2023 Storm Damage, Department of Water Resources Levee Rehabilitation Repair Site 23-078

Public Draft

Initial Study/Mitigated Negative Declaration Colusa County

California Department of Water Resources

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Prepared for:

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ACRONYMS AND ABBREVIATIONS

°F	Fahrenheit
AB	Aggregate Base
AB	Assembly Bill
AG	Agriculture General
Alquist-Priolo Act	Alquist-Priolo Earthquake Fault Zoning Act
APE	Area of Potential Effects
B.P.	before present
BMPs	best management practices
ca.	circa
CAAQA	California ambient air quality standards
cal B.P.	calibrated years before the present
CAL FIRE	California Department of Forestry and Fire Protection
Cal. Code Regs	California Code of Regulations
CalEEMod	California Emissions Estimated Model
Caltrans	California Department of Transportation
CARB	California Air Resources Board
CCAPCD	Colusa County Air Pollution Control District
CDOC	California Department of Conservation
CEQA	California Environmental Quality Act
CGS	California Geological Survey
CH_4	methane
CHP	California Highway Patrol
CHRIS	California Historical Resources Information System
CNDDB	California Natural Diversity Database
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalence
Colusa Basin Drain	Colusa Bain Drainage Canal
CRPR	California Rare Plant Rank
CVFPB	Central Valley Flood Protection Board
dB	decibels
dBA	A-weighted decibels
DF	Designated Floodway
DTSC	California Department of Toxic Substances Control
DWR	California Department of Water Resources
E-A	Exclusive Agriculture
EIA	U.S. Energy Information Administration
EIR	Environmental Impact Report
EM	Engineering Manual
EO	Executive Order
EPA	U.S. Environmental Protection Agency
ER	Engineer Regulation

FEMA	Federal Emergency Management Agency
FESA	federal Endangered Species Act
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
g	ground acceleration
GGERP	Greenhouse Gas Emissions Reduction Plan
GHGs	greenhouse gases
GM	general measures
GWP	global warming potential
H:V	height: vertical
Hz	hertz
I-5	Interstate 5
in/sec	inches per second
IPCC	Intergovernmental Panel on Climate Change
IS	Initial Study
LCAQMD	Lake County Air Quality Management District
LCFS	Low Carbon Fuel Standard
L_{eq}	Equivalent sound level
$L_{eq[h]}$	1-hour, A-weighted equivalent sound level
L_{max}	Maximum sound level
Ln	Statistical Descriptor
LRAs	Local Responsibility Areas
MLD	Most Likely Descendant
MMRP	Mitigation Monitoring and Reporting Program
MND	Mitigated Negative Declaration
MT	metric tons
N_2O	nitrous oxide
NAAQS	national ambient air quality standards
NAHC	Native American Heritage Commission
NRCS	U.S. Natural Resources Conservation Service
NSVPA	Northern Sacramento Valley Planning Area
NWIC	Northwest Information Center
NWS	National Weather Service
OPR	Office of Planning and Research
PM	particulate patter
PM_{10}	PM equal to or less than 10 micrometers in diameter
$PM_{2.5}$	PM equal to or less than 2.5 micrometers in diameter
PPV	peak particle velocity
PRC	Public Resources Code
proposed project	Site 23-078 levee repairs
RCNM	Roadway Construction Noise Model
RD	Reclamation Districts
RMS	root-mean-square

SMARA	Surface Mining and Reclamation Act
SOIPQS	Secretary of the Interior's Professional Qualification Standards
SPFC	State Plan of Flood Control
SRAs	State Responsibility Areas
SRFCP	Sacramento River Flood Control Project
Superfund	National Priorities List
SWRCB	State Water Resources Control Board
TCRs	Tribal Cultural Resources
USACE	U.S. Army Corps of Engineers
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
USGS	United States Geological Services
VdB	vibration decibel
VMT	Vehicle Miles Travelled
WEAP	Worker Environmental Awareness Training
Xerces	The Xerces Society for Invertebrate Conservation
ZEV	Zero Emissions Vehicles

1. INTRODUCTION

1.1 Background

The State Plan of Flood Control (SPFC) is a complex system of levees, weirs, bypasses, dams, reservoirs and other features constructed to protect urban and rural areas from flooding. The SPFC system includes approximately 1,600 miles of levee within a geographic area of more than 43,000 square miles that encompasses the Sacramento and San Joaquin rivers and tributaries. SPFC levees at multiple sites have been identified as damaged to such an extent that the flood control performance has been compromised, presenting a potential public safety risk that could result in flooding, property damage, and loss of life in the protected area during the next high water event.

The winter storms of the 2022–2023 season severely damaged many segments of the SPFC levees on the Sacramento and San Joaquin river systems that provide important flood protection to the entire region. The California Department of Water Resources (DWR) through a process of identification and prioritization, assessed a number of locations with the highest risk of failure and associated damage. Six of these locations were selected for emergency repair activities that were conducted in fall 2023. Rehabilitation repairs were conducted on the Yolo County, Yolo Bypass (Site 23-009); Bear River, Sutter County (Sites 23-045, -046, and -047); Sacramento River, Colusa County (Site 23-079); and San Joaquin River, Stanislaus County (23-080). Repairs included waterside rock slope protection with clearing and grubbing as needed at the project sites.

Site 23-078 was identified as a critical site during the 2023 Storm Damage Emergency Rehabilitation assessment but required additional planning to address levee damage. The landside levee repair is expected to take place in 2026. DWR is preparing this Initial Study/Mitigated Negative Declaration (IS/MND) to evaluate levee repairs at Site 23-078 in Colusa County (proposed project).

1.2 California Environmental Quality Act Context

CEQA requires that all state and local government agencies consider the environmental consequences of projects they propose to carry out or 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 project is the lead agency for CEQA compliance (CEQA Guidelines Section 15367). DWR has principal responsibility for carrying out the proposed project and is therefore the CEQA lead agency for this IS/MND.

After the required public review of this document is complete, DWR will consider adopting the proposed MND and a Mitigation Monitoring and Reporting Program, and will decide whether to proceed with the proposed project.

This document is an IS/MND prepared in accordance with CEQA (Public Resources Code [PRC] Section 21000 et seq.) and the CEQA Guidelines (Title 14, Section 15000 et seq. of the California Code of Regulations). The purpose of this IS/MND is to (1) determine whether project implementation would result in potentially significant or significant effects on the environment; and (2) incorporate mitigation measures into the project design, as necessary, to eliminate the proposed project's potentially significant or significant effects or reduce them to a less-than-significant level.

If there is substantial evidence (such as the findings of an IS) that a project, either individually or cumulatively, may have a significant effect on the physical environment, the lead agency must prepare an Environmental Impact Report (EIR) (CEQA Guidelines Section 15064[a]). If the IS concludes that impacts would be less than significant, or that mitigation measures committed to by the applicant would clearly reduce impacts to a less-than-significant level, a negative declaration or MND can be prepared.

A negative declaration or MND is a written statement prepared by the lead agency describing the reasons why the proposed project would not have a significant impact on the environment, and therefore, would not require preparation of an EIR (CEQA Guidelines Section 15371). According to Section 15070 of the CEQA Guidelines, a negative declaration or MND for a project subject to CEQA should be prepared when either:

- the IS shows that there is no substantial evidence, in light of the whole record before the lead agency, that the project may have a significant impact on the environment; or
- the initial study identifies potentially significant impacts, but:
  - revisions made to the project plans or proposal before the proposed MND is released for public review would avoid the impacts or mitigate the impacts to a point where clearly no significant impacts would occur; and
  - 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 environment.

