Mapper (NOAA 2025)
- Various citizen science databases, including eBird Online Occurrence Database (eBird 2025), iNaturalist Online Occurrence Database (iNaturalist 2025), Bumble Bee Watch Online Occurrence Database (Xerces 2025a), and Western Monarch Milkweed Mapper Online Occurrence Database (Xerces 2025b)

3.4.1 Environmental Setting

The proposed project is in eastern Contra Costa County, California, near the city of Oakley, which lies just west of the project area. As shown on Figure 2-2, there are two primary segments where project activities would occur which include:

- **Area 1**: Dutch Slough – Levee Crest Fill and Waterside Habitat (Dutch Slough Levee); and
- **Area 2**: Sandmound Slough – Levee Landslide Vegetation Management (Sandmound Slough Levee).

The project goals include improving the Dutch Slough levee to increase flood protection, widening the levee crest to better facilities flood fight, and creating waterside habitat to meet the intent of a multi-benefit project.

A biological study area (BSA) was identified for biological resources to include the entirety of the project site plus a 50-foot-wide buffer, which includes the above two segments, their buffers, staging areas, and access routes, to account for special-status species that may be in the project vicinity that could be affected by proposed project activities. A wider 300-foot buffer was utilized to assess habitat for raptors and other wildlife that could be located within the project vicinity, but habitat mapping and other data were not collected in this wider buffer. Access routes are located along the existing levee roads, paved county roads, or are unpaved through private property. Most access routes were not assessed for special-status species habitat unless they were located within

the BSA, although biologists did document areas where habitat or individual special-status species were identified along the route.

A biological reconnaissance-level survey, a review of potentially impacted trees, and an aquatic resources assessment were conducted by GEI biologists and arborists on June 12, 2025. Surveys focused on identifying any potential constraints to biological resources, wildlife movement corridors, and potentially jurisdictional waters.

Land Cover Types

Land cover mapping was conducted up to 50 feet from the project segment areas. Land covers were subdivided into upland and aquatic community types. Upland vegetation communities include agricultural / irrigated pasture, annual grassland, disturbed, developed, mixed riparian woodland, and sandbar willow thicket. The aquatic communities include ditch, fresh emergent wetlands, irrigation canal, perennial drainages (i.e., Dutch Slough and Sandmound Slough), and seasonal wetland.

Each vegetation community was mapped and described below based on data collected in the field during the wetland delineation and reconnaissance-level biological survey. These descriptions include the dominant and common associate plant species found in each community. The vegetation descriptions below are generally consistent with vegetation alliances described in the *Manual of California Vegetation* (Sawyer et al. 2009).

Upland Communities

Agriculture – Irrigated Pasture

This community is mapped in areas that have been preserved as part of historic agricultural areas set aside as irrigated pasture. Planted row crops may have been present in earlier years; however, what is evident currently is pasture or remnant grassland flats in Area 1 south of the fresh emergent wetlands on the Burroughs parcel.

Species composition is typical for the Delta including hayfields, and alfalfa; however, this community is largely outside of the 50-foot buffer and was not accessed on foot. Therefore, it is assumed that irrigated pasture is the course classification appropriate for this agricultural type found in the survey area. The low-lying basin is subject to ponding and inundation, and as such, the area may contain seasonal wetlands beyond what was visually detected (i.e., standing water and a dominance of hydrophytic vegetation). This survey focused on the levee project features plus a 50-foot buffer, much of which excluded direct access to private parcels containing irrigated pasture.

Annual Grassland

Annual grassland is one of the dominant communities throughout Area 1, consisting of herbaceous vegetation in the uplands along the levee slopes and the staging area. This community is characterized by a variety of nonnative annual grasses intermixed with both nonnative and native forbs. Dominant species include ripgut brome (*Bromus diandrus*), wild oats (*Avena* sp.), perennial ryegrass (*Festuca perennis*), bermudagrass (*Cynodon dactylon*), black mustard (*Brassica nigra*),

wild radish (*Raphanus sativus*), Chinese parsley (*Heliotropium curassavicum*), stinkwort (*Dittrichia graveloens*), horseweed (*Erigeron canadensis*), Italian thistle (*Carduus pycnocephalus*), and milk thistle (*Silybum marianum*).

Disturbed

Disturbed portions of the survey area include the unpaved levee roads, unpaved access roads, cleared road shoulders, and staging areas. The soils within this land cover are highly compacted, preventing the establishment of most vegetation expect some weedy herbaceous species similar to those found in annual grasslands. Additionally, this land cover includes the riprap placed along the entirety of the waterside levee slope along Dutch Slough. Within the riprap sediment buildup has allowed some isolated trees and aquatic vegetation to become established.

Developed

Developed portions of the survey area include unpaved access roads and levee roads and paved roads, housing development and their associated landscaped vegetation. The housing area along the Sandmound Slough in Area 2, includes ornamental species of trees, palms, and shrubs including Tree of Heaven (*ailanthus altissima*), Italian stone pine (*Pinus pinea*), mulberry (*Morus* sp.), silky oak (*Grevillea robusta*), Fremont cottonwood (*Populus fremontii*), weeping willow (*Salix babylonica*), Mexican fan palm (*Washingtonia robusta*) and ornamental lawn vegetation including horticultural planted species such as bamboo (*Bambusa* sp.), ice plant (*Aizoaceae* sp.), and bird of paradise (*Strelitzia* sp.).

Mixed Riparian Woodland

Mixed riparian woodland is a dominant community in Area 1 where it occurs along the landside slope and terminates at the toe of the Dutch Slough levee. It is located between annual grasslands and the fresh emergent wetlands, as well as the banks of the drainages. This community is dominated by northern California black walnut (*Juglans hindsii*). There is a mix of valley oak (*Quercus lobata*), red willow (*Salix laevigata*), and sandbar willow (*Salix exigua*) as subdominant or understory trees.

The herbaceous layer is open and patchy to densely vegetated with Himalayan blackberry (*Rubus armeniacus*) with an interspersion of wild oats (*Avena* sp.), ripgut brome (*Bromus diandrus*), poison hemlock (*Conium maculatum*), and stinging nettle (*Urtica dioica*).

Elderberry shrubs (*Sambucus* sp.) are common along the stretch of levee closest to Little Dutch Slough. Several mature elderberry shrubs (*Sambucus* sp.) were identified in one location on the landside levee of Little Dutch Slough (Figure 2-2). To a lesser degree, Fremont's cottonwood (*Populus fremontii*) is present in the survey area but exists beyond it.

Sandbar Willow Thicket

Sandbar willow thicket is mapped in one location in Area 1 on the landside of the levee close to the Jersey Island Road bridge. This community consisted entirely of sandbar willows (*Salix exigua*) and was very dense forming a hedge adjacent to the levee road.

Aquatic Communities

Fresh Emergent Wetland

Fresh emergent wetlands occur in the low basins of the survey area that hold ponded water for a portion of the year. This results in a dominance of emergent vegetation, mostly patches of hardstem bulrush, (*Schoenoplectus acutus*) broadleaf cattail (*Typha latifolia*) and three-square bulrush (*Schoenoplectus americanus*) with lesser densities of stinging nettle and poison hemlock around the edges. Some areas are less densely vegetated and can be characterized as open water during the winter and spring. When the ponding subsides during other parts of the year, knotweed (*Persicaria* sp.) and salt grass (*Distichlis spicata*) are present at higher densities; herbaceous species such as tall flatsedge (*Cyperus eragrostis*) commonly recruits into the area. A dominance of rushes, sedges and FACW grasses is also common in the understory at some times of the year, resembling the seasonal wetland border.

Irrigation Canal

Irrigation canals are present in the survey area mapped as linear water conveyance ditches in Area 1. The channels are mostly unvegetated and some are lined with riprap or wooden planks. Water was observed as stagnant during the time of survey; when the gates are open, riprap or is known to convey slow to moderately flowing water. Submerged aquatic vegetation dominated this canal with little open water surface, plants included the nonnative water hyacinth (*Eichhornia crassipes*) and native duckweed (*Lemna minor*).

Perennial Drainages

Dutch Slough and Sandmound Slough are considered perennial drainages, located on the waterside edge of each of the survey areas, are all tidally influenced and with the fluctuating water levels most vegetation has a hard time establishing along the edges. The upper limit of these drainages is the Mean Higher High Water (MHHW). In Area 1, the banks are covered by riprap with the majority of this community being unvegetated open water, although some scattered herbaceous species do occur along the edges, predominantly below the MHHW but mostly below the Mean High Water (MHW). Area 2 has a significant amount of development occurring along the water's edge and into the drainage.

These sloughs are characterized by steep banks along the tidally influenced levees, which along with the fluctuating water levels, keeps most vegetation from establishing along the edges. While the majority of this community is unvegetated open water, some scattered herbaceous species do occur along the edges, predominantly below the MHHW but mostly below the MHW.

Seasonal Wetland

Seasonal wetland is mapped in moderately low basins in the survey area as well as in the floodplain along the San Joaquin River. These areas are seasonally inundated and dominated by herbaceous vegetation such as annual beardgrass (*Polypogon monspeliensis*), Dallis grass (*Paspalum dilatatum*), sweet vernal grass (*Anthoxanthum odoratum*), and some grazed rush species (*Juncus* sp.).

Wildlife

Area 2 has been more impacted by human habitation, but still provides habitat for some special-status species and many common wildlife species. Area 1 has more diverse native land cover types and is connected to open spaces that would provide suitable movement for wildlife species. Additionally, the perennial waterways (Dutch Slough and Sandmound Slough) provide important habitat for aquatic or semi-aquatic wildlife movements.

The diversity of native land cover types throughout the BSA provides suitable foraging, breeding and nesting habitat for numerous native and special-status wildlife species across all taxa. Apart from some fencing, there are limited wildlife movement barriers to prevent species from moving to and from the Dutch Slough site, but some of the development around the Sandmound Slough site could impede movement.

A variety of birds may utilize habitat in the project area for nesting and/or foraging. Some species that were observed or sign of use were observed during the field surveys include: Swainson's hawk (*Buteo swainsonii*), red-tailed hawk (*Buteo jamaicensis*), American crow (*Corvus brachyrhynchos*), great blue heron (*Ardea herodias*), barn swallow (*Hirundo rustica*), turkey vulture (*Cathartes aura*), spotted towhee (*Pipilo maculatus*), killdeer (*Charadrius vociferus*), black phoebe (*Sayornis nigricans*), northern mockingbird (*Mimus polyglottos*), California scrub-jay (*Aphelocoma californica*), California quail (*Callipepla californica*), and mourning dove (*Zenaida macroura*).

Several species of small- and medium-sized mammals, amphibians, and reptiles are also likely to occur in the project area. While no mammals were observed or sign of use were observed during field surveys, species expected include: jackrabbit (*Lepus californicus*) and California ground squirrel (*Spermophilus beecheyii*). Reptile species observed include northwestern pond turtle (*Actinemys marmorata*), red-eared slider (*Trachemys scripta elegans*), and western fence lizard (*Sceloperus occidentalis*). Invertebrates observed in the project area include European honeybee (*Apis mellifera*) and Western tiger swallowtail (*Papilio rutulus)*.

Aquatic habitat in the canal, ditch, and perennial drainages provide marginal to moderate quality habitat for numerous aquatic plants, fish, and reptiles. Northwestern pond turtle was observed in several locations within Sandmound Slough (**Appendix B**). Swainson's hawks were observed foraging along the access routes to Area 1, although no breeding behavior or active nests were observed during the reconnaissance-level survey. An active red-tailed hawk nest was located within Area 1, where three nestlings were observed.

Sensitive Biological Resources

Sensitive biological resources addressed in this section include those that are afforded consideration or protection under CEQA, California Fish and Game Code, California Endangered Species Act (CESA), federal ESA, Clean Water Act, and the Porter-Cologne Water Quality Control Act.

Special-status Species

Special-status species include plants, fish, and wildlife in the following categories:

- species officially listed by the State or Federal government as endangered, threatened, or rare;
- candidates for State or Federal listing as endangered or threatened;
- species identified by CDFW as species of special concern;
- species listed as Fully Protected under the California Fish and Game Code;
- species afforded protection under local or regional planning documents; and
- plant taxa considered by CDFW to be "rare, threatened, or endangered in California" and assigned a California Rare Plant Rank (CRPR).

The CRPR system includes six rarity and endangerment ranks for categorizing plant species of concern. All plants with a CRPR are considered "special plants" by CDFW. The term "special plants" is a broad term used by CDFW to refer to all plant taxa inventoried in the CNDDB, regardless of their legal or protection status. Plants ranked as CRPR 1A, 1B, 2A, and 2B may qualify as endangered, rare, or threatened species within the definition of State CEQA Guidelines CCR Section 15380, and CDFW recommends that potential impacts to CRPR 1 and 2 species be evaluated in CEQA documents.

The term "California species of special concern" is applied by CDFW to animals not listed under the federal ESA or CESA, but that are nonetheless declining at a rate that could result in listing, or that historically occurred in low numbers and have known threats to their persistence.

An initial list of special-status species that could potentially occur in or adjacent to the BSA, given suitable habitat conditions are present, was developed through review of public databases (CDFW 2025; CNPS 2025; USFWS 2025b). Species habitat use within the BSA or vicinity is based on mapped suitable land cover type present, recent and historic occurrence records, and the biologist's best professional judgement from this desktop analysis. A CNDDB "occurrence" represents any documented collection, observation, or museum specimen of a species that is submitted to the CDFW by the public. Other "occurrences" from citizen science databases include those by sight, sound, or photograph, which may also include a documented collection or observation.

Special status plant species with the potential to occur in the BSA are detailed below in **Table 3.4-1,** while wildlife species are detailed in **Table 3.4-2**. These tables provide all the details of a species listing status, habitat characteristics, if the species has some potential to occur in the BSA, and a brief rational. Species that have some potential to occur (indicated as "yes" in the respective table) are being analyzed further.

Table 3.4.1. Special-status Plants Evaluated for Potential to Occur in the Biological Study Area

Scientific Name	Common Name	Federal	State	CRPR	Growth Form	Habitat Characteristics	Impacts Analyzed (Y/N)	Rationale
Amsinckia grandiflora	large-flowered fiddleneck	E	E	1B.1	Annual herb.	Cismontane woodland, and valley and foothill grassland. Elevation: 885–1,805 feet. Blooming period: March–May	N	The BSA is more than 500 feet outside the known elevation range for this species.
Arctostaphylos auriculata	Mt. Diablo manzanita	None	None	1B.3	Perennial evergreen shrub.	Cismontane woodland and sandstone soils of chaparral. Elevation: 445–2,135 feet. Blooming period: January–March	N	The BSA is outside the known elevation range for this species. Occurrence records are located over 10 miles to the southwest.
Astragalus tener var. tener	alkali milk-vetch	None	None	1B.2	Annual herb.	Alkaline soils in playas, vernal pools, and alkaline and adobe clay soils in valley and foothill grassland. Elevation: 5–195 feet. Blooming period: March–June	N	There is no suitable habitat within the BSA.
Atriplex cordulata var. cordulata	heartscale	None	None	1B.2	Annual herb.	Sometimes alkaline and saline soils in chenopod scrub, meadows and seeps, and sandy valley and foothill grassland. Elevation: 0–1,835 feet. Blooming period: April–October	N	Non-native annual grasslands in the BSA may provide suitable marginal habitat for this species, although all known records are located over 20 miles away.
Atriplex depressa	brittlescale	None	None	1B.2	Annual herb.	Alkaline or clay soils in chenopod scrub, meadows, seeps, playas, vernal pools, and valley and foothill grassland. Elevation: 5–1,050 feet. Blooming period: April–October	N	There are not suitable soils present within the BSA to support this species. The known range of this plant does not occur within the main Delta area, and only occurs within drier hills and grasslands of the fringing Delta.

Scientific Name	Common Name	Federal	State	CRPR	Growth Form	Habitat Characteristics	Impacts Analyzed (Y/N)	Rationale
Blepharizonia plumosa	big tarplant	None	None	1B.1	Annual herb.	Usually clay soils in valley and foothill grassland. Elevation: 100–1,655 feet. Blooming period: July–October	N	The known range of this plant does not occur within the main Delta area, and only occurs within drier hills and grasslands of the fringing Delta. Additionally, the BSA is outside of the known elevation range for this species.
Brasenia schreberi	watershield	None	None	2B.3	Aquatic Perennial rhizomatous herb.	Freshwater marshes and swamps. Elevation: 0–7,220 feet. Blooming period: June–September	Y	Suitable freshwater marsh and swamp habitat is present within the Dutch Slough and Sandmound Slough levee crest fill project areas and staging areas.
Calochortus pulchellus	Mt. Diablo fairy-lantern	None	None	1B.2	Perennial bulbiferous herb.	Chaparral, cismontane woodland, riparian woodland, grassland. Elevation: 98–2,755 feet. Blooming period: April–June	N	While suitable riparian woodlands and non-native annual grasslands may provide suitable habitat for this species, all known occurrence records are isolated in Mt. Diablo State Park or to the west in the hills.
Carex comosa	bristly sedge	None	None	2B.1	Perennial rhizomatous herb.	Coastal prairie, lake margins of marshes and swamps, and valley and foothill grassland. Elevation: 0–2,050 feet. Blooming period: May–September	Y	Suitable aquatic habitat is present within the Dutch Slough and Sandmound Slough levee crest fill project areas and staging areas.
Centromadia parryi ssp. Parryi	pappose tarplant	None	None	1B.2	Annual herb.	Often in alkaline soils in chaparral, coastal prairie, meadows, seeps, coastal salt marshes and swamps, and vernally mesic valley and foothill grassland. Elevation: 0–1,380 feet. Blooming period: May–Nov.	N	There is no suitable habitat within the BSA, and all known records are located over 20 miles away.

Scientific Name	Common Name	Federal	State	CRPR	Growth Form	Habitat Characteristics	Impacts Analyzed (Y/N)	Rationale
Chloropyron molle ssp. molle	soft bird's-beak	E	R	1B.2	Hemiparasitic annual herb.	Coastal salt marshes and swamps. Elevation: 0–10 feet. Blooming period: June–November	Y	Suitable aquatic habitat is present within the Dutch Slough and Sandmound Slough levee crest fill project areas and staging areas.
Cicuta maculata var. bolanderi	Bolander's water-hemlock	None	None	2B.1	Perennial herb.	Brackish, coastal, and freshwater in marshes and swamps. Elevation: 0–655 feet. Blooming period: July–September	Y	Suitable aquatic habitat is present within the Dutch Slough and Sandmound Slough levee crest fill project areas and staging areas.
Downingia pusilla	dwarf downingia	None	None	2B.2	Annual herb.	Vernal pools and mesic valley and foothill grassland. Elevation: 5–1,460 feet. Blooming period: March–May	N	There is no suitable habitat within the BSA, although non-native annual grasslands may provide suitable marginal habitat all known records are located over 20 miles away.
Eriogonum nudum var. psychicola	Antioch Dunes buckwheat	None	None	1B.1	Perennial herb.	Inland dunes. Elevation: 0–65 feet. Blooming period: July–October	N	There is no suitable habitat within the BSA.
Eriogonum truncatum	Mt. Diablo buckwheat	None	None	1B.1	Annual herb.	Sandy soils in chaparral, coastal scrub, and grassland. Elevation: 5–1,150 feet. Blooming period: April–September (November and December)	N	Suitable soil types are not present within the BSA to support this species. Additionally, all the known records are outside the main Delta and are associated with hills in the Mt. Diablo area.
Eryngium jepsonii	Jepson's coyote thistle	None	None	1B.2	Perennial herb.	Clay soil in vernal pools and valley and foothill grassland. Elevation: 10–985 feet. Blooming period: April–August	N	Suitable soil types and habitat types are not present within the BSA to support this species. Additionally, all the known records are located over 20 miles away and are not associated with the main Delta.

Scientific Name	Common Name	Federal	State	CRPR	Growth Form	Habitat Characteristics	Impacts Analyzed (Y/N)	Rationale
Eryngium racemosum	Delta button-celery	None	E	1B.1	Annual/perennial herb.	Vernally mesic clay depressions in riparian scrub. Elevation: 10–100 feet. Blooming period: May–October	N	There is no suitable habitat within the BSA.
Erysimum capitatum var. angustatum	Contra Costa wallflower	E	E	1B.1	Perennial herb.	Inland dunes. Elevation: 10–65 feet. Blooming period: March–July	N	There is no suitable habitat within the BSA.
Eschscholzia rhombipetala	diamond-petaled California poppy	None	None	1B.1	Annual herb.	Alkaline or clay soil in valley and foothill grassland. Elevation: 0–3,200 feet. Blooming period: March–April	N	Suitable soil types are not present within the BSA to support this species. Additionally, the known records within 20 miles of the project area are listed as “extirpated” or “possibly extirpated” which do not overlap with the main Delta area.
Axtriplex joaquinana	San Joaquin spearscale	None	None	1B.2	Annual herb.	Alkaline soils in chenopod scrub, meadows, seeps, playas, and valley and foothill grassland. Elevation: 5–2,740 feet. Blooming period: April–October (synonym of Atriplex joaquiniana)	Y	Suitable non-native annual grasslands in the BSA may support this species within the Dutch Slough and Sandmound Slough levee crest fill project areas and staging areas.
Fritillaria liliacea	fragrant fritillary	None	None	1B.2	Perennial bulbiferous herb.	Often in serpentine soils in cismontane woodland, grassland, coastal prairie and scrub. Elevation: 5–1,345 feet. Blooming period: February–April	N	There are no serpentine soils present in the BSA, and all known occurrence records are located over 20 miles to the west.

Scientific Name	Common Name	Federal	State	CRPR	Growth Form	Habitat Characteristics	Impacts Analyzed (Y/N)	Rationale
Helianthella castanea	Diablo helianthella	None	None	1B.2	Perennial herb.	Usually rocky, axonal soils, often in partial shade of broadleafed upland forest, chaparral, cismontane woodland, coastal scrub, riparian woodland, and grassland. Elevation: 197–4,265 feet. Blooming period: March–June	N	The BSA is outside the known elevation range for this species. Occurrence records are located over 10 miles to the southwest.
Hesperolinon breweri	Brewer's western flax	None	None	1B.2	Annual herb.	Usually serpentinite, chaparral, cismontane woodland, grassland. Elevation: 98–3,100 feet. Blooming period: May–July	N	There are no serpentine soils present in the BSA, this soil type is a strong indicator for this species.
Hibiscus lasiocarpos var. *occidentalis*	woolly rose-mallow	None	None	1B.2	Perennial emergent rhizomatous herb.	Often in riprap on sides of levees in freshwater marshes and swamps. Elevation: 0–395 feet. Blooming period: June–September	Y	Suitable freshwater marsh and swamp habitat is present within the Dutch Slough and Sandmound Slough levee crest fill project areas and staging areas.
Isocoma arguta	Carquinez goldenbush	None	None	1B.1	Shrub.	Alkaline soils in grassland. Elevation: 0–65 feet. Blooming period: August–December	N	Unlikely that this species would be present in the BSA due to lack of alkaline soils and lack of occurrence records within 20 miles.
Lasthenia conjugens	Contra Costa goldfields	E	None	1B.1	Annual herb.	Mesic soils in vernal pools, valley and foothill grassland, cismontane woodland, and alkaline playas. Elevation: 0–1,540 feet. Blooming period: March–June	N	Unlikely that this species would be present in the BSA due to lack of suitable habitat types and lack of occurrence records within 20 miles.
Lathyrus jepsonii var. *jepsonii*	Delta tule pea	None	None	1B.2	Perennial herb.	Freshwater and brackish marshes and swamps. Elevation: 0–15 feet. Blooming period: May–September	Y	Suitable freshwater marsh and swamp habitat is present within the Dutch Slough and Sandmound Slough levee crest fill project areas and staging areas.

Scientific Name	Common Name	Federal	State	CRPR	Growth Form	Habitat Characteristics	Impacts Analyzed (Y/N)	Rationale
Lilaeopsis masonii	Mason's lilaeopsis	None	R	1B.1	Perennial rhizomatous herb.	Brackish or freshwater marshes and swamps, riparian scrub. Elevation: 0–35 feet. Blooming period: April–November	Y	Suitable freshwater marsh and swamp habitat is present within the Dutch Slough and Sandmound Slough levee crest fill project areas and staging areas.
Limosella australis	Delta mudwort	None	None	2B.1	Perennial stoloniferous herb.	Usually mud banks in freshwater or brackish marshes and swamps, riparian scrub. Elevation: 0–9 feet. Blooming period: May–August	Y	Suitable freshwater marsh and swamp habitat is present within the Dutch Slough and Sandmound Slough levee crest fill project areas and staging areas.
Madia radiata	showy golden madia	None	None	1B.1	Annual herb.	Cismontane woodland and valley and foothill grassland. Elevation: 80–3,985. Blooming period: March–May	N	All known occurrence records within the vicinity of the BSA predate 1945, with all other records located in the south central valley. Although the BSA may provide marginal suitable non-native annual grasslands it is highly unlikely that this species would be present, as the BSA is much lower in elevation than the known range.
Malacothamnus hallii	Hall's bush-mallow	None	None	1B.2	Evergreen shrub.	Chaparral and coastal scrub. Elevation: 30–2,495 feet. Blooming period: April–October	N	The BSA does not have suitable habitat for this species.
Navarretia leucocephala ssp. bakeri	Baker's navarretia	None	None	1B.1	Annual herb.	Mesic soils in meadows, seeps, vernal pools, cismontane woodland, lower montane coniferous forest, and valley and foothill grassland. Elevation: 15–5,710 feet. Blooming period: April–July	N	The BSA does not provide quality habitat for this species. Additionally, all known occurrence records are located north of Interstate 12, over 10 miles to the north and do not overlap with the Delta area.

Scientific Name	Common Name	Federal	State	CRPR	Growth Form	Habitat Characteristics	Impacts Analyzed (Y/N)	Rationale
Navarretia nigelliformis ssp. radians	shining navarretia	None	None	1B.2	Annual herb.	Sometimes in clay soils in vernal pools, cismontane woodland, and valley and foothill grassland. Elevation: 215–3,280 feet. Blooming period: March–July	N	Most known records are located south of Interstate 205, there is an isolated patch of occurrences located to the southwest in grasslands approximately 7.6 miles away, although the BSA is located outside the known elevation range for this species.
Oenothera deltoides ssp. howellii	Antioch Dunes evening-primrose	E	E	1B.1	Perennial herb.	Inland dunes. Elevation: 0–100 feet. Blooming period: March–September	N	There is no suitable habitat within the BSA.
Plagiobothrys hystriculus	bearded popcornflower	None	None	1B.1	Annual herb.	Often in vernal swales. Found in the margins vernal pool margins and in mesic soils in valley and foothill grassland. Elevation: 0–900 feet. Blooming period: April–May	N	This species is often found in vernal swales which the BSA does not have. Additionally, all known occurrence records are located on the northside of the main Delta.
Potamogeton zosteriformis	eel-grass pondweed	None	None	2B.2	Annual aquatic herb.	Freshwater marshes and swamps. Elevation: 0–6,100 feet. Blooming period: June–July	Y	Suitable freshwater marsh and swamp habitat is present within the Dutch Slough and Sandmound Slough levee crest fill project areas and staging areas.
Sagittaria sanfordii	Sanford's arrowhead	None	None	1B.2	Perennial rhizomatous herb.	Shallow freshwater marshes and swamps. Elevation: 0–2,135 feet. Blooming period: May–Nov.	Y	Suitable freshwater marsh and swamp habitat is present within the Dutch Slough and Sandmound Slough levee crest fill project areas and staging areas.
Scutellaria galericulata	marsh skullcap	None	None	2B.2	Perennial rhizomatous herb.	Marshes, swamps, lower montane coniferous forest, and mesic meadows and seeps. Elevation: 0–6,890 feet. Blooming period: June–September	Y	Suitable marsh and swamp habitat is present within the Dutch Slough and Sandmound Slough levee crest fill project areas and staging areas.

Scientific Name	Common Name	Federal	State	CRPR	Growth Form	Habitat Characteristics	Impacts Analyzed (Y/N)	Rationale
Scutellaria lateriflora	side-flowering skullcap	None	None	2B.2	Perennial rhizomatous herb.	Marshes, and swamps, and mesic meadows and seeps. Elevation: 0–1,640 feet. Blooming period: July–Sept.	Y	Suitable marsh and swamp habitat is present within the Dutch Slough and Sandmound Slough levee crest fill project areas and staging areas.
Senecio aphanactis	chaparral ragwort	None	None	2B.2	Annual herb.	Chaparral, cismontane woodland, coastal scrub, and alkaline flats. Elevation: 49–2,624 feet. Blooming period: January–April	N	Suitable habitat types are not present within the BSA.
Sidalcea keckii	Keck's checkerbloom	E	None	1B.1	Annual herb.	Serpentine or clay soils in cismontane woodland, and valley and foothill grassland. Elevation: 245–2,135 feet. Blooming period: April–June	N	There are no serpentine soils present in the BSA, this soil type is a strong indicator for this species.
Stuckenia striata	broadleaf pondweed	None	None	2B.3	Aquatic Perennial rhizomatous herb.	Marshes and swamps, such as lakes, ponds, rivers, and drainage canals. Elevation: -230-7,005 feet. Blooming period: (June) July-August	Y	Suitable aquatic habitat is present at Dutch Slough and Sandmound Slough levee crest fill project areas.
Symphyotrichum lentum	Suisun Marsh aster	None	None	1B.2	Perennial rhizomatous herb.	Brackish and freshwater marshes and swamps. Elevation: 0–10 feet. Blooming period: April–Nov. (synonym of Aster chilensis var. lentus and A. lentus)	Y	Suitable aquatic habitat is present at Dutch Slough and Sandmound Slough levee crest fill project areas.
Tropidocarpum capparideum	caper-fruited tropidocarpum	None	None	1B.1	Annual herb.	Alkaline hills in valley and foothill grassland. Elevation: 5–1,495 feet. Blooming period: March–April	N	Suitable habitat is not present within the BSA. All known occurrence records north of Interstate 205 are listed as "extirpated" or "possibly extirpated" and dated prior to 1957.

Scientific Name	Common Name	Federal	State	CRPR	Growth Form	Habitat Characteristics	Impacts Analyzed (Y/N)	Rationale
Viburnum ellipticum	oval-leaved viburnum	None	None	2B.3	Deciduous shrub.	Chaparral, cismontane woodland, lower montane coniferous forest. Elevation: 705–4,595 feet. Blooming period: May–June	N	The BSA is more than 500 feet outside the known elevation range for this species.

Notes: BSA = biological study area; Delta = Sacramento-San Joaquin River Delta

Federal/State Status Definitions: E = Listed as Endangered under the federal Endangered Species Act and/or California Endangered Species Act; R = Classified as Rare by the California Department of Fish and Wildlife

California Rare Plant Ranks: 1B = Considered rare or endangered in California and elsewhere; 2B = Considered rare or endangered in California but more common elsewhere

California Rare Plant Rank Extensions: .1 = Seriously endangered in California (greater than 80% of occurrences are threatened and/or have a high degree and immediacy of threat); .2 = Fairly endangered in California (20 to 80% of occurrences are threatened and/or have a moderate degree and immediacy of threat); .3 = Not very endangered in California

Source: CDFW 2025; CNPS 2025; USFWS 2025b; Compiled by GEI Consultants, Inc. 2025

Table 3.4-2. Special-status Fish and Wildlife Evaluated for Potential to Occur in the Biological Study Area

Scientific Name	Common Name	Federal	State	Habitat Characteristics	Impacts Analyzed (Y/N)	Rationale
Invertebrates						
Apodemia mormo langei	Lange's metalmark	E	None	Endemic to the Antioch Dunes in Contra Costa County. All life stages of Lange's metalmark are closely tied to naked buckwheat (Eriogonum nudum var. psychicola) (formerly var. auriculatum), which is also endemic to the Antioch Dunes and serves as the primary nectar source for adult butterflies, as sites for oviposition, and as the larval foodplant. Currently, be found within the Antioch Dunes National Wildlife Refuge (USFWS 2020a).	N	The BSA is not located within the Antioch Dunes National Wildlife Refuge.
Bombus crotchii	Crotch's bumble bee	None	CE	Species requires nesting, foraging, and overwintering habitat. Primary land cover types that provide the three habitat requirements are grasslands, chaparral, and scrub; oak woodlands and forest likely provide suitable habitat as well (H.T. Harvey & Associates 2024). Suitable nest sites are often located in open grasslands and scrub habitats in abandoned rodent nests underground or above ground in tufts of grass, old bird nests, rock piles, cavities in dead trees, hollow logs, or aboveground manmade structures. General foragers and have been reported visiting a wide variety of different habitats and flowering plants if there are suitable nectar sources.	Y	All three suitable habitat types are present in the form of non-native grasslands and riparian forest located along Dutch Slough as well as disturbed friable soils on the landside levee. Other two project locations would only provide suitable foraging habitat.
Bombus occidentalis	western bumble bee	None	CE	Species requires nesting, foraging, and overwintering habitat. Open grassy areas, urban parks and gardens, chaparral and shrub areas, and mountain meadows. This species is now largely confined to high elevation sites and a small handful of records on the northern California Coast (Xerces 2018). Typically nests underground in abandoned rodent burrows; availability of nest sites may depend on rodent abundance (Xerces 2014). They are general foragers and have been reported visiting a wide variety of flowering plants.	N	The BSA is located outside of the known range for this species.
Branchinecta conservatio	Conservancy fairy shrimp	E	None	Found only in ephemeral freshwater habitats, such as vernal pools and similar (USFWS 2024). Mostly inhabit relatively large and turbid vernal pools (playa pools), which typically remain inundated much longer than most vernal pools. Endemic mainly to the Central Valley (USFWS 2024).	N	No vernal pool habitat was identified within the BSA.

Scientific Name	Common Name	Federal	State	Habitat Characteristics	Impacts Analyzed (Y/N)	Rationale
Branchinecta longiantenna	longhorn fairy shrimp	E	None	Endemic to California and dependent on soil-bottom vernal pools and rock pools in seasonally inundated wetlands. However, based on known occurrences, the species does not seem to demonstrate a strong affinity for a specific vernal pool type (USFWS 2022). They can be found primarily in sandstone outcrop vernal pools, grassland pools, and roadside ditches, all varying in size and water depth (USFWS 2012).Today this species is known to live in just five widely separated locations stretching from Contra Costa County in the north to San Luis Obispo County in the south.	N	No vernal pool habitat was identified within the BSA.
Branchinecta lynchi	vernal pool fairy shrimp	T	None	Endemic to California and the Agate Desert of southern Oregon. Found only in ephemeral freshwater habitats, such as vernal pools and similar features (USFWS 2024). It can be found in a wide range of vernal pools, including extremely small or marginal ones that fill with water for just long enough to allow the individuals to complete their lifecycle.	N	No vernal pool habitat was identified within the BSA.
Danaus plexippus (pop. 1)	monarch (California overwintering population)	PT	None	Overwinters along the coast from Mendocino County south into Baja California in wind-protected groves of gum (Eucalyptus spp.), Monterey pine (Pinus radiata), or Monterey cypress (Hesperocyparis macrocarpa) with nectar and water sources nearby (IELP 2012, USFWS 2020b). Breeding habitat in California is characterized by the presence of early spring milkweeds (Asclepias spp.), on which monarch larvae exclusively feed. Adult monarchs will forage on a wide variety of plant species for nectar (Xerces Society 2015).	N	While the BSA is located within the "Priority #1 - Early Breeding Zone" (Xerces 2023), there is no suitable overwintering habitat present in the BSA.
Desmocerus californicus dimorphus	valley elderberry longhorn beetle	T	None	Dependent on host plant, elderberry (Sambucus spp.). Current presumed range in Central Valley extends from Shasta County south to Fresno County, including the valley floor and lower foothills up to about 500 feet in elevation (USFWS 2017a).	Y	The BSA is located within range for this species. Large elderberry shrubs were identified along the side of the levee road along one of the access routes to the Dutch Slough project area.
Elaphrus viridis	Delta green ground beetle	T	None	Known only from two vernal pools in Solano County. Found along the margins of vernal pools, particularly playa pools.	N	No vernal pool habitat was identified within the BSA, and the BSA is not located within the two known populations pools.