DWR has analyzed the potential environmental impacts of the proposed project, determined that the proposed project's impacts would be less than significant or can be reduced to a less-than-significant level with the implementation of mitigation measures, and therefore has prepared this IS/MND.

1.3 Scope of This Document

Chapter 2, Project Description, provides a current description of the proposed project. Chapter 3, Initial Study, evaluates the proposed project. In addition, previously imposed mitigation measures as part of previous repair site evaluations and as applicable to the proposed project, and applicable environmental commitments, are identified. This evaluation is provided for the following environmental resource topics:

- Aesthetics
- Agriculture and Forestry Resources

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

The proposed project would have no impact, given the location of the repairs and the types of construction activities to occur, on the following environmental resources: Population and Housing; Public Services; Recreation; and, Utilities and Services Systems. The project site is located in a rural and agricultural setting, and would not involve the development of new homes, businesses, or utilities, and no homes, businesses, or utilities currently exist at the project site. Implementation of the proposed project would not generate population growth or include any other uses or activities that would increase demand for fire or police protection services such that the construction of new or expansion of existing fire or police service facilities would be required. The proposed project would not involve any changes to existing recreational facilities such as nearby parks, or require the construction of new recreational facilities or the expansion of existing ones that might have an adverse physical effect on the environment. For these reasons, Population and Housing, Public Services, Recreation, and Utilities and Services Systems are not discussed further in this IS.

1.4 Conclusion

Chapter 3 of this document contains the analysis and discussion of potential environmental impacts of the proposed project. The analysis in this IS concludes that the proposed project, with implementation of mitigation measures, would have no significant impacts. As such, further environmental review is not required by CEQA. DWR would adopt a Mitigation Monitoring and Reporting Program to ensure that all required mitigation measures are implemented.

1.4.1 Reference

None.

2. PROJECT DESCRIPTION

2.1 Introduction

This site was damaged during 2023 storm events. Although the activities required to repair this site are similar to the repairs that previously took place at other repair locations in the rehabilitation program, DWR is preparing this IS/MND to comply with CEQA for the repairs that would occur at Site 23-078.

2.2 Project Location

Site 23-078 is located in Colusa County and the local maintaining agency of the levee is Reclamation District (RD) 108. The levee repair is on landside of left bank of the Colusa Basin Drainage Canal East Levee, along RD 108 irrigation canal at the toe of the levee. The center of the repair for this site is levee mile 15.47 at approximately 38.977 degrees north and -121.937 degrees east. The location of this site is identified on Figure 2-1 and Figure 2-2. These figures also depict the vicinity of the proposed work and the proposed work area, staging area, laydown area, and access routes. The limits of work for the repair would be approximately 0.7 acres and the staging/laydown area would be approximately 0.16 acres.

2.3 General Construction Approach

The proposed project would repair and rehabilitate the levee using a variety of construction equipment. The repair and rehabilitation would be scheduled to occur within a permitted time period to avoid wet weather conditions and impacts on special-status species. The following information details proposed repair and rehabilitation activities, environmental commitments, construction considerations, and the proposed schedule for repairs. The environmental commitments described in Section 2.4 below include conservation measures and/or best management practices (BMPs) that were developed in coordination with resource agencies to avoid, minimize, and/or provide compensation for effects on biological resources and water quality.

Typical construction activities at each site are subdivided into the following stages:

1) Mobilization—site access and staging areas
2) Site preparation
3) Construction
4) Demobilization—restoration and cleanup

Figure 2-1. Site 23-078 Vicinity

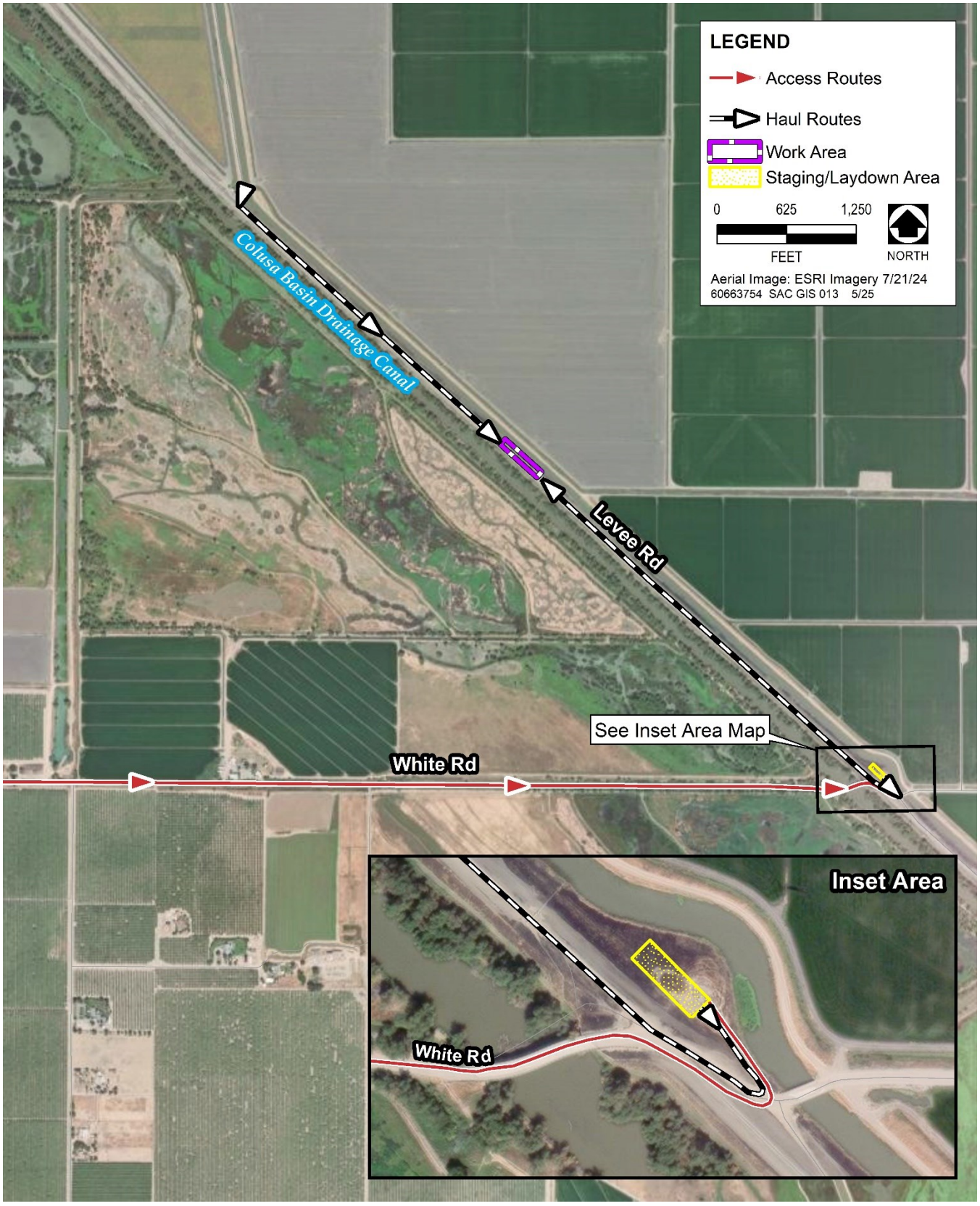

Figure 2-2. Site 23-078 Proposed Work Area, Haul Route, and Staging/Laydown Area

2.3.1 Mobilization – Site Access and Staging Area

Mobilization would take place at the levee rehabilitation site and would include: creating temporary access roads and staging areas, if needed; securing the site; and transporting equipment and materials to the site for later repair phases (e.g., clearing and grubbing, and construction). Access to the repair site would occur primarily along existing paved public roads, levee crown roads, or unpaved private farm roads.