Scientific Name	Common Name	Federal	State	Habitat Characteristics	Impacts Analyzed (Y/N)	Rationale
Lepidurus packardi	vernal pool tadpole shrimp	E	None	Found only in ephemeral freshwater habitats, such as vernal pools, including alkaline pools, clay flats, vernal lakes, vernal pools, vernal swales, and other similar features. Limited to pools that are sufficiently large or are otherwise able to retain water for a long enough duration to complete its lifecycle. Endemic to the Central Valley, as well as a few locations in the San Francisco Bay area and South Coast Range (USFWS 2024).	N	No vernal pool habitat was identified within the BSA.
Fish						
Acipenser medirostris	green sturgeon (southern DPS)	T	SSC	Spawning occurs primarily in the Sacramento River and its tributaries, but also in the Feather and Yuba Rivers during years with higher flow (NMFS 2021). Found in oceanic waters, bays, and estuaries during non-spawning season. Enters San Francisco Bay late winter through early spring, and spawn occurs from April through early July (NMFS 2015).	Y	BSA is within species range and **designated critical habitat**.
Acipenser transmontanus	white sturgeon	None	CT SSC	Primarily lives in estuaries of large river systems, including the Delta, but are anadromous fish moving from the ocean to fresh water for spawning. This species is generally found in deep, soft-bottomed areas of estuaries, where they move about in response to changes in salinity.	Y	BSA is within species range and they are known to occur in the BSA vicinity.
Archoplites interruptus	Sacramento perch	None	SSC	Although extirpated from its historic range within the Central Valley, it has been transplanted across several Western states with mixed success. Now persists only as introduced populations in reproductively isolated waterbodies, primarily lakes and reservoirs across California and sporadic locations in other western states (CDFW 2025).	N	Only found now in isolated waterbodies and has not been documented in the Delta in decades.
Cottus asper	prickly sculpin	None	SSC	Adaptable to environments ranging from fresh to saltwater, and from small cool stream to large warm rivers and lakes. In the Central Valley of California these fish inhabit low elevation waters including the Delta.	Y	BSA is within specie' range and they have been identified within the BSA vicinity.
Entophenus tridentatus	Pacific lamprey	None	SSC	A migratory species with a juvenile life stage residing in freshwater year-round. Adults typically migrate upstream in winter during high flows. Juvenile lamprey can be difficult to differentiate between the two species, but are very commonly found throughout the BSA year-round.	Y	BSA is within species' range and they have been identified within the BSA vicinity.

Scientific Name	Common Name	Federal	State	Habitat Characteristics	Impacts Analyzed (Y/N)	Rationale
Hesperoleucus symmetricus	California roach	None	SSC	Generally found in small streams and are adapted to persisting in intermittent streams as dense populations are frequently encountered in isolated pools. They are most common in the mid-elevation streams of the Sierra Nevada foothills but may also be found in the main channels of some rivers like the Stanislaus and Tuolumne. Not typically encountered this far into the Delta and brackish waters	N	BSA is outside of this species' range.
Hypomesus transpacificus	delta smelt	T	E	Endemic to open waters of San Francisco Bay and Delta. Distribution includes San Pablo Bay up through Suisun Bay, upstream through the Delta to the Sacramento River below Isleton, and the San Joaquin River below Mossdale. Spawning has not been observed in the wild, but is thought to take place in sloughs and shallow edge-water channels in the upper delta and in Montezuma Slough near Suisun Bay (USFWS 2010).	Y	BSA is within species range and **designated critical habitat**.
Lampetra ayresii	western river lamprey	None	SSC	A migratory species with a juvenile life stage residing in freshwater year-round. Adults typically migrate upstream in winter during high flows. Juvenile lamprey can be difficult to differentiate between the two species, but are very commonly found throughout the BSA year-round.	Y	BSA is within species' range and they have been identified within the BSA vicinity.
Lavinia exilicauda	Sacramento hitch	None	SSC	Often found in slow warm water, including lakes and quiet stretches of rivers, although sometimes found in cool and clear, low-gradient streams in sandy runs or pools. As a very heat tolerant fish, can withstand water temperatures greater than 30 degrees Celsius under some conditions.	Y	BSA is within species range and they have been identified within the BSA vicinity.
Mylopharodon conocephalus	Hardhead	None	SSC	Usually found in clear deep streams with a slow current. Less common in brackish waters and generally prefers to remain in freshwater. Species distribution generally occurs in the lower rivers near the confluence with the San Joaquin River or in foothill elevations.	N	BSA is outside of this species' range and typical habitat.
Oncorhynchus mykiss	steelhead (Central Valley DPS)	T	SSC	Spawn in freshwater during January through March when flows are high and temperatures are cool. Juveniles can remain in freshwater for weeks to months before emigrating back to the ocean for adult growth.	Y	BSA is within species range and **designated critical habitat**.

Scientific Name	Common Name	Federal	State	Habitat Characteristics	Impacts Analyzed (Y/N)	Rationale
Oncorhynchus tshawytscha	Sacramento River winter-run ESU Chinook salmon	E	E	Adults spawn in freshwater May-July in the Upper Sacramento mostly. Juveniles typically move down into the estuary November-April, where they then can stay and feed for weeks to months before migrating out to the ocean.	Y	BSA is within species range. Designated critical habitat is close to the BSA.
Oncorhynchus tshawytscha	Central Valley spring-run ESU Chinook salmon	T	T	Adults migrate upstream in spring/early summer and hold until fall where they typically spawn September-October. Some juveniles move down into the estuary shortly after hatching, where they then can stay and feed for weeks to months before migrating out to the ocean.	Y	BSA is within species range. Designated critical habitat is close to the BSA.
Oncorhynchus tshawytscha	Central Valley Fall/Late Fall-run ESU Chinook salmon	None	SSC	Adults spawn starting in October/November typically and extend into January. Juveniles hatch and rear in freshwater, then migrate to the ocean to feed until adulthood before returning to spawn. Juveniles typically move down into the estuary within a few weeks of hatching, where they then can stay and feed for weeks to months before migrating out to the ocean.	Y	BSA is within species range and they are known to occur in the BSA vicinity.
Pogonichthys macrolepidotus	Sacramento splittail	None	SSC	Typically found in estuarine environments all throughout the Delta. Can be found in slower moving water, channels, floodplains, sloughs, and slow-moving rivers. Spawn on flooded terrestrial vegetation in the lower reaches of rivers and the Delta.	Y	BSA is within species range and they have been identified within the BSA vicinity.
Spirinchus thaleichthys	longfin smelt	E	T	Anadromous. Live primarily in bays, estuaries, and nearshore coastal areas. Habitat includes waterways upstream to Rio Vista and downstream through Suisun Bay and Suisun Marsh. Adult migration to upstream spawning areas occurs January-March.	Y	BSA is within species' range.
Amphibians						
Ambystoma californiense (pop. 1)	California tiger salamander - central California DPS	T	T	Breeds in fish-free ephemeral ponds, which form in winter and dry in summer. Some also breed in slow streams and semi-permanent waters, including cattle ponds. Spends most of the year underground in small mammal burrows. Typical habitat associations include grassland, oak savanna, edges of mixed woodland, and lower elevation coniferous forest (Nafis 2025). Adults leave their underground burrows and engage in mass migrations to return to breeding ponds during a few rainy nights per year (USFWS 2017b).	N	While the BSA is within species' range and cattle ponds in the area could provide breeding habitat, there is a lack of occurrence records (CDFW 2025, iNaturalist 2025).

Scientific Name	Common Name	Federal	State	Habitat Characteristics	Impacts Analyzed (Y/N)	Rationale
Rana boylii (pop. 4)	foothill yellow-legged frog (Central Coast DPS)	T	E	Extends south from the San Francisco Bay through the Diablo Range and through the Coast Range east of the Salinas Valley (USFWS 2021). Generally found in shallow flowing streams and rivers with at least cobble sized substrate. Occurs in a wide variety of vegetation types including valley-foothill hardwood, valley-foothill hardwood-conifer, valley-foothill riparian, ponderosa pine, mixed conifer, mixed chaparral, and wet meadow (Thomson et al. 2016).	N	No suitable streams or rivers were located within the BSA to support this species.
Rana draytonii	California red-legged frog	T	SSC	Predominately inhabit permanent fresh water sources, such as streams, lakes, marshes, natural and manmade ponds, and drainages in valley bottoms and foothills. Aquatic breeding habitat is generally found in still or slow-moving water and can have a wide range of edge and emergent cover amounts. Upland habitat consists of terrestrial areas adjacent to breeding and non-breeding aquatic habitats (USFWS 2022).	N	The BSA is located outside of the known range for this species.
Reptiles						
Actinemys marmorata	northwestern pond turtle	PT	SSC	Ranges throughout California except for Inyo and Mono Counties. Occurs in various water bodies, including permanent and ephemeral systems. Upland habitat that is at least moderately undisturbed is required for nesting and overwintering, in soils that are loose enough for excavation (Thomson et al. 2016). Nesting occurs from late May until the middle of July at suitable sites, usually with dry soil, sparse vegetation and a southern exposure (USFWS 2024).	Y	During site surveys, this species was observed in Dutch Slough and Sandmound Slough. Deep irrigation ditches in the BSA also provide suitable for aquatic habitat.
Anniella pulchra	Northern California legless lizard	None	SSC	Generally found in habitats with a relatively sparse amount of vegetation including coastal sand dunes, chaparral, pine-oak woodland, desert scrub, grassland, and riparian zones but avoids non-native grasslands. Specifically, requires sandy to loose loamy substrates suitable for burrowing. Occurs from the southern edge of the San Joaquin River in northern Contra Costa County south to Ventura County.	N	The BSA is located outside of the known range for this species.

Scientific Name	Common Name	Federal	State	Habitat Characteristics	Impacts Analyzed (Y/N)	Rationale
Arizona elegans occidentalis	California glossy snake	None	SSC	Ranges in the cismontane portion of southern California, the southern portion of the Central Coast Ranges, and in isolated pockets up to the Alameda and San Joaquin County border. Generally found in open desert, grasslands, shrublands, chaparral, and woodlands. Some evidence of open and sandy habitat preference exists, but specific habitat requirements for this species aren't known (Thomson et al. 2016).	N	The BSA is located outside of the known range for this species.
Masticophis lateralis euryxanthus	Alameda whipsnake	FT	ST	Endemic to California; it is only found in the East Bay area in Alameda and Contra Costa Counties. Prefers open areas in canyons, rocky hillsides, and chaparral scrublands, but will range into adjacent grasslands and woodlands (Nafis 2025).	N	Primary suitable habitat is not present in the BSA.
Thamnophis gigas	giant gartersnake	T	T	Require freshwater aquatic components with emergent vegetative cover for foraging, upland component for thermoregulation and summer shelter, and upland refugia component for winter hibernacula (USFWS 2017d). Aquatic habitat includes marshes, sloughs, ponds, small lakes, low-gradient streams, irrigation and drainage canals, and rice fields. Upland habitat should have burrows or other soil crevices suitable for snakes to reside during their dormancy period (November- mid March).	Y	Suitable habitat is present in Dutch Slough, Sandmound Slough, and within the canal ditches throughout BSA.
Birds						
Agelaius tricolor	tricolored blackbird (nesting colony)	None	T, SSC	Endemic to California with small numbers extending into Oregon, Washington, Nevada, and Baja California. Sierra Nevada tricolored blackbirds typically reside in the Central Valley from March-September and migrate into the Sacramento-San Joaquin Delta, northern San Joaquin Valley, and coastal areas in the winter (CDFW 2018). Require open, accessible water, including wetlands, streams, ponds, reservoirs, and agricultural canals and ditches. Breeding colonies typically occur in valleys or low-lying areas with nesting habitat and extensive grassland and certain agricultural crops for foraging. Nesting substrate typically consists of wetland vegetation, Himalayan blackberry, thistle, stinging nettle, or agricultural fields.	N	While species could occur in BSA vicinity as Islands located within the middle of Dutch Slough and Sandmound Slough may provide suitable breeding habitat for this species, these areas are located more than 200 feet from the levee shores where project work will be occurring. All known occurrence records are located more than 8 miles away (CDFW 2025).

Scientific Name	Common Name	Federal	State	Habitat Characteristics	Impacts Analyzed (Y/N)	Rationale
Athene cunicularia	burrowing owl (nesting and overwintering)	None	CE, SSC	Requires open areas with mammal burrows; especially those of California ground squirrel. Inhabits rolling hills, grasslands, fallow fields, sparsely vegetated desert scrub, vacant lots and other open human disturbed lands. The species requires low-growing vegetation.	Y	Suitable habitat exists for this species located within the staging area along Sandmound Slough and within annual grasslands that surround the Dutch Slough project area.
Aquila chrysaetos	golden eagle (nesting)	BGEPA	FP	Uncommon resident in hills and mountains throughout California. Prefers rolling foothills and mountain terrain, wide arid plateaus deeply cut by streams and canyons, open mountain slopes, cliffs, and rock outcrops . Needs open terrain for hunting; grasslands, deserts, savannahs, and early successional stages of forest and shrub habitats. Nests on cliffs of all heights and in large trees in open areas.	N	Suitable foraging habitat exists in annual grasslands. There are no cliffs suitable for nesting within the BSA vicinity. No known occurrence records of this species nesting within 10 miles of BSA (CDFW 2025).
Buteo swainsoni	Swainson's hawk (nesting)	None	T	Nests in oak savanna and cottonwood riparian areas adjacent to foraging habitat of grasslands, agricultural fields, and pastures. Breeding resident in the Central Valley. Prolific migrant through southern California in spring and fall (CWHR Program Staff 2006). Regulatory buffer of 1,320 feet (¼ mile) from active nests, that is increased to 1/2 mile if nesting area is away from urban development (CDFW 1994).	Y	During site surveys, this species was observed foraging over Dutch Slough and Sandmound Slough project areas. Suitable nesting habitat exists around the BSA.
Charadrius nivosus nivosus	western snowy plover	T	SSC	Coastal populations nest on sandy or gravelly dune-backed beaches, sand spits, and on estuarine salt pans and lagoons (USFWS 2005). Inland populations nest along barren to sparsely vegetated flats and along shores of alkaline and saline lakes, reservoirs, ponds, braided river channels, agricultural wastewater ponds, and salt evaporation ponds (Shuford and Gardali 2008).	N	The BSA does not provide suitable nesting habitat for this species.
Circus hudsonius	northern harrier (nesting and foraging)	None	SSC	Nests on the ground in patches of dense, tall vegetation in undisturbed areas. Breed and forage in a variety of open habitats, such as marshes, wet meadows, weedy borders of lakes, rivers and streams, grasslands, pastures, croplands, sagebrush flats, and desert sinks.	Y	Suitable breeding and foraging habitat is present along the Dutch Slough project area.

Scientific Name	Common Name	Federal	State	Habitat Characteristics	Impacts Analyzed (Y/N)	Rationale
Elanus leucurus	white-tailed kite (nesting and foraging)	None	FP	Fairly common resident of the Central Valley, coast, and Coast Range Mountains. Nests in oak savanna, oak and willow riparian, and other open areas with scattered trees near foraging habitat. Forages in open grasslands, meadows, farmlands, and emergent wetlands.	Y	Suitable breeding and foraging habitat is present in the BSA.
Geothlypis trichas sinuosa	San Francisco common yellowthroat (saltmarsh common yellowthroat)	None	SSC	Dwells only in the San Francisco Bay Area. Primarily found in brackish and fresh marshes, but also occupies salt marsh and riparian woodland habitat (Shuford and Gardali 2008).	Y	Suitable nesting habitat is present along Dutch Slough project area. Sandmound Slough project areas may provide suitable foraging habitat but do not provide suitable nesting habitat .
Gymnogyps californianus	California condor	E	SE, FP	The condor population in California currently occurs from Mariposa, Fresno, and Alameda counties south through San Benito, Monterey, San Luis Obispo, Santa Barbara, Ventura, Los Angeles, Kern and Tulare Counties (USFWS 2023). Nests in cavities located on steep rock formations or in the burned out hollows of old-growth coast redwoods (Sequoia semervirens) or giant sequoias (Sequoiadendron giganteum). Less commonly uses cliff ledges or large old nests of other bird species. Forages in open terrain of foothill grassland and oak savanna habitats, and at coastal sites in central California (USFWS 2013).	N	The BSA is located outside of the known range for this species.
Lanius ludovicianus	loggerhead shrike (nesting and foraging)	None	SSC	Shrublands and open woodlands with a fair amount of grass cover and areas of bare ground. Requires tall shrubs or trees, fences, or power lines for hunting perches and territorial advertisement. Ranges across most of the State (Shuford and Gardali 2008).	Y	Suitable nesting and foraging habitat is present along Dutch Slough project area. Sandmound Slough project areas may provide suitable foraging habitat but not suitable nesting habitat.
Laterallus jamaicensis coturniculus	California black rail	None	T, FP	Saline, brackish, and fresh emergent wetlands. Known to nest at scattered locations in the San Francisco Bay Area and Delta region, Point Reyes National Seashore, San Luis Obispo and Orange Counties. Appears intermittently and sparingly at a few locations in the Sacramento Valley (CWHR Program Staff 1999).	N	Islands located within the middle of Dutch Slough and Sandmound Slough provide suitable breeding habitat for this species. These areas are located more than 200 feet from the levee shores where work will be occurring.

Scientific Name	Common Name	Federal	State	Habitat Characteristics	Impacts Analyzed (Y/N)	Rationale
Melospiza melodia mailliardi	song sparrow (Modesto population) (nesting and foraging)	None	SSC	Often found in emergent freshwater marshes dominated by bulrushes, cattails, and willow. Also nests in riparian forests of valley oak (Quercus lobata) with a sufficient understory of blackberry, along vegetated irrigation canals and levees. Found throughout the Sacramento Valley, from the Delta north to Chico.	Y	Suitable nesting habitat is present along Dutch Slough project area. Sandmound Slough project areas may provide suitable foraging habitat but do not provide suitable nesting habitat.
Melospiza melodia maxillaris	Suisun song sparrow	None	SSC	Confined to tidal salt and brackish marshes fringing Carquinez Strait and Suisun Bay east to Antioch and the confluence of the San Joaquin and Sacramento Rivers (Shuford and Gardali 2008).	N	The BSA is located outside of the known range for this species. The furthest eastern extent is located over 4.5 miles to the west of Dutch Slough.
Rallus obsoletus obsoletus	California Ridgway's rail	E	E, FP	Restricted to tidal marshes on the fringes of San Pablo Bay, San Francisco Bay, Monterey Bay, and Morro Bay. Requires intricate network of sloughs with small natural berms along tidal channels, preferably with cordgrass (Spartina spp.) and pickleweed (Salicornia spp.) (USFWS 2017c).	N	The BSA is located outside of the known range for this species.
Riparia riparia	bank swallow (foraging)	None	T	A colonial nester in riparian and lacustrine bluffs or cliffs with fine-textured or sandy soils into which the nest cavities are dug. Also nests in earthen banks as well as sand and gravel pits. Currently most numerous in the Sacramento Valley along the Sacramento, Feather, and American Rivers, and Cache Creek in western Yolo County. Scarce and very local on the Central Ccoast (CWHR Program Staff 1999).	N	There are no suitable banks along Dutch Slough or Sandmound Slough within the BSA or vicintiy that provide suitable nesting habitat.
Sternula antillarum browni	California least tern	E	E, FP	Breeds on the coast from San Francisco Bay south, and rarely up through the Delta to Sacramento County and at the Salton Sea. Nests and roosts in colonies on fine-grain sandy or pebbly beaches. Forages over near shore ocean waters and in shallow estuaries and lagoons (USFWS 2006).	N	There are no suitable beaches within the BSA or vicinity to support nesting.
Mammals						

Scientific Name	Common Name	Federal	State	Habitat Characteristics	Impacts Analyzed (Y/N)	Rationale
Antrozous pallidus	pallid bat	None	SSC	Ranges across nearly all of California except for high elevation portions of the Sierra Nevada Mountains and Del Norte, western Siskiyou, Humboldt, and northern Mendocino Counties. Generally found in a wide variety of habitats but with some preference for xeric ecosystems. Known to roost in the basal hollows of coast redwoods and giant sequoias, bole cavities of oaks, exfoliating Ponderosa pine and valley oak bark, deciduous trees in riparian, and fruit trees in orchards (WBWG 2024). Additionally, they have been known to occupy human structures such as bridges (Harris et al. 1990).	Y	There is suitable riparian habitat and exfoliating trees present in the Dutch Slough project area. There is suitable habitat in old bridges that cross Dutch Slough. The Sandmound Slough project areas do not support roosting habitat.
Lasiurus blossevillii	western red bat	None	SSC	Ranges across the Central Valley, as well as the coast and Coast Range mountains from Mendocino County south, and east across the Los Angeles area into the Inland Empire region. Occurs in most habitats except desert and alpine areas. Solitary bat species that roosts primarily in the foliage of trees or shrubs, and typically at the margins of habitats (Alley et al. 1990) adjacent to streams or open fields, orchards, and sometimes urban areas. Associated with intact riparian habitat, particularly with willows, cottonwoods, and sycamores (Platanus racemosa) (WBWG 2025). May occasionally use caves for roosting.	Y	There is suitable riparian habitat for roosting in the Dutch Slough project area. Sandmound Slough project area trees and foliage provide marginal roosting habitat due to high human disturbance.
Reithrodontomys raviventris	salt-marsh harvest mouse	E	E, FP	Generally restricted to saline or subsaline marsh habitats around the San Francisco Bay Estuary and, with some exception, mixed saline/brackish areas in the Suisun Bay area. The distribution in tidal and diked marshes closely corresponds with the abundance of pickleweed (Sarcocornia spp.). Viable populations be limited by the distribution of high tide cover and escape habitat (USFWS 2013).	N	The BSA is located outside of the known range for this species.

Scientific Name	Common Name	Federal	State	Habitat Characteristics	Impacts Analyzed (Y/N)	Rationale
Taxidea taxus	American badger	None	SSC	Ranges across nearly all of California except the northernmost Humboldt and Del Norte Counties. Most abundant in drier open stages of most shrub, forest, and herbaceous habitats, with friable soils. Burrows in friable soil for cover. Sensitive to human disturbance, habitat fragmentation, and require a large home range (EcoAdapt 2019, Government of Canada 2024).	N	Although there are fragments of suitable habitat within the BSA, the BSA is surrounded by human and cattle uses,. Close occurrences are located within the Mt. Diablo and Black Diamond Mine Regional Parks, where there is extensive wilderness habitat.
Vulpes macrotis mutica	San Joaquin kit fox	E	T	The subspecies historically ranged in alkali scrub/shrub and arid grasslands throughout the level terrain of the San Joaquin Valley floor from southern Kern County north to Tracy in San Joaquin County, and up into more gradual slopes of the surrounding foothills and adjoining valleys of the interior Coast Range. Occurs in desert-like habitats characterized by sparse or absent shrub cover, sparse ground cover, and short vegetative structure. Prefers areas with open, level, sandy ground (USFWS 2010).	N	The BSA is located outside the known range for this species.

Notes : Delta = Sacramento-San Joaquin River Delta; DPS = distinct population segment ; ESU = evolutionary significant unit
Federal/State Status Definitions
BGEPA = Protected under the Bald and Golden Eagle Protection Act.
CE = Candidate for listing as Endangered under the federal Endangered Species Act and/or California Endangered Species Act
CT = Candidate for listing as Threatened under the federal Endangered Species Act and/or California Endangered Species Act
E = Listed as Endangered under the federal Endangered Species Act and/or California Endangered Species Act
FP = Classified as fully protected under the California Fish and Game Code.
PT = Proposed for listing as Threatened under the federal Endangered Species Act and/or California Endangered Species Act
SSC = California Species of Special Concern
T = Listed as Threatened under the federal Endangered Species Act and/or California Endangered Species Act

Source: CDFW 2025; NMFS 2025; USFWS 2025b; Compiled by GEI Consultants, Inc.

Plants

Forty-five special-status plant species were evaluated for their potential to occur in the study area. Table 3.4-1 summarizes, for each of these species, their regulatory or CNPS listing status, habitat associations, if they are analyzed in this document further, and the rational for inclusion or exclusion. For most of the species, further investigation of presence within the BSA was determined to be unnecessary due to the lack of suitable habitat requirements and/ or clustering of known occurrence records over 20 miles away.

Fifteen special-status plant species were determined to have a potential to occur within the BSA and potentially in the project impact area include: watershield (*Brasenia schreberi*), bristly sedge *(Carex comosa),* soft bird's beak *(Chloropyron molle* ssp. *molle),* Bolander's water-hemlock *(Cicuta maculata* var. *bolanderi),* San Joaquin spearscale (*Hibiscus lasiocarpos* var. *occidentalis),* woolly rose-mallow (*Hibiscus lasiocarpos* var. *occidentalis*), Delta tule pea (*Lathyrus jepsonii var. jepsonii*), Mason's lilaeopsis (*Lilaeopsis masonii*), Delta mudwort (*Limosella australis*), eel-grass pondweed (*Sagittaria sanfordii),* Sanford's arrowhead (*Sagittaria sanfordii*), marsh skullcap (*Scutellaria galericulata*), side-flowering skullcap (*Scutellaria lateriflora*), broadleaf pondweed (*Symphyotrichum lentum),* and Suisun Marsh aster *(Symphyotrichum lentum).* Soft bird's beak is federal listed as endangered. All but one of these species have the potential to occur along the water's edge where project activities will occur. San Joaquin spearscale has the potential to occur in the annual grasslands in the BSA.

Fish and Wildlife

Fifty-four (54) special-status wildlife species were evaluated for their potential to occur in the BSA. Table 3.4-2 summarizes, for each of these species, their regulatory listing status, habitat associations, potential to occur in the BSA, and rationale for inclusion or exclusion. The project area includes a very diverse range of land cover types, presenting a significant amount of suitable habitat for a variety of special-status species. Based on timing of project activities, occurrence for specific species may be eliminated (e.g., nesting birds), but these species are included in this document as possible presence. Several species were eliminated based on known limiting ranges or lack of suitable habitat within the BSA. Twenty-five (25) special-status species were determined to have a possible potential to occur within the BSA and potentially in the project impact area. Species and potential impacts based on project activities are discussed below by taxa groups.

Invertebrates

Two special-status invertebrate species were determined to have potential to occur within the BSA and potentially in the project site include: Crotch bumble bee (*Bombus crotchii)* and valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*).

Crotch bumble bee is listed as State-candidate endangered and does not have any federal listing. During State candidacy, species are protected by CESA until a ruling is determined. Primary land cover types present in the BSA that are suitable for nesting, foraging, and overwintering include non-native annual grasslands and riparian forest.

Valley elderberry longhorn beetle is federally listed as threatened, there is no state listing. The host plant was observed in several locations throughout the BSA.

Fish

Thirteen special-status fish species were determined to have a potential to occur within the BSA, of which six are federally listed as threatened or endangered, and one is a candidate for federal listing. The following species could be located within Dutch and Sandmound Sloughs: southern DPS green sturgeon *(Acipenser medirostris)*, white sturgeon *(Acipenser transmontanus)*, prickly sculpin (*Cottus asper)*, Pacific lamprey (*Entosphenus tridentatus*), western river lamprey (*Lampetra ayresii)*, delta smelt (*Hypomesus transpacificus)*, Sacramento hitch (*Lavinia exilicauda)*, Central Valley DPS steelhead (*Oncorhynchus mykiss)*, Sacramento River winter-run ESU Chinook salmon (*Oncorhynchus tshawytscha)*, Central Valley spring-run ESU Chinook salmon (*O. tshawytscha)*, Central Valley fall/late-fall run ESU Chinook salmon (*O. tshawytscha)*, Sacramento spittail (*Pogonichthys macrolepidotus)*, and longfin smelt (*Spirinchus thaleichthys)*. The BSA is located within critical habitat for green sturgeon, Central Valley steelhead, and delta smelt. While the BSA provides suitable slough spawning habitat for delta smelt, it does not provide suitable spawning habitat for green sturgeon or white sturgeon, which occurs in deep pools along the Sacramento River.

Reptiles

Two reptiles were determined to have the potential to occupy the BSA. Northwestern pond turtle was observed in both Dutch and Sandmound Sloughs during field surveys. The BSA provides suitable aquatic and uplands nesting habitat for this species. Northwestern pond turtle is a federally threatened candidate and is a state species of special concern.

The giant garter snake (*Thamnophis gigas)* was determined to also have suitable aquatic habitat in Dutch and Sandmound Sloughs, ditch, canal, and fresh emergent marsh land cover types. Suitable upland habitat with small mammal burrows for overwintering is located in the project area. Giant garter snake is a federally threatened and State threatened species.

Birds

Seven special-status birds were determined to have the potential to occur in or adjacent to the BSA, for nesting and/or foraging. The BSA provides trees suitable for nesting for Swainson's hawk and white-tailed kite (*Elanus leucurus)*. Swainson's hawk was observed foraging during the field surveys. Burrowing owls (*Athene cunicularia)* could occur and nest in the annual grassland habitat where California ground squirrel complexes were observed. Northern harrier (*Circus hudsonius)* could nest and forage in the annual grasslands in the BSA. The fresh emergent wetlands provide suitable nesting habitat for Modesto song sparrow (*Melospiza melodia mailliardi)*. The habitats along Dutch and Sandmound Sloughs support habitat for San Francisco common yellowthroat (*Geothlypis trichas sinuosa*) and loggerhead shrike (*Lanius ludovicianus)*.

Mammals

Two special-status mammals were determined to have the potential to occur in or adjacent to the BSA, for nesting and/or foraging. The trees and bridges along Dutch Slough provide suitable roosting habitat for pallid bat (*Antrozous pallidus)* and western red bat (*Lasiurus blossevillii).*

Critical Habitat

Critical habitat is a geographic area containing features determined by USFWS or NMFS to be essential to the conservation of a species listed as threatened or endangered under the ESA. The Meadows Slough is designated critical habitat for three Federally threatened or endangered fish species, green sturgeon, Central Valley steelhead, and delta smelt. The BSA is also considered Essential Fish Habitat for Chinook salmon (*Onchorhynchus tshawytscha*), which includes waters and substrate necessary for spawning, breeding, feeding, or growth to maturity within currently and historically accessible habitat. Dutch and Sandmound Sloughs do not provide suitable spawning habitat but do provide juvenile rearing and migratory habitat for Chinook salmon. There is no additional designated critical habitat for any special-status plant or wildlife species in the project vicinity.

Sensitive Natural Communities and Aquatic Resources

Sensitive natural communities are defined by CDFW as having limited distribution within the State. CDFW designates sensitive natural communities based on their State rarity and threat ranking using NatureServe's Heritage Methodology. Natural communities with rarity ranks of S1 to S3, where S1 is critically imperiled, S2 is imperiled, and S3 is vulnerable, are considered sensitive natural communities to be addressed in the environmental review processes of CEQA. Sensitive natural communities also include areas regulated under Sections 1600–1603 of the Fish and Game Code and/or Sections 401 and Section 404 of the Clean Water Act. Federal and state regulatory agencies also consider wetlands and riparian habitat as sensitive communities.

The aquatic resources delineation identified several types of aquatic resources in the BSA, including perennial drainages, freshwater emergent wetlands, seasonal wetlands, irrigation canals, and ditches. The location and extent of these resources match the mapping and descriptions provided in the *Land Cover Types* section above. It is assumed that all of these aquatic resources would be considered waters of the U.S. and State and subject to the Clean Water Act. In addition to the aquatic resource types listed above, mixed riparian woodland and sandbar willow thickets are considered sensitive natural communities subject to CDFW jurisdiction.

3.4.2 Discussion

This impact discussion focuses on biological resources with a reasonable potential to be affected by ground disturbing activities associated with the proposed project. The rationales for eliminating special-status species from additional analysis based on their low potential to occur in the project area can be found in Tables 3.4-1 and 3.4-2. Therefore, only plant, fish, and wildlife species that have a likelihood to occur in the BSA are addressed in this discussion. This discussion also focused on sensitive habitats, including critical habitat, EFH, and sensitive natural communities, including riparian and aquatic habitats. No critical habitat for special-status plants or terrestrial wildlife species

were identified within the BSA. Critical habitat was identified for green sturgeon, Central Valley DPS steelhead, and delta smelt within Dutch and Sandmound Sloughs. Additionally, Essential Fish Habitat was identified for Chinook salmon in Dutch and Sandmound Sloughs.

c) 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 the U.S. Fish and Wildlife Service?

Special-status Plants

Fifteen special-status plant species were determined to have potential to occur in the BSA. San Joaquin spearscale has the potential to occur in the annual grasslands in the BSA. The remaining species have the potential to occur along the water's edge where project activities will occur. These include: watershield, bristly sedge, soft bird's beak, Bolander's water-hemlock, *w*oolly rose-mallow, Delta tule pea, Mason's lilaeopsis, Delta mudwort, eel-grass pondweed, Sanford's arrowhead, marsh skullcap, side-flowering skullcap, broadleaf pondweed, and Suisun Marsh aster. Soft bird's beak is federally listed as endangered. Project-related impacts to these species could occur during ground-disturbing activities, including vegetation removal, soil stripping, excavation, bulkhead removal, riprap placement, grading, and installation of waterside habitat enhancements. These special-status plant species could be directly impacted by vegetation removal during ground disturbing activities, this is considered a **potentially significant** impact. The following mitigation measure has been identified to address this impact.

> **Mitigation Measure BIO-1: Conduct Rare Plant Survey and Avoid, Transplant, Salvage, Cultivate, Re-establish Species, or Compensate.**
>
> A qualified botanist shall be retained to perform focused surveys to determine the presence or absence of special-status plant species that were determined to have the potential to occur in and adjacent to (within 100 feet, where appropriate) the proposed impact areas. These surveys shall be conducted in accordance with CDFW *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities* (2009) or currently accepted resource agency protocols. These guidelines require that rare plant surveys be conducted at the proper time of year when rare or endangered species are both evident and identifiable. Field surveys shall be scheduled to coincide with known flowering periods, and/or during appropriate developmental periods that are necessary to identify the plant species of concern. If no special-status plant species are identified, no further actions are needed prior to ground disturbing activities to protect plant species.
>
> If any state listed, federally listed, and/or CNPS List 1 or CNPS List 2 plant species are found within 100 feet of proposed impact areas during the surveys, these plant species shall be avoided to the greatest extent possible. If any identified special-status plant species cannot be fully avoided by all project activities, necessary authorizations would be acquired prior to any project activities that would have the potential to harm said species within the 100-foot buffer. If avoidance is not possible, upon necessary authorizations and permit approvals, populations shall be mitigated for through transplant, salvage, cultivate, or re-

establish the species at suitable sites (if feasible), or through the purchase of credits from an approved mitigation bank, if available, at a minimum 1:1 ratio.

Any special-status plant species that are identified adjacent to the project areas but not proposed to be disturbed by the proposed project, they shall be protected by barrier fencing to provide that ground disturbing activities and material stockpiles do not impact any special-status plant species. These avoidance areas shall be identified on proposed project plans.

Timing: Before and during project activities

Responsibility: Reclamation District 799 and its contractor(s)

Implementing Mitigation Measure BIO-1 would reduce the potentially significant impact associated with take of any special-status plant species to a less-than-significant level because the project would identify special-status plants on the project site prior to initiating ground disturbance, and either avoid impacts or transplant, salvage, cultivate, or re-establish any individuals that would be affected by project activities. This impact would be **less-than-significant with mitigation incorporated.**

Special-status Fish and Wildlife

General Wildlife Measures

The BSA supports suitable habitat for several special-status fish and wildlife species that could be impacted by project activities and this is considered a **potentially significant** impact. The following mitigation measures have been identified to address this impact.

Mitigation Measure BIO-2: Minimize Effects on Biological Resources.

1. **Conduct a Worker Environmental Awareness Program (WEAP) Trainings to All Staff That Will be On-site During Project Activities.** A qualified biologist shall provide WEAP training to cover species identification, habitat, life history, and conservation measures for all special-status species with potential to occur within the project site. Training may consist of showing a video prepared by a qualified biologist, or an in-person presentation by a qualified biologist. In addition to the video or in-person presentation, training may be supplemented with the distribution of approved brochures and other materials that describe protected resources and methods for avoiding effects. The contractor shall be responsible for ensuring that all new personnel have received the WEAP training and is documented for reporting purposes. For multi-year projects, the WEAP shall be updated on a yearly basis to ensure project applicability and any lessons learned. All personnel are required to re-take the WEAP yearly.
2. **Biological Monitoring**. A designated and qualified biological monitor shall be present for all ground disturbing or vegetation removal activities. Depending on the timing of project activities after initial disturbance, a monitor may be necessary. Species-specific measures below delineate out those timings.

3. **Vehicle Speed.** Project-related vehicles shall observe a 10-mile-per-hour speed limit within project areas and along haul/access routes, except on county roads and State and federal highways.

4. **Site Best Management Practices.** Appropriate site-specific best management practices (e.g., fencing and other erosion controls) shall be implemented to avoid accidental encroachment of vehicles and personnel and to minimize and control runoff, erosion, and sediment deposition in aquatic habitat.

5. **Spill Protection.** Every reasonable precaution shall be implemented to protect soils and waters from pollution with fuels, oils, and other harmful materials. In the event of a spill in or adjacent to aquatic habitat (including seasonal wetlands), work shall stop, and the spill shall be addressed immediately with appropriate equipment to contain and absorb the spilled material.

6. **Staging Areas.** Any and all heavy equipment, vehicles, and supplies shall be stored at the designated staging areas at the end of each work period. Vehicles and equipment shall be properly maintained to prevent contamination of soil or water from external grease and oil or from leaking hydraulic fluid, fuel, oil, and grease. Vehicles and equipment shall be checked daily for leaks. If leaks are found, the equipment shall be removed from the site and shall not be used until the leaks are repaired. Equipment shall be refueled and serviced at designated refueling and staging sites located where a spill shall not drain directly toward aquatic habitat. Appropriate containment materials shall be installed to collect any discharge, and adequate materials for spill cleanup shall be maintained onsite.

7. **Revegetate All Disturbed Natural Surfaces.** After completion of ground disturbing activities, all disturbed soil surfaces shall be revegetated within the same implementation season that disturbance occurs. These areas shall be recontoured, if appropriate, and revegetated with appropriate native plant species to promote restoration of the area to pre-project conditions or better.

8. **Erect and Maintain High-visibility Fencing during Ground Disturbing Activities to Protect Sensitive Biological Resource Areas.** Before beginning ground-disturbing project activities, high-visibility fencing shall be erected to protect areas of sensitive biological resources that are located adjacent to project areas that can be avoided. The fencing shall restrict encroachment of personnel and equipment into these areas. The fencing may be removed only when the ground disturbing activities within a given area is completed and shall be maintained by the contractor.

Timing: Before, during, and after project activities.

Responsibility: Reclamation District 799 and its contractor(s)

Crotch Bumble Bee

The BSA provides suitable nesting, foraging, and overwintering habitat for Crotch bumble bees. The queen flight season is from February to March, colony active period is from April to August, and the gyne flight season is September to October. The active colony period has the highest probability for detecting this species (CDFW 2023). Individual bumble bees or nests could be

disturbed and displaced from occupied habitat by ground-disturbing project activities, particularly in grassland areas. Haul route usage is not anticipated to impact bumble bees as the routes are generally located in preexisting roadways. Since individual bumble bees could be killed, injured, or displaced during ground-disturbing activities, this is considered a **potentially significant** impact. In addition to implementing Mitigation Measure BIO-2, "Minimize Effects on Biological Resources," the following species-specific mitigation measure has been identified to address this impact.

> **Mitigation Measure BIO-3: Minimize Effects to Crotch Bumble Bee.**
>
> **Conduct Pre-ground Disturbing Activities Surveys for Active Nests within the Ground Disturbance Footprint.** The footprint of ground disturbance in the project areas shall be surveyed prior to project activities for any active bumble bee colony nests by a qualified biologistduring the Colony Active Period (April to August). If a nest is identified as being active and is of a listed or candidate bumble bee species, an appropriately-sized no disturbance buffer zone (up to 50 feet) shall be established around the nest until the gyne flight season and the nest becomes inactive, and CDFW will be notified. A qualified biologist will monitor the nest multiple times over a 3-day period; if no Crotch bumble bees are observed entering or exiting the nest during these monitoring events, the nest will be determined inactive by the qualified biologist and the removal of the no-disturbance buffer can proceed.
>
> **Timing:** Before project activities
>
> **Responsibility:** Reclamation District 799 and its contractor(s)

Implementing **Mitigation Measures BIO-2 and BIO-3** would reduce the potentially significant impact associated with take of Crotch bumble bee to a less-than-significant level because the project would survey to identify active nest locations and avoid these locations. This impact would be **less-than-significant with mitigation incorporated.**

Valley Elderberry Longhorn Beetle

The host plant for valley elderberry longhorn beetle was identified in several locations throughout the BSA. These host plants could be impacted by direct impacts from vegetation removal, excavation, and rip-rap placement, and indirect impacts, such as dust buildup on leaves from these ground-disturbing activities. No elderberry shrubs are anticipated to be removed or transplanted. Ground disturbing activities could pose **potentially significant** impacts to the host plant for valley elderberry longhorn beetle. In addition to implementing Mitigation Measure BIO-2, "Minimize Effects on Biological Resources," the following species-specific mitigation measure has been identified to address this impact. Mitigation measures as defined in a Biological Opinion (BO) from USFWS may be implemented to fulfill the mitigation measure below.

Mitigation Measure BIO-4: Minimize Effects to Valley Elderberry Longhorn Beetle.

The following measures shall be implemented in accordance with the Framework for Assessing Impacts to the Valley Elderberry Longhorn Beetle (USFWS 2017a) to reduce effects on valley elderberry longhorn beetle:

1. **Fencing**. All areas to be avoided during ground disturbing activities shall be fenced and/or flagged as close to ground disturbing limits as feasible.
2. **Avoidance area.** To the extent feasible, activities that may damage or kill an elderberry shrub (e.g., trenching, paving, etc.) shall be avoided within 20 feet from the dripline of the shrub, depending on the type of activity.
3. **Ground Disturbance Monitoring.** A qualified biologist shall monitor the work area at appropriate intervals to assure that all avoidance and minimization measures are implemented.
4. **Timing.** To the extent feasible, activities within 165 feet of an elderberry shrub shall be conducted outside of the valley elderberry longhorn beetle flight season (March to July).
5. **Trimming.** To the extent feasible, elderberry shrub trimming shall occur between November and February and avoid the removal of any branches or stems greater than or equal to 1-inch in diameter.
6. **Chemical Usage.** Herbicides shall not be used within the dripline, and insecticides shall not be used within 100 feet of an elderberry shrub. All chemicals shall be applied using a backpack sprayer or similar direct application method.
7. **Mowing.** Weed removal with machinery within the dripline of elderberry shrubs shall be limited to the season when adults are not active (August to February) and shall avoid damaging the shrub.

Additionally, if shrub removal is necessary to access project work areas, then the following measures shall be implemented:

1. **Transplanting.** To the extent feasible, elderberry shrubs shall be transplanted when the shrubs are dormant (November through the first 2 weeks in February) and after they have lost their leaves. Exit-hole surveys shall be completed immediately before transplanting. A qualified biologist shall be on-site for the duration of transplanting activities to assure compliance with avoidance and minimization measures and other conservation measures.
2. **Compensation.** Effects on elderberry shrubs shall be compensated at a minimum 1:1 ratio through the purchase of credits from a USFWS-approved mitigation bank, onsite restoration, or in-lieu fee program.

Timing: Before, during, and after project activities

Responsibility: Reclamation District 799 and its contractor(s)

Implementing Mitigation Measures BIO-2 and **BIO-4** would reduce the potentially significant impact associated with take of valley elderberry longhorn beetle to a less-than-significant level by requiring buffers and fencing to avoid shrubs, and specifying monitoring and additional avoidance measures where activities would take place in proximity to elderberry shrubs. This impact would be **less-than-significant with mitigation incorporated.**

Fish Species

The project area includes part of Dutch and Sandmound Sloughs, which are connected to the Sacramento River. As such, the project area provides suitable spawning habitat for delta smelt and suitable juvenile rearing and migratory habitat for salmonoids, sturgeons and numerous other state species of special concern. The placement of riprap within Dutch and Sandmound Sloughs would be considered a **potentially significant** impact to fish species. In addition to implementing Mitigation Measure BIO-2, "Minimize Effects on Biological Resources," the following species-specific mitigation measures has been identified to address this impact. Mitigation measures defined by NMFS and/or USFWS after consultation may be implemented to fulfill the mitigation measure below.

Mitigation Measure BIO-5: Avoid and Minimize Impacts to Special-status Fish Species.

1. **In-water Work Limited to July through October.** In water work shall be limited to the months of July through October when listed fish species are least likely to be present within the Delta to minimize chances of fish being present near the project area.
2. **No Machinery Shall be Driven into the Wetted Channel Area.** Machinery being used for project work shall be limited to dry upland areas only and shall not be driven within the wetted channel.
3. **Work Shall Only Occur During Daylight Hours.** In-water rock placement shall only occur during daylight hours, as most listed fish species tend to have increased activity at night. If any listed fish are seen near the work area, work shall cease immediately until fish have left the area.
4. **Installation of a Block Net or Turbidity Curtain.** If feasible, a block net or turbidity curtain shall be installed around the area where rock shall be placed to ensure fish are excluded from the work area.

Timing: During project activities

Responsibility: Reclamation District 799 and its contractor(s)

Implementing Mitigation Measures BIO-2 and **BIO-5** would reduce the potentially significant impact associated with adverse impacts to special-status fish species to a less-than-significant level because the project would minimize disturbance during sensitive periods and fish would be excluded from work areas during rock placement. This impact would be **less-than-significant with mitigation incorporated.**

Northwestern Pond Turtle

Numerous northwestern pond turtles were observed within both Dutch and Sandmound Sloughs during field surveys, and the project area provides suitable nesting and aquatic habitat. April is the only month when there is a significant reduction in possible impacts to pond turtle, as adults have not started new nests and hatchlings have exited the nest and are headed for aquatic habitat. Individuals could be disturbed and displaced from occupied uplands habitat during soil stripping, vegetation removal, excavation, and grading and temporarily displaced from occupied aquatic habitat during bulkhead removal, riprap placement, and installation of waterside habitat enhancements. Ground-disturbance and vehicle travel off of existing roadways could result in direct injury or mortality of turtles if those areas are used for basking, hibernating, or nesting. Because individuals could be killed, injured, or displaced during project activities, this is considered a **potentially significant** impact. In addition to implementing Mitigation Measure BIO-2, "Minimize Effects on Biological Resources," the following species-specific mitigation measure has been identified to address this impact.

Mitigation Measure BIO-6: Avoid and Minimize Impacts to Northwestern Pond Turtle and Its' Habitats.

1. **Initial Ground Disturbance Timing**. Initial ground disturbance (including vegetation removal and geotechnical boring) in suitable upland habitat within 500 feet of aquatic habitat for northwestern pond turtle shall be minimized to greatest extent feasible during the brumation season (December through February), when adult turtles may be in torpor and particularly susceptible to equipment strikes. The target period for riparian vegetation removal in these areas shall be fall (September through November), to the greatest extent practicable, when potential for turtle strikes and direct impacts on other special-status species are lowest.

2. **Direct Impact Avoidance**. Measures shall be implemented to minimize potential for heavy equipment to destroy northwestern pond turtle nests and to encounter hatchling turtles. Feasible measures may vary depending on site-specific circumstances and could include, but not be limited to:

    a. Minimizing heavy equipment operation in upland habitat within 500 feet of aquatic habitat in February and March, when hatchling turtles emerge from nests and travel to aquatic habitat.

    b. Placing artificial ground cover that prevents female turtles from excavating nests in most likely nesting areas where ground disturbing activities shall occur before the following hatchling turtle emergence period, typically May to July.

    c. Fencing most likely nesting areas to exclude access by female turtles and/or enclose hatchlings after emergence. If active nests and hatchlings may be present, the fenced area shall be inspected daily by a qualified biologist and hatchling turtles shall be captured and relocated to suitable habitat at a pre-determined location.

3. **Monitoring**. A qualified biologist shall be present during initial ground disturbance, in-water work, and the hatchling emergence period to search for western pond turtles

and minimize encounters with heavy equipment. Disturbance activities will occur at a speed that allows the designated monitor to scan for turtles in brumation, nest, and avoid direct impacts.

4. **Stop Work if a Northwestern Pond Turtle is Observed in Ground Disturbing Area and Allow to Leave the Ground Disturbing Area on Their Own or Have Qualified Biologist Capture and Relocate.** If northwestern pond turtles or nests are observed on land within the project footprint during project activities, the contractor shall stop work within approximately 200 feet of the turtle, and a qualified biologist shall be notified immediately. If possible, the turtle shall be allowed to leave on its own and the qualified biologist shall remain in the area until the biologist deems his or her presence no longer necessary to ensure that the turtle is not harmed. Alternatively, with prior CDFW approval, the qualified biologist may capture and relocate the turtle unharmed to suitable habitat at a pre-determined location.

5. **Unintentional Nests Uncovered**. If a northwestern pond turtle nest is unintentionally uncovered during project activities, work shall stop in the vicinity of the nest and appropriate next steps, depending on the circumstances, shall be determined by a qualified biologist. These may include fencing and buffering the nest and/or rescue, rehabilitation, and relocation of affected turtles.

6. **Daily In-water Work Timing and Disturbance.** Prior to in-water activities, water disturbance shall occur to allow turtles to move out of the area on their own accord. Water disturbance may include the use of an excavator bucket gently disrupting the surface of the water, it shall not include activities that could cause direct harm to aquatic species. Disturbance shall occur around 8 a.m. when turtles are about to begin basking. Wait at least 10 minutes after disturbance before beginning in-water activities to allow turtle movement out of area. If in-water activities stop for more than 45 min, in-water disturbance shall occur again to enable turtles to move out of harm's way.

Timing: Before and during project activities

Responsibility: Reclamation District 799 and its contractor(s)

Implementing Mitigation Measures BIO-2 and **BIO-6** would reduce the potentially significant impact associated with adverse impacts to northwestern pond turtle to a less-than-significant level because the project would avoid and minimize disturbance and direct impact to pond turtles and their habitat. This impact would be **less-than-significant with mitigation incorporated.**

Giant Garter Snake

The project area provides suitable aquatic and uplands habitat for giant garter snake. Aquatic habitat is Dutch and Sandmound Sloughs, ditch, canals, and fresh emergent wetlands, while uplands habitat is within 200 feet of aquatic habitat. Ground disturbing activities, including vegetation removal, soil stripping, excavation, and grading could kill, injure, or displace giant garter snakes, if the snakes are present in adjacent upland habitat or crossing the roads during project activities. The placement of riprap in Dutch and Sandmound Sloughs, vegetation removal along the water's edge, bulkhead removal, and installation of waterside habitat enhancements could

impact this species' aquatic habitat. The risk of harm, harassment, injury, and mortality to individuals of this Federally and State-listed species during project activities is a **potentially significant** impact. In addition to implementing Mitigation Measure BIO-2, "Minimize Effects on Biological Resources," the following species-specific mitigation measure has been identified to address this impact, such that it is minimized so there is no net loss of habitat for this species. Mitigation measures as defined in a BO from USFWS may be implemented to fulfill the mitigation measure below.

Mitigation Measure BIO-7: Minimize Effects on Giant Garter Snake.

1. **Clearance Surveys 24 Hours Prior to Ground Disturbing Activities**. Suitable upland habitat for giant garter snake within the project footprint shall be surveyed by a qualified biologist within 24 hours before on-site project activities begin. Additional surveys shall be conducted within 24 hours before initial ground disturbance begins. Surveys shall be repeated after any lapse in ground disturbing activity of 2 weeks or longer.

2. **Conduct Initial Earth-movement Activities within Suitable Upland Habitat for Giant Garter Snake between May 1 and October 1.** When possible, initial ground-disturbing activities within suitable upland habitat for the giant garter snake shall occur between May 1 and October 1. Work in giant garter snake upland habitat may also occur between October 2 and November 1 or April 1 through April 30, provided that: (1) the project area is fenced off to prevent wildlife from moving into the project area and initial ground disturbance has already occurred; or (2) ambient air temperatures exceed approximately 75ºF during work and maximum daily air temperatures have exceeded approximately 75ºF for at least 3 consecutive days immediately preceding work. During these periods, giant garter snakes are more likely to be active in aquatic habitats and less likely to be found in upland habitats.

3. **Stop Work if a Giant Garter Snake is Observed in Ground Disturbing Area and Allow Snakes to Leave the Ground Disturbing Area on Their Own or Have Qualified Biologist Capture and Relocate Giant Garter Snake.** If a possible giant garter snake is observed in the project area, all work shall stop until the snake moves out of the area of ground disturbing activities and notification of the qualified biologist immediately shall occur. If possible, the snake shall be allowed to leave on its own volition, and the qualified biologist shall remain in the area until the biologist deems his or her presence is no longer necessary to ensure that the snake is not harmed. Notification to CDFW and USFWS by telephone or email within 24 hours of a giant garter snake observation during ground disturbing activities shall be reported. If the snake does not voluntarily leave the project area and all project activities within approximately 200 feet of the snake shall stop to prevent harm to the snake, and CDFW and USFWS shall be consulted to identify next steps and the measures recommended by CDFW and USFWS shall be implemented before resuming ground disturbing activities in the area.

4. **Restore All Suitable Giant Garter Snake Habitat Subject to Temporary Ground-disturbance to Pre-project Conditions.** After project activities are complete, all suitable giant garter snake habitat subject to temporary earth-movement, shall be

restored to pre-project conditions. These areas shall be recontoured, if appropriate, and revegetated with appropriate native plant species to promote restoration of the area to pre-project conditions or better. Appropriate methods and plant species used to revegetate such areas shall be determined in consultation with USFWS and CDFW.

Timing: Before, during, and after project activities

Responsibility: Reclamation District 799 and its contractor(s)

Implementing Mitigation Measures BIO-2 and BIO-7 would reduce the potentially significant impact associated with take of giant garter snake to a less-than-significant level because the project would require surveys and avoidance of giant garter snake and its habitat. This impact would be **less-than-significant with mitigation incorporated**.

Special-status Birds

The BSA provides suitable foraging habitat and/or select nesting habitat for seven special-status bird species: Swainson's hawk, white-tailed kite, northern harrier, burrowing owl, Modesto song sparrow, San Francisco common yellowthroat, and loggerhead shrike. Table 3.4-2 lists specific habitat each of these species is likely to use for nesting or foraging within the BSA.

Depending on the timing of when project activities and clearing and grubbing of vegetation commences, there is a possibility for temporary noise and visual disturbances to disturb birds nesting nearby, potentially resulting in nest failure. Disturbance of nesting pairs of sufficient magnitude could result in nest abandonment, a reduction in the level of care provided by adults (e.g., duration of brooding, frequency of feeding), or premature fledging of young. Active ground nests could occur, in which they could be impacted by ground disturbance, potentially resulting in direct destruction of an active nest and loss of the eggs or young. Additionally, project activities could result in removal of active nests of common bird species, which would violate the Migratory Bird Treaty Act (MBTA) and California Fish and Game Code. The list of protected migratory birds includes many common species not otherwise protected under Federal, State, regional, or local laws. Loss of active nests of common species during project implementation would not substantially reduce their abundance or cause any species to drop below self-sustaining levels and would not constitute a significant impact under CEQA. However, impacts related to nest failure of special-status birds are considered **potentially significant**.

In addition to implementing Mitigation Measure BIO-2, "Minimize Effects on Biological Resources," the following species-specific mitigation measures have been identified to address impacts related to nest failure to ensure there is no direct loss of active nests of common nesting birds protected by MBTA or California Fish and Game Code. For avian species that require additional species-specific measures to be implemented, guidance documents are listed in Mitigation Measure BIO-8a, "Conduct Focused Surveys for Nesting Special-status Birds and Avoid Impacts." All measures in these separate documents shall be implemented to reduce project-related impacts.

Mitigation Measure BIO-8a: Conduct Focused Surveys for Nesting Special-status Birds and Avoid Impacts.

Nesting bird surveys listed below shall be required prior to all project activities that occur within the nesting bird season, from February 1 through August 31.

1. **Conduct Vegetation Removal Outside of Nesting Bird Season.** To the extent feasible, vegetation removal shall be conducted between September 16 and January 31, outside of the nesting bird season.

2. **Conduct Pre-project Activity Surveys for Active Nests of Special-status Birds in Areas of Suitable Habitat.** If project activities that could affect suitable habitat for special-status birds cannot be conducted outside of the respective nesting seasons, pre-project activity surveys for nesting birds shall be conducted. Surveys of all potential nesting habitat in the area shall be conducted by a qualified biologist during the nesting season. Surveys shall be conducted within suitable nesting habitat that could be affected by project activities and shall include a minimum buffer of 250-feet for passerines and 1,000-feet for raptors (or larger area if required by established survey protocol) surrounding these areas. Where appropriate, pre-activity surveys shall be conducted according to established survey protocols or guidelines including, but not limited to, the following:

    a. Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley (SHTAC 2000)

        i. Three (3) early season surveys shall be conducted in the period prior to the start of project's initiation (i.e., specific periods depend on start of project).

        ii. Surveys should be conducted for a 0.5-mile radius around all project activities, and if nesting activity is identified within the 0.5-mile radius, consultation is required.

        iii. Surveys shall be completed for at least two survey periods immediately prior to a project's initiation.

    b. Staff Report on Burrowing Owl Mitigation (California Burrowing Owl Consortium 1993).

    If no established survey protocol exists, the qualified biologist shall complete surveys no more than five (5) days prior to the start of the activity, and repeat surveys if activities lapse for a period of seven (7) days or longer. If no nesting birds are detected during pre-activity surveys, no additional mitigation measures are required.

Timing: Before and during project activities

Responsibility: Reclamation District 799 and its contractor(s)

Mitigation Measure BIO-8b: If Avoiding Project-related Effects on Nesting Special-status Birds is Infeasible, Implement Minimization Measures.

If the measures described above in Mitigation Measure BIO-8a have been completed and avoiding effects on nesting special-status birds is infeasible, the measures described below shall be implemented to minimize effects of the project on nesting special-status birds, such that there is no direct loss of individuals of these species or project-related nest failure.

1. **Establish, Maintain, and Monitor Buffers Around Active Nest.** If any active nests, or behaviors indicating active nests, are observed, appropriate-sized avoidance buffers shall be established around the nest sites, to avoid nest failure resulting from project activities. The size and shape of the buffer shall depend on the species, nest location, nest stage, and specific project activities to be performed while the nest is active. The buffer shall be expanded if the birds are exhibiting agitated behavior, or the buffers may be adjusted (reduced) if a qualified biologist determines it would not be likely to adversely affect the nest. If required, buffers shall be marked in the field by a qualified biologist using temporary fencing, high-visibility flagging, or other means that are equally effective in clearly delineating the buffer. Standard nest buffer sizes for migratory and common bird species include: 250-feet for passerine species, and 1,000-feet for raptors such as *Buteos*. Nesting special-status avian species, such as Swainson's hawk, shall have a nest buffer up to a half-mile, while burrowing owl would receive a buffer of 1,640-feet.

2. **Monitoring Nest Activity**. Nest monitoring shall be conducted by a qualified biologist, either continuously or periodically during work, to confirm that project activity is not resulting in detectable adverse impacts on nesting birds or their young. A determination on monitoring frequency shall be based on environmental conditions, such as physical barriers, project activities, and a species' tolerance to project activities. The qualified biologist shall be empowered to stop all project activities that, in the biologist's opinion, threaten to cause unanticipated and/or unpermitted adverse effects on special-status wildlife (e.g., nest abandonment). If project activities are stopped, the qualified biologist shall consult with CDFW to determine appropriate measures that shall be implemented to avoid adverse effects.

3. **Work Within Established Buffer Zones**. No project activity shall commence within the buffer areas until a qualified biologist has determined that the young have fledged or the nest site is otherwise no longer in use. If work must be conducted within a stated buffer zone a qualified biologist shall provide continuous monitoring to confirm that the project activity is not resulting in detectable adverse impacts.

Timing: Before and during project activities

Responsibility: Reclamation District 799 and its contractor(s)

Implementing Mitigation Measures BIO-2, **BIO-8a**, and **BIO-8b** would reduce the potentially significant impact associated with adverse impacts to nesting special-status birds to a less-than-significant level because the project would conduct surveys in accordance with established guidance and monitor and/or stop work to minimize impacts to active nests, such that there is no direct loss of individuals of these species or project-

related nest failure. This impact would be **less-than-significant with mitigation incorporated**.

Special-status Bats

The BSA is located within the yearlong range and provides suitable roosting habitat for western red bat and pallid bat. Bats are known to change roost type and location temporally and seasonally, but these bat species use roosts in the foliage of riparian trees as well as bridges. Western red bat maternity roosts generally occur during May 1 through August 31 when pre-flight and nursing young may be present, while winter hibernaculum sites are used November 1 through March 31. Winter hibernaculum sites within the BSA area are not expected to be as common as maternity roosts. The project activities of tree trimming and vegetation removal have the potential to impact individual bats and their habitat as all activities would be located within a riparian corridor. The risk of harm, harassment, injury, and mortality to individuals of this species during vegetation removal is a **potentially significant** impact. In addition to implementing Mitigation Measure BIO-2, "Minimize Effects on Biological Resources," the following species-specific mitigation measure has been identified to address this impact.

Mitigation Measure BIO-9: Minimize Effects on Western Red Bat.

1. **Vegetation Removal During Seasonal Periods of Bat Activity.** All vegetation shall be immediately inspected for bat occupancy by a qualified biologist prior to the initial step of trimming. If vegetation removal occurs from April 1 through October 31, bat roosting habitat assessment and surveys shall be conducted prior to tree trimming and removal; (*see "Roosting Bat Habitat Assessment and Surveys" below)*. If vegetation removal occurs during the hibernaculum seasonal period of bat activity, which is from November 1 through March 31, is occupied by bats in hibernaculum, a two-step tree removal process would be implemented; (*see "Two-step Tree Removal Process" below)*.

2. **Roosting Bat Habitat Assessment and Surveys.** If vegetation removal shall occur within the bat maternity activity period, from May 1 through August 31, a habitat assessment shall be conducted a minimum of 30 to 90 days prior to tree removal and shall include a visual inspection of potential roosting features (e.g., cavities, crevices in wood and bark, exfoliating bark, suitable canopy for foliage roosting species) on all trees slated for tree trimming or removal. If suitable habitat is identified on the impacted trees the qualified biologist can either conduct night emergence surveys or complete a visual examination of roost features that establishes absence of roosting bats. A temporary 300-foot buffer shall be established with no project activities allowed until the bats have vacated on their own accord and confirmed by a qualified biologist, or an alternative is determined by CDFW.

3. **Two-step Tree Removal Process.** If tree trimming and removal occur during the hibernaculum seasonal period of bat activity, from November 1 through March 31, a two-step tree removal process can occur without additional bat roosting surveys being conducted. Two-step tree removal shall be conducted over two consecutive days. The first day (in the afternoon), under the direct supervision and instruction by a qualified

biologist with experience conducting two-step tree removal, limbs and branches shall be removed by a tree cutter using chainsaws only; limbs with cavities, crevices or deep bark fissures shall be avoided. The second day the entire tree shall be removed.

4. **Bat Habitat Mitigation Program**. Bat roosts impacted by project-related effects shall be mitigated at a minimum 1:1 ratio through the purchase of credits at a CDFW approved mitigation bank, in-lieu fee program, installation of bat boxes, and/or onsite restoration activities. Mitigation as defined in a resource agency issued permit relevant to special-status bats may be used to fulfill this measure.

Timing: Before and during project activities

Responsibility: Reclamation District 799 and its contractor(s)

Implementing Mitigation Measures BIO-2 and **BIO-9** would reduce the potentially significant impact associated with adverse impacts to western red bat to a less-than-significant level because the project would survey for and minimize impacts to maternity roosts and hibernaculum sites through mechanisms such as two-stage tree removal, such that there is no direct loss of individuals of these species. Additionally, implementation of the bat habitat mitigation program would replace any loss of habitat on-site. This impact would be **less-than-significant with mitigation incorporated**.

b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?

Riparian forest and sandbar willow thicket are all considered sensitive natural communities. Impacts on riparian habitat would be avoided to the greatest extent practicable; however, tree and shrub clearing in the riparian corridor would be necessary. Although permanent vegetation removal would be minimized to the greatest extent possible, loss of riparian vegetation is considered a **potentially significant** impact. The following mitigation measure has been identified to address this impact.

Mitigation Measure BIO-10: No Net Loss of Sensitive Natural Communities and Aquatic Resources.

No Net Loss of Sensitive Natural Communities or Aquatic Resources. No net loss of sensitive natural communities, including aquatic resources, would be achieved through impact avoidance, minimization, and/or compensatory mitigation. Mitigation for permanent impacts on sensitive natural communities shall be provided at a minimum 1:1 ratio. Mitigation can be achieved through on-site restoration, in-lieu fee payment, or purchase of mitigation credits at a USACE-, USFWS-, and/or CDFW-approved mitigation bank. Mitigation, as required in regulatory permits issued through CDFW, USACE, USFWS, and/or the Central Valley RWQCB, may be applied to satisfy this measure. If on-site restoration is chosen as the preferred method of mitigation, the development of a mitigation and monitoring plan (MMP) in which success criteria, monitoring periods, and adaptative management plans if success criteria are not met shall be developed prior to impacts.

Timing: Before project activities

Responsibility: Reclamation District 799 and its contractor(s)

Implementing Mitigation Measures **BIO-10** would reduce the potentially significant impact on sensitive communities to a less-than-significant impact because the project would achieve no net loss of riparian or wetland vegetation. This impact would be **less-than-significant with mitigation incorporated**.

c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

Permanent and temporary impacts on aquatic resources would occur as a result of project implementation. Specifically, 0.22 acre of riprap would be placed into the Dutch Slough below the MHHW mark. This project activity is considered **potentially significant**. The following mitigation measure has been identified to address this impact.

Mitigation Measure BIO-10: No Net Loss of Sensitive Natural Communities and Aquatic Resources.

Please refer to Mitigation Measure BIO-10, in Section 3.4, "Biological Resources," above, for the full text of this mitigation measure.

Timing: Before project activities

Responsibility: Reclamation District 799 and its contractor(s)

Should impacts on aquatic resources exceed 0.1 acre, following mitigation measure BIO-10 will address this impact to a less-than-significant level because the project would achieve no net loss of aquatic resources. This impact would be **less-than-significant with mitigation incorporated**.

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?

A wildlife corridor is generally a topographical or landscape feature or movement area that connects two areas of habitat that otherwise would be entirely fragmented or isolated from one another. The project areas along Sandmound Slough have development along the landside and boat docks along the waterside. The BSA is situated where impacts to Dutch Slough would not interfere with the movement of any native resident or migratory fish or wildlife, as the slough is wide at those locations and the impact area is a small section along the water's edge. Additionally, temporary water disturbance would occur as part of activities on the waterside slope of the level prior to the placement of riprap and this would alert fish and aquatic wildlife leave on their own accord. A turbidity curtain may be used if feasible, which would further reduce potential impacts to aquatic wildlife and fish. Activities in this area would not impede any wildlife movement as there is plenty of adjacent habitat for wildlife to take refuge or move out of the vicinity. The

temporary project activities throughout the site would not impede any wildlife movement. For all the reasons mentioned above, the project would have a **less-than-significant impact**.

e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

The Contra Costa County Tree Protection and Preservation Ordinance (Contra Costa County Code Title 8, Chapter 816-6) protects native trees measuring 6.5 inches diameter at breast height (DBH) or greater. Many of the trees in the BSA meet the definition of protected trees under the County ordinance. In addition, Contra Costa County Code Title 8, Chapter 816-4, protects heritage trees, which are defined as: (1) a tree seventy-two inches or more in circumference measured four and one-half feet above the natural grade (equal to 23 inch-DBH); or (2) any tree or a group of trees particularly worthy of protection, and specifically designated as a heritage tree by the board of supervisors, because of (a) either having a historical or ecological interest or significance or (b) being dependent upon each other for health or survival, or; being considered an outstanding specimen of its species as to such factors as location, size, age, rarity, shape, or health. Removal of protected trees requires a tree permit and payment of fees determined by number of trees being removed.

The project has been designed to avoid impacts on mature native trees to the greatest extent possible; however, some tree removal may necessary along the Dutch Slough project area. The project has the potential to conflict with local policies and ordinances related to protecting biological resources, specifically the Contra Costa County Tree Protection and Preservation Ordinance, and, therefore, this impact is considered **potentially significant**. The following mitigation measure has been identified to address the impacts.

Mitigation Measure BIO-11: Minimize Effects on Tree Resources.

1. **Tree Trimming and Removal Shall be Monitored**. All tree trimming and removal activities shall be monitored by an International Society of Arboriculture certified arborist. Activities that may occur that are not covered under the American National Standards Institute standards shall be directed by the International Society of Arboriculture certified arborist to ensure minimal impacts on trees.

2. **Prepare an Arborist Report Prior to Project Activities.** An arborist report meeting the standards for submittal shall be prepared prior to any project activities that require removal. The report shall include a site inventory, assessment and exhibit preparation. Obtaining a Tree Permit and payment of associated fees shall be required prior to any tree removals of protected species.

Timing: Before and during project activities

Responsibility: Reclamation District 799 and its construction contractor(s)

Implementing Mitigation Measure **BIO-11** would reduce the potentially significant impact on tree resources to a less-than-significant level because the project would minimize impacts and, if

necessary, mitigate for any tree removal, ensuring that there is no net loss of tree resources. This impact would be **less-than-significant with mitigation incorporated**.

f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

The project site is located in the East Contra Costa County Habitat Conservation Plan and Natural Communities Conservation Plan (HCP/NCCP) planning area (Jones & Stokes 2006). While the project is not a covered activity, the project would adhere to measures required by the HCP/NCCP to avoid and minimize impacts on the covered species that have the potential to occur in the project area, including burrowing owl, Swainson's hawk, northwestern pond turtle, giant garter snake, and San Joaquin spearscale. Further, the project would contribute to improved waterside habitat conditions to meet the intent of multi-benefit projects and will mitigate adverse project impacts. This is in line with the main goal of the HCP/NCCP, which is "to protect and enhance ecological diversity and function within the rapidly urbanizing region of eastern Contra Costa County." No other adopted NCCP, HCP, or other approved local, regional, or state habitat conservation plan applies to the project or BSA. Therefore, the project would not conflict with the HCP/NCCP and there would be **no impact**.

3.5 Cultural Resources

#5. CULTURAL RESOURCES

Would the project:	Have Potentially Significant Impact?	Have Less-than-Significant Impact with Mitigation Incorporated?	Have Less-than-Significant Impact?	Have No Impact?	Have Beneficial Impact?
#5 -a. Cause a substantial adverse change in the significance of a historical resource pursuant to CCR Section 15064.5?	no	**yes**	no	no	no
#5 -b. Cause a substantial adverse change in the significance of an archaeological resource pursuant to CCR Section 15064.5?	no	**yes**	no	no	no
#5 -c. Disturb any human remains, including remains interred outside of dedicated cemeteries?	no	**yes**	no	no	no

Cultural resources, defined as buildings, sites, structures, or objects, each of which may have historic, architectural, archaeological, cultural, or scientific importance, are discussed in this section. The State CEQA Guidelines Section 15064.5(a)(1) defines a "historical resource" as any resource listed in or determined to be eligible for listing in the California Register of Historical Resources (CRHR).