The landside staging area would generally be used for stockpiling of materials and equipment. The laydown/staging area may require construction easements from adjacent landowners. Activities that would occur within staging areas include: storage of necessary imported materials (e.g., soil); construction worker parking; refueling and servicing of construction equipment; and establishing a temporary restroom. Truck routes, temporary access roads, and staging, laydown, and construction areas are shown in Figure 2-2. Further detailed information for Site 23-078, including current pictures of levee site conditions, acreage, length, construction design, and construction considerations are provided in Appendix A.

2.3.2 Site Preparation

Clearing and grubbing would be the first step in preparing each site for construction. The construction site would be cleared of grasses, ground cover, trash, and any other undesirable materials, using mechanized equipment. It is not anticipated mature trees would need to be removed or protected at Site 23-078 because there are no mature trees within the area of disturbance.

In-water work is not expected at Site 23-078 given the location of the repairs on the landside of the levee and the timing in which the repairs would be conducted. Therefore, a turbidity curtain is not anticipated to be needed or used. The repair work limits and staging areas would be fenced (orange construction fencing) to prevent vehicles and equipment from approaching the waterside edge of the existing bank (where applicable), to protect sensitive habitat, and to identify disturbance area limits.

2.3.3 Construction Process

Once the site is cleared and grubbed, the site would be excavated of existing levee soils disturbed by the structural failure and transition zones. The site would then be excavated and graded to a 3 horizontal (H): 1 vertical (V) or 3:1 slope. The range of depths of disturbance along the repair would be between 1 foot and 3 feet and the maximum depth of disturbance would be 3 feet. The back slope of the levee would be shaped for stability. All excavated material would be hauled off site and disposed of at a previously permitted site.

In locations with earthfill, 2 inches of clean topsoil would be placed above the fill covered with erosion fabric to stabilize the bank. Once bank construction is complete, all disturbed soil remaining on the repair site would be seeded with a native erosion control seed mix according to the planting specifications.

2.3.4 Demobilization, Restoration, and Clean-up

Following levee rehabilitation construction, all equipment and materials would be removed from the repair site and excess materials would be disposed of at appropriate facilities. The staging/laydown area would generally be restored to pre-project conditions. Any damage as a result of the construction, including to the haul route road or fencing, would be repaired. All areas would be cleaned and cleared of rubbish and left in a safe condition, suitable for use as intended.

2.3.5 Construction Timing and Equipment

Construction activities would take place at each site throughout the summer/fall (May 1 through November 1).

Site 23-078 would require approximately two to four weeks of active construction. All work would take place during daylight hours, and no nighttime lighting would be required. The maximum length of the workday would be 6 a.m. to 8 p.m. depending on allowable daylight. Noise ordinances would be followed, as applicable.

Heavy equipment and vehicles to be used during construction at Site 23-078 would include the following: skid-steer loader, compactor, dozer, backhoe, water trucks, dump trucks, excavator, and pickup trucks.

Approximately 175 round trip truckloads are expected to complete the repairs based on approximately 1,262 cubic yards of excavation, 1,279 cubic yards of earthfill, 48 cubic yards of agricultural soil, and approximately 324 tons of various other materials to repair the levee. Typically, 15 workers would be needed to repair the site and are expected to be at the site each workday, resulting in approximately 30 daily worker one-way trips to and from the site for the duration of the construction period.

2.4 Environmental Commitments

The following summarizes the applicable environmental commitments DWR has incorporated into the proposed project. These environmental commitments include conservation measures and/or BMPs. These environmental commitments were developed in coordination with the resource agencies to avoid, minimize, and/or provide compensation for effects on biological resources. DWR would implement these environmental commitments as part of the proposed project construction activities at Site 23-078. These commitments will be satisfied even if not separately imposed by permitting agencies, and if permitting agencies impose additional measures or modifications, these will also be adhered to as part of the permit(s). The environmental analysis considers these commitments as elements of the proposed project when determining the significance of impacts. DWR will include the environmental commitments in the Mitigation Monitoring and Reporting Program for approval and implementation.

2.4.1 Biological Resources

DWR would minimize disturbance to biological resources at or near the repair site by implementing the following general measures (GM) and/ or BMPs:

GM-01 Approved Biologist. Resumes of biologist(s) qualifications (qualified biologist) will be submitted to DWR for approval before starting repairs. DWR will ensure that the qualified biologist is knowledgeable and experienced in the biology and natural history of all special-status species potentially occurring in the repair area. The qualified biologist will be responsible for monitoring repairs, to help minimize and fully mitigate or avoid the incidental take of individual species, and to minimize disturbance of species' habitats.

GM-02 Preconstruction Biological Surveys. Before the start of repair activities, a qualified biologist will conduct a preconstruction survey to identify special-status species and associated habitats. Surveys will be conducted within the project footprint, laydown area, and adjacent haul route. If required, species and/or buffers will be marked in the field by a qualified biologist, using temporary fencing, high-visibility flagging, or other means that are equally effective. The preconstruction surveys will include surveys for northwestern pond turtles during the nesting season (roughly May through July), a qualified biologist will survey the work site no more than 48 hours before the onset of activities for signs of northwestern pond turtles and/or northwestern pond turtle nesting activity (i.e., recently excavated nests, nest plugs) or nest depredation (partially to fully excavated nest chambers, nest plugs, scattered egg shell remains, egg shell fragments). Preconstruction surveys to detect northwestern pond turtle nesting activity will be concentrated within 1,319 feet of suitable aquatic habitat and will focus on areas along south- or west-facing slopes with bare hard-packed clay or silt soils or sparse vegetation of short grasses or forbs.

GM-03 Worker Environmental Awareness Training. DWR will provide environmental awareness training by a qualified biologist to the DWR construction lead, construction foreman, crew leader, and any contractor personnel working on the construction site. Environmental awareness training will include descriptions of all special-status species known from or potentially occurring in the repair area, their habitats, and methods of identification, including visual aids as appropriate. The training will also describe activity-specific measures that will be followed to avoid impacts. Hard copies of environmental permits and training materials will be provided to the DWR construction lead, construction foreman, crew leader, and any contractors participating in repair work.

GM-04 Staging and Access. Existing staging sites, maintenance toe roads, and levee crown roads will be used to the extent practicable for staging and access, to avoid affecting previously undisturbed areas. The number of access routes and the size of staging and work areas will be limited to the minimum necessary to conduct the repair activity.

GM-05 Construction Area Limit Delineation. Where feasible and practicable (e.g., based on the size of the repair area and repair to be performed), work area limits will be clearly marked (e.g., with flagging or fencing), including access roads; staging and equipment storage areas; stockpile areas for spoil disposal, soil, and materials; fueling and concrete washout areas; and equipment exclusion zones. Work will occur only within the marked limits. This measure is

intended to apply to repair activities occurring in discrete areas as opposed to activities occurring over an extensive area where flagging work limits will be infeasible.

GM-06 Equipment Inspection. Inspections will be conducted under all vehicles and heavy equipment for the presence of wildlife before the start of each workday when equipment is staged overnight. In addition, a search for wildlife will be conducted in equipment or materials that have been stored on site for one or more nights before they are moved.