3.5.1 Regulatory Setting

California Register of Historical Resources

The CRHR includes resources listed in or formally determined eligible for listing in the National Register of Historic Properties (NRHP), as well as some California Historical Landmarks and Points of Historical Interest. Properties of local significance that have been designated under a local preservation ordinance (local landmarks or landmark districts) or that have been identified in a local historical resources inventory may be eligible for listing in the CRHR and are presumed to be significant resources for purposes of CEQA, unless a preponderance of evidence indicates otherwise (PRC Section 5024.1, 14 CCR Section 4850). Eligibility criteria for the CRHR are similar to the NRHP but focus on importance of resources to California history and heritage. A cultural resource may be eligible for listing in the CRHR if it:

1. Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;
2. Is associated with the lives of persons important in our past;
3. Embodies the distinctive characteristics of a type, period, region, or method of construction or represents the work of an important creative individual or possesses high artistic values; or

4. Has yielded, or may be likely to yield, information important in prehistory or history.

State CEQA Guidelines also require consideration of unique archaeological resources (CCR Section 15064.5). As used in California PRC Section 21083.2, the term "unique archaeological resource" refers to an archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:

- Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information,
- Has a special and particular quality such as being the oldest of its type or the best available example of its type, or
- Is directly associated with a scientifically recognized important prehistoric or historic event or person.

In addition to meeting one or more of the above criteria, resources eligible for listing in the CRHR must retain enough of their historic character or appearance to be recognizable as historical resources and to convey the reasons for their significance. Integrity is evaluated with regard to the retention of location, design, setting, materials, workmanship, feeling, and association. These regulations apply to the eligibility determination of cultural resources in the project site.

3.5.2 Environmental Setting

The sections below are based on information from the *Cultural Resources Study for the Horseshoe Bend Levee Improvement Project, Contra Costa County, California* (Davis and Nayyar 2017), unless otherwise cited.

Precontact Setting

The Paleo-Archaic-Emergent cultural sequence developed by Fredrickson (1974) and refined by Rosenthal, White, and Sutton (2007) is usually applied to the regional prehistoric occupation of the project area. The sequence has three broad periods including; the Paleoindian Period (11,500-8550 cal B.C.E.); the Archaic period which is itself divided into the Lower Archaic (8550-5550 cal B.C.E.), Middle Archaic (5550-550 cal B.C.E.), and Upper Archaic (550 cal B.C.E.-cal C.E. 1100); and the Emergent Period (cal C.E.1100-Historic Period).

The Paleoindian Period began with the first human colonization into California. Paleoindian groups likely subsisted predominantly on big game hunting with processed plant foods having a less important role in the diet. There is no evidence for trade networks during this period, though recent research indicates that sedentism, plant processing, and trade was greater throughout California than earlier research showed. The Archaic Period is characterized by a greater reliance on processed plant foods, elaborate grave and burial goods, and increasingly complex trade networks (Bennyhoff and Fredrickson 1994). The Emergent Period saw the introduction of bow and arrow technology, strong evidence for stratified social status based on wealth, and the further elaboration and expansion of trade networks as indicated, at least in part, by the appearance of

clam disk bead money. The Emergent Period also contains diverse artifact assemblages, evidence of increasingly complex societies (Moratto 1984).

Focusing more tightly in the area around the project, there is no evidence of the Paleoindian or for much of the Archaic Period because any evidence was deeply buried during the formation of the Delta, which occurred during the Middle Archaic.

Historic Context

Eastern Contra Costa County

Formed in 1850, Contra Costa County (County) encompasses around 800 square miles of hills, mountains, valleys, marshland, and coastal flatlands with the San Francisco Bay, San Pablo Bay, Carquinez Strait, and Sacramento-San Joaquin Delta forming its western, northwestern, and northern boundaries (JRP Historical Consulting [JRP] 2007). Europeans first settled the County as early as the 1830s. (JRP 2007; California State Parks 2025). The San Pablo and Tulare Railroad acquired the largest portions of Rancho Los Meganos, which occupied much of the County, and in 1878 established the town of Brentwood. Much of the development did not occur until recent decades, and the area encompassing the former rancho remained largely undeveloped until the late 20th century (JRP 2007). Until the early 20th century, agricultural development in the region consisted of mostly of grazing and some wheat and barley production. This changed after 1912 when the Balfour Guthrie Company built a large irrigation system around Brentwood (Richmond Daily Independent 1912; Martinez Daily Gazette 1912; Martinez Daily Gazette 1913). Greater access to water allowed for cultivation of more crop varieties and fruit and nut orchards (JRP 2007; City of Brentwood 2013).

Oakley

Doctor John Marsh first settled in the area and constructed a riverboat freight landing along the San Joaquin River in the 1840s. In 1898, Civil War veterans Randolph Marsh (no relation to John Marsh) and Alden Norcross purchased the Oakley land, where they surveyed, platted, and registered the township of Oakley (Jensen 2019). The local economy from the 1900s through the 1960s focused primarily on fruit, nut, and vegetable crops. Aside from farming, residents also worked in fruit and vegetable packing plants located throughout the town and on the farms themselves (Jensen 2019).

By the end of the 1950s, the town's economy changed from an agriculturally based community to a bedroom community that supported the nearby industrial city of Antioch. The City of Oakley did not incorporate until July 1, 1999 (Oakley 2025). Oakley continued to experience suburban growth from the remainder of the 20th century through present day (Jensen 2019).

Reclamation District 799

The state formed RD 799 in 1911 as an independent special district aimed at providing levee and drainage maintenance services in the district (Contra Costa Local Agency Formation Commission

2015: 54). RD 799 consists of approximately 3,100 acres and includes agricultural, residential, and recreational lands. RD 799 maintains 11.7 miles of levees.

Transportation – Roads

Due to the numerous farms and agricultural fields in the surrounding area, farmers and locals often constructed rudimentary dirt roads (such as Jersey Island Road) to access fields, transport crops, and navigate the islands around the Delta. Jersey Island Road appears on historic topographic maps by 1910 as a transport route to Jersey Island to the north. Sandmound Boulevard, however, appeared by 1952 as residences emerged along Sandmound Slough during the post-World War II decades when the nation's roadways underwent improvements to better serve the growing automobile population (USGS Woodward Island 1952; Jersey 1910; Caltrans 2016: 64).

3.5.3 Methodology and Results

Records Search

GEI archaeologist Amy Wolpert, MA, requested a records search of the project area from the Northwest Information Center (NWIC) at Sonoma State University. The NWIC responded by letter on July 29, 2025. In their results letter the NWIC stated that there are no previous archaeological sites located within the project area. The results letter did identify four built environment resources. These resources include:

- Dutch Slough Rural Historic Landscape (DSRHL) (P-07-004699)
- Burroughs Levee (P-07-002995), a component of Contra Costa Levee 22 and a district contributor
- Burroughs Bros. Dairy (P-07-002997), a district contributor
- Hotchkiss Tract Levee (P-07-003097), a component of Contra Costa Levee Unit 22

Pedestrian and Built Environment Survey and Research

GEI archaeologist Jesse Martinez, MA, RPA, conducted an intensive pedestrian archeological survey of the project area on July 2, 2025. Intensive pedestrian survey refers to transects spaced 15 meters (49 feet) apart or closer. Visibility varied greatly across the project area, from open areas with excellent ground visibility, landscaped areas near residences on the levee with little to no visibility, to paved areas with no visibility. The survey resulted in no archaeological resources being identified.

Additionally, GEI architectural historian, Lena Philliber, conducted a built environment survey and archival research for the project. As a result of this investigation it was discovered that the four resources identified in the records search in addition to a road segment recorded during the survey are more accurately grouped together as two resources discussed below:

- Contra Costa Levee 22 levee segments (includes two segments also referred to as Hotchkiss Tract Levee [P-34-003097] and Burroughs Levee [P-07-002995])

- DSRHL (P-07-004699). A portion of the DSRHL and three district contributors are in the project area: Burroughs Brothers Dairy (P-07-002997), a segment of Jersey Island Road, and the same segment of Burroughs Levee [P-07-002995] that comprises a portion of the Contra Costa Levee 22).

The DSRHL (and its contributors) is eligible for the CRHR under Criterion 1 for being a rare example of a dairy landscape in the San Francisco Bay Area during the 19th and 20th centuries. As a significant property, the DSRHL is considered a historical resource under CEQA. The remaining resource (the Hotchkiss Tract levee segment within Contra Costa Levee 22) was previously determined ineligible for the NRHP. It was evaluated for the CRHR for this investigation, and it does not meet CRHR eligibility requirements and therefore is not considered to be a historical resource per CEQA.

3.5.4 Discussion

a) Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5?

Under CEQA, public agencies must consider the effects of their actions on "historical resources." CEQA defines an "historical resource" as any resource listed in or determined to be eligible for listing in the CRHR. The CRHR includes resources listed in or formally determined eligible for listing in the NRHP, as well as some California Historical Landmarks and Points of Historical Interest. Properties of local significance that have been designated under a local preservation ordinance (local landmarks or landmark districts) or that have been identified in a local historical resources inventory may be eligible for listing in the CRHR and are presumed to be significant resources for purposes of CEQA unless a preponderance of evidence indicates otherwise (California PRC Section 5024.1, 14 CCR Section 4850). The eligibility criteria for listing in the CRHR are presented earlier in this section, including for unique archaeological resources.

One built environment historical resource, the DSRHL (and three contributing resources), was identified as part of this investigation. Project activities within the boundaries of the DSRHL will alter a contributing resource, the Burroughs Levee by adding some rip rap and widening and increasing the height of the levee. This activity, however, will occur within a small area (roughly 9.1 acres) of the vast district which encompasses approximately 1,183 acres. Although the Burroughs Levee will be altered, it will remain in place along with the ten other contributors in the entire district. There would be no change to the character or integrity of the DSRHL, overall, and it would retain its historical significance. The impact would be **less-than significant**.

No precontact archaeological resources that can be defined as historical resources were identified during the cultural resources' investigation for the project either during the records search or pedestrian survey. Much of the project area has been previously disturbed, mostly by construction of the levee itself or other development. While unlikely, it is still possible that intact archaeological historical resources are present within the project area and may be impacted by project components. If this were to occur, then this impact would be considered **potentially significant**. Mitigation Measure CR-1 has been developed to address this potential impact.

Mitigation Measure CR-1: Address Previously Undiscovered Historic Resources, Archaeological Resources, and Tribal Cultural Resources.

If cultural resources are identified during project-related ground-disturbing activities, all potentially destructive work in the immediate vicinity of the find should cease immediately and Reclamation District 799 should be notified. In the event of an inadvertent discovery, additional CEQA review might be necessary to make a determination on a properties' eligibility for listing in the CRHR and any actions that would be necessary to avoid adverse effects. A qualified archaeologist (an archaeologist meeting the Secretary of the Interior's Standards for professional Archaeologist or Historian) should be retained to assess the significance of the find, make a preliminary determination, and if appropriate, provide recommendations for treatment. Any treatment plan should be reviewed by Reclamation District 799 prior to implementation. Ground-disturbing activities should not resume near the find until treatment, if any is recommended, the find is complete or if the qualified archaeologist determines the find is not significant.

Timing: Before and during construction activities

Responsibility: Reclamation District 799 and its contractor(s)

Implementing **Mitigation Measure CR-1** would reduce this impact to a less-than-significant level because it increases the likelihood that any historical resources that may be present within the project area would be identified and that any finds would be assessed by an architectural historian or archaeologist, and the treatment or investigation would be conducted in accordance with CEQA guidelines regarding cultural resources. Therefore, this impact would be **less-than-significant with mitigation incorporated**.

b) Cause a substantial adverse change in the significance of a unique archaeological resource pursuant to Section 15064.5?

No unique archaeological resources were identified within the project site. Due to the very disturbed nature of the project area, and given no archaeological resources were identified during the cultural resources investigation, it is unlikely that unique archeological resources would be impacted. However, it is possible that a unique archaeological resource might be inadvertently identified during project-related activities, including excavation in and around the Dutch Slough levee. This is considered to have a **potentially significant** impact. Mitigation Measure CR-1 has been developed to address this issue.

Mitigation Measure CR-1: Address Previously Undiscovered Historic Resources, Archaeological Resources, and Tribal Cultural Resources.

Please refer to Mitigation Measure CR-1, in Section 3.6, "Cultural Resources," above, for the full text of this mitigation measure.

Timing: During project construction activities

Responsibility: Reclamation District 799 and its contractor(s)

Implementing Mitigation Measure CR-1 would reduce this impact because it increases the likelihood that any unique archaeological resources that may be impacted by construction of the project would be identified and that any finds would be assessed by an archaeologist, and the treatment or investigation would be conducted in accordance with CEQA guidelines regarding cultural resources. Therefore, this impact would be **less-than-significant with mitigation incorporated**.

c) Disturb any human remains, including those interred outside of dedicated cemeteries?

No human remains were identified within the project area either during the pedestrian survey conducted for the project or during past investigations. The project area is highly disturbed by previous development, which lowers the likelihood of finding human remains in an intact burial; however, this does not eliminate the possibility of finding human remains in some condition. While unlikely, it is possible that buried human remains exist within the project site and may be inadvertently disturbed by project-related ground disturbing activities. If this were to occur, it would be considered a **potentially significant** impact. **Mitigation Measure CR-2** has been developed to address this potential impact.

Mitigation Measure CR-2: Avoid Potential Effects to Previously Unknown Human Remains.

If an inadvertent discovery of human remains is made at any time during project planning or project-related construction activities, the following measures will be implemented. The measures will be met prior to implementing or continuing actions such as ground disturbing activity that may result in damage to or destruction of human remains:

- In accordance with the California Health and Safety Code, if human remains are discovered during ground-disturbing activities, project-related, ground-disturbing activities that could potentially damage the remains will immediately halt in the area of the burial. The County Coroner will be immediately notified about the remains. The Coroner is required to examine all discoveries of human remains within 48 hours of receiving notice of a discovery on private or State lands (California Health and Safety Code Section 7050.5[b]). If the Coroner determines that the remains are those of a Native American, he or she must contact the Native American Heritage Commission (NAHC) by phone within 24 hours of making that determination (California Health and Safety Code Section 7050[c]).

- A qualified archaeologist meeting the Secretary of the Interior's Standards for Archeology will be retained to determine the nature of the remains. After the Coroner's findings have been made, the archaeologist and the NAHC-designated Most Likely Descendant (MLD), in consultation with the landowner, shall determine the ultimate treatment and disposition of the remains.

- Upon the discovery of Native American human remains, Reclamation District 799 will require that all construction work within 100 feet of the discovery stop, until consultation with the MLD has taken place. The MLD will have 48 hours to complete

a site inspection and make recommendations to the landowner after being granted access to the site. A range of possible treatments for the remains, including nondestructive removal, preservation in place, relinquishment of the remains and associated items to the descendants, or other culturally appropriate treatment may be discussed. PRC Section 5097.98(b)(2) suggests that the concerned parties may mutually agree to extend discussions beyond the initial 48 hours to allow for the discovery of additional remains.

- If the human remains are of historic age and are determined not to be of Native American origin, Reclamation District 799 will follow the provisions of the California Health and Safety Code Section 7000 (et seq.) regarding the disinterment and removal of non-Native American human remains.

Timing: During project construction activities

Responsibility: Reclamation District 799 and its contractor(s)

Implementing Mitigation Measure CR-2 would reduce the potential impact related to discovery of unknown human burials because avoidance measures and specific procedures per California Health and Safety Code would be implemented. Therefore, this impact would be **less-than-significant with mitigation incorporated**.

3.6 Energy

#6. ENERGY

Would the project:	Have Potentially Significant Impact?	Have Less-than-Significant Impact with Mitigation Incorporated?	Have Less-than-Significant Impact?	Have No Impact?	Have Beneficial Impact?
#6 -a. Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	no	no	**yes**	no	no
#6 -b. Conflict with or obstruct a State or local plan for renewable energy or energy efficiency?	no	no	no	**yes**	no

3.6.1 Environmental Setting

California has committed to achieving 100 percent carbon-free electricity by 2045 through Senate Bill 100, the 100 Percent Clean Energy Act of 2018. Pacific Gas and Electric (PG&E) provides electrical and natural gas services to Contra Costa County. The California Energy Commission shows that Contra Costa County consumed approximately 8337 million kilowatts per hour in 2022 (CEC 2022).

3.6.2 Discussion

a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?

The project would involve the use of gas- and diesel-fueled vehicles and equipment during construction activities, and from import and export of materials to and from the project site. Construction activities would occur over an approximately 1-year period (though likely shorter), and the project's use of energy resources during construction would be non-recoverable, but temporary. Project construction would temporarily increase fuel consumption; however, it is anticipated that fuel would only be used to the extent it is needed to complete construction activities and would not be consumed in a wasteful manner during construction. Additionally, the selected construction contractor(s) would use the best available engineering techniques, construction practices, and equipment operating procedures. O&M activities would result in the consumption of minor amounts of energy resources from the use of vehicles and equipment. However, O&M activities would be similar to current conditions and therefore would not result in wasteful, inefficient, or unnecessary consumption of energy resources. The project itself does not change the use of utilities or include energy-consuming structures or facilities. Therefore, the project's energy consumption for construction and operations would not be considered wasteful, inefficient, or unnecessary and this impact would be **less than significant**.

b) Conflict with or obstruct a State or local plan for renewable energy or energy efficiency?

Contra Costa County has not adopted a local plan for renewable energy or energy efficiency; however, California has committed to achieving 100 percent carbon-free electricity by 2045. The project would use energy resources during construction which would be non-recoverable but temporary, however, the project would result in very minimal operational energy usage resulting from maintenance activities (minor amounts of energy resources from the use of vehicles and equipment). The project would not conflict or obstruct California's climate commitment. Therefore, the project would not conflict with any State standards or renewable energy plans. **No impact** would occur.

3.7 Geology and Soils

#7. GEOLOGY AND SOILS. Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:

Would the project:	Have Potentially Significant Impact?	Have Less-than-Significant Impact with Mitigation Incorporated?	Have Less-than-Significant Impact?	Have No Impact?	Have Beneficial Impact?
#7 -a. 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 California Geological Survey Special Publication 42.)	no	no	no	**yes**	no
#7 -a. ii. Strong seismic ground shaking?	no	no	**yes**	no	no
#7 -a. iii. Seismic-related ground failure, including liquefaction?	no	no	**yes**	no	no
#7 -a. iv. Landslides?	no	no	no	**yes**	no
#7 -b. Result in substantial soil erosion or the loss of topsoil?	no	no	yes	no	no
#7 -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 offsite landslide, lateral spreading, subsidence, liquefaction, or collapse?	no	no	no	no	no
#7 -d. Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994, as updated),), creating substantial direct or indirect risks to life or property?	no	no	**yes**	no	no
#7 -e. Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	no	no	no	**yes**	no
#7 -f. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	no	no	**yes**	no	no

3.7.1 Environmental Setting

Geology and Soils

The project site falls within the Coast Range geomorphic province and is just outside the Great Valley (CGS 2002). The project site is mapped with the following soils: Marcuse clay, which is

moderately saline, sodic, and partially drained, with 0 to 2 percent slopes; Piper loamy sand, which is partially drained, with 0 to 2 percent slopes; and Sacramento clay with 0 to 2 percent slopes (NRCS 2025). The Marcuse clay, Piper loamy sand, and Sacramento clay series are very poorly drained soils, that formed from weathered sedimentary rock, alluvium from granitic rock, and alluvium from mixed rock, respectively.

There are several faults surrounding the project area: the Midland Fault, and active located approximately 1.85 miles east of the project site; an unnamed concealed fault located approximately 3 miles west of the project site; and the Rio Vista fault located approximately 6.5 miles north of the project site (CGS 2015).

Seismic and Geologic Hazards

Surface Fault Rupture

Seismically-induced ground rupture is defined as the physical displacement of surface deposits in response to an earthquake's seismic waves. The magnitude, sense, and nature of fault rupture can vary for different faults or even along different segments of the same fault. Ground rupture is considered more likely along active faults. The project site is not within an Alquist-Priolo Fault Rupture Hazard Zone, as designated through the Alquist-Priolo Earthquake Fault Zoning Act, and no mapped active faults are known to pass through the immediate project vicinity (CGS 2015; 2025). The purpose of the Alquist-Priolo Act is to regulate development and prohibit construction on or near active fault traces to reduce hazards associated with fault rupture. The Alquist-Priolo Earthquake Fault Zones are the regulatory zones delineated on maps that include surface traces of active faults.

Ground Shaking

Areas most susceptible to intense ground shaking are those located closest to an earthquake-generating fault, and areas underlain by thick, loosely unconsolidated, and saturated sediments. Ground movement during an earthquake can vary depending on the overall magnitude, distance to the fault, focus of earthquake energy, and type of geologic material. Contra Costa County has experienced several seismic events, originating both on faults within the county and in other parts of the region. Since 1800, six major Bay Area earthquakes have impacted Contra Costa County, with at least two of the faults responsible for these events running through or into the county. Contra Costa County was included in a FEMA major disaster/emergency declaration following the Loma Prieta Earthquake in October 1989 (Contra Costa County 2024).

Liquefaction

Liquefaction is a phenomenon where unconsolidated and/or near saturated soils lose cohesion and are converted to a fluid state as a result of severe vibratory motion. The relatively rapid loss of soil cohesion during strong earthquake shaking results in the temporary fluid-like behavior of the soil. Soil layers with high potential for liquefaction include unconsolidated sands and fine-grained material. The project site is mapped within a liquefaction zone (CGS 2025).

Landslides

Landslides are deep-seated ground failures (several tens to hundreds of feet deep) in which a large section of a slope detaches and slides downhill. In Contra Costa County, landslides are commonly triggered by heavy rainfall, with the potential for landslides increasing during severe storms that saturate steep, loose soils. Earthquakes can also induce landslides, and the county's upland areas are particularly susceptible to such events (Contra Costa County 2024). There are no landslide zones identified within the project area (CGS 2015). Further, there is no history of landslides occurring in the project area or immediate vicinity (CGS 2025).

Geologic Hazards

Expansive Soils

Expansive soils are predominantly comprised of clays, which expand in volume when water is absorbed and shrink when the soil dries. Expansion is measured by shrink-swell potential, which is the volume change in soil with a gain in moisture. Soils with a moderate to high shrink-swell potential can cause damage to roads, buildings, and infrastructure (NRCS 2004). Much of the soil in the county is considered expansive (Contra Costa County 2024). As described above, the project site's soils are predominantly made up of various clay and sandy loam features, which may be considered expansive.

Land Subsidence

Subsidence is the gradual settling or sudden sinking of the ground surface resulting from subsurface movement of earth materials. There are multiple causes and types of subsidence including decomposition of peat, pumping of groundwater, tectonic activity, and possibly gas or oil extraction. The project site is not located within an area known to experience significant subsidence (USGS 2024).

Unique Geologic Features and Paleontological Resources

Unique geologic features are generally defined as those that are unique (i.e., rare and/or singular) in the broad field of geology. These may include certain minerals, type locations (i.e., locations where a geologic unit was first described/named), a representative of an important geologic principle, something notable/unique to the history of geology, a distinctive section that is used repeatedly for teaching or instruction, or units/outcrops that contribute to important natural habitats and/or ecology. There are no unique geologic features within the project site or vicinity.

Paleontological resources are the fossilized remains or impressions of plants and animals, including vertebrates (animals with backbones; mammals, birds, fish, etc.), invertebrates (animals without backbones; starfish, clams, coral, etc.), and microscopic plants and animals (microfossils). They are valuable, nonrenewable, scientific resources used to document the existence of extinct life forms and to reconstruct the environments in which they lived (Society of Vertebrate Paleontology [SVP] 2010).

Paleontological remains may be found in numerous types of rock formations. In the Bay Area, fossilized plants, animals, and microorganisms occur primarily in marine and non-marine (fluvial) sedimentary rock. The potential to preserve fossils in a particular rock formation depends on the depositional environment in which it was formed. For example, fast moving currents that form deposits of gravel and cobbles are less likely to preserve the remains of organisms than gently flowing currents that deposit mud and silt. Thus, the most fossil-bearing geologic units in Contra Costa County occur in rocks that formed in relic, marine environments such as inland embayment, coastal areas, and extensive inland bays. There are a total of 2,577 fossil localities in Contra Costa County according to the UC Museum of Paleontology Localities database. Most of these are invertebrate; 261 are vertebrates (Contra Costa County 2024).

Geologic formations at the project site consist of Pleistocene-Holocene age marine and nonmarine sedimentary rocks, including alluvium, lake, playa, and terrace deposits (CGS 2015). These geologic units vary greatly, where alluvium, lake, playa, and terra deposits of Holocene age typically have low-to-marginal paleontological sensitivity; marine and nonmarine deposits of Pleistocene age have moderate to high paleontological sensitivity. Previously disturbed or fill sediments are not considered paleontologically sensitive.

3.7.2 Discussion

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?

The project site is not located within an Alquist-Priolo Earthquake Fault Zone and there are no known active faults within the project site. Therefore, the project would have no effect related to surface fault ruptures or increase risk of loss, injury, or death from surface fault ruptures. **No impact** would occur.

ii) Strong seismic ground shaking?

Contra Costa County has a history of seismic activity. The nearest known potentially active fault is the Midland Fault, approximately 1.85 miles east of the project site. This fault and others in the region have the potential to subject the project site and area to ground shaking. During project construction activities, ground shaking could expose persons working at the project site to seismic hazards while operating heavy equipment. RD 799 and its contractors would be required to adhere to all California Division of Occupational Safety and Health (Cal/OSHA) requirements within active construction sites that would ensure the safety of all construction workers onsite.

The project does not include any permanent structures, including any that would house people. Further, the project design would comply with CCR Title 23, Section 120, which addresses suitable material, compaction, slopes, freeboard, and performance criteria for structural integrity of levees.

Therefore, there would be no significant impact to people or structures from any seismic-related activity as a result of implementation of the project. This impact would be **less than significant**.

iii) Seismic-related ground failure, including liquefaction?

The project site is located within a mapped liquefaction zone as designated by the California Geologic Survey (CGS). Soils in the project site, including Marcuse clay, are susceptible to liquefaction. Localized areas with near-saturated conditions may also exhibit increased susceptibility. Despite this, the project does not include the construction of permanent structures or habitable facilities. Project activities, such as the levee repair, habitat enhancement and restoration activities would not result in substantial new risks of liquefaction-related ground failure. Compliance with applicable CCR Title 23 requirements, including geotechnical recommendations for levees, would further reduce potential risks. As such, potential impacts related to liquefaction would be considered **less than significant**.

iv) Landslides?

The project site and surrounding areas are not mapped as landslide zones by the CGS and there is no reported history of landslides occurring in the area; therefore, **no impact** would occur.

b) Result in substantial soil erosion or the loss of topsoil?

The project involves construction activities such as levee repair, which has the potential to disturb soils and contribute to erosion or the loss of topsoil. To minimize these risks, the project would implement comprehensive erosion control measures as part of the construction process such as installing silt fences and stabilizing soils with vegetation. Furthermore, the project would comply with all applicable regulatory requirements, including the preparation and implementation of a Stormwater Pollution Prevention Plan (SWPPP) under the National Pollutant Discharge Elimination System (NPDES) Construction General Permit (CGP). The SWPPP would outline site-specific measures to control soil erosion and sediment discharge during and after construction (refer to Section 3.11, "Hydrology and Water Quality," for more details on the project's SWPPP). Given the implementation of these measures, the project is not anticipated to result in substantial soil erosion or the loss of topsoil. Impacts would be **less than significant**.

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 offsite landslide, lateral spreading, subsidence, liquefaction or collapse?

Refer to Impact 3.8(a.i-iv) above. During project construction activities, unstable soils could expose persons working in the project site to hazards while operating heavy equipment. RD 799 and its contractors would be required to adhere to all Cal/OSHA requirements for working within active construction sites that would ensure the safety of all construction workers onsite.

As discussed previously, the project design would comply with the CCR Title 23 requirements, which regulates the design of levees to reduce potential geologic hazards, including landslides, lateral spreading, subsidence, liquefaction or collapse. Therefore, relative to existing conditions,

the project would not expose people or structures to new potential substantial adverse effects related to unstable soils. Impacts would be **less than significant**.

d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994, as updated), creating substantial direct or indirect risks to life or property?

As described above, the project site's soils are predominantly made up of Marcuse clay, Piper sandy loam, and Sacramento clay, which may be considered expansive. However, because the project does not include new permanent buildings or structures, it is unlikely that the project would result in direct or indirect risks to life or property as a result of being located on expansive soils. Additionally, the project would adhere to geotechnical recommendations for levees, which include provisions to mitigate risks associated with expansive soils. These measures ensure that the potential for soil-related hazards is addressed appropriately during project implementation. For these reasons, this impact would be **less than significant**.

e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?

The project would not require the use of septic tanks or alternative wastewater disposal systems. During project implementation, RD 799 or the contractor may have portable toilet facilities available onsite temporarily for use by construction workers. Once project-related construction activities are concluded, such portable facilities would be removed, and the wastewater properly handled and disposed in accordance with all applicable laws and regulations. There would be **no impact** associated with wastewater disposal.

f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

Geologic units within the project area that have high sensitivity for paleontological resources include Holocene alluvium at great depths, and marine and nonmarine deposits of Pleistocene age. In general, surficial deposits contain low sensitivity for paleontological resources, and previously disturbed or fill sediments are not considered paleontologically sensitive. Proposed vegetation management along Sandmound Slough would not have the potential to impact paleontological resources. Although the proposed levee repair work would include excavation and ground-disturbing activities, there is very low potential to disturb unique paleontological resources because of the already-developed/disturbed levee and use of fill material to raise and widen the levee. Furthermore, the proposed habitat enhancement would be implemented with rip-rap placement/movement and use of native fill at minimal depths on the waterside area of the levee along Dutch Slough. Based on the proposed depth of ground disturbance for project work, as well as the nature of the project, Holocene-aged younger deposits and previously disturbed sediments are expected to be encountered; therefore, impacts on paleontological resources are not anticipated. Project-related activities would have low potential to disturb any unique paleontological resources. Therefore, this impact would be **less than significant**.

3.8 Greenhouse Gas Emissions

#8. GREENHOUSE GAS EMISSIONS

Would the project:	Have Potentially Significant Impact?	Have Less-than-Significant Impact with Mitigation Incorporated?	Have Less-than-Significant Impact?	Have No Impact?	Have Beneficial Impact?
#8 -a. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	No	No	**Yes**	No	No
#8 -b. Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	No	No	**Yes**	No	No

3.8.1 Environmental Setting

In December of 2015, Contra Costa County adopted a Climate Action Plan (CAP) which demonstrates Contra Costa County's commitment to addressing the challenges of climate change by reducing local GHG emissions while improving community health (Contra Costa County 2015). Additionally, in November 2024, Contra Costa County adopted the 2024 Climate Action and Adaptation Plan, which builds on the work established in the 2015 CAP and reflects the latest developments in county- and regional-level climate action planning initiatives, GHG emissions reductions in County operations, and climate action planning policies and practices at the State level. Lastly, as discussed in Section 3.3 "Air Quality" the BAAQMD has prepared the 2017 Bay Area Clean Air Plan as an update to the Bay Area 2010 Clean Air Plan, with the primary goals of protecting public health and the climate (BAAQMD 2017). The 2017 Bay Area Clean Air Plan is consistent with the GHG reduction targets adopted by the state of California and lays the groundwork for a long-term effort to reduce Bay Area GHG emissions 40 percent below 1990 levels by 2030 and 80 percent below 1990 levels by 2050.

BAAQMD has not established construction-related GHG thresholds. Instead, BAAQMD's approach to developing thresholds of significance for climate impacts is to use a "fair share" approach for determining whether an individual project's GHG emissions would be cumulatively considerable. If a project would contribute its "fair share" of what is needed to achieve the state's long-term GHG reduction goals, then the lead agency can find that the project is adequately contributing to solving the problem of global climate change and that project's impact is not significant (BAAQMD 2022). The BAAQMD has established design elements for land use projects and plans to help achieve California's long-term climate goal of carbon neutrality by 2045, however, these are not applicable as the project is not a land use project.

3.8.2 Discussion

a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

The proposed project would generate GHG emissions from the use of equipment and vehicles operating during the construction. However, these emissions would be short-term and temporary and would cease upon completion of the project. The project would generate approximately 275 metric tons (MT) of carbon dioxide equivalents (CO2e) during construction. Neither the County nor BAAQMD has an adopted threshold of significance for construction-related GHG emissions and does not require quantification. Therefore, due to the temporary nature of GHG emissions and the short construction timeline, the project would result in a **less-than-significant** impact.

b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

The project would not conflict with any outlined actions and strategies that would be undertaken by Contra Costa County as part of the 2024 CAAP Update, or the BAAQMD's 2017 Bay Area Clean Air Plan, to meet the State's GHG reductions targets and reduce the community's vulnerability to the anticipated impacts of climate change. The project would temporarily emit GHG emissions during construction, however, following the completion of construction activities, the majority of GHG emissions would cease. The project would generate minimal GHG emissions due to the establishment and performance standard periods which would include initial planting and maintaining the newly created habitat area by removing invasive species and planting/replacing with native material. However, these impacts would be minimal and maintenance activities already occur onsite and would be similar to current conditions. Therefore, this impact would be **less than significant**.

3.9 Hazards and Hazardous Materials

#9. HAZARDS AND HAZARDOUS MATERIALS.

Would the project:	Have Potentially Significant Impact?	Have Less-than-Significant Impact with Mitigation Incorporated?	Have Less-than-Significant Impact?	Have No Impact?	Have Beneficial Impact?
#9 -a. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	no	no	**yes**	no	no
#9 -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?	no	no	**yes**	no	no
#9 -c. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	no	no	no	**yes**	no
#9 -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?	no	no	no	**yes**	no
#9 -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?	no	no	no	**yes**	no
#9 -f. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	no	no	**yes**	no	no
#9 -g. Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?	no	no	**yes**	no	no

3.9.1 Environmental Setting

Hazardous Material Sites

A database search was conducted including all data sources in the Cortese List (enumerated in Public Resources Code (PRC) Section 65962.5). These sources include the GeoTracker database,

a groundwater information management system that is maintained by State Water Resources Control Board (SWRCB); the Hazardous Waste and Substances Site List (i.e., the EnviroStor database), maintained by the California Department of Toxic Substances Control (DTSC); and the EPA Superfund Site database (DTSC 2025a,b; SWRCB 2025a,b; CalEPA 2020). The project site does not include hazardous materials sites compiled pursuant to Government Code Section 65962. The nearest site listed as "active" on the Cortese List is Cook Battery, approximately 1.8 miles south of the project site.

Schools

There are no schools located within 0.25-mile of the project site. The nearest school facility to the project site is Iron House Elementary School, located approximately 0.56 miles south of the project area.

Airports

The project site is not located within 2 miles of a public or public use airport. The nearest airport to the project site is Byron Airport, which is located approximately 11.2 miles southeast of the project site. The project site is not located within an airport influence area (Contra Costa County 2000).

Emergency Operations, Response and Evacuation

The Contra Costa County Fire Protection District provides fire protection, as well as emergency medical services and ambulance transport services to unincorporated Contra Costa County. However, all fire protection agencies within Contra Costa County have signed mutual-aid agreements to provide assistance to neighboring agencies. The nearest fire station to the project site is the Contra Costa County Fire Station 95, which is located within the project area, approximately 1.4 miles south of the area where proposed vegetation management along Sandmound Slough would occur.

Contra Costa County has prepared the 2024 Hazard Mitigation Plan which serves the county as a guide to become more resilient to natural, human-caused, and technological hazards (Contra Costa County 2024a). The 2024 Hazard Mitigation Plan documents historical disasters, assesses probabilistic disasters through the Federal Emergency Management Agency's (FEMA) Hazus[2] and GIS analysis, and addresses specific strategies to mitigate the potential impacts of these disasters. Contra Costa County has identified 47 mitigation actions, one of them being to partner with cities and public protection agencies to delineate evacuation routes, identifying their capacity, safety, and viability under different hazard scenarios, as well as emergency vehicle routes for disaster response, and where possible, alternate routes where congestion or road failure might reasonably be expected to occur (Contra Costa County 2024b).

[2] FEMA's Hazus Program provides standardized tools and data for estimating risk from earthquakes, floods, tsunamis, and hurricanes.

Wildland Fires

The project area is located within an un-zoned Local Responsibility Area (LRA) and is not identified within or adjacent to a moderate, high, or very high fire hazard severity zone (CALFIRE 2025). Many fires have occurred within Contra Costa County over the past 9 years (since 2015), with the majority of local fires occurring in upland areas around the vicinity of Mount Diablo approximately 8.5 miles southwest of the project area. Wildfires may start in natural areas but can easily spread to developed areas bordering wildlands; these areas are called the Wildland-Urban Interface (WUI). The project site is not located within or near a WUI (CALFIRE 2026).