GM-07 Open Excavation Covering. All excavated, steep-walled holes or trenches will be covered with appropriate covers (thick metal sheets or plywood) at the end of each workday. Covers will be placed to ensure that trench edges are fully sealed. Alternatively, such trenches may be furnished with one or more escape ramps, constructed of earth fill or wooden planks, to provide an escape for wildlife.

GM-08 Construction Site Best Management. All project-related trash items, such as wrappers, cans, bottles, and food scraps, will be collected in closed containers that are removed from the rehabilitation site each day and disposed at an appropriate off-site location, to minimize attracting wildlife to work areas.

GM-09 Clearing and Grubbing Best Management. Clearing of vegetation will be kept to the minimum necessary, especially the clearing of native riparian vegetation. Grubbing for temporary vehicle access will be minimized to the extent practicable.

GM-10 Erosion Control Materials. If erosion control fabrics are used, products will not be used with plastic monofilament or cross-joints in the netting that are bound/stitched (e.g., straw wattles, fiber rolls, or erosion control blankets), which could trap wildlife.

GM-11 Site Restoration. Temporary fill, construction debris, and refuse will be removed and properly disposed, following completion of any repair activities.

GM-12 On-site Habitat Restoration. Habitats will be restored to pre-project conditions wherever feasible. Restoration may include recontouring by grading and disking, revegetating with native seeds and plants reflective of the target plant community, decompacting soil, and installing appropriate erosion control measures to return the disturbed on-site habitat to pre-activity conditions.

GM-13 Invasive Plant Species Control. For invasive plant species control, DWR will implement measures to minimize the potential for invasive plants to be introduced or spread during repair activities. Measures to avoid contamination and spread of invasive species will be created for the site, as deemed necessary by a qualified biologist, and will be approved by a qualified biologist before implementation.

GM-14 Resource Agency Access. DWR will provide all natural resource agency staff with reasonable access to the repair site and otherwise will fully cooperate with the natural resource agencies' efforts to verify compliance with, or effectiveness of, conservation measures.

GM-15 Stop Work Authority. A qualified biologist will be authorized to stop repair activities that, in the biologist's opinion, threaten to cause unanticipated and/or unpermitted adverse effects on special-status species or habitat. If repair activities are stopped, the qualified

biologist will consult with USFWS or CDFW, as appropriate, to determine measures that DWR will implement to avoid adverse effects. Buffers will be maintained until a threat of disturbance to the sensitive biological resource no longer exists, as determined by a qualified biologist.

GM-16 Listed Species Take Reporting. A qualified biologist will immediately notify DWR if a species is taken or injured by a repair-related activity, or if a species is otherwise found dead or injured in the repair site vicinity. DWR will provide initial notification to CDFW and/or USFWS and other appropriate agencies. The initial notification will include information regarding the location, species, number of animals taken or injured, and site number. Following initial notification, DWR will submit a written report within two calendar days. The report will include the date and time of the finding or incident, location of the animal or carcass, and if possible, will provide a photograph, explanation as to cause of take or injury, and any other pertinent information.

2.4.2 Monarch Butterfly

BIO-1 Monarch Butterfly Protection. If repair activities may adversely affect the monarch butterfly (*Danaus plexippus*), DWR would implement the following measures:

a) **Preconstruction Surveys**: If vegetation clearing is scheduled between May and October, a qualified biologist will survey the site for monarch butterfly larval host plants, specifically milkweed (*Asclepias* spp.), in suitable habitats. If host plants are found, the biologist will either conduct surveys to determine the presence or absence of adult monarch butterflies and inspect milkweed for monarch eggs, larvae, and pupae, or assume their presence.

b) **Wildlife Exclusion Fencing:** If butterfly eggs, larvae, or pupae are confirmed, or assumed to be present, host plants will be clearly marked with fencing or signage, and construction personnel will be trained to avoid these zones. No equipment or personnel will be allowed within these designated no-work zones during the flight season to prevent accidental damage.

c) **Milkweed removal**: If the absence of butterfly eggs, larvae, and pupae is confirmed by a qualified biologist, the host plants may be removed to minimize the potential for take.

d) **Restoration and Revegetation Plan:** Prior to any ground-disturbing activity, the project biologist would prepare a restoration and revegetation plan to address temporary impacts resulting from ground-disturbing activities within areas that potentially support special-status species, wetlands, or other aquatic resources. Restoration activities may include, but not be limited to: grading landform contours to approximate pre-disturbance conditions, revegetating disturbed areas with native plant species, and using certified weed-free straw and mulch. To support monarch butterfly populations, the proposed project's revegetation plan will include host and nectar plants for monarch butterflies. The selected species must be appropriate for the region's climate and soil conditions. Milkweed and nectar plants (as listed below) will be planted in all temporarily disturbed areas with suitable habitat areas to enhance monarch butterfly breeding and foraging opportunities.

Host Plants (Include at least 2 of the following species at a rate of 20 seeds/square foot)

- Narrow leaf milkweed (*Asclepias fascicularis*)
- Indian milkweed (*Asclepias eriocarpa*)
- Showy Milkweed (*Asclepias speciosa*)

Nectar Plants (Include at least 2 of the following species)

- Yarrow (*Achillea millefolium*)
- Indian hemp (*Apocynum cannabinum*)
- common sunflower (*Helianthus annuus*)
- sneezeweed (*Helenium amarum*)
- coyote mint (*Monardella villosa*)
- chia sage (*Salvia columbariae*)
- Canada goldenrod (*Solidago altissima*)
- California goldenrod (*Solidago californica*)

2.4.3 Giant Gartersnake

BIO-2 Giant Gartersnake. When repair activities occur within 200 feet of potentially suitable aquatic habitat which could adversely affect giant gartersnake (*Thamnophis gigas*), DWR would implement the following measures as determined to be necessary by a qualified biologist.

a) **Seasonal Work Restrictions**: DWR will restrict repair activities in terrestrial habitats that potentially support giant gartersnake between May 1 and October 1. This is the active period for giant gartersnake, and direct mortality will be avoided because giant gartersnake are expected to actively move and avoid danger. Repair work may continue after October 1 in areas where construction was initiated during the giant gartersnake active season and remained continuous thereafter and if ambient air temperatures exceed approximately 75 degrees Fahrenheit (°F) during work and maximum daily air temperatures have exceeded approximately 75°F for at least 3 consecutive days immediately preceding work. During these periods, giant gartersnake are more likely to be active in aquatic habitats and less likely to be found in upland habitats. DWR will notify USFWS and CDFW of work in these locations. DWR will include a justification for the request and any additional information USFWS or CDFW deem necessary. USFWS and CDFW may require DWR to apply additional appropriate measures.

b) **Preconstruction Surveys**: The qualified biologist will survey areas of planned ground disturbance and the laydown/staging area for burrows, soil cracks, and crevices that may be suitable for use by giant gartersnakes when those areas are

within suitable terrestrial habitat. Surveys will be completed no more than 3 days before conducting any ground-disturbing activities in terrestrial habitat potentially supporting giant garter snakes. Any identified burrows, soil cracks, crevices, or other habitat features will be flagged or marked by the qualified biologist. If project activities temporarily stop for more than 14 days, surveys for soil cracks and similar features will be repeated by a qualified biologist, as described above.

c) **Small Burrows and Exclusion Fencing**: All burrows or cracks flagged or marked during the preconstruction surveys will be hand excavated prior to exclusion fencing installation to determine if snakes could be hiding along the planned fence perimeter or within the work limits or laydown/staging area. The hand excavation will have the effect of locating snakes still using the planned work area and allowing them to leave unharmed, which will avoid harassment, injury, or killing of giant gartersnakes during repair activities. Following hand excavation, all holes or burrows which appear to extend under the exclusion fencing will be blocked to prevent giant gartersnake movement into the project site. All hand excavation and blocking of burrows will be monitored or performed by a qualified biologist.

   Exclusion fencing will be installed surrounding the limits of work and the laydown/staging area. Exclusion fencing will be installed pursuant to manufacturer specifications. The following criteria for the exclusion fencing system will be met:

   i. The exclusion fencing will consist of material appropriate for exclusion of giant gartersnake and will not include materials or cross joints that may cause entrapment.

   ii. The exclusion fencing will either measure at least 36 inches tall above the soil surface or be of appropriate height for exclusion of giant gartersnake.

   iii. The bottom of the exclusion fencing will not allow wildlife to pass through gaps or holes.

   iv. The exclusion fencing shall be taut between the supporting stakes and shall have the supporting stakes oriented on the inside edge of the project site.

   v. The exclusion fencing will feature one-way escape doors or an appropriate design for preventing giant gartersnake and other wildlife from being trapped within the project sites.

   vi. Fencing system entry/exit for vehicular and pedestrian traffic will be constructed so wildlife cannot access the project site during non-work hours.

   vii. The exclusion fencing system will remain in place until all project activities have been completed. All components of the exclusion fencing will be removed for storage or disposal off-site immediately upon completion of project-related activities. Exclusion fencing will be inspected daily by the qualified biologist and repaired as necessary.

d) **Avoidance Buffers**: Potentially suitable aquatic habitat for the giant gartersnake will be identified and flagged by a qualified biologist within 200 feet of the limits of work

and the laydown/staging area. This suitable aquatic habitat will be avoided by workers and project activities.

e) **Qualified Biologist**: A qualified biologist will be onsite during all grading activities, vegetation removal activities, and trenching activities within the project site. A qualified biologist will be on site to monitor access routes and the laydown/staging area for snake activity and presence. The qualified biologist will be responsible for checking the exclusion fencing daily and, if required, ensuring it is properly repaired with the assistance of the contractor. A qualified biologist will be onsite and monitor all locations where repair activities will alter giant garter snake hibernacula/refugia (rip rap, burrows, vegetation, etc.).

f) **Stop Work Authority**: If snakes are observed within the project site, including the limits of work, the staging/laydown area, or the haul routes, work will stop in the immediate area until the snake is out of the repair area and a qualified biologist will be notified immediately. The snake will be allowed to leave on its own, and the qualified biologist will remain in the area until the biologist deems their presence no longer necessary to ensure that the snake is not harmed.

g) **Speed Limits**: Project related vehicles will observe a 15-mile-per-hour speed limit within the project area.

h) **Spoil Placement**: Spoils will be placed in areas that do not provide suitable snake upland habitat (e.g., compacted or gravel roadbeds, orchards, and recently disked agricultural fields) or areas that have been previously surveyed by a qualified biologist and hand excavated to confirm absence of giant gartersnakes.

i) **Restoration to Pre-Project Conditions**: Upland habitat will be restored following construction of the proposed project. Landform contours will be graded to approximate pre-disturbance conditions using earthfill materials (i.e., without using geotextiles), disturbed areas will be revegetated with native plant species, and straw and mulch will be certified weed-free.

2.4.4 Swainson's Hawk and Nesting Birds

BIO-3 Nesting Bird Surveys. If repair activities could adversely affect nesting Swainson's hawk (*Buteo swainsoni*) or other bird species and their habitat, DWR would implement the following measures:

a) If repair activities occur during the nesting period for birds (February 1 to September 15), DWR will complete pre-activity surveys for nesting birds (including, but not limited to, Swainson's hawk, raptor, and passerine nest surveys, and heron and egret rookeries). Surveys will be conducted by a qualified biologist not more than 5 days prior to the start of activities. Surveys will be conducted within suitable nesting habitat that could be affected by repair activities (e.g., staging areas, spoils areas, access routes) and will include a 500-foot buffer area (or larger area if required by established survey protocol) surrounding these areas. Where appropriate, pre-activity surveys will follow established survey protocols or guidelines.

b) If active nests are found, DWR will establish an avoidance buffer as indicated below for activities that would potentially affect the nesting birds. The temporary disturbance buffer will be established until the young have fledged, are no longer being fed by the parents, have left the nest, and will no longer be impacted by the activities. Alternatively, a qualified biologist, in coordination with the appropriate natural resource agency, may determine that a buffer is not required to avoid adverse effects on nesting birds, based on the specific activities to be conducted and species present.

- Passerines: 100-foot buffer
- Herons/Egrets: 200-foot buffer
- Raptors: 300-foot buffer
- Swainson's hawk: 0.25-mile buffer

2.4.5 Water Quality

DWR would install appropriate BMPs to reduce the potential release of water quality pollutants to receiving waters through the implementation of BMPs and compliance with applicable permits. BMPs may include the following measures:

1. DWR will conduct environmental awareness training to train the contractor on the proper use of BMPs and applicable permit requirements to protect receiving water quality.
2. DWR will install erosion control measures, such as use of straw bales, silt fences, fiber rolls, or equally effective measures, at project locations adjacent to stream channels, drainage canals and wetlands, as needed. During active construction activities, erosion control measures will be monitored during and after each storm event for effectiveness. Modifications, repairs, and improvements to erosion control measures will be made as needed to protect water quality.
3. DWR will install turbidity curtains or similar methods during in-channel work to control silts and sediments, if needed.
4. DWR will restrict work to periods of low rainfall (less than ¼-inch per 24-hour period) and periods of dry weather (with less than a 50% chance of rain). DWR will monitor the National Weather Service (NWS) 72-hour forecast for the project area. No work will occur during a dry-out period of 24 hours after the above-referenced wet weather.
5. DWR will minimize ground and vegetation disturbance by establishing designated equipment staging areas, access routes, spoils and soil stockpile areas, and equipment exclusion zones prior to the commencement of activity.
6. DWR will prepare and implement a hazardous materials management and spill response plan. DWR will ensure any hazardous materials are stored at the staging areas and with an impermeable membrane between the ground and hazardous material, and that it is bermed to prevent the discharge of pollutants to groundwater and runoff water. DWR will immediately stop, and pursuant to pertinent state and federal statutes and regulations, arrange for repair and clean up by qualified individuals of any fuel or hazardous waste leaks or spills at the time of occurrence, or as soon as it is safe to do so, according to the prepared spill response plan. DWR will notify USFWS and CDFW within 24 hours of any

leaks or spills. DWR will properly contain and dispose of any unused or leftover hazardous products off-site. DWR will use and store hazardous materials, such as vehicle fuels and lubricants, in designated staging areas located away from stream channels and wetlands according to local, state, and federal regulations, as applicable.

7. Construction vehicles and equipment will be checked daily for leaks and will be properly maintained to prevent contamination of soil or water from external grease and oil or from leaking hydraulic fluid, fuel, oil, and grease.

2.5 Anticipated Regulatory Permits and Approvals

Table 2-1 lists the state and local permits and regulatory approvals that are expected to be necessary to conduct the proposed activities at Site 23-078.