3.9.2 Discussion

a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

The California Office of Emergency Services oversees state agencies and programs that regulate hazardous materials (Health and Safety Code, Article 1, Chapter 6.95). The project would require the use of construction vehicles and equipment, and thus involve the routine transport, use, storage, and disposal of hazardous materials such as diesel fuel, gasoline, oils, grease, equipment fluids, cleaning solutions and solvents, lubricant oils, and adhesives. If such hazardous materials were not handled properly, in accordance with federal, state and local regulations, a significant hazard to the public or environmental could occur.

Existing federal and state law regulates the handling, storage and transport of hazardous materials and hazardous wastes. Pursuant to the Federal Hazardous Materials Transportation Act, 49 U.S.C. § 5101 et seq., the United States Department of Transportation promulgated strict regulations applicable to all trucks transporting hazardous materials. Occupational safety standards have been established in federal and state laws to minimize worker safety risks from both physical and chemical hazards in the workplace, including construction sites. Cal/OSHA has primary responsibility for developing and enforcing standards for safe workplaces and work practices in California in accordance with regulations specified in CCR Title 8. For example, under Title 8 CCR 5194 (Hazard Communication Standard), construction workers must be informed about hazardous substances that may be encountered, and under Title 8 CCR 3203 (Injury Illness Prevention Program) workers must be properly trained to recognize workplace hazards and to take appropriate steps to reduce potential risks due to such hazards. Thus, during construction and O&M activities, contractors and/or RD 799 staff handling, storing or transporting hazardous materials or wastes must comply with regulations that would reduce the risk of accidental release and provide protocols and notification requirements should a release occur. Impacts would be **less than significant**.

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?

As discussed above in Impact 3.9(a), the project would involve the routine use of hazardous materials during construction activities; the transport, use, storage and disposal of such hazardous

materials would be required to comply with existing applicable federal, state and local regulations. Accidental spills of small amounts of these materials could occur during routine transport, use, storage or disposal, and could potentially injure construction workers, contaminate soil, and/or affect the groundwater below the project site. Impacts associated with the accidental release, although localized to the project site, could potentially create a significant hazard to the environment.

In the event of an accidental release during implementation of the project, containment and clean up would be conducted in accordance with existing applicable regulatory requirements. All hazardous materials would be stored, transported, and disposed of in accordance with DTSC and County regulations. Construction specifications prepared for the project would identify BMPs to ensure the lawful transport, use, storage, and disposal of hazardous materials. Therefore, potential impacts to the public or the environment related to reasonably foreseeable accident conditions involving hazardous materials would be **less than significant**.

c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

The project is not located within one-quarter mile of a school. Therefore, there would be no potential for emitting or handling hazardous materials or waste near a school. The project would have **no impact**.

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?

The project is not located on an active site included on the Cortese list compiled pursuant to Government Code Section 65962.5. The project would have **no impact**.

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?

The project is not located within an airport land use planning area and is not located within 2 miles of an airport. Therefore, there would be no conflicts with an airport land use plan or generation of excessive noise. The project would have **no impact**.

f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

As discussed above, Contra Costa County has established the 2024 Hazard Mitigation Plan for all of Contra Costa County, which includes data about historical disasters, assesses probabilistic disasters, and addresses specific strategies to mitigate the potential impacts of these disasters (Contra Costa County 2024a). This document does not identify any specific evacuation areas or routes; however, the Contra Costa General Plan identifies potential evacuation routes, including major and minor roadways. The nearest evacuation route to the project site includes Jersey Island

Road, East Cypress Road, and SR-4 (Contra Costa County 2024b). The project would implement the general plan policies and actions, combined with other relevant state and local regulations, which would minimize the potential for effects from potential hazards. If an emergency were to occur at the project site, RD 799 and its contractor(s) would comply with the 2024 Hazard Mitigation Plan.

Further, the project would not affect emergency response or evacuation activities as emergency access would be established at all times. Implementation of the project would not require any road closures, and therefore, the project would not interfere with traffic routes or response vehicle transport.

O&M activities for the project would be substantially similar to current conditions, respective to emergency response and evacuation. No operation-related activities would occur within surrounding rights-of-ways that could impair or physically interfere with an adopted emergency response plan or emergency evacuation plan. As a result, this impact would be **less than significant**.

g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?

The project site is located within a natural area containing tidal wetlands and agricultural lands. The project site is not located within an area with a moderate, high, or very high fire hazard severity classification (CALFIRE 2025); therefore, implementation of the proposed project is not anticipated to expose people or structures a significant loss, injury, or death involving wildland fires. This impact would be **less than significant**.

3.10 Hydrology and Water Quality

#10. HYDROLOGY AND WATER QUALITY

Would the project:	Have Potentially Significant Impact?	Have Less-than-Significant Impact with Mitigation Incorporated?	Have Less-than-Significant Impact?	Have No Impact?	Have Beneficial Impact?
#10 -a. Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?	no	no	**yes**	no	no
#10 -b. Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	no	no	no	**yes**	no
#10 -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:	no	no	**yes**	no	no
#10 -c. i. result in substantial erosion or siltation on- or offsite;	no	no	**yes**	no	no
#10 -c. ii. substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;	no	no	**yes**	no	no
#10 -c. 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	no	no	**yes**	no	no
#10 -c. iv. impede or redirect flood flows?	no	no	**yes**	no	no
#10 -d. In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	no	no	**yes**	no	no
#10 -e. Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	no	no	no	**yes**	no

3.10.1 Environmental Setting

Surface Water Hydrology

The project area is located in the Marsh Creek Watershed and East County Delta Drainage area. The Marsh Creek Watershed spans 128 square miles and is the second largest watershed in Contra Costa County (Contra Costa County 2024). Marsh Creek has an estimated mean daily flow of 26.3 cubic-feet/second (cfs) and an estimated 100-year flood flow of 5,740 cfs (Contra Costa County Community Development Department 2003).

Groundwater

The project site is located within the San Joaquin Valley - East Contra Costa subbasin, a DWR Bulletin 118 designated groundwater subbasin (DWR 2018). The groundwater basin is designated as "Medium Priority" and has an approved groundwater sustainability plan (DWR 2022).

The project site lies within the Contra Costa County Integrated Water Management Plan Area (ECWMA 2019). Groundwater levels measured approximately 0.57 miles south of the site at DWR monitoring well No. 379894N1216794W001 were recorded at 5.4 feet below ground surface in February (DWR 2025).

Water Quality

There are no waterways within the project area that are listed on the Clean Water Act Section 303(d) impaired water body list. Marsh Creek, directly adjacent to the western edge of the project site, is listed for several different pollutants, primarily pesticides and mercury, but is outside of the project area (RWQCB 2025).

Flood Hazards

The project site is located entirely in the FEMA Flood Hazard Zone 'AE', which indicates a high flood risk and 1 percent annual chance of flooding (FEMA 2024). The Dutch Slough levee is managed for flood control as part of the RD 799's O&M duties.

The project site is not located within a tsunami zone due to the distance away from the Pacific Ocean (CGS 2026). Additionally, while a seiche, an oscillating wave in a large, enclosed water body, can occur due to atmospheric or seismic events, it is unlikely that bodies of water in the county are large enough to be susceptible to this phenomenon (Contra Costa County 2024).

3.10.2 Discussion

a) Violate any water quality standards or waste discharge requirements, or otherwise substantially degrade surface or ground water quality?

Construction activities such as grading of the levee could temporarily increase sedimentation and turbidity in the Dutch and Sandmound Slough, as well as surrounding inundated areas. Construction activities would involve the use of chemicals and solvents such as fuel and oil for motorized heavy equipment, which could accidentally spill and subsequently impact stormwater

quality (for more discussion of this topic refer to Section 3.10, "Hazards and Hazardous Materials"). However, these potential impacts would be reduced through several measures including compliance with the project's regulatory requirements.

Construction associated with the project would disturb more than 1 acre of land surface and would therefore, be subject to the NPDES General Permit of Stormwater Discharges Associated with Construction and Land Disturbance Activities (CGP; Order WQ 2022-0057-DWQ, NPDES No. CAS000002). The CGP regulates stormwater discharges associated with construction activities, such as clearing and excavation.

The CGP requires the development and implementation of a SWPPP that includes specific BMPs designed to prevent sediment and pollutants from contacting stormwater from moving offsite into receiving waters. The BMPs fall into several categories, including erosion control, sediment control, hazardous material control, waste management and good housekeeping, and are intended to protect surface water quality by preventing the off-site migration of eroded soil and construction-related pollutants from the construction area. Routine inspection of all BMPs is required under the provisions of the CGP.

Such BMPs could include, but would not be limited to, silt curtains, silt fencing, straw bale barriers, fiber rolls, storm drain inlet protection, hydraulic mulch, and a stabilized construction entrance. The SWPPP would include development of site-specific structural and operational BMPs to prevent and control impacts on runoff quality, measures to be implemented before each storm event, inspection, maintenance of BMPs, and monitoring of runoff quality by visual and/or analytical means.

O&M activities would be similar to existing activities in the area and would not include uses that would degrade water quality. This impact would be **less than significant**.

b, e) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin? Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

The project involves levee repair, habitat enhancements, and vegetation management. Project implementation would not require dewatering, use groundwater, or require any other activities that could affect groundwater recharge or conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan. Therefore, **no impact** would occur.

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, ii, iii, iv) Result in substantial erosion or siltation on or offsite? Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite? Create or contribute runoff water which would exceed the

capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff? Impede or redirect flood flows?

The project would not introduce new impervious surfaces that could alter the existing drainage pattern of the project site. Additionally, the project would manage habitat in the area of Sandmound Slough, which has the potential to improve ecosystem functioning, and therefore improve drainage in the project site and surrounding area. Construction activities, including grading and excavation have the potential to cause temporary erosion or siltation on- or off-site, and implementation of the project components would require temporary earth-moving activities that would alter the topography of the project area. As discussed above in Impact 3.8 (b) in "Geology and Soils," and Impact 3.11(a) above, with adherence to CGP requirements, a SWPPP and associated BMPs would be implemented to minimize potential soil erosion and siltation from construction of project components. Impacts would be **less than significant**.

d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?

As described previously, the project site is not susceptible to tsunamis or seiches; therefore, no impact would occur associated with the release of pollutants within a tsunami or seiche zone.

The project site is located within a flood zone. The project's levee repair improve the project site's ability to manage stormwater and reduce flood risks to adjacent areas.

Construction activities and O&M of the project site would be temporary and would not exacerbate the exposure of people or structures to risks associated with the release of pollutants due to inundation. The project would avoid, to the extent possible, construction activities during wet conditions, further reducing the risk of release of pollutants during the wet season.

Additionally, a SWPPP would be prepared and implemented during construction activities to ensure proper handling of chemicals and avoid release of pollutants to the project site. As such, impacts due to potential release of pollutants in a flood hazard area would be **less than significant**.

3.11 Land Use and Planning

#11 LAND USE AND PLANNING

Would the project:	Have Potentially Significant Impact?	Have Less-than-Significant Impact with Mitigation Incorporated?	Have Less-than-Significant Impact?	Have No Impact?	Have Beneficial Impact?
#11 -a. Physically divide an established community?	no	no	no	**yes**	no
#11 -b. Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	no	no	no	**yes**	no

3.11.1 Environmental Setting

The project area is located along the Dutch Slough levee in an area containing water, the levee, and surrounding limited residential housing and commercial areas. The general vicinity is largely undeveloped and consists of open space. The project site is designated as Agriculture Limited, Public Space, Commercial Recreation, and Residential Medium, and zoned as Delta Recreation, Parks and Recreation, Agricultural Preserve, Multi-Family, Retal Business, and General Commercial by the City of Oakley; however, the limit of work for the project includes areas that contain the existing levee, inundated tidal wetlands, and agriculture. The proposed levee repair and habitat enhancements are consistent with these land use designations (City of Oakley 2015).

3.11.2 Discussion

a) Physically divide an established community?

The physical division of an established community generally refers to the construction of a feature such as an interstate highway or railroad tracks, or removal of a means of access, such as a local road or bridge that would impact mobility within an existing community or between a community and outlying area. Given the project would not construct any permanent, linear physical structures that would physically divide a community, the project would result in **no impact** associated with the physical division of an established community.

b) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?

The proposed project would repair the Dutch Slough levee, enhance habitat, and manage invasive vegetation within the area of Sandmound Slough. The project would provide long-term benefits to public safety via flood protection and provide habitat benefits. Implementation of the project would not have any impact on the management or land uses in the project area. The project would redevelop the existing Dutch Slough levee and enhance habitat and vegetation in the area, which would not change the overall character of uses in the vicinity of the project site or result in land

use inconsistencies, or conflict with any land use plan, policy, or regulation adopted to avoid or mitigate environmental effects. Therefore, **no impact** would occur.

3.12 Mineral Resources

#12 MINERAL RESOURCES

Would the project:	Have Potentially Significant Impact?	Have Less-than-Significant Impact with Mitigation Incorporated?	Have Less-than-Significant Impact?	Have No Impact?	Have Beneficial Impact?
#12 -a. Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the State?	no	no	no	**yes**	no
#12 -b. Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?	no	no	no	**yes**	no

3.12.1 Environmental Setting

In compliance with the Surface and Mining Reclamation Act, the CGS established a Mineral Resource Zones (MRZ) classification system to denote location and significance of key extractive resources. Lands throughout Contra Costa County are classified as Mineral Resource Zones (MRZs) of varying significance. The MRZ categories are as follows:

- MRZ-1: Areas where adequate information indicates that no significant mineral deposits are present or where it is judged that little likelihood exists for their presence.
- MRZ-2: Areas where adequate information indicates significant mineral deposits are present, or where it is judged that a high likelihood exists for their presence.
- MRZ-3: Areas containing mineral deposits the significance of which cannot be evaluated from available data.
- MRZ-4: Areas where available information is inadequate for assignment to any other MRZ.

The project site is classified as MRZ-1 and MRZ-4 (Contra Costa County 2024; Stinson et. al 1982). The USGS' Mineral Resources Data System does not identify the project area as having history of mineral extraction (USGS 2024). Contra Costa County's *County-Designated Mineral Resource Areas* shows the County's deposits of diabase in Central County and domengine sandstone in East County. The project site has no County-Designated Mineral Resource Areas (Contra Costa County 2024).

3.12.2 Discussion

a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the State?

The project involves repair of the existing Dutch Slough levee, habitat enhancement within Dutch Slough, and vegetation management in the Sandmound Slough area. The project site is not located

within an area designated or zoned for mineral resource extraction, is not identified as a mineral resource area, and has no history of mineral extraction. Therefore, the project would not affect the availability of known mineral resources of regional or state importance, nor would it impede future access to potential subsurface resources that have not yet been identified. As a result, the project would have **no impact** on mineral resources.

b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?

The project site is not located within the vicinity of a locally important mineral resource recovery site. There would be **no impact**.

3.13 Noise

#13. NOISE

Would the project:	Have Potentially Significant Impact?	Have Less-than-Significant Impact with Mitigation Incorporated?	Have Less-than-Significant Impact?	Have No Impact?	Have Beneficial Impact?
#13 -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 in other applicable standards of other agencies?	no	no	**yes**	no	no
#13 -b. Generation of excessive groundborne vibration or groundborne noise levels?	no	no	**yes**	no	no
#13 -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 2 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?	no	no	no	**yes**	no

3.13.1 Environmental Setting

The project site is situated within a predominately rural area surrounded by tidal marshes, wetlands, levee systems, and agricultural lands, with some residential and commercial development bordering the levees. Natural vegetation along the slough margins and levee corridors offer natural noise barriers to the area. The nearest sensitive receptors are located along Wells Road, about 60 feet east of the Sandmound Slough vegetation management area of the project site. Acceptable construction hours within the city of Oakley are between 7:30 a.m. and 7:00 p.m., Monday through Friday, and 9:00 a.m. to 7:00 p.m. on weekends and holidays. The Byron Airport is the nearest airport to the project site. The outer limits of its noise safety zone is located approximately 7.3 miles southeast of the project site (Contra Costa 2024a).

3.13.2 Discussion

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 in other applicable standards of other agencies?

Construction noise impacts typically occur when construction activities take place during noise-sensitive times of the day (e.g., early morning, evening, or nighttime hours), when construction activities occur immediately adjacent to noise sensitive land uses, or when construction durations last over extended periods of time. Construction of the project would temporarily increase the ambient noise levels within the vicinity of the project site and along haul routes.

Construction activities would primarily occur only Monday through Friday between 7:30 am to 7:00 pm, unless extended hours are approved by the City of Oakley. The project would generate temporary construction noise from the use of heavy machinery during construction activities, and from the transport of construction workers and materials to the site. The project site is situated within the predominately rural setting surrounded by tidal marshes, wetlands, levee systems, and agricultural lands, with some residential and commercial development bordering portions of the levees. Natural vegetation along the slough margins and levee corridors provides natural noise attenuation. The nearest sensitive receptors are located along Wells Road, approximately 60 feet from the Sandmound Slough vegetation management area. Construction activities along Sandmound Slough would primarily consist of invasive ice plant removal and hydroseeding, which would involve a limited number of construction vehicles.

The list of construction equipment that may be used for project construction activities is shown in Table 2-1 in Section 2.5, "Project Implementation". Noise levels at 50 feet from the source of construction would be as high as 85 decibels (dB) for dozers (the loudest piece of equipment proposed for construction activities at Sandmound Slough) (FTA 2018). Sound pressure or dB-level depends not only on the power of the source but also on the distance from the source to the receiver and the acoustical characteristics of the sound propagation path (absorption, reflection, etc.). Outdoor sound levels decrease logarithmically as the distance from the source increases. This decrease is due to wave divergence, atmospheric absorption, and ground attenuation. Sound radiating from a source in a homogeneous and undisturbed manner travels in spherical waves. As the sound waves travel away from the source, the sound energy is dispersed over a greater area, decreasing the sound pressure of the wave. Spherical spreading of the sound wave from a point source reduces the noise level at a rate of 6 dB per doubling of distance in a soft medium such as air (FTA 2018).

Atmospheric absorption also influences the sound levels received by an observer. The greater the distance traveled, the greater the influence of the atmosphere and the resultant fluctuations. Atmospheric absorption becomes important at distances greater than 1,000 feet (FTA 2018).

Given the limited duration of construction activities and the daytime-limited construction schedule, temporary increases in ambient noise levels would be localized and intermittent. Construction noise levels would not conflict with or exceed noise limitations. Increases to the ambient noise levels would not exceed standards established in the general plan, noise ordinance, or other applicable standards of agencies; therefore, this impact would be **less than significant**.

b) Generation of excessive groundborne vibration or groundborne noise levels?

Activities associated with implementation of the project have the potential to generate low levels of groundborne vibration due to the operation of equipment (i.e., excavators, loaders). Groundborne vibrations propagate though the ground and rapidly diminish in intensity with increasing distance from the source. No high-impact activities, such as pile driving, drilling, or blasting, would be used during construction. However, some vibration may occur during construction equipment mobilization.

The Federal Transit Administration's (FTA) Transit Noise and Vibration Impact Assessment (FTA 2018) has identified the human annoyance response to vibration levels as 72 to 80 vibration decibels (VdB) and building damage with a threshold of 0.2 inches/second peak particle velocity (PPV) for non-engineered timber buildings and 0.5 inches/second PPV for reinforced-concrete, steel or timber buildings/structures. The nearest sensitive receptors to the project site that could be exposed to vibration levels generated from project activities include residential medium density uses located 60 feet from the Sandmound Slough vegetation management area. Construction activities in this area would be limited in scope and duration and would consist primarily of invasive ice plant removal and hydroseeding, which would not require the use of vibratory rollers or other high-vibration equipment near residences. Typical vibration levels generated by common construction equipment such as excavators and loaders are substantially lower than those generated by vibratory rollers. Therefore, vibration levels would not exceed the potential building damage thresholds of 0.2 or 0.5 inches/second PPV would not exceed the 72 to 80 VdB vibration significance criteria. Additionally, vibrations from construction mobilization would be temporary and there would be no new permanent vibration sources; therefore, the impact from the project in regard to groundborne vibration and noise levels would be **less than significant**.

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 2 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?

The project is located more than 2 miles from the nearest public airport or private airstrip. Therefore, the project would not expose people to excess noise levels due to the proximity to a public airport or private airstrip. **No impact** would occur.

3.14 Population and Housing

#14. POPULATION AND HOUSING

Would the project:	Have Potentially Significant Impact?	Have Less-than-Significant Impact with Mitigation Incorporated?	Have Less-than-Significant Impact?	Have No Impact?	Have Beneficial Impact?
#14 -a. Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	no	no	no	**yes**	no
#14 -b. Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	no	no	no	**yes**	no

3.14.1 Environmental Setting

The project site is located in the city of Oakley. The project site is rural in nature and comprised of tidal marshes, wetlands, levee systems, agricultural areas, and limited residential and commercial uses. The population of the City of Oakley was estimated in July 2024 to be 47,158 (U.S. Census Bureau 2025).

3.14.2 Discussion

a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?

The project does not include construction of new homes or businesses that would result in a direct increase in population or create a substantial number of jobs. While the project could result in temporary employment during construction activities, the on-site workforce for construction is negligible over the temporary construction period. The construction workers would come from the existing labor pool within Contra Costa County and the surrounding areas. As such, the project would not require construction of housing to accommodate workers, since they would likely commute to the sites over the temporary construction period. Once construction activities are complete, the project would not directly induce population growth.

The project would not remove an obstacle to growth, such as a constraint on a required public service, such as roads, water supply or wastewater treatment capacity. The primary objective of the project is to improve flood protection, which would not significantly affect population levels in Contra Costa County. Additionally, the current use of the project site would not be changed by the project. Therefore, the project would not directly or indirectly induce substantial population growth, and there would be **no impact**.

b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?

No residences would be condemned or displaced by the project. Therefore, the project would not displace people or housing necessitating the construction of replacement housing elsewhere. There would be **no impact**.

3.15 Public Services

#15. PUBLIC SERVICES. Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:

Would the project:	Have Potentially Significant Impact?	Have Less-than-Significant Impact with Mitigation Incorporated?	Have Less-than-Significant Impact?	Have No Impact?	Have Beneficial Impact?
Fire protection?	no	no	no	**yes**	no
Police protection?	no	no	no	**yes**	no
Schools?	no	no	no	**yes**	no
Parks?	no	no	no	**yes**	no
Other public facilities?	no	no	no	**yes**	no

3.15.1 Environmental Setting

Fire Services

As described previously, the project site is located within the Contra Costa Fire Protection District (Contra Costa County 2024).

Police Services

The Contra Costa County Sheriff's Office provides law enforcement services to the project site. Special districts may provide additional services as well (Contra Costa County 2024).

Schools

The nearest school facility to the project site is Iron House Elementary School, located approximately 0.56 miles south of the project site.

Parks

Parks in Contra Costa County are generally managed by individual cities or districts with jurisdiction (Contra Costa County 2024). There are no parks within the project site.

3.15.2 Discussion

a) Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, to maintain acceptable service ratios, response times, or other performance objectives for public services, including fire protection, police protection, schools, parks, or other public facilities.

Implementation of the project would not change existing demand for public services described above because the project would not result in a permanent increase in employees, or population to the project area. The project would not substantially increase the need for new public services staff or new facilities as compared to existing conditions. There would be **no impact**.

3.16 Recreation

#16. RECREATION

Would the project:	Have Potentially Significant Impact?	Have Less-than-Significant Impact with Mitigation Incorporated?	Have Less-than-Significant Impact?	Have No Impact?	Have Beneficial Impact?
#16 -a. Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	no	no	no	**yes**	no
#16 -b. Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?	no	no	no	no	**yes**

3.16.1 Environmental Setting

The project site is located approximately 3 miles east of the Big Break Regional Shoreline, a recreational area that contains picnic areas, fishing opportunities, a boat launch, and hiking trail. The project area does not contain recreational facilities but could be used for recreation within areas accessible to the public.

3.16.2 Discussion

a) Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?

The project would not directly or indirectly induce population growth (see Section 3.15, "Population and Housing,") and as such would not introduce new residents to the project area. As the project area does not contain recreational facilities or known for its recreational use, recreational visitors would not be deterred from the area or increase the use of other recreational facilities in the area during construction of the project. There would be **no impact**.

b) Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?

The project's physical impacts on the environment are analyzed throughout Section 3, "Environmental Checklist," of this IS/MND. The proposed project would have a beneficial effect on the environment by improving flood control/public safety and enhancing habitat which supports recreational activities within and around the project area. Implementation of the project would result in a **beneficial impact** in regard to the environment and the recreational uses it provides.

3.17 Transportation

#17. TRANSPORTATION

Would the project:	Have Potentially Significant Impact?	Have Less-than-Significant Impact with Mitigation Incorporated?	Have Less-than-Significant Impact?	Have No Impact?	Have Beneficial Impact?
#17 -a. Conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities?	no	no	**yes**	no	no
#17 -b. Conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b)?	no	no	**yes**	no	no
#17 -c. Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	no	no	**yes**	no	no
#17 -d. Result in inadequate emergency access?	no	no	**yes**	no	no

3.17.1 Environmental Setting

The project site is located in the city of Oakley. Regional access to the project site is provided via SR 4 and SR 160. Local access to the project area is provided from Cypress Road and Jersey Island Road. The project area does not contain any Routes of Regional Significance (Contra Costa County 2024). The project site itself does not provide any bus routes, bicycle facilities, or railroads (CCTA 2024a, 2024b, 2023).

3.17.2 Discussion

a) Conflict with a program plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities?

Direct impacts on the local circulation system would occur due to the temporary addition of project-related vehicles to local roadways over the construction period. Implementation of the project could temporarily increase the number of vehicles on local roadways due to the transport and delivery of construction equipment and daily worker commute trips. All equipment and materials would be transported to the project area on public highways and local dirt roads, using standard transport vehicles and trucks. The construction equipment would be offloaded at designated staging areas and then mobilized to each construction station. The construction staging area(s) would be established by the RD 799's contractor and would have a stabilized entrance and exist, designed to be consistent with Caltrans' standards. Construction activities may temporarily slow circulation in these areas, but it is not expected to substantially interfere with traffic or transit routes within the project area.

Most traffic impacts would occur from the daily arrival and departure of workers. All worker parking would be accommodated within the staging areas on-site. Stabilized construction entrances and exits would use rock or aggregate to remove mud and dirt from vehicles before

accessing paved roadways. The project would only generate minimal new traffic, and therefore, would not result in any long-term degradation in operating conditions on local roadways used for the project. Additionally, the project would not conflict with adopted policies, plans, or programs related to public transit or alternative modes of transportation because the project site does not contain these types of facilities. Impacts would be **less than significant**.

b) Conflict or be inconsistent with State CEQA Guidelines Section 15064.3, subdivision b)?

"Vehicle miles traveled" (VMT) refers to the amount and distance of automobile travel attributed to a project. A maximum of 10 workers would be required during various construction activities. These trips would be temporary over the construction period and would not result in any perceivable increase in VMT that would exceed the City's threshold of significance. General maintenance activities would remain similar to existing conditions, resulting in no significant increase in VMTs due to long-term O&M activities. Additionally, the County's Transportation Analysis Guidelines, which align with the City of Oakley transportation policies, indicate projects with public facilities such as low-intensity recreation and open space, would not require further VMT analysis (Contra Costa County 2020). As a result, the project would be consistent with CEQA Guidelines Section 15064.3 subdivision (b), and a **less-than-significant** impact would occur.

c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

The project does not include the construction or design of any roadway infrastructure that would cause a safety risk to vehicle operations. The project would not adversely alter the physical configuration of the existing roadway network serving the project vicinity and would not introduce unsafe design features associated with transport of large equipment. Additionally, the project would not introduce uses (types of vehicles) that are incompatible with existing uses already served by the area's road system. Therefore, project impacts would be **less than significant**.

d) Result in inadequate emergency access?

Refer to Impact 3.10(f) in Section 3.10, "Hazards and Hazardous Materials," above. The project would temporarily add vehicles to the local roadway and circulation system. However, no lane or road closures would be required. All project-related activities would occur onsite within the project site and would not interfere with emergency response access. O&M activities for the project would be substantially similar to existing conditions respective to emergency response and evacuation. This impact would be **less than significant**.

3.18 Tribal Cultural Resources

#18. TRIBAL CULTURAL RESOURCES. Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in PRC 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:

Would the project:	Have Potentially Significant Impact?	Have Less-than-Significant Impact with Mitigation Incorporated?	Have Less-than-Significant Impact?	Have No Impact?	Have Beneficial Impact?
#18 -a. Listed or eligible for listing in the California Register of Historical Resources (CRHR), or in a local register of historical resources as defined in PRC Section 5020.1(k), or	no	**yes**	no	no	no
#18 -b. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of PRC Section 5024.1. In applying the criteria set forth in subdivision (c) of PRC Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	no	**yes**	no	no	no

State CEQA Guidelines require consideration of Tribal Cultural Resources (TCRs), which are either: (1) sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American Tribe that is either on or eligible for inclusion in the CRHR or a local historic register; or, (2) resources the lead agency, at its discretion and supported by substantial evidence, chooses to treat as a TCR. Additionally, a cultural landscape may also qualify as a TCR if it meets the criteria to be eligible for inclusion in the CRHR and is geographically defined in terms of the size and scope of the landscape. Other historical resources, unique archaeological resources, and non-unique archaeological resources addressed in this section could also be TCRs if they conform to the criteria to be eligible for inclusion in the CRHR. The most pertinent background information for TCRs is presented here. For additional regulatory and environmental setting information, refer to Section 3.6, "Cultural Resources."

3.18.1 Regulatory Setting

Assembly Bill 52

Assembly Bill (AB) 52, effective on July 1, 2015, amended CEQA and added sections relating to Native American consultation and TCRs. California PRC Section 21084.2 provides that a project with an effect that may cause a substantial adverse change in the significance of a TCR may have

a significant effect on the environment. California PRC Section 21080.3.1 (b) requires the lead agency to begin consultation with California Native American Tribes that are traditionally and culturally affiliated with the geographic area of the project if the Tribe requests the lead agency, in writing, to be informed by the lead agency through formal notification of projects that are proposed in that geographic area, and the Tribe subsequently requests consultation. California PRC Section 21084.3 states that "public agencies will, when feasible, avoid damaging effects to any Tribal cultural resource."

AB 52 explicitly recognizes "that California Native American Tribes may have expertise with regard to their Tribal history and practices, which concern the Tribal cultural resources with which they are traditionally and culturally affiliated. Because the California Environmental Quality Act calls for a sufficient degree of analysis, Tribal knowledge about the land and Tribal cultural resources at issue should be included in environmental assessments for projects that may have a significant impact on those resources." AB 52 and California PRC Section 21080.3.1 and Section 21080.3.2 therefore include requirements for meaningful consultation with culturally and geographically affiliated Tribes to identify TCRs and to develop avoidance or mitigation, as appropriate.

3.18.2 Environmental Setting

Ethnographic Setting

The project area is located in the ethnographic territory of the Plains Miwok. The Plains Miwok are one of the Eastern Miwok groups which also include the Bay, Northern Sierra, Central Sierra, and Southern Miwok groups. The Plains Miwok is the sole representative of a language group which is itself part of the larger Sierra Miwok language group. Plains Miwok territory ethnographically extended from the lower Mokelumne River, the Cosumnes River, and the Sacramento River from Rio Vista to Sacramento. The Sierra Nevada foothills represented the eastern boundary for the Plains Miwok and the western boundary was between Fairfield and the Sacramento River (Bennyhoff 1977:165; Levy 1978).

The Plains Miwok were seasonal hunter-gatherers with semi-permanent settlements. Like many California Native American groups, the largest political unit was the tribelet. Each tribelet contained 300 to 500 individuals and included a main village and usually one or more satellite villages. Each tribelet controlled specific lands and resources. The main village usually contained a large, semi-subterranean structure that served as a dance or assembly house, as well as several structures such as dwellings, granaries, sweat-houses and winter grinding houses (Levy 1978); Kroeber 1976:447, 452).

Like many groups throughout California, acorns were the staple diet food. Other important foods in the diet included fish, shellfish, waterfowl, and various small and large game, including deer, elk pronghorn, and rabbits. Fish resources include lamprey, salmon, and sturgeon (Bennyhoff 1977:165; Levy 1978).

Utilitarian tools used by the Plains Miwok include the bow and arrow, traps, snares, nets, blinds, seines, hook and line, harpoons, and baskets. Also made were tule balsa boats for traveling along navigable rivers, as well as twined and coiled baskets. Other tools include bedrock mortars, pestles knives, leaching and boiling baskets, and earth ovens for cooking and baking (Levy 1978).

Methods

Native American Consultation and Coordination

AB 52 requires public agencies to consult with California Native American Tribes who are traditionally and culturally affiliated to the geographic area where a project (the project must be subject to CEQA) is located if the Tribe has previously requested that the lead state agency provide notification to the Tribe regarding projects in the Tribe's area. For the project, RD District 799 is the lead agency for CEQA compliance.

No California Native American Tribes have contacted RD 799 asking for AB 52 consultation on its projects; therefore, RD 799 had no one to contact or send letters.

GEI archaeologist Amy Wolpert, MA, requested the NAHC search their Sacred Lands File (SLF). The NAHC responded on July 9, 2025, and in their letter stated that the SLF search had returned a positive result. This positive result does not necessarily mean that a tribal cultural resource is within the project area but only that a recorded resource is located within the same section of the project.

3.18.3 Discussion

a, b) Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in PRC Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in PRC Section 5020.1(k)? A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of PRC Section 5024.1. In applying the criteria set forth in subdivision (c) of PRC Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.

The NAHC SLF search came back positive; however, that does not mean the positive result is located within the project area. Given the lack of any precontact resources identified in the records search (see Section 3.6, "Cultural Resources"), it is very likely that the positive result it not within the project area. However, it is possible that there is a TCR within the project area, and therefore, it is possible that the project may inadvertently affect a TCR. If this were to occur, then it would be a **potentially significant** impact. Mitigation Measures CR-1 and CR-2 have been developed to address this potential impact.

Mitigation Measure CR-1: Address Previously Undiscovered Historic Resources, Archaeological Resources, and Tribal Cultural Resources.

Please refer to Mitigation Measure CR-1, in Section 3.6, "Cultural Resources," above, for the full text of this mitigation measure.

Timing: During project construction activities

Responsibility: Reclamation District 799 and its contractor(s)

Mitigation Measure CR-2: Avoid Potential Effects to Previously Unknown Human Remains.

Please refer to Mitigation Measure CR-2, in Section 3.6, "Cultural Resources," above, for the full text of this mitigation measure.

Timing: During project construction activities

Responsibility: Reclamation District 799 and its contractor(s)

Implementing Mitigation Measures CR-1 and CR-2 would reduce this potential impact because it increases the likelihood that any potential TCRs that may be impacted by construction of project components would be identified, any finds would be assessed by an interested California Native American Tribes, and an archaeologist and the treatment or investigation would be conducted in accordance with CEQA guidelines regarding cultural resources and input from California Native American Tribes. Therefore, the impact from the project would be **less-than-significant with mitigation incorporated**.

3.19 Utilities and Service Systems

#19. UTILITIES AND SERVICE SYSTEMS

Would the project:	Have Potentially Significant Impact?	Have Less-than-Significant Impact with Mitigation Incorporated?	Have Less-than-Significant Impact?	Have No Impact?	Have Beneficial Impact?
#19 -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?	no	**yes**	no	no	no
#19 -b. Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years?	no	no	**yes**	no	no
#19 -c. Result in a determination by the wastewater treatment provider that 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?	no	no	no	**yes**	no
#19 -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?	no	no	**yes**	no	no
#19 -e. Comply with Federal, State, and local management and reduction statutes and regulations related to solid waste?	no	no	**yes**	no	no

3.19.1 Environmental Setting

Water

The primary source of water within Contra Costa County is surface water from the Sacramento-San Joaquin Delta and the Mokelumne River Watershed. There are 14 water service districts that provide water to residents and businesses within the unincorporated areas of the county (Contra Costa County 2024). Some rural areas of the county rely on groundwater extracted from private wells as the primary source of drinking water (Contra Costa County 2024). The Diablo Water District (Ward Number 5) provides water to the project area (Diablo Water District 2022).

Stormwater Drainage

Storm drains in the county are generally managed by Contra Costa County Flood Control & Water Conservation District (CCCFCWCD) (Contra Costa County 2024). RD 799 manages drainage facilities within the project area along the Dutch and Sandmound Slough levees.

Wastewater

Wastewater services in Contra Costa County are provided by 20 agencies: 7 cities and 13 sanitary districts (Contra Costa County 2024). The project site is not located in one of the sanitary districts. Generally, rural portions of the county rely on private septic systems (Contra Costa County 2024). There are no wastewater services provided within the project area.

Electrical and Natural Gas Service

PG&E provides electrical and natural gas services to the project area (Contra Costa County 2024).

Solid Waste

In Contra Costa County, franchises approved by the County are mainly responsible for solid waste collection and disposal. Mount Diablo Resource Recovery serves most of the eastern portion of the county, including the project site (Contra Costa County 2024). There are six transfer stations and two landfills in Contra Costa County (Contra Costa County 2024).

The Mount Diablo Resource Recovery – Oakley is closest to the project site, located approximately 3.6 miles northeast. The Mount Diablo Resource Recovery – Oakley is a 40-acre permitted, large volume transfer/processing facility (Mount Diablo Resource Recovery 2025).

Additionally, the Keller Canyon Landfill, managed by Republic Services, is located approximately 14.3 miles west of the project site, in the City of Pittsburg. The Keller Canyon Landfill is a permitted class II landfill with a maximum permit capacity of 75,018280 cubic yards (cy), remaining capacity of 63,408,410 cy, and cease operation date of December 31, 2050 (CalRecycle 2019b). The Keller Canyon Landfill is permitted to accept the following waste types: industrial, other designated, sludge biosolids, agricultural, construction/demolition, mixed municipal (CalRecycle 2019b).

3.19.2 Discussion

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?

Implementation of the project would not require significant amounts of new electric power or natural gas (see Section 3.6, “Energy,” above for more details) and would not require the use of any telecommunications facilities. Additionally, the project would not include wastewater facilities or require the construction or expansion of wastewater treatment facilities.

The project may require limited use of water during construction activities for dust suppression purposes. It is unlikely significant amounts of water would need to be trucked into the site for dust suppression or other construction activities. After construction, water for irrigation would be required for new plantings within the vegetation management area along the Sandmound Slough. Irrigation water is anticipated to be supplied from the Dutch and Sandmound Sloughs, and would not require new or expanded water facilities. No water facilities would be installed as part of the

project. Refer to Section 3.11, "Hydrology and Water Quality," for a discussion and analysis of potential environmental effects associated with erosion and siltation, or degradation of water.

Although steps would be taken to minimize potential impacts to utilities, project construction activities, including grading and excavation, could inadvertently damage unidentified utility equipment and facilities or result in interruptions in service. Therefore, this temporary impact would be considered **potentially significant**. **Mitigation Measure UTL-1** has been identified to address this impact.

Mitigation Measure UTL-1: Verify Utility Locations, Coordinate with Affected Utility Providers, Prepare and Implement a Response Plan, and Conduct Worker Training with Respect to Accidental Utility Damage.

Reclamation District 799 will implement the following measures before construction begins to avoid and minimize potential damage to utilities, infrastructure, and service disruptions during construction.

- Coordinate with applicable utility and service providers to implement orderly relocation of utilities that need to be removed or relocated.
- Provide notification of any potential interruptions in service to the appropriate agencies and affected landowners.
- Verify through field surveys and Underground Service Alert service the locations of buried utilities in the project site, including natural gas, petroleum, and sewer pipelines. Any buried utility lines will be clearly marked in the area of construction (e.g., in the field) and on the construction specifications in advance of any earth-moving activities.
- Prepare and implement a response plan that addresses potential accidental damage to a utility line. The plan will identify chain-of-command rules for notification of authorities and appropriate actions and responsibilities regarding the safety of the public and workers. A component of the response plan will include worker education training in response to such situations.
- Stage utility relocations prior to and during construction to minimize interruptions in service.

Timing: Before and during construction activities

Responsibility: Reclamation District 799 and its contractor(s)

Implementing **Mitigation Measure UTL-1** would reduce potential impacts associated with disruption of utilities because RD 799 and/or its contractor(s) would coordinate with affected utility service providers and consumers to minimize utility interruptions and inadvertent damage to unknown buried utilities to the maximum extent feasible, prepare a response plan to address service interruptions, and relocate and install disturbed utilities comparable to existing conditions. This impact would be **less-than-significant with mitigation incorporated**.

b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years?

Water use for the project would primarily involve water for dust suppression during construction and irrigation of new plantings associated with vegetation management along Sandmound Slough. This water demand would be met using water sourced directly from the Dutch and Sandmound sloughs, ensuring no reliance on municipal or regional water supplies. Furthermore, the project does not include any elements requiring a permanent water supply. Given the self-contained water source and the temporary, limited nature of water use, the project would not impact the availability of water supplies during normal, dry, or multiple dry years. Therefore, this impact would be **less than significant**.

c) Result in a determination by the wastewater treatment provider that serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?

The project would result in the generation of wastewater associated with temporary use of portable toilets. During project implementation, RD 799 or its contractor(s) may have portable toilet facilities available onsite temporarily for use by construction workers. Given the small construction workforce of a maximum of 10 workers onsite daily for the construction period, this amount of waste would be minimal. Since the project does not require any connection to, or service from an existing wastewater treatment provider, there would be no demand placed on local wastewater treatment infrastructure. Once construction is concluded, portable facilities would be removed, and the wastewater would be properly handled and disposed in accordance with all applicable laws and regulations. There would be **no impact**.

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?

Implementation of the project would result in the generation of solid waste in the form of trash and construction-related materials. General construction waste, including packaging, equipment maintenance by-products, and temporary field office materials, would be collected and disposed of at a local facility with adequate capacity. Both the Mount Diablo Resource Recovery – Oakley and Keller Canyon Landfill have sufficient capacity to accommodate the limited solid waste would be generated by the project. Contractors would adhere to waste management practices consistent with state and local regulations, including recycling where feasible.

The project does not include activities that would produce a substantial amount of solid waste during operations. Regular maintenance activities are expected to generate minimal waste. These maintenance tasks primarily involve organic material, which may be composted or otherwise managed in accordance with local solid waste guidelines. The project incorporates measures to minimize waste generation, such as implementing BMPs for construction waste, and following integrated vegetation management practices to reduce green waste during vegetation management activities. The project is not expected to generate solid waste in excess of state or local standards

or the capacity of local infrastructure. Furthermore, the project's design and management practices are consistent with waste reduction goals. Therefore, impacts related to solid waste generation would be **less than significant**.

e) Comply with Federal, State, and local management and reduction statutes and regulations related to solid waste?

As stated above in Impact 3.19(d) above, implementation of the project would result in nominal solid waste. Statewide policies regarding solid waste have become progressively more stringent, reflecting Assembly Bill 939, which requires local government to develop waste reduction and recycling policies and meet mandated solid waste reduction targets (CalRecycle 2024). For the minor amount of solid waste anticipated to be produced by the project, RD 799 would be required to comply with all laws and regulations related to the disposal and recycling of waste. There would be **no impact**.

3.20 Wildfire

#20. WILDFIRE. If located in or near State Responsibility Areas or lands classified as very high fire hazard severity zones:

Would the project:	Have Potentially Significant Impact?	Have Less-than-Significant Impact with Mitigation Incorporated?	Have Less-than-Significant Impact?	Have No Impact?	Have Beneficial Impact?
#20 -a. Substantially impair an adopted emergency response plan or emergency evacuation plan?	no	no	**yes**	no	no
#20 -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?	no	no	**yes**	no	no
#20 -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?	no	no	**yes**	no	no
#20 -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?	no	no	**yes**	no	no

3.20.1 Environmental Setting

The project area is located within an un-zoned LRA and is not identified within or adjacent to a moderate, high, or very high fire hazard severity zone (CALFIRE 2025).

3.20.2 Discussion

a) Substantially impair an adopted emergency response plan or emergency evacuation plan?

As described in Impact 3.9(f) in Section 2.9, "Hazards and Hazardous Materials," implementation of the project is not anticipated to substantially impair an adopted emergency response plan or evacuation plan because RD 799 would comply with all measures and actions regarding emergency response and evacuation consistent with the general plan policies and actions, relevant state and local regulations, and the 2024 Hazard Mitigation Plan. Further, the project would not affect emergency response or evacuation activities as emergency access would be established at all times. Implementation of the project would not require any road closures, and therefore, the project would not interfere with traffic routes or response vehicle transport.

O&M activities for the project would be substantially similar to current conditions, respective to emergency response and evacuation in the event of a wildfire. No operation-related activities

would occur within surrounding rights-of-ways that could impair or physically interfere with an adopted emergency response plan or emergency evacuation plan. As a result, a **less-than-significant** impact would occur.

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?

The project area is not located within a very high fire hazard severity zone. Due to the predominant presence of tidal marshes, wetlands, and agricultural uses of the project area, there is a lack of dry, vegetative fuels that could easily catch fire. Additionally, the project area is composed of generally flat lands and does not contain significant slopes, which contribute to more severe wildfire conditions. Due to these project area characteristics, it is very unlikely that wildfire would occur within the project area.

Additionally, O&M of the project does not include uses or activities that would typically exacerbate wildfire conditions with an area. Further, operation of the proposed project would not require permanent workers or occupants within the project area, who could be exposed to pollutant concentrations from wildfire. As a result, a **less-than-significant** impact would occur.

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?

All construction must comply with fire protection and prevention requirements specified by the CCR and Cal/OSHA. This includes various measures such as easy accessibility of firefighting equipment, proper storage of combustible liquids, no smoking in service and refueling areas, and worker training for firefighter extinguisher use. Additionally, relocated utilities that would be installed as part of the project would adhere to CCR Title 24 and would include fire protection based on the requirements of the Contra Costa Fire District, the applicable National Fire Prevention Association standards, and recommendations of the equipment manufacturer. With adherence to applicable laws and regulations, impacts from the project would be **less than significant**.

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?

Refer to Impacts 3.8(a.iv) and (c) in Section 3.8, "Geology and Soils," and Impacts 3.11(c.i) and (c.ii) in Section 3.11, "Hydrology and Water Quality." The limit of work contains sparse structures. Site alteration through movement of substantial quantities of soil and earth materials could cause landslides as a result of runoff or drainage changes during construction. However, this is unlikely given the flat topography of the project area. If a wildland fire is followed by a rain event, it could result in downstream flooding or landslides as a result of post-fire runoff.

However, during construction BMPs identified in the project's SWPPP would be implemented to reduce erosion or sedimentation during activities, thereby reducing potential risks to construction workers on-site.

After construction, the project area would either be returned to preexisting conditions or enhanced, ecologically. Therefore, soils within the project site should be stabilized in a way that if a fire were to occur, the risk of downstream flooding or landslides, as well as runoff would be reduced to a **less-than-significant** level.

3.21 Mandatory Findings of Significance

#21. MANDATORY FINDINGS OF SIGNIFICANCE.

Would the project:	Have Potentially Significant Impact?	Have Less-than-Significant Impact with Mitigation Incorporated?	Have Less-than-Significant Impact?	Have No Impact?	Have Beneficial Impact?
#21 -a. 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 an endangered, rare, or threatened species, or eliminate important examples of the major periods of California history or prehistory?	no	**yes**	no	no	no
#21 -b. 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)?	no	**yes**	no	no	no
#21 -c. Have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	no	no	**yes**	no	no

3.21.1 Discussion

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, reduce the number or restrict the range of an endangered, rare, or threatened species, or eliminate important examples of the major periods of California history or prehistory?

As discussed in Section 3.4, "Biological Resources," project activities could impact sensitive biological resources, or more specifically, Crotch's bumblebee, valley elderberry longhorn beetle, northwestern pond turtle, giant garter snake, and special-status fish, birds, and bats, as well as sensitive natural communities, aquatic resources, and tree resources. Implementation of Mitigation Measures BIO-1 through BIO-11 would reduce impacts on these species and resources during construction activities. Therefore, project impacts as they are related to biological resources would be **less-than-significant with mitigation incorporated**.

Furthermore, as discussed in Section 3.5, "Cultural Resources," and Section 3.8, "Tribal Cultural Resources," construction of the project could potentially encounter unknown historic, archaeological resources, human remains, or TCRs. Implementation of Mitigation Measures CR-

1 through CR-2 would reduce potential impacts related to the discovery of unknown historic, archaeological resources, human remains, or TCRs. Therefore, project impacts as they are related to cultural resources would be **less-than-significant with mitigation incorporated**.

Once constructed, operation of the project would have no long-term permanent impacts to biological or cultural resources. The project would benefit biological resources, overall.

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.)

A cumulative impact could occur if the project would result in an incrementally considerable contribution to a significant cumulative impact in consideration of past, present, and reasonably foreseeable future projects for each resource area. No direct significant impacts were identified for the project that could not be mitigated to a less-than-significant level. However, when combined with other projects within the vicinity, the project may result in contribution to a potentially significant cumulative impact.

The project would result in no impacts on land use and planning, mineral resources, population and housing, public services, and recreation. Additionally, impacts would be less than significant for aesthetics, agricultural and forestry resources, air quality, energy, GHG emissions, geology and soils, hazards and hazardous materials, hydrology and water quality, noise, transportation, and wildfire.

Potential impacts to biological resources, cultural resources, tribal cultural resources, and utilities and service systems would only occur during construction of the project. These potential construction impacts would be short term and occur over the approximate 1-year construction period. The construction impacts for the project are limited in nature and scope to the limit of work identified within the project area (Figure 2-1). The project work itself would occur within the construction work area footprint and would be contained such that off-site impacts do not occur. As a result, the impacts of the project would not combine with other related projects in the vicinity to produce a significant environmental impact. Furthermore, O&M of the Dutch Slough levee and vegetation management along Sandmound Slough would not result in any potential impacts to resources. Therefore, operation of the project would not contribute to long-term cumulative impacts and their contribution to impacts would be less than cumulatively considerable.

Implementation of mitigation measures listed within Section 3.4, "Biological Resources," Section 3.5, "Cultural Resources," Section 3.18, "Tribal Cultural Resources," and Section 3.19, "Utilities and Service Systems," would aim to reduce project impacts to neighboring sensitive receptors and to sensitive natural resources. Impacts related to biological resources, cultural resources, TCRs, and utilities and service systems would be less than cumulatively considerable with the implementation of mitigation measures. Therefore, the project would not result in any impacts that

would be cumulatively considerable resulting from the project. Cumulative impacts would be considered **less-than-significant with mitigation incorporated**.

c) Does the project have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?

The project would not result in substantial adverse effects, either direct or indirect, on human beings after mitigation is incorporated. As described in Section 3.3, "Air Quality," and Section 3.8, "Greenhouse Gas Emissions," air emissions associated with the project would not result in adverse health effects to sensitive receptors. Additionally, although not required by CEQA, RD 799 would reduce construction-related emissions by implementing BMPs to control fugitive dust emissions during construction. Furthermore, as described in Section 3.13, "Noise," construction noise would not result in adverse effects to sensitive receptors. Impacts to human beings would be **less than significant**.

4.0 References

Chapter 2.0, Project Description

Reclamation District 799 (District). 2021. Reclamation District 799, Hotchkiss Tract. Available online: Click here to view RD 799's webpage. Accessed August 2025.

Contra Costa County, 2024. Contra Costa County Updated 2045 General Plan. Click here to view the General Plan. Accessed July 1, 2025.

Chapter 3.1, Aesthetics

Caltrans, 2019. Caltrans Scenic Highway Map. Available at: Click here for Caltrans Scenic Highway Map. Accessed July 1, 2025

Contra Costa County, 2024. Contra Costa County Updated 2045 General Plan. Click here to view the General Plan. Accessed July 1, 2025.

Chapter 3.2, Agriculture and Forestry

California Department of Conservation (DOC), Division of Land Resource Protection. 2004. A Guide to the Farmland Mapping and Monitoring Program, 2004 Edition. Available: Click here for FMMP Guide. Accessed July 2, 2025.

_____. 2022. California Important Farmland Finder. Available: Click here for Important Farmland Finder. Accessed July 2, 2025.

_____. 2023. Williamson Act Contracts. Available: Click here for Williamson Act Contracts. Accessed July 2, 2025.

City of Oakley. 2015. Zoning Map City of Oakley. Available: Click here for City of Oakley Zoning Map. Accessed June 27, 2025.

Contra Costa County, 2024. Contra Costa County Updated 2045 General Plan, Conservation Element. Available at: Click here for County Conservation Element. Accessed July 1, 2025.

Chapter 3.3, Air Quality

Bay Area Air Quality Management District (BAAQMD). 2022. 2022 CEQA Guidelines. Available: Click here for BAAQMD Guidelines. Accessed September 26, 2025.

_____. 2017. 2017 Bay Area Clean Air Plan. Available: Click here for Bay Area Clean Air Plan. Accessed September 26, 2025.

Zhu, Y, et al. 2002. Study of ultrafine particles near a major highway with heavy-duty diesel traffic. Available: Click here for Air Quality Study. Accessed September 29, 2025.

Chapter 3.4, Biological Resources

CDFW (California Department of Fish and Wildlife). 2025. Results of electronic database search for sensitive species occurrences. Version 6. Biogeographic Data Branch. Accessed on May 28, 2025. Available at Click here for Sensitive Species Database

California Native Plant Society (CNPS). 2025. Inventory of Rare and Endangered Plants. Online edition, v9.5. Sacramento, CA. Available at Click here for Plants Inventory. Accessed May 28, 2025.

eBird. 2025. eBird: An online database of bird distribution and abundance [web application]. Available at: Click here for eBird Application.

Google Earth. 2025. Imagery date range 1994–2025.

iNaturalist. 2025. Website. Looking at observations of all listed special status species. Accessed on August 8, 2025. Available at: Click here for iNaturalist Observations.

Jones & Stokes, 2006. East Contra Costa County Habitat Conservation Plan and Natural Community Conservation Plan, Vols 1 & 2. October 2006.

NMFS (National Marine Fisheries Service). 2021. Southern Distinct Population Segment of North American Green Sturgeon (Acipenser medirostris) 5-Year Review: Summary and Evaluation. U. S. Department of Commerce, pp. 63.

_____. 2025. National ESA Critical Habitat Mapper. Online Application. Available at: Click here for Critical Habitat Mapper.

National Oceanic and Atmospheric Administration (NOAA). 2025. Essential Fish Habitat Mapper. Online Application. Available at: Click here for Fish Habitat Mapper. Accessed May 2025.

Sawyer, John O., T. Keeler-Wolf, and J. M. Evens. 2009. A Manual of California Vegetation – Second Edition. California Native Plant Society Press. Sacramento, CA.

Thomson, Robert C., Wright, Amber N., and Shaffer H. Bradley. 2016. California Amphibian and Reptile Species of Special Concern. University of California Press Berkeley, C.

USFWS (U.S. Fish and Wildlife Service). 2017a. Framework for Assessing Impacts to the Valley Elderberry Longhorn Beetle (Desmocerus californicus dimorphus). Sacramento Fish and Wildlife Office, Sacramento, CA.

_____. 2017d. Recovery Plan for the Giant Garter Snake (Thamnophis gigas). U.S. Fish and Wildlife Service, Pacific Southwest Region, Sacramento, CA. vii + 71 pp.

_____. 2020b. (December). Monarch (Danaus plexippus) Species Status Assessment Report, version 2.1 September 2020. Assessed on Click here for Monarch Report.

_____. 2025a.National Wetland Inventory – Wetlands Mapper Web Portal. Available at: Click here for Wetlands Mapper.

_____. 2025b. List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project. Generated at Click here for species listing on May 28, 2025.

_____. 2025c. Critical Habitat for Threatened and Endangered Species Web Portal. Available at: Click here for Critical Habitat Portal.

Xerces (Xerces Society, The). 2025a. Data accessed from the Bumble Bee Mapper, a project by the Xerces Society, Wildlife Preservation Canada, and the Faculty of Environmental and Urban Change, York University. Available at: Click here for Bumble Bee Mapper.

_____. 2025b. Data accessed from the Western Monarch Milkweed Mapper, a project by the Xerces Society, U.S. Fish and Wildlife Service, Idaho Department of Fish and Game, and Washington Department of Fish and Wildlife. Available at: Click here for Milkweed Mapper.

USFWS. 2020a. Lange's metalmark butterfly (Apodemina mormo langei): 5-Year Review. Sacramento, CA.

H.T. Harvey & Associates. 2024. FERC Order Compliance Project – Crotch's Bumble Bee Avoidance Plan. Prepared for Santa Clara Valley Water District.

Xerces Society, The. 2014. Invertebrate Conservation Fact Sheet: Bumble Bees in Decline.

National Marine Fisheries Service (NMFS). 2015. Southern Distinct Population Segment of the North American Green Sturgeon (Acipenser medirostris) 5-Year Review: Summary and Evaluation. NMFS; Long Beach, CA.

USFWS. 2010. Endangered and Threatened Wildlife and Plants; 12-Month Finding on a Petition to Reclassify the Delta Smelt from Threatened to Endangered throughout its Range. USFWS; Sacramento CA.

_____.2017b. Recovery Plan for the Central California Distinct Population Segment of the California Tiger Salamander (Ambystoma californiense). Region 8, Sacramento, CA.

Nafis, Gary. 2025. California Herps: A Guide to Reptiles and Amphibians of California. Available online: Click here for Reptiles and Amphibians Guide.

Report Regarding Mitigation for Impacts to Swainson's Hawks in the Central Valley of California. Accessed February, 2022. Click here for Swainson's Hawks Mitigation.

Swainson's Hawk Technical Advisory Committee (SHTAC). 2000. Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley. Accessed in October, 2024 via: Click here for Nesting Methodology.

Shuford, W.D., and Gardali, T., editors. 2008. California Bird Species of Special Concern: A ranked assessment of species, subspecies, and distinct populations of birds of immediate conservation concern in California. Studies of Western Birds 1. Western Field Ornithologists, Camarillo, California, and California Department of Fish and Wildlife, Sacramento, CA.

California Burrowing Owl Consortium. 1993. Burrowing Owl Survey Protocol and Mitigation Guidelines.

Alley, D., Harris, J., Duke, R. 1990. "Western Red Bat," California Wildlife Habitat Relationships System Life History Accounts and Range Maps. Click here for Western Red Bat.

California Wildlife Habitat Relations (CWHR) Program Staff.

_____.2006. "Swainson's Hawk," California Wildlife Habitat Relationships System Life History Accounts and Range Maps.

_____.1999. "Black Rail," California Wildlife Habitat Relationships System Life History Accounts and Range Maps. Click here for Black Rail.

_____.2005. "White-tailed Kite," California Wildlife Habitat Relationships System Life History Accounts and Range Maps. Click here for White-tailed Kite.

Chapter 3.5, Cultural Resources

Bennyhoff, James A., and David A. Fredrickson. 1994. “A Proposed Integrative Taxonomic System for Central California Archaeology.” In Toward a New Taxonomic Framework for CentralCalifornia Archaeology, edited by Richard E. Hughes, 15–24. Berkeley: University ofCalifornia Archaeological Research Facility Contributions No. 51.

Davis, N.D., and M. Nayyar. 2017. Cultural Resources Study for the Horseshoe Bend Levee Improvement Project, Contra Costa County, California. Document prepared for GEI Consultants, Inc.

Fredrickson, David A. 1974. “Cultural Diversity in Early Central California: A View from the North Coast Ranges.” Journal of California Anthropology 1 (1): 41–53.

Moratto, Michael J. 1984. California Archaeology. Orlando, FL: Academic Press.

Rosenthal, Jeffrey, Gregory G. White, and Mark Q. Sutton. 2007. “The Central Valley: A View from the Catbird’s Seat.” In *California Prehistory: Colonization, Culture, and Complexity*, edited by Terry L. Jones and Kathryn A. Klar. Plymouth, United Kingdom: AltaMira Press.

Chapter 3.6, Energy

California Energy Commission (CEC), 2022. Electricity Consumption by County. Available at: Click here for electricity consumption. Accessed July 9, 2025.

Chapter 3.7, Geology and Soils

California Geological Survey (CGS), 2015. Fault Activity Map of California. Available at: Click here for Fault Activity Map. Accessed July 2, 2025.

_____. 2022. California Geomorphic Provinces. Available at: Click here for CA Geomorphic Provinces. Accessed November 25, 2024.

_____. 2025. Earthquake Zones of Required Investigation. Available at: Click here for Earthquake Zones. Accessed July 2, 2025.

_____. 2025. Reported California Landslides Database. Available online: Click here for Reported Landslides. Accessed January 2026.

Contra Costa County, 2024. 2045 General Plan and Climate Action Environmental Impact Report. Available at: Click here for GP and CAP. Accessed November 25, 2024.

Natural Resource Conservation Service (NRCS). 2023. Understanding Soils Risks and Hazards. Available: Click here for soil risks. Accessed January 2026.

_____. 2021. Web Soil Survey. Available at: Click here for Web Soil Survey. Accessed November 25, 2024.

Society of Vertebrate Paleontology (SVP). 2010. Standard Procedures for the Assessment and Mitigation of Adverse Impacts to Paleontological Resources. 2010.

United States Geological Survey (USGS). 2024. Areas of Subsidence in California. Available at: Click here for Subsidence Areas. Accessed November 25, 2024.

Chapter 3.8, Greenhouse Gas Emissions

Bay Area Air Quality Management District (BAAQMD). 2022. *2022 CEQA Guidelines*. Available: Click here for BAAQMD CEQA Guidelines. Accessed: September 26, 2025.

_____. 2017. 2017 Bay Area Clean Air Plan. Available: Click here for Bay Area Clean Air Plan. Accessed September 26, 2025.

Contra Costa County, 2024. Climate Action and Adaptation Plan 2024 Update. Available at: Click here for County Climate Action Plan Update. Accessed: September 30, 2025.

_____. 2015. Climate Action Plan. Available: Click here for County Climate Action Plan. Accessed: September 30, 2025.

Chapter 3.9, Hazards and Hazardous Materials

CalEPA. 2020. Sites Identified with Waste Constituents Above Hazardous Waste Levels Outside the Waste Management Unit. Available at: Click here for CalEPA Hazardous Sites. Accessed November 2025.

California Department of Forestry and Fire Protection (CALFIRE). 2025. Local Responsibility Area Fire Hazard Severity Zones.
Available at: Click here for Fire Hazard Severity Zones.

_____. 2026. Wildland Hazards and Building Codes.
Available online: Click here for Wildland Fires. Accessed January 2026.

California Department of Toxic Substances Control (DTSC). 2025a. Envirostor Hazardous Waste and Substances Site List (Cortese). Available at: Click here for Cortese List. Accessed November 2025.

_____. 2025b. Cortese List: Section 65962.5(a).
Available at: Click here for Cortese ListAccessed November 2025.

Contra Costa County. 2024a. Contra Costa County Updated 2045 General Plan, "Public Facilities and Service Element".
Available at: Click here for County Public Facilities and Service Element. Accessed November 2025.

_____. 2024b. 2024 Hazard Mitigation Plan. Available at: Click here for Hazard Mitigation Plan. Accessed November 2025.

_____. 2024c. Conta Costa County General Plan, Chapter 9 "Health and Safety Element."
Available at: Click here for County Health and Safety Element. Accessed November 2025.

SWRCB. 2025a. GeoTracker Database. Available at: Click here for Geotracker Database. Accessed November 2025.

_____. 2025b. CDO-CAO List. Available at: Click here for CDO-CAO List. Accessed November 2025.

Chapter 3.10, Hydrology and Water Quality

California Department of Water Resources (DWR). 2018. SGMA Data Viewer: Bulletin 118 Groundwater Basins. Available at: Click here for SGMA Data Viewer. Accessed July 2, 2025.

_____. 2022. SGMA Data Viewer: Critically Overdrafted Basins and Groundwater Basins Prioritization. Available at: Click here for SGMA Data Viewer. Accessed July 2, 2025.

_____. 2025. SGMA Data Viewer: DWR Groundwater Measurements. Available at: Click here for SGMA Data Viewer. Accessed July 2, 2025.

California Geologic Survey (CGS). 2026. Tsunami Hazard Area Map. Available at: Click here for Tsunami Hazard Area Map. Accessed January 2026.

California Regional Water Quality Control Board (RWQCB). 2025. 303(d) List. Available at: Click here for 303(d) List. Accessed July 2, 2025.

City of Oakley. 2015. General Plan, Focused General Plan Update. Available at: Click here for Oakley GP Update. Accessed July 10, 2025.

Contra Costa County Community Development Department (CCCDD). 2003. Contra Costa County Watershed Atlas. Prepared in cooperation with the Contra Costa County Public Works Department under the direction of the Contra Costa County Board of Supervisors. Contra Costa County, California.

Contra Costa County. 2024. Contra Costa County 2045 General Plan – Conservation, Open Space, and Working Lands Element. Available at: Click here for County Conservation Element. Accessed July 2, 2025.

_____. 2025. Flood Control Zones. Available at: Click here for Flood Control Zones. Accessed July 2, 2025.

RWQCB. See California Regional Water Quality Control Board.

DWR. See California Department of Water Resources.

East County Water Management Association (ECWMA). 2019. East Contra Costa County Integrated Water Management Plan. Available at: Click here for Integrated Water Management Plan. Accessed July 2, 2025.

Chapter 3.11, Land Use and Planning

City of Oakley, 2015. Zoning Map City of Oakley. Available at: Click here for Oakley Zoning Map. Accessed June 27, 2025.

Chapter 3.12, Mineral Resources

Contra Costa County, 2024. 2045 General Plan and Climate Action Plan Draft Environmental Impact Report. Available at: Click here for GP and CAP EIR. Accessed June 27, 2025.

Stinson, et al., 1982. Mineral Land Classification Map Aggregate Resources Only Contra Costa County: Jersey Island Quadrangle.

United States Geological Survey (USGS). 2024. Mineral Resources Online Map. Available at: Click here for Mineral Resource Map. Accessed June 27, 2024.

Chapter 3.13, Noise

Federal Transit Administration (FTA), 2018. Transit Noise and Vibration Impact Assessment Manual. Available at: Click here for Transit Noise and Vibration Manual. Accessed December 23, 2025.

Chapter 3.14, Population and Housing

United States Census Bureau, 2025. Oakley City, California, Quick Facts. Available at: Click here for Oakley Quick Facts. Accessed January 2026.

Chapter 3.15, Public Services

Contra Costa County, 2024. Contra Costa County Updated 2045 General Plan, Public Facilities and Service Element. Available at: Click here for County Public Facilities and Service Element. Accessed June 26, 2025.

Chapter 3.16, Recreation

No Citations.

Chapter 3.17, Transportation

Contra Costa County. 2024. 2045 General Plan, Chapter 5: Transportation Element. Available at: Click here for County Transportation Element. Accessed June 27, 2025.

_____. 2020. Contra Costa County Transportation Analysis Guidelines. Available at: Click here for County Transportation Guidelines. Accessed June 27, 2025.

Contra Costa Transit Authority (CCTA). 2024a. Contra Costa Transit Map. Available at: Click here for County Transit Map. Accessed June 27, 2025.

_____. 2024b. Bike Mapper. Available at: Click here for County Bike Mapper. Accessed June 27, 2025.

_____. 2023. East County Action Plan, Figure 6-1. Available at: Click here for East County Action Plan. Accessed June 27, 2025.

Chapter 3.18, Tribal Cultural Resources

Bennyhoff, James A. 1977. *Ethnogeography of the Plains Miwok*. Publication 5. Center for Archaeological Research at Davis, University of California.

Kroeber. 1976. *Handbook of the Indians of California*. New York: Dover Publications.

Levy, Richard. 1978. “Eastern Miwok.” In *California*, edited by Robert F. Heizer, 398–413. *Handbook of the North American Indians*, vol. 8, William C. Sturtevant, general editor. Washington, DC: Smithsonian Institution.

Chapter 3.19, Utilities

CalRecycle. 2024. Enforcement. Available at: Click here for CalRecycle Enforcement. Accessed June 26, 2025.

_____. 2019a. SWIS Facility/Site Activity Details Brentwood Transfer Station (07-AA-0068). Available at: Click here for Brentwood Transfer Center. Accessed June 26, 2025.

_____. 2019b. SWIS Facility/Site Activity Details Keller Canyon Landfill (07-AA-0032). Available at: Click here for Keller Canyon Landfill. Accessed June 26, 2025.

Contra Costa County. 2024. 2045 General Plan and Climate Action Plant Environmental Impact Report. Available at: Click here for County GP and CAP EIR. Accessed June 26, 2025.

Chapter 3.20, Wildfire

California Department of Forestry and Fire Protection (CALFIRE). 2025. Local Responsibility Area Fire Hazard Severity Zones.
Available at: Click here for Fire Hazard Severity Zones.

Contra Costa County. 2024. Contra Costa County Updated 2045 General Plan, Public Facilities and Service Element.
Available at: Click here for County Public Facilities and Service Element. Accessed November 26, 2024.

5.0 Report Preparers

GEI Consultants, Inc.

Mike Mirmazaheri ..... Project Director/Project Manager

Drew Sutton ..... Senior Environmental In-house Reviewer

Katelyn Matroni ..... Environmental Project Manager

Chrissy Burns ..... Environmental Planner

Amanda Ibara ..... Environmental Planner

Becky Dorff ..... Environmental Planner

Julie De Barros ..... Biologist

Kelly Fitzgerald-Holland ..... Biologist

Ally Bosworth ..... Biologist

Nicholas Tomera ..... Senior Regulatory Specialist

Jesse Martinez, RPA ..... Senior Archaeologist

Amy Wolpert ..... Archeologist

Madeline Bowen ..... Senior Architectural Historian

Ryan Snyder ..... Geographic Information Specialist

Appendix A Air Quality Modeling Output

RD799 - Hotchkiss Tract Detailed Report

Table of Contents

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	RD799 - Hotchkiss Tract
Construction Start Date	7/1/2026
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	3.6
Precipitation (days)	21
Location	38.01227882434861, -121.66084836829035
County	Contra Costa
City	Unincorporated
Air District	Bay Area AQMD
Air Basin	San Francisco Bay Area
TAZ	1362
EDFZ	1
Electric Utility	Pacific Gas & Electric Company
Gas Utility	Pacific Gas & Electric
App Version	2022.1.1.35

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
User Defined Linear	1.00	Mile	40	0.00	0.00	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

Sector	#	Measure Title
Construction	C-2*	Limit Heavy-Duty Diesel Vehicle Idling
Construction	C-10-A	Water Exposed Surfaces

* Qualitative or supporting measure. Emission reductions not included in the mitigated emissions results.