Table 2-1. Permits and Approvals Potentially Needed to Conduct Permitted Activities

State Permits/Approvals	Permitting Authority	Affected Elements
Section 1601 et seq. Streambed Alteration Agreement	California Department of Fish and Wildlife	Permitted activities on facilities that would impact the bed or bank of a stream channel
Local Permit/Approvals	**Permitting Authority**	**Affected Elements**
Encroachment Permit	Local jurisdictions (including counties, cities, and Reclamation Districts)	Permitted activities on facilities located within rights-of-way or easements managed by Counties, cities or other local jurisdictions

2.6 References

None.

3. INITIAL STUDY

1. Project Title: 2023 Storm Damage Rehabilitation Repair Site 23-078
2. Lead Agency: California Department of Water Resources
3. Contact Person and Phone Number: Kristin Ford, 916-914-0220
4. Project Location: Colusa County
5. Project Sponsor: California Department of Water Resources
6. General Plan Designation: Agriculture General (AG) and Designated Floodway (DF)
7. Zoning: zoned E-A for Exclusive Agriculture
8. Description of Project: Repairing and rehabilitating approximately 400 linear feet of existing levee Site 23-078 located on the landside of the Colusa Basin Drain levee (Chapter 2, "Project Description," provides additional project description details).
9. Surrounding Land Uses and Setting: Agriculture
10. Other public agencies whose approval may be required: Colusa County, California Department of Fish and Wildlife (Table 2-1 summarizes Permits and Approvals from public agencies potentially needed to implement the proposed project)

3.1 Environmental Factors Potentially Affected:

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

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

Determination (To be completed by the Lead Agency). On the basis of this initial evaluation:

☐ I find that the proposed project could not have a significant effect on the environment, and a negative declaration will be prepared.

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

☐ I find that the proposed project may have a significant effect on the environment, and an environmental impact report is required.

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

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

Signature	Date
Printed Name	Title
Agency	

3.2 Environmental Checklist

3.2.1 Aesthetics

Table 3.2.1-1. Environmental Issues and Determinations for Aesthetics

Issues	Determination
a) Have a substantial adverse effect on a scenic vista?	NI
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	NI
c) In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	NI
d) Create a new source of substantial light or glare which would adversely affect daytime or nighttime views in the area?	NI

Table Note:
NI = No Impact

Environmental Setting

The project site and laydown/staging area are on the landside of the levee along the Colusa Basin Drainage Canal in the northern Sacramento Valley, east of the community of Harrington. The project site access roads (shown in Figure 2-1 in Chapter 2, “Project Description”) are all available for public access. However, the dirt road along the crown of the Colusa Basin Drainage Canal levee, which provides access to the proposed repair site and the proposed haul route, is gated and is not accessible to the public. There is a line of deciduous vegetation along the waterside of the levee. Otherwise, the viewshed from the project site and the access roads consists of flat agricultural land planted with row crops and orchards along with scattered rural residences. East of Johns Schools Road, White Road is a narrow dirt road that provides public access to agricultural fields east of the Colusa Basin Drainage Canal; the road is lightly used. In the vicinity of the proposed laydown/staging area adjacent to White Road, the Sierra Buttes are visible in the distance (approximately 16 miles) in background views to the north from White Road. Views in the project area are typical of flat agricultural land throughout the Sacramento Valley, and do not include scenic vistas.

The project site and the proposed haul roads are not situated in the vicinity of any designated or eligible State scenic highway (California Department of Transportation [Caltrans] 2019). The nearest State scenic Highway is State Route 16 in the Coast Ranges, approximately 18 miles west (Caltrans 2019).

Discussion

a) **No Impact.** The project site is flat and consists of agricultural land (row crops and orchards). These views are typical throughout the Sacramento Valley. The project site does not contain, and is not situated within the viewshed of, a scenic vista. Furthermore, the proposed levee repair site is not visible from any public viewpoint. Thus, there would be no impact.

b) **No Impact.** There are no State scenic highways within 18 miles of the project site, and due to the intervening distance and vegetation, the site is not visible from State Route 16. Thus, there would be no impact.

c) **No Impact.** The project site is situated in a rural agricultural area east of the community of Harrington, in the Colusa Basin. For the same reasons described in a) above, the proposed project would result in no substantial degradation of the existing visual character or quality of public views of the project site and its surroundings and there would be no impact. The project site is not located in an urbanized area (De Novo Planning Group 2011, U.S. Census Bureau 2025); therefore, this analysis does not consider potential project conflicts with applicable zoning or other regulations governing scenic quality.

d) **No Impact.** The proposed project would not create any new operational sources of daytime glare or nighttime lighting. Construction activities would take place over a period of approximately two to four weeks. All construction work would take place during daylight hours, and no nighttime lighting would be required. The maximum length of the workday would be 6 a.m. to 8 p.m. depending on allowable daylight. Therefore, the proposed project would not create a new source of substantial light or glare which would adversely affect daytime or nighttime views in the area, and there would be no impact.

References

California Department of Transportation. 2019. List of Eligible and Officially Designated State Scenic Highways. Available: https://dot.ca.gov/programs/design/lap-landscape-architecture-and-community-livability/lap-liv-i-scenic-highways. Accessed January 16, 2025.

Caltrans. *See* California Department of Transportation.

De Novo Planning Group. 2011. *2030 Colusa County General Plan Update, and Draft Environmental Impact Report.* State Clearinghouse No. 2011062052. Available: https://www.countyofcolusaca.gov/137/General-Plan. Accessed January 16, 2025.

U.S. Census Bureau. 2025. Urbanized Areas, Urban Cluster Mapping. Available: https://www.arcgis.com/home/webmap/viewer.html?url=https://tigerweb.geo.census.gov/arcgis/rest/services/TIGERweb/Urban/MapServer&source=sd. Accessed January 16, 2025.

3.2.2 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) 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.

Table 3.2.2-1. Environmental Issues and Determinations for Agriculture and Forestry Resources

Issues	Determination
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?	LTS
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	LTS
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	NI
d) Result in the loss of forest land or conversion of forest land to non-forest use?	NI
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?	NI

Table Notes:
LTS = Less-than-Significant Impact
NI = No Impact

Environmental Setting

Important farmland is classified by the California Department of Conservation (CDOC) as Prime Farmland, Farmland of Statewide Importance, Unique Farmland, and Farmland of Local Importance. Under CEQA, the designations for Prime Farmland, Farmland of Statewide Importance, and Unique Farmland are defined as "agricultural land" or "farmland" (PRC Sections 21060.1 and 21095, and CEQA Guidelines Appendix G). According to the CDOC Important Farmland Finder Map, lands adjacent to the project site are designated as Prime Farmland, but the project site is not designated as such (CDOC 2025).

The project site is zoned E-A (Exclusive Agriculture). There are no areas designated for forest land or timberland adjacent to or at the project site (Colusa County 2024). Under the California Land Conservation Act of 1965, also known as the Williamson Act, local governments can

enter into contracts with private property owners to protect land (within agricultural preserves) for agricultural and open space purposes. There are no areas within or adjacent to the project site that are under current Williamson Act contracts (Colusa County 2024).

Discussion

a) & b) **Less-than-Significant Impact.** The proposed project would repair and rehabilitate the existing levee. As discussed above, lands adjacent to the project site are designated as Prime Farmland; however, the project site is not designated Prime Farmland. The project site and lands adjacent to the project site are not under active Williamson Act contacts. The project site is zoned E-A for Exclusive Agriculture, which is intended to protect agricultural uses and agricultural operations in areas where fertile soils particularly suited to crop production are present, areas where agriculture is the natural and desirable primary land use, and where the protection of agriculture from the encroachment of incompatible land uses is essential to the general welfare and economic prosperity of the County (Colusa County 2014). However, the project site is a levee and is not actively farmed or under an active Williamson Act Contract.

Access to the project site would occur primarily along existing paved public roads, levee crown roads, or unpaved private roads and would not temporarily or permanently convert Important Farmland. Following levee rehabilitation construction, all equipment and materials would be removed from the repair site and the staging/laydown area would be restored to pre-project conditions to the extent feasible. Any potential damage to adjacent agricultural lands as a result of the construction, including haul route roads and fencing, would be repaired following construction.

Because the project site is not currently actively farmed, is not designated as Important Farmland, is not under an active Williamson Act Contract, and would not result in the permanent conversion of Important Farmland, impacts would be less than significant.

c) & d) **No Impact.** The project site is zoned E-A (Exclusive Agriculture). There are no areas zoned as forestland, timberland, or a timberland production zone adjacent to or at the project site. The project site neither contains timberland as defined by PRC Section 4526 nor 10 percent native tree cover that would be classified as forestland under PRC Section 12220(g). Thus, the proposed project would not conflict with existing zoning for, or cause rezoning of, forestry resources, or result in conversion of forest land to non-forest use. Therefore, no impact would occur.

e) **No Impact.** While there are parcels actively used for agricultural production and are designated as Prime Farmland adjacent to the project site as detailed above, the proposed project would not acquire or encroach upon portions of parcels adjacent to the project site under active agricultural uses such that the parcels could become fragmented, reduced in size, or irregularly shaped to such a degree that continuing agricultural land uses could be less profitable or otherwise less feasible.

Following construction, areas would be restored to pre-project conditions as described above. The proposed project would not indirectly result in other changes in the physical environment that could result in the conversion of Important Farmland, including

agricultural land designated as Prime Farmland, to nonagricultural uses, and no impact would occur.

References

California Department of Conservation. 2025. California Important Farmland Finder. Available: https://maps.conservation.ca.gov/dlrp/ciff/. Accessed January 2025.

CDOC. *See* California Department of Conservation.

Colusa County. 2024. Parcels Map. Available: https://colusacountydpw.maps.arcgis.com/apps/webappviewer/index.html?id=ba6fd932ef964ce7b9f17e6fdfd2f6f2. Accessed January 2025.

Colusa County. 2014. Zoning Code, 44-2-20 Agricultural Zoning Classifications. Available: https://www.codepublishing.com/CA/ColusaCounty/#!/ColusaCounty44.html. Accessed January 2025.

3.2.3 Air Quality

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

Table 3.2.3-1. Environmental Issues and Determinations for Air Quality

Issues	Determination
a) Conflict with or obstruct implementation of the applicable air quality plan?	LTS
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?	LTS
c) Expose sensitive receptors to substantial pollutant concentrations?	LTS
d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	LTS

Table Note:
LTS = Less-than-Significant Impact

Environmental Setting

The proposed project is located in Colusa County, which is located within the Sacramento Valley Air Basin. The Air Basin is a Federally and State recognized geographic area that includes all of Tehama, Glenn, Butte, Colusa, Yolo, Sutter, Yuba, Sacramento, and Shasta Counties, as well as portions of Solano and Placer Counties (17 California Code of Regulations [Cal. Code Regs.] §60106). In California, the California Air Resources Board (CARB) delegates air quality management responsibilities to local air quality management districts. Primary responsibilities of local air quality districts include overseeing stationary-source emissions, approving permits, maintaining emissions inventories, maintaining air quality stations, overseeing agricultural burning permits, and reviewing air quality–related sections of environmental documents required by CEQA. The air quality districts are also responsible for establishing and enforcing local air quality rules and regulations that address the requirements of federal and state air quality laws and for ensuring that federal and state ambient air quality standards are met, further described below. The Colusa County Air Pollution Control District (CCAPCD) has local air quality jurisdiction over projects within Colusa County.

Individual air pollutants at certain concentrations may adversely affect human or animal health, reduce visibility, damage property, and reduce the productivity or vigor of crops and natural vegetation. Six air pollutants have been identified by the U.S. Environmental Protection Agency (EPA) and CARB as being of concern both on a nationwide and statewide level, respectively: ozone; carbon monoxide; nitrogen dioxide; sulfur dioxide; lead; and particulate patter (PM), which is subdivided into two classes based on particle size – PM equal to or less than 10 micrometers in diameter (PM_{10}) and PM equal to or less than 2.5 micrometers in diameter ($PM_{2.5}$).

Health-based air quality standards have been established for these pollutants by EPA at the national level and by CARB at the state level. These standards are referred to as the national ambient air quality standards (NAAQS) and the California ambient air quality standards (CAAQA), respectively. The NAAQS and CAAQS were established to protect the public with a

margin of safety from adverse health impacts caused by exposure to air pollution. Both EPA and CARB designate areas of California as “attainment,” “nonattainment,” “maintenance,” or “unclassified” for the various pollutant standards according to the federal Clean Air Act and the California Clean Air Act, respectively. Because the air quality standards for these air pollutants are regulated using human and environment health-based criteria, they are commonly referred to as “criteria air pollutants.” With respect to regional air quality, the Colusa County is currently designated as nonattainment for the CAAQS for PM_{10}, and is designated unclassified or attainment for all other NAAQS and CAAQS (USEPA 2024, CARB 2023).

In accordance with the federal Clean Air Act and California Clean Air Act, each air district must prepare a plan to improve district air quality to meet EPA and CARB ambient air quality standards. Although Colusa County is in attainment for all NAAQS, the CCAPCD and adjacent air quality management districts and air pollution control districts formed the Northern Sacramento Valley Planning Area (NSVPA) to address nonattainment air quality issues through a joint NSVPA Air Quality Attainment Plan. The NSVPA Air Quality Attainment Plan is a multi-year strategy that requires a tri-annual review process to assess attainment progress for the NSVPA (Sacramento Valley Air Quality Engineering and Enforcement Professionals. 2021).

Naturally occurring asbestos can also be an air toxic of concern that can be released as a result of earth disturbance during construction. The project site is not located within an area likely to contain naturally occurring asbestos (USGS 2011). Furthermore, the proposed project would include ground disturbing activity within area previously disturbed and constructed for the currently existing levee.

Currently, the CCAPCD has not adopted or otherwise published thresholds of significance for the purposes of a lead agency’s evaluation of air quality impacts of a project under CEQA.

Discussion

a) **Less-than-Significant Impact.** The Clean Air Act requires states to develop a statewide plan to attain and maintain the standards in all areas of the country and a region-specific plan to attain the standards for each area designated nonattainment. These plans, known as State Implementation Plans or SIPs, are developed by state and local air quality management agencies for areas not meeting the ambient air quality standards, and submitted to EPA for approval. As noted above, the project region (i.e., Colusa County) is in attainment for all NAAQS and CAAQS, except for the CAAQS for PM_{10}. The applicable clean air plan for the project region is the Northern Sacramento Valley Planning Area Triennial Air Quality Attainment Plan. The proposed project would not induce or otherwise increase the potential for growth in the areas adjacent to or served by the levee repair site because the repair would return the levee to previous flood protection standards. Given that the proposed project would not result in growth-inducing effects and would not result in permanent increases in vehicle trips, the proposed project would have a less-than-significant impact with respect to conflict with, or obstruction of, implementation of the Northern Sacramento Valley Planning Area Triennial Air Quality Attainment Plan

b) **Less-than-Significant Impact.** The proposed project would generate emissions as a result of construction activities, including exhaust emissions from the use of construction equipment and construction related vehicles such as worker, vendor, and haul truck trips to and from the project site, and fugitive dust emissions from each disturbing activities and travel on unpaved roadways. Emissions were modeled using the California Emissions Estimated Model (CalEEMod) version 2022.1.1.29. As detailed in Chapter 2, "Project Description," project construction activities involving the use of heavy-duty construction equipment would last approximately 4 weeks, could require equipment use for up to 11 hours per day, and would result in up to 30 worker trips and 18 haul truck trips per day. Travel on unpaved roadways would occur for a portion of each haul truck trip, as shown in Figure 2-2, which was accounted for in the emissions modeling. Refer to Appendix B for emissions modeling details and output files. Table 3.2.3-2 presents the proposed project's daily and annual emissions.