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	6.4	5.3	46	51	0.11	1.9	49	49	1.7	11	13	—	12,561	12,561	0.57	0.40	4.9	12,700
Mit.	6.4	5.3	46	51	0.11	1.9	43	44	1.7	6.1	7.8	—	12,561	12,561	0.57	0.40	4.9	12,700
% Reduced	—	—	—	—	—	—	11%	11%	—	46%	40%	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	6.4	5.3	46	51	0.11	1.9	43	45	1.7	11	13	—	12,533	12,533	0.57	0.40	0.13	12,667
Mit.	6.4	5.3	46	51	0.11	1.9	33	35	1.7	6.1	7.8	—	12,533	12,533	0.57	0.40	0.13	12,667
% Reduced	—	—	—	—	—	—	23%	22%	—	46%	40%	—	—	—	—	—	—	—
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.2	1.00	8.7	9.7	0.02	0.36	9.2	9.6	0.33	2.3	2.6	—	2,391	2,391	0.11	0.08	0.44	2,419
Mit.	1.2	1.00	8.7	9.7	0.02	0.36	7.3	7.7	0.33	1.3	1.6	—	2,391	2,391	0.11	0.08	0.44	2,419

% Reduced	—	—	—	—	—	—	21%	20%	—	44%	38%	—	—	—	—	—	—	—
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.22	0.18	1.6	1.8	< 0.005	0.07	1.7	1.8	0.06	0.41	0.47	—	396	396	0.02	0.01	0.07	400
Mit.	0.22	0.18	1.6	1.8	< 0.005	0.07	1.3	1.4	0.06	0.23	0.29	—	396	396	0.02	0.01	0.07	400
% Reduced	—	—	—	—	—	—	21%	20%	—	44%	38%	—	—	—	—	—	—	—
Exceeds (Daily Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Threshold	—	54	54	—	—	82	—	—	82	—	—	—	—	—	—	—	—	—
Unmit.	—	No	No	—	—	No	—	—	No	—	—	—	—	—	—	—	—	—
Mit.	—	No	No	—	—	No	—	—	No	—	—	—	—	—	—	—	—	—
Exceeds (Average Daily)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Threshold	—	54	54	—	—	82	—	—	82	—	—	—	—	—	—	—	—	—
Unmit.	—	No	No	—	—	No	—	—	No	—	—	—	—	—	—	—	—	—
Mit.	—	No	No	—	—	No	—	—	No	—	—	—	—	—	—	—	—	—

2.2. Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	6.4	5.3	46	51	0.11	1.9	49	49	1.7	11	13	—	12,561	12,561	0.57	0.40	4.9	12,700
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

2027	6.4	5.3	46	51	0.11	1.9	43	45	1.7	11	13	—	12,533	12,533	0.57	0.40	0.13	12,667
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	1.2	1.00	8.7	9.7	0.02	0.36	9.2	9.6	0.33	2.3	2.6	—	2,391	2,391	0.11	0.08	0.44	2,419
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	0.22	0.18	1.6	1.8	< 0.005	0.07	1.7	1.8	0.06	0.41	0.47	—	396	396	0.02	0.01	0.07	400

2.3. Construction Emissions by Year, Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	6.4	5.3	46	51	0.11	1.9	43	44	1.7	6.1	7.8	—	12,561	12,561	0.57	0.40	4.9	12,700
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	6.4	5.3	46	51	0.11	1.9	33	35	1.7	6.1	7.8	—	12,533	12,533	0.57	0.40	0.13	12,667
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	1.2	1.00	8.7	9.7	0.02	0.36	7.3	7.7	0.33	1.3	1.6	—	2,391	2,391	0.11	0.08	0.44	2,419
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	0.22	0.18	1.6	1.8	< 0.005	0.07	1.3	1.4	0.06	0.23	0.29	—	396	396	0.02	0.01	0.07	400

3. Construction Emissions Details

3.1. Mobilization (2027) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.94	0.79	5.3	7.4	0.02	0.17	—	0.17	0.16	—	0.16	—	2,206	2,206	0.09	0.02	—	2,214
Dust From Material Movement	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.07	0.10	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	30	30	< 0.005	< 0.005	—	30
Dust From Material Movement	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.01	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	5.0	5.0	< 0.005	< 0.005	—	5.0
Dust From Material Movement	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—

Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.37	0.00	0.00	0.08	0.08	0.00	0.02	0.02	—	85	85	< 0.005	< 0.005	0.29	86
Vendor	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	0.00
Hauling	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.1	1.1	< 0.005	< 0.005	< 0.005	1.1
Vendor	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	0.00
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.18	0.18	< 0.005	< 0.005	< 0.005	0.18
Vendor	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	0.00
Hauling	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	0.00

3.2. Mobilization (2027) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.94	0.79	5.3	7.4	0.02	0.17	—	0.17	0.16	—	0.16	—	2,206	2,206	0.09	0.02	—	2,214
Dust From Material Movement	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.07	0.10	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	30	30	< 0.005	< 0.005	—	30
Dust From Material Movement	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.01	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	5.0	5.0	< 0.005	< 0.005	—	5.0
Dust From Material Movement	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.37	0.00	0.00	0.08	0.08	0.00	0.02	0.02	—	85	85	< 0.005	< 0.005	0.29	86
Vendor	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	0.00
Hauling	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.1	1.1	< 0.005	< 0.005	< 0.005	1.1
Vendor	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	0.00
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.18	0.18	< 0.005	< 0.005	< 0.005	0.18
Vendor	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	0.00
Hauling	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	0.00

3.3. Linear, Grading & Excavation (2027) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.1	1.7	15	17	0.03	0.67	—	0.67	0.62	—	0.62	—	2,974	2,974	0.12	0.02	—	2,985

Dust From Material Movement	—	—	—	—	—	—	8.9	8.9	—	4.3	4.3	—	—	—	—	—	—	—
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.09	0.07	0.63	0.69	< 0.005	0.03	—	0.03	0.03	—	0.03	—	122	122	< 0.005	< 0.005	—	123
Dust From Material Movement	—	—	—	—	—	—	0.36	0.36	—	0.18	0.18	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.01	0.11	0.13	< 0.005	0.01	—	0.01	< 0.005	—	< 0.005	—	20	20	< 0.005	< 0.005	—	20
Dust From Material Movement	—	—	—	—	—	—	0.07	0.07	—	0.03	0.03	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.37	0.00	0.00	0.08	0.08	0.00	0.02	0.02	—	85	85	< 0.005	< 0.005	0.29	86

Vendor	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	0.00
Hauling	0.18	0.04	2.2	1.1	0.01	0.02	40	40	0.02	4.0	4.1	—	1,824	1,824	0.13	0.29	3.6	1,917
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	3.2	3.2	< 0.005	< 0.005	0.01	3.3
Vendor	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	0.00
Hauling	0.01	< 0.005	0.10	0.05	< 0.005	< 0.005	1.5	1.5	< 0.005	0.16	0.16	—	75	75	0.01	0.01	0.06	79
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.53	0.53	< 0.005	< 0.005	< 0.005	0.54
Vendor	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	0.00
Hauling	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.28	0.28	< 0.005	0.03	0.03	—	12	12	< 0.005	< 0.005	0.01	13

3.4. Linear, Grading & Excavation (2027) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.1	1.7	15	17	0.03	0.67	—	0.67	0.62	—	0.62	—	2,974	2,974	0.12	0.02	—	2,985
Dust From Material Movement	—	—	—	—	—	—	3.5	3.5	—	1.7	1.7	—	—	—	—	—	—	—
Onsite truck	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	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.09	0.07	0.63	0.69	< 0.005	0.03	—	0.03	0.03	—	0.03	—	122	122	< 0.005	< 0.005	—	123
Dust From Material Movement	—	—	—	—	—	—	0.14	0.14	—	0.07	0.07	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.01	0.11	0.13	< 0.005	0.01	—	0.01	< 0.005	—	< 0.005	—	20	20	< 0.005	< 0.005	—	20
Dust From Material Movement	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.37	0.00	0.00	0.08	0.08	0.00	0.02	0.02	—	85	85	< 0.005	< 0.005	0.29	86
Vendor	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	0.00
Hauling	0.18	0.04	2.2	1.1	0.01	0.02	40	40	0.02	4.0	4.1	—	1,824	1,824	0.13	0.29	3.6	1,917
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	3.2	3.2	< 0.005	< 0.005	0.01	3.3
Vendor	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	0.00
Hauling	0.01	< 0.005	0.10	0.05	< 0.005	< 0.005	1.5	1.5	< 0.005	0.16	0.16	—	75	75	0.01	0.01	0.06	79
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.53	0.53	< 0.005	< 0.005	< 0.005	0.54
Vendor	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	0.00
Hauling	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.28	0.28	< 0.005	0.03	0.03	—	12	12	< 0.005	< 0.005	0.01	13

3.5. Tree Removal (2027) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.28	0.24	2.3	3.7	< 0.005	0.06	—	0.06	0.06	—	0.06	—	540	540	0.02	< 0.005	—	542
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road	0.01	0.01	0.09	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	21	21	< 0.005	< 0.005	—	21
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.02	0.03	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.4	3.4	< 0.005	< 0.005	—	3.4
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.01	0.22	0.00	0.00	0.05	0.05	0.00	0.01	0.01	—	51	51	< 0.005	< 0.005	0.17	52
Vendor	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	0.00
Hauling	0.01	< 0.005	0.09	0.04	< 0.005	< 0.005	1.6	1.6	< 0.005	0.16	0.16	—	73	73	0.01	0.01	0.14	77
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.8	1.8	< 0.005	< 0.005	< 0.005	1.8
Vendor	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	0.00
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.06	0.06	< 0.005	0.01	0.01	—	2.8	2.8	< 0.005	< 0.005	< 0.005	3.0
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.30	0.30	< 0.005	< 0.005	< 0.005	0.30
Vendor	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	0.00
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	0.47	0.47	< 0.005	< 0.005	< 0.005	0.49

3.6. Tree Removal (2027) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.28	0.24	2.3	3.7	< 0.005	0.06	—	0.06	0.06	—	0.06	—	540	540	0.02	< 0.005	—	542
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.09	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	21	21	< 0.005	< 0.005	—	21
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—

Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.02	0.03	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.4	3.4	< 0.005	< 0.005	—	3.4
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.01	0.22	0.00	0.00	0.05	0.05	0.00	0.01	0.01	—	51	51	< 0.005	< 0.005	0.17	52
Vendor	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	0.00
Hauling	0.01	< 0.005	0.09	0.04	< 0.005	< 0.005	1.6	1.6	< 0.005	0.16	0.16	—	73	73	0.01	0.01	0.14	77
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.8	1.8	< 0.005	< 0.005	< 0.005	1.8
Vendor	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	0.00
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.06	0.06	< 0.005	0.01	0.01	—	2.8	2.8	< 0.005	< 0.005	< 0.005	3.0
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.30	0.30	< 0.005	< 0.005	< 0.005	0.30
Vendor	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	0.00
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	0.47	0.47	< 0.005	< 0.005	< 0.005	0.49

3.7. Gate Removal (2027) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.36	0.31	2.9	3.9	0.01	0.13	—	0.13	0.12	—	0.12	—	578	578	0.02	< 0.005	—	580
Dust From Material Movement	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.2	3.2	< 0.005	< 0.005	—	3.2
Dust From Material Movement	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.52	0.52	< 0.005	< 0.005	—	0.53
Dust From Material Movement	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.01	0.22	0.00	0.00	0.05	0.05	0.00	0.01	0.01	—	51	51	< 0.005	< 0.005	0.17	52
Vendor	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	0.00
Hauling	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.26	0.26	< 0.005	< 0.005	< 0.005	0.26
Vendor	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	0.00
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.04	0.04	< 0.005	< 0.005	< 0.005	0.04
Vendor	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	0.00
Hauling	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	0.00

3.8. Gate Removal (2027) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.36	0.31	2.9	3.9	0.01	0.13	—	0.13	0.12	—	0.12	—	578	578	0.02	< 0.005	—	580
Dust From Material Movement	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.2	3.2	< 0.005	< 0.005	—	3.2
Dust From Material Movement	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.52	0.52	< 0.005	< 0.005	—	0.53

Dust From Material Movement	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.01	0.22	0.00	0.00	0.05	0.05	0.00	0.01	0.01	—	51	51	< 0.005	< 0.005	0.17	52
Vendor	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	0.00
Hauling	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.26	0.26	< 0.005	< 0.005	< 0.005	0.26
Vendor	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	0.00
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.04	0.04	< 0.005	< 0.005	< 0.005	0.04
Vendor	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	0.00
Hauling	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	0.00

3.9. Import Material (2027) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.5	2.1	16	16	0.04	0.66	—	0.66	0.60	—	0.60	—	3,964	3,964	0.16	0.03	—	3,978
Dust From Material Movement	—	—	—	—	—	—	8.2	8.2	—	4.2	4.2	—	—	—	—	—	—	—
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.5	2.1	16	16	0.04	0.66	—	0.66	0.60	—	0.60	—	3,964	3,964	0.16	0.03	—	3,978
Dust From Material Movement	—	—	—	—	—	—	8.2	8.2	—	4.2	4.2	—	—	—	—	—	—	—
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.41	0.34	2.7	2.7	0.01	0.11	—	0.11	0.10	—	0.10	—	652	652	0.03	0.01	—	654
Dust From Material Movement	—	—	—	—	—	—	1.3	1.3	—	0.69	0.69	—	—	—	—	—	—	—
Onsite truck	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	0.00

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.07	0.06	0.49	0.49	< 0.005	0.02	—	0.02	0.02	—	0.02	—	108	108	< 0.005	< 0.005	—	108
Dust From Material Movement	—	—	—	—	—	—	0.25	0.25	—	0.13	0.13	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.04	0.73	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	170	170	< 0.005	0.01	0.58	172
Vendor	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	0.00
Hauling	0.12	0.03	1.5	0.73	0.01	0.02	26	26	0.02	2.7	2.7	—	1,204	1,204	0.09	0.19	2.3	1,265
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.06	0.05	0.62	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	155	155	< 0.005	0.01	0.01	157
Vendor	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	0.00
Hauling	0.12	0.03	1.6	0.73	0.01	0.02	26	26	0.02	2.7	2.7	—	1,204	1,204	0.09	0.19	0.06	1,263
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.10	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	26	26	< 0.005	< 0.005	0.04	26
Vendor	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	0.00
Hauling	0.02	< 0.005	0.25	0.12	< 0.005	< 0.005	4.1	4.1	< 0.005	0.41	0.42	—	198	198	0.01	0.03	0.17	208
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	4.3	4.3	< 0.005	< 0.005	0.01	4.3
Vendor	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	0.00
Hauling	< 0.005	< 0.005	0.05	0.02	< 0.005	< 0.005	0.74	0.74	< 0.005	0.08	0.08	—	33	33	< 0.005	0.01	0.03	34

3.10. Import Material (2027) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.5	2.1	16	16	0.04	0.66	—	0.66	0.60	—	0.60	—	3,964	3,964	0.16	0.03	—	3,978
Dust From Material Movement	—	—	—	—	—	—	3.2	3.2	—	1.6	1.6	—	—	—	—	—	—	—
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.5	2.1	16	16	0.04	0.66	—	0.66	0.60	—	0.60	—	3,964	3,964	0.16	0.03	—	3,978
Dust From Material Movement	—	—	—	—	—	—	3.2	3.2	—	1.6	1.6	—	—	—	—	—	—	—
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.41	0.34	2.7	2.7	0.01	0.11	—	0.11	0.10	—	0.10	—	652	652	0.03	0.01	—	654

Dust From Material Movement	—	—	—	—	—	—	0.53	0.53	—	0.27	0.27	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.07	0.06	0.49	0.49	< 0.005	0.02	—	0.02	0.02	—	0.02	—	108	108	< 0.005	< 0.005	—	108
Dust From Material Movement	—	—	—	—	—	—	0.10	0.10	—	0.05	0.05	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.04	0.73	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	170	170	< 0.005	0.01	0.58	172
Vendor	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	0.00
Hauling	0.12	0.03	1.5	0.73	0.01	0.02	26	26	0.02	2.7	2.7	—	1,204	1,204	0.09	0.19	2.3	1,265
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.06	0.05	0.62	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	155	155	< 0.005	0.01	0.01	157
Vendor	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	0.00
Hauling	0.12	0.03	1.6	0.73	0.01	0.02	26	26	0.02	2.7	2.7	—	1,204	1,204	0.09	0.19	0.06	1,263
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.10	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	26	26	< 0.005	< 0.005	0.04	26
Vendor	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	0.00

Hauling	0.02	< 0.005	0.25	0.12	< 0.005	< 0.005	4.1	4.1	< 0.005	0.41	0.42	—	198	198	0.01	0.03	0.17	208
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	4.3	4.3	< 0.005	< 0.005	0.01	4.3
Vendor	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	0.00
Hauling	< 0.005	< 0.005	0.05	0.02	< 0.005	< 0.005	0.74	0.74	< 0.005	0.08	0.08	—	33	33	< 0.005	0.01	0.03	34

3.11. Ice Plant Removal (2027) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.28	0.24	2.3	3.7	< 0.005	0.06	—	0.06	0.06	—	0.06	—	540	540	0.02	< 0.005	—	542
Dust From Material Movement	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.06	0.10	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	15	15	< 0.005	< 0.005	—	15

Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.01	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	2.4	2.4	< 0.005	< 0.005	—	2.5
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.19	0.00	0.00	0.05	0.05	0.00	0.01	0.01	—	47	47	< 0.005	< 0.005	< 0.005	47
Vendor	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	0.00
Hauling	0.05	0.01	0.73	0.34	< 0.005	0.01	12	12	0.01	1.2	1.3	—	563	563	0.04	0.09	0.03	590
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.3	1.3	< 0.005	< 0.005	< 0.005	1.3
Vendor	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	0.00
Hauling	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.32	0.32	< 0.005	0.03	0.03	—	15	15	< 0.005	< 0.005	0.01	16
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.21	0.21	< 0.005	< 0.005	< 0.005	0.22

Vendor	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	0.00
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.06	0.06	< 0.005	0.01	0.01	—	2.6	2.6	< 0.005	< 0.005	< 0.005	2.7

3.12. Ice Plant Removal (2027) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.28	0.24	2.3	3.7	< 0.005	0.06	—	0.06	0.06	—	0.06	—	540	540	0.02	< 0.005	—	542
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.06	0.10	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	15	15	< 0.005	< 0.005	—	15
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	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	0.00

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.01	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	2.4	2.4	< 0.005	< 0.005	—	2.5
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.19	0.00	0.00	0.05	0.05	0.00	0.01	0.01	—	47	47	< 0.005	< 0.005	< 0.005	47
Vendor	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	0.00
Hauling	0.05	0.01	0.73	0.34	< 0.005	0.01	12	12	0.01	1.2	1.3	—	563	563	0.04	0.09	0.03	590
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.3	1.3	< 0.005	< 0.005	< 0.005	1.3
Vendor	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	0.00
Hauling	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.32	0.32	< 0.005	0.03	0.03	—	15	15	< 0.005	< 0.005	0.01	16
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.21	0.21	< 0.005	< 0.005	< 0.005	0.22
Vendor	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	0.00
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.06	0.06	< 0.005	0.01	0.01	—	2.6	2.6	< 0.005	< 0.005	< 0.005	2.7

3.13. Project Cleanup/Demob (2027) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.0	1.7	15	15	0.02	0.68	—	0.68	0.63	—	0.63	—	2,702	2,702	0.11	0.02	—	2,711
Dust From Material Movement	—	—	—	—	—	—	8.2	8.2	—	4.2	4.2	—	—	—	—	—	—	—
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.02	0.20	0.21	< 0.005	0.01	—	0.01	0.01	—	0.01	—	37	37	< 0.005	< 0.005	—	37
Dust From Material Movement	—	—	—	—	—	—	0.11	0.11	—	0.06	0.06	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.04	0.04	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	6.1	6.1	< 0.005	< 0.005	—	6.1

Dust From Material Movement	—	—	—	—	—	—	0.02	0.02	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.03	0.31	0.00	0.00	0.08	0.08	0.00	0.02	0.02	—	78	78	< 0.005	< 0.005	0.01	79
Vendor	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	0.00
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.1	1.1	< 0.005	< 0.005	< 0.005	1.1
Vendor	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	0.00
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.18	0.18	< 0.005	< 0.005	< 0.005	0.18
Vendor	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	0.00
Hauling	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	0.00

3.14. Project Cleanup/Demob (2027) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.0	1.7	15	15	0.02	0.68	—	0.68	0.63	—	0.63	—	2,702	2,702	0.11	0.02	—	2,711
Dust From Material Movement	—	—	—	—	—	—	3.2	3.2	—	1.6	1.6	—	—	—	—	—	—	—
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.02	0.20	0.21	< 0.005	0.01	—	0.01	0.01	—	0.01	—	37	37	< 0.005	< 0.005	—	37
Dust From Material Movement	—	—	—	—	—	—	0.04	0.04	—	0.02	0.02	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.04	0.04	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	6.1	6.1	< 0.005	< 0.005	—	6.1
Dust From Material Movement	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—

Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.03	0.31	0.00	0.00	0.08	0.08	0.00	0.02	0.02	—	78	78	< 0.005	< 0.005	0.01	79
Vendor	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	0.00
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.1	1.1	< 0.005	< 0.005	< 0.005	1.1
Vendor	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	0.00
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.18	0.18	< 0.005	< 0.005	< 0.005	0.18
Vendor	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	0.00
Hauling	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	0.00

3.15. Habitat Enhancement (2027) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	3.6	3.1	27	32	0.06	1.2	—	1.2	1.1	—	1.1	—	6,333	6,333	0.26	0.05	—	6,355
Dust From Material Movement	—	—	—	—	—	—	8.2	8.2	—	4.2	4.2	—	—	—	—	—	—	—
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.6	3.1	27	32	0.06	1.2	—	1.2	1.1	—	1.1	—	6,333	6,333	0.26	0.05	—	6,355
Dust From Material Movement	—	—	—	—	—	—	8.2	8.2	—	4.2	4.2	—	—	—	—	—	—	—
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.60	0.50	4.4	5.2	0.01	0.20	—	0.20	0.18	—	0.18	—	1,041	1,041	0.04	0.01	—	1,045
Dust From Material Movement	—	—	—	—	—	—	1.3	1.3	—	0.69	0.69	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipm	0.11	0.09	0.80	0.96	< 0.005	0.04	—	0.04	0.03	—	0.03	—	172	172	0.01	< 0.005	—	173
Dust From Material Movement	—	—	—	—	—	—	0.25	0.25	—	0.13	0.13	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.04	0.73	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	170	170	< 0.005	0.01	0.58	172
Vendor	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	0.00
Hauling	0.07	0.02	0.89	0.44	< 0.005	0.01	0.19	0.20	0.01	0.05	0.06	—	721	721	0.05	0.11	1.4	758
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.06	0.05	0.62	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	155	155	< 0.005	0.01	0.01	157
Vendor	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	0.00
Hauling	0.07	0.02	0.93	0.44	< 0.005	0.01	0.19	0.20	0.01	0.05	0.06	—	722	722	0.05	0.11	0.04	757
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.10	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	26	26	< 0.005	< 0.005	0.04	26
Vendor	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	0.00
Hauling	0.01	< 0.005	0.15	0.07	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	—	119	119	0.01	0.02	0.10	124
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	4.3	4.3	< 0.005	< 0.005	0.01	4.3
Vendor	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	0.00
Hauling	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	20	20	< 0.005	< 0.005	0.02	21

3.16. Habitat Enhancement (2027) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.6	3.1	27	32	0.06	1.2	—	1.2	1.1	—	1.1	—	6,333	6,333	0.26	0.05	—	6,355
Dust From Material Movement	—	—	—	—	—	—	3.2	3.2	—	1.6	1.6	—	—	—	—	—	—	—
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.6	3.1	27	32	0.06	1.2	—	1.2	1.1	—	1.1	—	6,333	6,333	0.26	0.05	—	6,355
Dust From Material Movement	—	—	—	—	—	—	3.2	3.2	—	1.6	1.6	—	—	—	—	—	—	—
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.60	0.50	4.4	5.2	0.01	0.20	—	0.20	0.18	—	0.18	—	1,041	1,041	0.04	0.01	—	1,045

Dust From Material Movement	—	—	—	—	—	—	0.53	0.53	—	0.27	0.27	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.80	0.96	< 0.005	0.04	—	0.04	0.03	—	0.03	—	172	172	0.01	< 0.005	—	173
Dust From Material Movement	—	—	—	—	—	—	0.10	0.10	—	0.05	0.05	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.04	0.73	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	170	170	< 0.005	0.01	0.58	172
Vendor	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	0.00
Hauling	0.07	0.02	0.89	0.44	< 0.005	0.01	0.19	0.20	0.01	0.05	0.06	—	721	721	0.05	0.11	1.4	758
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.06	0.05	0.62	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	155	155	< 0.005	0.01	0.01	157
Vendor	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	0.00
Hauling	0.07	0.02	0.93	0.44	< 0.005	0.01	0.19	0.20	0.01	0.05	0.06	—	722	722	0.05	0.11	0.04	757
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.10	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	26	26	< 0.005	< 0.005	0.04	26
Vendor	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	0.00

Hauling	0.01	< 0.005	0.15	0.07	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	—	119	119	0.01	0.02	0.10	124
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	4.3	4.3	< 0.005	< 0.005	0.01	4.3
Vendor	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	0.00
Hauling	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	20	20	< 0.005	< 0.005	0.02	21

4. Operations Emissions Details

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.4. Soil Carbon Accumulation By Vegetation Type - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.5. Above and Belowground Carbon Accumulation by Land Use Type - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.6. Avoided and Sequestered Emissions by Species - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Mobilization	Linear, Grubbing & Land Clearing	7/1/2027	7/7/2027	5.0	5.0	—

Linear, Grading & Excavation	Linear, Grubbing & Land Clearing	7/8/2027	7/28/2027	5.0	15	—
Tree Removal	Linear, Grubbing & Land Clearing	8/3/2027	8/20/2027	5.0	14	—
Gate Removal	Linear, Grading & Excavation	8/21/2027	8/24/2027	5.0	2.0	—
Import Material	Linear, Grading & Excavation	8/25/2027	11/16/2027	5.0	60	—
Ice Plant Removal	Linear, Grading & Excavation	11/17/2027	11/30/2027	5.0	10.0	—
Project Cleanup/Demob	Linear, Grading & Excavation	12/1/2027	12/7/2027	5.0	5.0	—
Habitat Enhancement	Linear, Grading & Excavation	8/25/2027	11/16/2027	5.0	60	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Mobilization	Off-Highway Trucks	Diesel	Average	1.00	10.0	376	0.38
Mobilization	Excavators	Diesel	Average	1.00	10.0	36	0.38
Mobilization	Tractors/Loaders/Backhoes	Diesel	Average	1.00	10.0	84	0.37
Linear, Grading & Excavation	Rubber Tired Dozers	Diesel	Average	1.00	10.0	367	0.40
Linear, Grading & Excavation	Graders	Diesel	Average	1.00	10.0	148	0.41
Linear, Grading & Excavation	Excavators	Diesel	Average	1.00	10.0	36	0.38
Linear, Grading & Excavation	Tractors/Loaders/Backhoes	Diesel	Average	1.00	10.0	84	0.37
Tree Removal	Excavators	Diesel	Average	1.00	10.0	36	0.38

Tree Removal	Tractors/Loaders/Backhoes	Diesel	Average	1.00	10.0	84	0.37
Gate Removal	Excavators	Diesel	Average	1.00	10.0	36	0.38
Gate Removal	Other Construction Equipment	Diesel	Average	1.00	10.0	82	0.42
Import Material	Rollers	Diesel	Average	1.00	10.0	36	0.38
Import Material	Plate Compactors	Diesel	Average	1.00	10.0	8.0	0.43
Import Material	Off-Highway Trucks	Diesel	Average	1.00	10.0	376	0.38
Import Material	Rubber Tired Dozers	Diesel	Average	1.00	10.0	367	0.40
Import Material	Excavators	Diesel	Average	2.0	10.0	36	0.38
Ice Plant Removal	Excavators	Diesel	Average	1.00	10.0	36	0.38
Ice Plant Removal	Tractors/Loaders/Backhoes	Diesel	Average	1.00	10.0	84	0.37
Project Cleanup/Demob	Rubber Tired Dozers	Diesel	Average	1.00	10.0	367	0.40
Project Cleanup/Demob	Rollers	Diesel	Average	1.00	10.0	36	0.38
Project Cleanup/Demob	Other Construction Equipment	Diesel	Average	2.0	10.0	82	0.42
Habitat Enhancement	Rubber Tired Dozers	Diesel	Average	1.00	10.0	367	0.40
Habitat Enhancement	Other Construction Equipment	Diesel	Average	6.0	10.0	82	0.42
Habitat Enhancement	Tractors/Loaders/Backhoes	Diesel	Average	1.00	10.0	84	0.37
Habitat Enhancement	Excavators	Diesel	Average	1.00	10.0	36	0.38
Habitat Enhancement	Off-Highway Trucks	Diesel	Average	1.00	10.0	376	0.38

5.2.2. Mitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Mobilization	Off-Highway Trucks	Diesel	Average	1.00	10.0	376	0.38
Mobilization	Excavators	Diesel	Average	1.00	10.0	36	0.38

Mobilization	Tractors/Loaders/Back	Diesel	Average	1.00	10.0	84	0.37
Linear, Grading & Excavation	Rubber Tired Dozers	Diesel	Average	1.00	10.0	367	0.40
Linear, Grading & Excavation	Graders	Diesel	Average	1.00	10.0	148	0.41
Linear, Grading & Excavation	Excavators	Diesel	Average	1.00	10.0	36	0.38
Linear, Grading & Excavation	Tractors/Loaders/Backhoes	Diesel	Average	1.00	10.0	84	0.37
Tree Removal	Excavators	Diesel	Average	1.00	10.0	36	0.38
Tree Removal	Tractors/Loaders/Backhoes	Diesel	Average	1.00	10.0	84	0.37
Gate Removal	Excavators	Diesel	Average	1.00	10.0	36	0.38
Gate Removal	Other Construction Equipment	Diesel	Average	1.00	10.0	82	0.42
Import Material	Rollers	Diesel	Average	1.00	10.0	36	0.38
Import Material	Plate Compactors	Diesel	Average	1.00	10.0	8.0	0.43
Import Material	Off-Highway Trucks	Diesel	Average	1.00	10.0	376	0.38
Import Material	Rubber Tired Dozers	Diesel	Average	1.00	10.0	367	0.40
Import Material	Excavators	Diesel	Average	2.0	10.0	36	0.38
Ice Plant Removal	Excavators	Diesel	Average	1.00	10.0	36	0.38
Ice Plant Removal	Tractors/Loaders/Backhoes	Diesel	Average	1.00	10.0	84	0.37
Project Cleanup/Demob	Rubber Tired Dozers	Diesel	Average	1.00	10.0	367	0.40
Project Cleanup/Demob	Rollers	Diesel	Average	1.00	10.0	36	0.38
Project Cleanup/Demob	Other Construction Equipment	Diesel	Average	2.0	10.0	82	0.42
Habitat Enhancement	Rubber Tired Dozers	Diesel	Average	1.00	10.0	367	0.40
Habitat Enhancement	Other Construction Equipment	Diesel	Average	6.0	10.0	82	0.42

Habitat Enhancement	Tractors/Loaders/Back	Diesel	Average	1.00	10.0	84	0.37
Habitat Enhancement	Excavators	Diesel	Average	1.00	10.0	36	0.38
Habitat Enhancement	Off-Highway Trucks	Diesel	Average	1.00	10.0	376	0.38

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Mobilization	Worker	10.0	12	LDA,LDT1,LDT2
Mobilization	Vendor	0.00	8.4	HHDT,MHDT
Mobilization	Hauling	0.00	20	HHDT
Mobilization	Onsite truck	—	—	HHDT
Linear, Grading & Excavation	Worker	10.0	12	LDA,LDT1,LDT2
Linear, Grading & Excavation	Vendor	0.00	8.4	HHDT,MHDT
Linear, Grading & Excavation	Hauling	27	20	HHDT
Linear, Grading & Excavation	Onsite truck	—	—	HHDT
Tree Removal	Worker	6.0	12	LDA,LDT1,LDT2
Tree Removal	Vendor	0.00	8.4	HHDT,MHDT
Tree Removal	Hauling	1.1	20	HHDT
Tree Removal	Onsite truck	—	—	HHDT
Gate Removal	Worker	6.0	12	LDA,LDT1,LDT2
Gate Removal	Vendor	0.00	8.4	HHDT,MHDT
Gate Removal	Hauling	0.00	20	HHDT
Gate Removal	Onsite truck	—	—	HHDT
Import Material	Worker	20	12	LDA,LDT1,LDT2
Import Material	Vendor	0.00	8.4	HHDT,MHDT
Import Material	Hauling	18	20	HHDT
Import Material	Onsite truck	—	—	HHDT

Ice Plant Removal	Worker	6.0	12	LDA,LDT1,LDT2
Ice Plant Removal	Vendor	0.00	8.4	HHDT,MHDT
Ice Plant Removal	Hauling	8.2	20	HHDT
Ice Plant Removal	Onsite truck	—	—	HHDT
Project Cleanup/Demob	Worker	10.0	12	LDA,LDT1,LDT2
Project Cleanup/Demob	Vendor	0.00	8.4	HHDT,MHDT
Project Cleanup/Demob	Hauling	0.00	20	HHDT
Project Cleanup/Demob	Onsite truck	—	—	HHDT
Habitat Enhancement	Worker	20	12	LDA,LDT1,LDT2
Habitat Enhancement	Vendor	0.00	8.4	HHDT,MHDT
Habitat Enhancement	Hauling	11	20	HHDT
Habitat Enhancement	Onsite truck	—	—	HHDT

5.3.2. Mitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Mobilization	Worker	10.0	12	LDA,LDT1,LDT2
Mobilization	Vendor	0.00	8.4	HHDT,MHDT
Mobilization	Hauling	0.00	20	HHDT
Mobilization	Onsite truck	—	—	HHDT
Linear, Grading & Excavation	Worker	10.0	12	LDA,LDT1,LDT2
Linear, Grading & Excavation	Vendor	0.00	8.4	HHDT,MHDT
Linear, Grading & Excavation	Hauling	27	20	HHDT
Linear, Grading & Excavation	Onsite truck	—	—	HHDT
Tree Removal	Worker	6.0	12	LDA,LDT1,LDT2
Tree Removal	Vendor	0.00	8.4	HHDT,MHDT
Tree Removal	Hauling	1.1	20	HHDT
Tree Removal	Onsite truck	—	—	HHDT
Gate Removal	Worker	6.0	12	LDA,LDT1,LDT2

Gate Removal	Vendor	0.00	8.4	HHDT,MHDT
Gate Removal	Hauling	0.00	20	HHDT
Gate Removal	Onsite truck	—	—	HHDT
Import Material	Worker	20	12	LDA,LDT1,LDT2
Import Material	Vendor	0.00	8.4	HHDT,MHDT
Import Material	Hauling	18	20	HHDT
Import Material	Onsite truck	—	—	HHDT
Ice Plant Removal	Worker	6.0	12	LDA,LDT1,LDT2
Ice Plant Removal	Vendor	0.00	8.4	HHDT,MHDT
Ice Plant Removal	Hauling	8.2	20	HHDT
Ice Plant Removal	Onsite truck	—	—	HHDT
Project Cleanup/Demob	Worker	10.0	12	LDA,LDT1,LDT2
Project Cleanup/Demob	Vendor	0.00	8.4	HHDT,MHDT
Project Cleanup/Demob	Hauling	0.00	20	HHDT
Project Cleanup/Demob	Onsite truck	—	—	HHDT
Habitat Enhancement	Worker	20	12	LDA,LDT1,LDT2
Habitat Enhancement	Vendor	0.00	8.4	HHDT,MHDT
Habitat Enhancement	Hauling	11	20	HHDT
Habitat Enhancement	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Control Strategies Applied	PM10 Reduction	PM2.5 Reduction
Water unpaved roads twice daily	55%	55%
Limit vehicle speeds on unpaved roads to 25 mph	44%	44%
Sweep paved roads once per month	9%	9%

5.5. Architectural Coatings

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (Cubic Yards)	Material Exported (Cubic Yards)	Acres Graded (acres)	Material Demolished (sq. ft.)	Acres Paved (acres)
Mobilization	0.00	0.00	20	0.00	0.00
Linear, Grading & Excavation	0.00	3,185	20	0.00	0.00
Tree Removal	0.00	115	20	0.00	0.00
Gate Removal	0.00	0.00	20	0.00	0.00
Import Material	7,816	607	40	0.00	0.00
Ice Plant Removal	0.00	650	10.0	0.00	0.00
Project Cleanup/Demob	0.00	0.00	20	0.00	0.00
Habitat Enhancement	5,043	0.00	40	0.00	0.00

5.6.2. Construction Earthmoving Control Strategies

Non-applicable. No control strategies activated by user.

5.7. Construction Paving

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2027	0.00	204	0.03	< 0.005

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)
—	-23	—	—

5.18.2.2. Mitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)
—	-23	—	—

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	20	annual days of extreme heat
Extreme Precipitation	2.1	annual days with precipitation above 20 mm
Sea Level Rise	1.7	meters of inundation depth
Wildfire	0.00	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (Radke et al., 2017, CEC-500-2017-008), and consider inundation location and depth for the San Francisco Bay, the Sacramento-San Joaquin River Delta and California coast resulting different increments of sea level rise coupled with extreme storm events. Users may select from four scenarios to view the range in potential inundation depth for the grid cell. The four scenarios are: No rise, 0.5 meter, 1.0 meter, 1.41 meters
Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	N/A	N/A	N/A	N/A
Extreme Precipitation	1	0	0	N/A
Sea Level Rise	1	0	0	N/A
Wildfire	1	0	0	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	0	0	0	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.

The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	N/A	N/A	N/A	N/A
Extreme Precipitation	1	1	1	2
Sea Level Rise	1	1	1	2
Wildfire	1	1	1	2
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	1	1	1	2

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	38
AQ-PM	25

AQ-DPM	43
Drinking Water	43
Lead Risk Housing	37
Pesticides	62
Toxic Releases	25
Traffic	9.0
Effect Indicators	—
CleanUp Sites	81
Groundwater	39
Haz Waste Facilities/Generators	0.00
Impaired Water Bodies	96
Solid Waste	22
Sensitive Population	—
Asthma	79
Cardio-vascular	80
Low Birth Weights	41
Socioeconomic Factor Indicators	—
Education	47
Housing	25
Linguistic	9.5
Poverty	44
Unemployment	27

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	53.47106378

Employed	45.74618247
Median HI	77.64660593
Education	—
Bachelor's or higher	38.0341332
High school enrollment	100
Preschool enrollment	78.60900808
Transportation	—
Auto Access	40.33106634
Active commuting	17.10509432
Social	—
2-parent households	12.13909919
Voting	48.44090851
Neighborhood	—
Alcohol availability	80.59797254
Park access	50.03208007
Retail density	10.07314256
Supermarket access	2.399589375
Tree canopy	47.18336969
Housing	—
Homeownership	62.29949955
Housing habitability	86.79584242
Low-inc homeowner severe housing cost burden	48.45374054
Low-inc renter severe housing cost burden	95.30347748
Uncrowded housing	52.3675093
Health Outcomes	—
Insured adults	44.9121006
Arthritis	0.0
Asthma ER Admissions	12.2

High Blood Pressure	0.0
Cancer (excluding skin)	0.0
Asthma	0.0
Coronary Heart Disease	0.0
Chronic Obstructive Pulmonary Disease	0.0
Diagnosed Diabetes	0.0
Life Expectancy at Birth	20.9
Cognitively Disabled	46.5
Physically Disabled	57.4
Heart Attack ER Admissions	10.4
Mental Health Not Good	0.0
Chronic Kidney Disease	0.0
Obesity	0.0
Pedestrian Injuries	19.6
Physical Health Not Good	0.0
Stroke	0.0
Health Risk Behaviors	—
Binge Drinking	0.0
Current Smoker	0.0
No Leisure Time for Physical Activity	0.0
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	0.0
Children	25.4
Elderly	75.4
English Speaking	70.3
Foreign-born	43.5
Outdoor Workers	12.9

Climate Change Adaptive Capacity	—
Impervious Surface Cover	74.3
Traffic Density	9.9
Traffic Access	56.2
Other Indices	—
Hardship	54.9
Other Decision Support	—
2016 Voting	35.7

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	47
Healthy Places Index Score for Project Location (b)	55
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	No
Project Located in a Low-Income Community (Assembly Bill 1550)	No
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

8.1. Justifications

Screen	Justification
Construction: Construction Phases	Anticipated construction phasing based on information provided by client and engineer.
Construction: Off-Road Equipment	Anticipated construction equipment mix based on construction activities.
Construction: Dust From Material Movement	Anticipated import and export based on construction activities.
Construction: Trips and VMT	Anticipated number of workers per phase. Haul trucks are calculated using CalEEMod based on material quantities.
Construction: On-Road Fugitive Dust	Anticipated percent pavement.

Appendix B Species Database Searches

Selected Elements by Scientific Name

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Quad IS (Jersey Island (3812116) OR Birds Landing (3812127) OR Rio Vista (3812126) OR Isleton (3812125) OR Antioch North (3812117) OR Bouldin Island (3812115) OR Antioch South (3712187) OR Brentwood (3712186) OR Woodward Island (3712185))

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Acipenser medirostris pop. 1 green sturgeon - southern DPS	AFCAA01031	Threatened	None	G2T1	S1	SSC
Actinemys marmorata northwestern pond turtle	ARAAD02031	Proposed Threatened	None	G2	SNR	SSC
Agelaius tricolor tricolored blackbird	ABPBXB0020	None	Threatened	G1G2	S2	SSC
Alkali Meadow Alkali Meadow	CTT45310CA	None	None	G3	S2.1	
Alkali Seep Alkali Seep	CTT45320CA	None	None	G3	S2.1	
Ambystoma californiense pop. 1 California tiger salamander - central California DPS	AAAAA01181	Threatened	Threatened	G2G3T3	S3	WL
Amsinckia grandiflora large-flowered fiddleneck	PDBOR01050	Endangered	Endangered	G1	S1	1B.1
Andrena blennospermatis Blennosperma vernal pool andrenid bee	IIHYM35030	None	None	G2	S1	
Anniella pulchra Northern California legless lizard	ARACC01020	None	None	G3	S2S3	SSC
Anomobryum julaceum slender silver moss	NBMUS80010	None	None	G5	S2	4.2
Anthicus antiochensis Antioch Dunes anthicid beetle	IICOL49020	None	None	G3	S3	
Anthicus sacramento Sacramento anthicid beetle	IICOL49010	None	None	G4	S4	
Antrozous pallidus pallid bat	AMACC10010	None	None	G4	S3	SSC
Apodemia mormo langei Lange's metalmark butterfly	IILEPH7012	Endangered	None	G5T1	S1	
Aquila chrysaetos golden eagle	ABNKC22010	None	None	G5	S3	FP
Archoplites interruptus Sacramento perch	AFCQB07010	None	None	G1	S1	SSC
Arctostaphylos auriculata Mt. Diablo manzanita	PDERI04040	None	None	G2	S2	1B.3
Ardea herodias great blue heron	ABNGA04010	None	None	G5	S4	

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Arizona elegans occidentalis California glossy snake	ARADB01017	None	None	G5T2	S2	SSC
Astragalus tener var. tener alkali milk-vetch	PDFAB0F8R1	None	None	G2T1	S1	1B.2
Athene cunicularia burrowing owl	ABNSB10010	None	Candidate Endangered	G4	S2	SSC
Atriplex cordulata var. cordulata heartscale	PDCHE040B0	None	None	G3T2	S2	1B.2
Atriplex depressa brittlescale	PDCHE042L0	None	None	G2	S2	1B.2
Blepharizonia plumosa big tarplant	PDAST1C011	None	None	G1G2	S1S2	1B.1
Bombus crotchii Crotch's bumble bee	IIHYM24480	None	Candidate Endangered	G2	S2	
Bombus occidentalis western bumble bee	IIHYM24252	None	Candidate Endangered	G3	S1	
Bombus pensylvanicus American bumble bee	IIHYM24260	None	None	G3G4	S2	
Branchinecta conservatio Conservancy fairy shrimp	ICBRA03010	Endangered	None	G2	S2	
Branchinecta lynchi vernal pool fairy shrimp	ICBRA03030	Threatened	None	G3	S3	
Branchinecta mesovallensis midvalley fairy shrimp	ICBRA03150	None	None	G2	S2S3	
Brasenia schreberi watershield	PDCAB01010	None	None	G5	S3	2B.3
Buteo swainsoni Swainson's hawk	ABNKC19070	None	Threatened	G5	S4	
Calochortus pulchellus Mt. Diablo fairy-lantern	PMLIL0D160	None	None	G2	S2	1B.2
Carex comosa bristly sedge	PMCYP032Y0	None	None	G5	S2	2B.1
Centromadia parryi ssp. parryi pappose tarplant	PDAST4R0P2	None	None	G3T2	S2	1B.2
Charadrius montanus mountain plover	ABNNB03100	None	None	G3	S2	SSC
Charadrius nivosus nivosus western snowy plover	ABNNB03031	Threatened	None	G3T3	S3	SSC
Chloropyron molle ssp. molle soft salty bird's-beak	PDSCR0J0D2	Endangered	Rare	G2T1	S1	1B.2
Cicuta maculata var. bolanderi Bolander's water-hemlock	PDAPI0M051	None	None	G5T4T5	S2?	2B.1

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Circus hudsonius northern harrier	ABNKC11011	None	None	G5	S3	SSC
Cismontane Alkali Marsh Cismontane Alkali Marsh	CTT52310CA	None	None	G1	S1.1	
Coastal and Valley Freshwater Marsh Coastal and Valley Freshwater Marsh	CTT52410CA	None	None	G3	S2.1	
Coastal Brackish Marsh Coastal Brackish Marsh	CTT52200CA	None	None	G2	S2.1	
Coelus gracilis San Joaquin dune beetle	IICOL4A020	None	None	G1	S1	
Cophura hurdi Antioch cophuran robberfly	IIDIP06010	None	None	GX	SX	
Cryptantha hooveri Hoover's cryptantha	PDBOR0A190	None	None	GH	SH	1A
Downingia pusilla dwarf downingia	PDCAM060C0	None	None	GU	S2	2B.2
Efferia antiochi Antioch efferian robberfly	IIDIP07010	None	None	G1G2	S1S2	
Elanus leucurus white-tailed kite	ABNKC06010	None	None	G5	S3S4	FP
Elaphrus viridis Delta green ground beetle	IICOL36010	Threatened	None	G1	S1	
Eriogonum nudum var. psychicola Antioch Dunes buckwheat	PDPGN0849Q	None	None	G5T1	S1	1B.1
Eriogonum truncatum Mt. Diablo buckwheat	PDPGN085Z0	None	None	G1	S1	1B.1
Eryngium jepsonii Jepson's coyote-thistle	PDAPI0Z130	None	None	G2	S2	1B.2
Eryngium racemosum Delta button-celery	PDAPI0Z0S0	None	Endangered	G1	S1	1B.1
Erysimum capitatum var. angustatum Contra Costa wallflower	PDBRA16052	Endangered	Endangered	G5T1	S1	1B.1
Eschscholzia rhombipetala diamond-petaled California poppy	PDPAP0A0D0	None	None	G1	S1	1B.1
Eucerceris ruficeps redheaded sphecid wasp	IIHYM18010	None	None	G1G3	S2	
Extriplex joaquinana San Joaquin spearscale	PDCHE041F3	None	None	G2	S2	1B.2
Falco peregrinus anatum American peregrine falcon	ABNKD06071	Delisted	Delisted	G4T4	S3S4	
Fritillaria agrestis stinkbells	PMLIL0V010	None	None	G3	S3	4.2

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Fritillaria liliacea fragrant fritillary	PMLIL0V0C0	None	None	G2	S2	1B.2
Geothlypis trichas sinuosa saltmarsh common yellowthroat	ABPBX1201A	None	None	G5T3	S3	SSC
Gonidea angulata western ridged mussel	IMBIV19010	None	None	G3	S2	
Helianthella castanea Diablo helianthella	PDAST4M020	None	None	G2	S2	1B.2
Helminthoglypta nickliniana bridgesi Bridges' coast range shoulderband	IMGASC2362	None	None	G3T1	S1S2	
Hesperolinon breweri Brewer's western flax	PDLIN01030	None	None	G2	S2	1B.2
Hibiscus lasiocarpos var. occidentalis woolly rose-mallow	PDMAL0H0R3	None	None	G5T3	S3	1B.2
Hygrotus curvipes curved-foot hygrotus diving beetle	IICOL38030	None	None	G2	S2	
Hypomesus transpacificus Delta smelt	AFCHB01040	Threatened	Endangered	G1	S1	
Idiostatus middlekauffi Middlekauff's shieldback katydid	IIORT31010	None	None	G1G2	S1	
Isocoma arguta Carquinez goldenbush	PDAST57050	None	None	G1	S1	1B.1
Lanius ludovicianus loggerhead shrike	ABPBR01030	None	None	G4	S4	SSC
Lasiurus cinereus hoary bat	AMACC05032	None	None	G3G4	S4	
Lasiurus frantzii western red bat	AMACC05080	None	None	G4	S3	SSC
Lasthenia conjugens Contra Costa goldfields	PDAST5L040	Endangered	None	G1	S1	1B.1
Laterallus jamaicensis coturniculus California black rail	ABNME03041	None	Threatened	G3T1	S2	FP
Lathyrus jepsonii var. jepsonii Delta tule pea	PDFAB250D2	None	None	G5T2	S2	1B.2
Lepidurus packardi vernal pool tadpole shrimp	ICBRA10010	Endangered	None	G3	S3	
Lilaeopsis masonii Mason's lilaeopsis	PDAPI19030	None	Rare	G2	S2	1B.1
Limosella australis Delta mudwort	PDSCR10030	None	None	G5	S2	2B.1
Linderiella occidentalis California linderiella	ICBRA06010	None	None	G2G3	S2S3	

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Lytta molesta molestan blister beetle	IICOL4C030	None	None	G2	S2	
Madia radiata showy golden madia	PDAST650E0	None	None	G3	S3	1B.1
Malacothamnus hallii Hall's bushmallow	PDMAL0Q0F0	None	None	G2	S2	1B.2
Masticophis lateralis euryxanthus Alameda whipsnake	ARADB21031	Threatened	Threatened	G4T2	S2	
Melospiza melodia maxillaris Suisun song sparrow	ABPBXA301K	None	None	G5T3	S2	SSC
Melospiza melodia pop. 1 song sparrow ("Modesto" population)	ABPBXA3013	None	None	G5T3?Q	S3?	SSC
Metapogon hurdi Hurd's metapogon robberfly	IIDIP08010	None	None	G1G2	S1S2	
Myrmosula pacifica Antioch multilid wasp	IIHYM15010	None	None	GH	SH	
Nannopterum auritum double-crested cormorant	ABNFD01020	None	None	G5	S4	WL
Navarretia leucocephala ssp. bakeri Baker's navarretia	PDPLM0C0E1	None	None	G4T2	S2	1B.1
Navarretia nigelliformis ssp. radians shining navarretia	PDPLM0C0J2	None	None	G4T2T3	S2S3	1B.2
Northern Claypan Vernal Pool Northern Claypan Vernal Pool	CTT44120CA	None	None	G1	S1.1	
Oenothera deltoides ssp. howellii Antioch Dunes evening-primrose	PDONA0C0B4	Endangered	Endangered	G5T1	S1	1B.1
Oncorhynchus mykiss irideus pop. 11 steelhead - Central Valley DPS	AFCHA0209K	Threatened	None	G5T2Q	S2	SSC
Perdita hirticeps luteocincta yellow-banded andrenid bee	IIHYM01021	None	None	GNRTX	SX	
Perdita scitula antiochensis Antioch andrenid bee	IIHYM01031	None	None	G1T1	S2	
Perognathus inornatus San Joaquin pocket mouse	AMAFD01060	None	None	G3	S2S3	
Philanthus nasalis Antioch specid wasp	IIHYM20010	None	None	G2	S2	
Plagiobothrys hystriculus bearded popcornflower	PDBOR0V0H0	None	None	G2	S2	1B.1
Potamogeton zosteriformis eel-grass pondweed	PMPOT03160	None	None	G5	S3	2B.2
Rana boylii pop. 4 foothill yellow-legged frog - central coast DPS	AAABH01054	Threatened	Endangered	G3T2	S2	

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Rana draytonii California red-legged frog	AAABH01022	Threatened	None	G2G3	S2S3	SSC
Reithrodontomys raviventris salt-marsh harvest mouse	AMAFF02040	Endangered	Endangered	G1G2	S3	FP
Rhaphiomidas trochilus San Joaquin Valley giant flower-loving fly	IIDIP05010	None	None	G1	S1	
Riparia riparia bank swallow	ABPAU08010	None	Threatened	G5	S3	
Sagittaria sanfordii Sanford's arrowhead	PMALI040Q0	None	None	G3	S3	1B.2
Scutellaria galericulata marsh skullcap	PDLAM1U0J0	None	None	G5	S2	2B.2
Scutellaria lateriflora side-flowering skullcap	PDLAM1U0Q0	None	None	G5	S1S2	2B.2
Senecio aphanactis chaparral ragwort	PDAST8H060	None	None	G3	S2	1B.2
Sidalcea keckii Keck's checkerbloom	PDMAL110D0	Endangered	None	G2	S2	1B.1
Sphecodogastra antiochensis Antioch Dunes halcitid bee	IIHYM78010	None	None	G1	S1	
Spirinchus thaleichthys pop. 2 longfin smelt - San Francisco Bay-Delta DPS	AFCHB03040	Endangered	Threatened	G5TNRQ	S1	
Stabilized Interior Dunes Stabilized Interior Dunes	CTT23100CA	None	None	G1	S1.1	
Sternula antillarum browni California least tern	ABNNM08103	Endangered	Endangered	G4T2T3Q	S2	FP
Stuckenia striata broadleaf pondweed	PMPOT030K0	None	None	G3G4Q	S2S3	2B.3
Symphyotrichum lentum Suisun Marsh aster	PDASTE8470	None	None	G2	S2	1B.2
Taxidea taxus American badger	AMAJF04010	None	None	G5	S3	SSC
Thamnophis gigas giant gartersnake	ARADB36150	Threatened	Threatened	G2	S2	
Tropidocarpum capparideum caper-fruited tropidocarpum	PDBRA2R010	None	None	G1	S1	1B.1
Valley Needlegrass Grassland Valley Needlegrass Grassland	CTT42110CA	None	None	G3	S3.1	
Viburnum ellipticum oval-leaved viburnum	PDCPR07080	None	None	G4G5	S3	2B.3
Vulpes macrotis mutica San Joaquin kit fox	AMAJA03041	Endangered	Threatened	G4T2	S3	

Record Count: 123

California Native Plant Society

CNPS Rare Plant Inventory

Search Results

61 matches found. Click on scientific name for details

Search Criteria: , 9-Quad include [**3812125:3812126:3712185:3812115:3712186:3812116:3712187:3812117:3812127**]

▲ SCIENTIFIC NAME	COMMON NAME	FAMILY	LIFEFORM	BLOOMING PERIOD	FED LIST	STATE LIST	GLOBAL RANK	STATE RANK	CA RARE PLANT RANK	CA ENDEMIC	DATE ADDED	PHOTO
Amsinckia grandiflora	large-flowered fiddleneck	Boraginaceae	annual herb	(Mar)Apr-May	FE	CE	G1	S1	1B.1	Yes	1974-01-01	 © 2015 Zoya Akulova
Anomobryum julaceum	slender silver moss	Bryaceae	moss		None	None	G5	S2	4.2		2001-01-01	 © 2013 Scot Loring
Arctostaphylos auriculata	Mt. Diablo manzanita	Ericaceae	perennial evergreen shrub	Jan-Mar	None	None	G2	S2	1B.3	Yes	1974-01-01	 © 2006 Steve Matson
Astragalus tener var. *tener*	alkali milk-vetch	Fabaceae	annual herb	Mar-Jun	None	None	G2T1	S1	1B.2	Yes	1994-01-01	No Photo Available
Atriplex cordulata var. *cordulata*	heartscale	Chenopodiaceae	annual herb	Apr-Oct	None	None	G3T2	S2	1B.2	Yes	1988-01-01	 © 1994 Robert E. Preston, Ph.D.
Atriplex coronata var. *coronata*	crownscale	Chenopodiaceae	annual herb	Mar-Oct	None	None	G4T3	S3	4.2	Yes	1994-01-01	 © 1994 Robert E. Preston, Ph.D.
Atriplex depressa	brittlescale	Chenopodiaceae	annual herb	Apr-Oct	None	None	G2	S2	1B.2	Yes	1994-01-01	 © 2009 Zoya Akulova
Blepharizonia plumosa	big tarplant	Asteraceae	annual herb	Jul-Oct	None	None	G1G2	S1S2	1B.1	Yes	1994-01-01	No Photo Available
Brasenia schreberi	watershield	Cabombaceae	perennial rhizomatous herb (aquatic)	Jun-Sep	None	None	G5	S3	2B.3		2010-10-27	 ©2014 Kirsten Bovee
Calandrinia breweri	Brewer's calandrinia	Montiaceae	annual herb	(Jan)Mar-Jun	None	None	G4	S4	4.2		1994-01-01	No Photo Available
Calochortus pulchellus	Mt. Diablo fairy-lantern	Liliaceae	perennial bulbiferous herb	Apr-Jun	None	None	G2	S2	1B.2	Yes	1974-01-01	No Photo Available

Carex comosa	bristly sedge	Cyperaceae	perennial rhizomatous herb	May-Sep	None	None	G5	S2	2B.1		1994-01-01	 Dean Wm. Taylor 1997
Centromadia parryi ssp. *parryi*	pappose tarplant	Asteraceae	annual herb	May-Nov	None	None	G3T2	S2	1B.2	Yes	2004-01-01	 © 2016 John Doyen
Centromadia parryi ssp. *rudis*	Parry's rough tarplant	Asteraceae	annual herb	May-Oct	None	None	G3T3	S3	4.2	Yes	2007-05-22	 © 2019 John Doyen
Chloropyron molle ssp. *molle*	soft salty bird's-beak	Orobanchaceae	annual herb (hemiparasitic)	Jun-Nov	FE	CR	G2T1	S1	1B.2	Yes	1974-01-01	 © 2014 John Doyen
Cicuta maculata var. *bolanderi*	Bolander's water-hemlock	Apiaceae	perennial herb	Jul-Sep	None	None	G5T4T5	S2?	2B.1		1974-01-01	 © 2007 Doreen L Smith
Convolvulus simulans	small-flowered morning-glory	Convolvulaceae	annual herb	Mar-Jul	None	None	G4	S4	4.2		1994-01-01	No Photo Available
Cryptantha hooveri	Hoover's cryptantha	Boraginaceae	annual herb	Apr-May	None	None	GH	SH	1A	Yes	1974-01-01	No Photo Available
Downingia pusilla	dwarf downingia	Campanulaceae	annual herb	Mar-May	None	None	GU	S2	2B.2		1980-01-01	 © 2013 Aaron Arthur
Eleocharis parvula	small spikerush	Cyperaceae	perennial herb	(Apr)Jun-Aug(Sep)	None	None	G5	S3	4.3		1980-01-01	 ©2018 Ron Vanderhoff
Eriogonum nudum var. *psychicola*	Antioch Dunes buckwheat	Polygonaceae	perennial herb	Jul-Oct	None	None	G5T1	S1	1B.1	Yes	2010-06-21	No Photo Available
Eriogonum truncatum	Mt. Diablo buckwheat	Polygonaceae	annual herb	Apr-Sep(Nov-Dec)	None	None	G1	S1	1B.1	Yes	1974-01-01	No Photo Available
Eriophyllum jepsonii	Jepson's woolly sunflower	Asteraceae	perennial herb	Apr-Jun	None	None	G3	S3	4.3	Yes	1974-01-01	No Photo Available
Eryngium jepsonii	Jepson's coyote-thistle	Apiaceae	perennial herb	Apr-Aug	None	None	G2	S2	1B.2	Yes	2016-09-13	No Photo Available
Eryngium racemosum	Delta button-celery	Apiaceae	annual/perennial herb	(May)Jun-Oct	None	CE	G1	S1	1B.1	Yes	1974-01-01	No Photo Available
Erysimum capitatum var. *angustatum*	Contra Costa wallflower	Brassicaceae	perennial herb	Mar-Jul	FE	CE	G5T1	S1	1B.1	Yes	1974-01-01	No Photo Available

Eschscholzia rhombipetala	diamond-petaled California poppy	Papaveraceae	annual herb	Mar-Apr	None	None	G1	S1	1B.1	Yes	1980-01-01	No Photo Available
Extriplex joaquinana	San Joaquin spearscale	Chenopodiaceae	annual herb	Apr-Oct	None	None	G2	S2	1B.2	Yes	1988-01-01	No Photo Available
Fritillaria agrestis	stinkbells	Liliaceae	perennial bulbiferous herb	Mar-Jun	None	None	G3	S3	4.2	Yes	1980-01-01	 © 2016 Aaron Schusteff
Fritillaria liliacea	fragrant fritillary	Liliaceae	perennial bulbiferous herb	Feb-Apr	None	None	G2	S2	1B.2	Yes	1974-01-01	 © 2004 Carol W. Witham
Galium andrewsii ssp. *gatense*	phlox-leaf serpentine bedstraw	Rubiaceae	perennial herb	Apr-Jul	None	None	G5T3	S3	4.2	Yes	1994-01-01	 © 2021 Steve Matson
Helianthella castanea	Diablo helianthella	Asteraceae	perennial herb	Mar-Jun	None	None	G2	S2	1B.2	Yes	1974-01-01	 © 2013 Christopher Bronny
Hesperevax caulescens	hogwallow starfish	Asteraceae	annual herb	Mar-Jun	None	None	G3	S3	4.2	Yes	2001-01-01	 © 2017 John Doyen
Hesperolinon breweri	Brewer's western flax	Linaceae	annual herb	May-Jul	None	None	G2	S2	1B.2	Yes	1974-01-01	 © 2014 Neal Kramer
Hibiscus lasiocarpos var. *occidentalis*	woolly rose-mallow	Malvaceae	perennial rhizomatous herb (emergent)	Jun-Sep	None	None	G5T3	S3	1B.2	Yes	1974-01-01	 © 2020 Steven Perry
Isocoma arguta	Carquinez goldenbush	Asteraceae	perennial shrub	Aug-Dec	None	None	G1	S1	1B.1	Yes	1994-01-01	No Photo Available
Lasthenia conjugens	Contra Costa goldfields	Asteraceae	annual herb	Mar-Jun	FE	None	G1	S1	1B.1	Yes	1974-01-01	 © 2013 Neal Kramer
Lasthenia ferrisiae	Ferris' goldfields	Asteraceae	annual herb	Feb-May	None	None	G3	S3	4.2	Yes	2001-01-01	 © 2009 Zoya Akulova
Lathyrus jepsonii var. *jepsonii*	Delta tule pea	Fabaceae	perennial herb	May-Jul(Aug-Sep)	None	None	G5T2	S2	1B.2	Yes	1974-01-01	 © 2003 Mark Fogiel
Lilaeopsis masonii	Mason's lilaeopsis	Apiaceae	perennial rhizomatous herb	Apr-Nov	None	CR	G2	S2	1B.1	Yes	1974-01-01	No Photo Available

Limosella australis	Delta mudwort	Scrophulariaceae	perennial stoloniferous herb	May-Aug	None	None	G5	S2	2B.1		1994-01-01	 © 2020 Richard Sage
Madia radiata	showy golden madia	Asteraceae	annual herb	Mar-May	None	None	G3	S3	1B.1	Yes	1988-01-01	No Photo Available
Malacothamnus hallii	Hall's bushmallow	Malvaceae	perennial deciduous shrub	(Apr)May-Sep(Oct)	None	None	G2	S2	1B.2	Yes	1974-01-01	 © 2017 Keir Morse
Myosurus minimus ssp. *apus*	little mousetail	Ranunculaceae	annual herb	Mar-Jun	None	None	G5T2Q	S2	3.1		1980-01-01	No Photo Available
Navarretia heterandra	Tehama navarretia	Polemoniaceae	annual herb	Apr-Jun	None	None	G4	S4	4.3		1974-01-01	 ©2021 Scot Loring
Navarretia leucocephala ssp. *bakeri*	Baker's navarretia	Polemoniaceae	annual herb	Apr-Jul	None	None	G4T2	S2	1B.1	Yes	1994-01-01	 © 2018 Barry Rice
Navarretia nigelliformis ssp. *radians*	shining navarretia	Polemoniaceae	annual herb	(Mar)Apr-Jul	None	None	G4T2T3	S2S3	1B.2	Yes	1994-01-01	No Photo Available
Oenothera deltoides ssp. *howellii*	Antioch Dunes evening-primrose	Onagraceae	perennial herb	Mar-Sep	FE	CE	G5T1	S1	1B.1	Yes	1974-01-01	No Photo Available
Piperia michaelii	Michael's rein orchid	Orchidaceae	perennial herb	Apr-Aug	None	None	G3	S3	4.2	Yes	1984-01-01	No Photo Available
Plagiobothrys hystriculus	bearded popcornflower	Boraginaceae	annual herb	Apr-May	None	None	G2	S2	1B.1	Yes	1974-01-01	No Photo Available
Potamogeton zosteriformis	eel-grass pondweed	Potamogetonaceae	annual herb (aquatic)	Jun-Jul	None	None	G5	S3	2B.2		1994-01-01	No Photo Available
Sagittaria sanfordii	Sanford's arrowhead	Alismataceae	perennial rhizomatous herb (emergent)	May-Oct(Nov)	None	None	G3	S3	1B.2	Yes	1984-01-01	 ©2013 Debra L. Cook
Scutellaria galericulata	marsh skullcap	Lamiaceae	perennial rhizomatous herb	Jun-Sep	None	None	G5	S2	2B.2		1994-01-01	 © 2021 Scot Loring
Scutellaria lateriflora	side-flowering skullcap	Lamiaceae	perennial rhizomatous herb	Jul-Sep	None	None	G5	S1S2	2B.2		1994-01-01	No Photo Available
Senecio aphanactis	chaparral ragwort	Asteraceae	annual herb	Jan-Apr(May)	None	None	G3	S2	1B.2		1994-01-01	 Neal Kramer
Senecio hydrophiloides	sweet marsh ragwort	Asteraceae	perennial herb	May-Aug	None	None	G5	S4	4.2		1984-01-01	 © 2021 Scot Loring

Sidalcea keckii	Keck's checkerbloom	Malvaceae	annual herb	Apr-May(Jun)	FE	None	G2	S2	1B.1	Yes	1974-01-01	No Photo Available
Stuckenia striata	broadleaf pondweed	Potamogetonaceae	perennial rhizomatous (aquatic)	(Jun)Jul-Aug	None	None	G3G4Q	S2S3	2B.3		2024-01-30	No Photo Available
Symphyotrichum lentum	Suisun Marsh aster	Asteraceae	perennial rhizomatous herb	(Apr)May-Nov	None	None	G2	S2	1B.2	Yes	1974-01-01	No Photo Available
Tropidocarpum capparideum	caper-fruited tropidocarpum	Brassicaceae	annual herb	Mar-Apr	None	None	G1	S1	1B.1	Yes	1974-01-01	No Photo Available
Viburnum ellipticum	oval-leaved viburnum	Viburnaceae	perennial deciduous shrub	May-Jun	None	None	G4G5	S3	2B.3		1974-01-01	 © 2006 Tom Engstrom

Showing 1 to 61 of 61 entries

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Suggested Citation:

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United States Department of the Interior

FISH AND WILDLIFE SERVICE
San Francisco Bay-Delta Fish And Wildlife
650 Capitol Mall
Suite 8-300
Sacramento, CA 95814
Phone: (916) 930-5603 Fax: (916) 930-5654

In Reply Refer To: 05/28/2025 17:08:02 UTC
Project Code: 2025-0102421
Project Name: Dutch Slough Tidal Restoration Project

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed, and candidate species, as well as proposed, and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)

(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

https://www.fws.gov/sites/default/files/documents/endangered-species-consultation-handbook.pdf

Migratory Birds: In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts, see https://www.fws.gov/program/migratory-bird-permit/what-we-do.

The MBTA has no provision for allowing take of migratory birds that may be unintentionally killed or injured by otherwise lawful activities. It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures, see https://www.fws.gov/library/collections/threats-birds.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit https://www.fws.gov/partner/council-conservation-migratory-birds.

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 et seq.), and projects affecting these species may require development of an eagle conservation plan (https://www.fws.gov/program/eagle-management/working-around-eagles). Additionally, wind energy projects should follow the wind energy guidelines (https://www.fws.gov/node/266177) for minimizing impacts to migratory birds and

bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at:https://www.fws.gov/media/recommended-best-practices-communication-tower-design-siting-construction-operation; and http://www.towerkill.com.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Code in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

OFFICIAL SPECIES LIST

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

San Francisco Bay-Delta Fish And Wildlife
650 Capitol Mall
Suite 8-300
Sacramento, CA 95814
(916) 930-5603

PROJECT SUMMARY

Project Code: 2025-0102421
Project Name: Dutch Slough Tidal Restoration Project
Project Type: Levee / Dike - Maintenance/Modification
Project Description: Levee work - raise, restoration, invasive vegetation removal
Project Location:

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@37.9989358,-121.6259654142509,14z

Counties: Contra Costa County, California

ENDANGERED SPECIES ACT SPECIES

There is a total of 19 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. 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.

MAMMALS

NAME	STATUS
San Joaquin Kit Fox *Vulpes macrotis mutica*	Endangered

No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/2873

BIRDS

NAME	STATUS
California Condor *Gymnogyps californianus*	Endangered

Population: Wherever found, except where listed as an experimental population
There is **final** critical habitat for this species. Your location does not overlap the critical habitat.
Species profile: https://ecos.fws.gov/ecp/species/8193

California Ridgway"s Rail *Rallus obsoletus obsoletus*	Endangered

No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/4240

REPTILES

NAME	STATUS
Alameda Whipsnake (=striped Racer) *Masticophis lateralis euryxanthus*	Threatened

There is **final** critical habitat for this species. Your location does not overlap the critical habitat.
Species profile: https://ecos.fws.gov/ecp/species/5524

Giant Garter Snake *Thamnophis gigas*	Threatened

No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/4482

Northwestern Pond Turtle *Actinemys marmorata*	Proposed Threatened

No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/1111

AMPHIBIANS

NAME	STATUS
California Red-legged Frog *Rana draytonii*	Threatened

There is **final** critical habitat for this species. Your location does not overlap the critical habitat.
Species profile: https://ecos.fws.gov/ecp/species/2891

California Tiger Salamander *Ambystoma californiense*	Threatened

Population: U.S.A. (Central CA DPS)
There is **final** critical habitat for this species. Your location does not overlap the critical habitat.
Species profile: https://ecos.fws.gov/ecp/species/2076

FISHES

NAME	STATUS
Delta Smelt *Hypomesus transpacificus* There is **final** critical habitat for this species. Your location overlaps the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/321	Threatened
Longfin Smelt *Spirinchus thaleichthys* Population: San Francisco Bay-Delta DPS There is **proposed** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/9011	Endangered
Longfin Smelt *Spirinchus thaleichthys* Population: San Francisco Bay-Delta DPS No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9011	Proposed Endangered

INSECTS

NAME	STATUS
Monarch Butterfly *Danaus plexippus* There is **proposed** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/9743	Proposed Threatened
Valley Elderberry Longhorn Beetle *Desmocerus californicus dimorphus* There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/7850	Threatened

CRUSTACEANS

NAME	STATUS
Conservancy Fairy Shrimp *Branchinecta conservatio* There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/8246	Endangered
Longhorn Fairy Shrimp *Branchinecta longiantenna* There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/4294	Endangered
Vernal Pool Fairy Shrimp *Branchinecta lynchi* There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/498	Threatened
Vernal Pool Tadpole Shrimp *Lepidurus packardi* There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/2246	Endangered

FLOWERING PLANTS

NAME	STATUS
Large-flowered Fiddleneck *Amsinckia grandiflora*	Endangered

NAME STATUS

There is **final** critical habitat for this species. Your location does not overlap the critical habitat.
Species profile: https://ecos.fws.gov/ecp/species/5558

Soft Bird's-beak *Cordylanthus mollis ssp. mollis* Endangered
There is **final** critical habitat for this species. Your location does not overlap the critical habitat.
Species profile: https://ecos.fws.gov/ecp/species/8541

CRITICAL HABITATS

There is 1 critical habitat wholly or partially within your project area under this office's jurisdiction.

NAME STATUS

Delta Smelt *Hypomesus transpacificus* Final
https://ecos.fws.gov/ecp/species/321#crithab

IPAC USER CONTACT INFORMATION

Agency:	Private Entity
Name:	Julie De Barros
Address:	11010 White Rock Road
Address Line 2:	Suite 200
City:	Rancho Cordova
State:	CA
Zip:	95670
Email	jdebarros@geiconsultants.com
Phone:	9166314500