The CCAPCD does not currently have CEQA guidelines or thresholds of significance. The Feather River Air Quality Management District, which is a neighboring air district immediately east of Colusa County and also within the NSVPA, has adopted Indirect Source Review Guidelines for CEQA air quality reviews for development projects within the FRAQMD jurisdiction, including for emissions from construction activities (Table 3.2.3-2). Because CCAPCD has not currently established its own thresholds, and because the FRAQMD is also designated nonattainment for State PM_{10} standards and shares similar geography as the CCAPCD, the FRAQMD Guidelines are used for the purposes of evaluating construction emissions from the proposed project.

As shown in Table 3.2.3-2, the proposed project's daily and annual construction emissions would not exceed the FRAQMD's recommended thresholds of significance. Therefore, the proposed project would not 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, and this impact would be less than significant.

Table 3.2.3-2. Summary of Maximum Daily and Annual Project Construction Emissions

Pollutant	Maximum Daily Emissions[1] (pounds per day)	Maximum Annual Emissions[1] (tons per year)	FRAQMD Threshold of Significance[2] (pounds per day)	FRAQMD Threshold of Significance[2] (annual tons per year)
ROG	1.93	0.02	25	4.5
NO_X	19.7	0.21	25	4.5
PM_{10}	49.5	0.52	80	--
$PM_{2.5}$	9.45	0.10	--	--

Notes: ROG = reactive organic gas; NO_X = oxides of nitrogen; PM_{10} = respirable particulate matter with aerodynamic diameter of 10 micrometers or less; $PM_{2.5}$ = respirable particulate matter with an aerodynamic diameter of 2.5 micrometers or less; -- = none established.

Sources:

1. Modeled by AECOM in 2025 (see Appendix B for detailed modeling inputs and output files)
2. FRAQMD 2010

c) **Less-than-Significant Impact.** The primary localized pollutant of concern that would result from the proposed project is diesel particulate matter. CARB identified diesel particulate matter as a toxic air contaminant. According to the California Almanac of Emissions and Air Quality, most of the estimated health risk from Toxic Air Contaminants can be attributed to relatively few compounds—the most important being diesel particulate matter (CARB 2013).

Construction of the proposed project would generate emissions of toxic air contaminants from the use of heavy-duty construction equipment, haul trucks, and construction worker vehicles. These activities could expose nearby receptors to toxic air contaminants, primarily in the form of diesel particulate matter. More than 90 percent of diesel particulate matter is less than 1 micrometer in diameter, and thus is a subset of $PM_{2.5}$ (CARB 2024). Therefore, exhaust $PM_{2.5}$ is used as the upper limit for diesel particulate matter emissions associated with the proposed project.

Some land uses are considered more sensitive to air pollution than others, due to the types of population groups or activities involved. Children, pregnant women, the elderly, those with existing health conditions, and athletes or others who engage in frequent exercise are especially vulnerable to the effects of air pollution. Accordingly, land uses that are typically considered sensitive receptors include schools, daycare centers, parks and playgrounds, and medical facilities. Residential areas are considered sensitive to air pollution because residents (including children and the elderly) tend to be at home for extended periods of time, resulting in sustained exposure to pollutants present.

The project site is surrounded by agricultural land use. There are no sensitive receptors within a half mile of the proposed project site.

Health risk is a function of the concentration of contaminants in the environment and the duration of exposure to those contaminants. Even in intensive phases of construction, there would not be substantial pollutant concentrations from an individual project, with the potential exception of the immediate vicinity of the construction site. Concentrations of mobile-source diesel particulate matter emissions are typically reduced by 60 percent at a distance of 300 feet from the source (Zhu and Hinds 2002), and by 70 percent at approximately 500 feet (CARB 2005). As noted above, the project site would not be within one-half mile (2,640 feet) from any sensitive receptors, and active construction resulting in diesel particulate matter emissions from heavy-duty construction equipment would be limited to a construction duration of approximately two to four weeks. Given the short duration of construction activity and distance from sensitive receptors, the proposed project would not expose sensitive receptors to substantial pollutant concentrations. Therefore, this impact would be **less than significant.**

d) **Less-than-Significant Impact.** Odors associated with diesel exhaust associated with use of off-road equipment and heavy-duty trucks would be emitted during project construction and may be considered offensive to some individuals. However, the generation of emissions from the proposed project would be of short duration (active

construction would be between two and four weeks), such odorous emissions would disperse rapidly with distance from the source, and there are no receptors within more than a half mile of the project site in any given direction. As a result, the proposed project would not result in other emissions, such as those leading to odors, adversely affecting a substantial number of people. Therefore, this impact would be less than significant.

References

California Air Resources Board. 2005. Air Quality and Land Use Handbook: A Community Health Perspective. April. Viewed December 23, 2024. Available: https://ww2.arb.ca.gov/sites/default/files/2023-05/Land%20Use%20Handbook_0.pdf.

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_____. 2023. State Area Designations. Viewed January 9, 2025. Available: Maps of State and Federal Area Designations | California Air Resources Board.

_____. 2024. Overview: Diesel Exhaust and Health. Viewed December 23, 2024. Available: https://ww2.arb.ca.gov/resources/overview-diesel-exhaust-and-health.

CARB. *See* California Air Resources Board.

Feather River Air Quality Management District. 2010. Indirect Source Review Guidelines – A Technical Guide to Assess the Air Quality Impact of Land Use Projects Under the California Environmental Quality Act. Viewed January 15, 2025. Available: https://www.fraqmd.org/ceqa-planning.

FRAQMD. *See* Feather River Air Quality Management District.

Sacramento Valley Air Quality Engineering and Enforcement Professionals. 2021. Northern Sacramento Valley Planning Area 2021 Triennial Air Quality Attainment Plan. December 3. Viewed January 16, 2025. Available: https://www.airquality.org/SVBAPCC/Documents/Northern%20Sacramento%20Valley%20Air%20Quality%20Plan%202021.pdf.

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3.2.4 Biological Resources

Table 3.2.4-1. Environmental Issues and Determinations for Biological Resources

Issues	Determination
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	LTS
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	NI
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?	NI
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?	NI
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	NI
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?	NI

Table Notes:
LTS = Less-than-Significant Impact
NI = No Impact

Environmental Setting

Information in this section is based on data collected during the biological reconnaissance survey conducted on June 16, 2024, and August 6, 2024, (AECOM 2025) and the aquatic resource delineation conducted on August 13, 2024. In addition, information for this section was collected during a review of the following data sources:

- California Native Plant Society Rare Plant Inventory (CNPS 2024a);
- California Natural Diversity Database (CNDDB) (CDFW 2024) for records of special-status species previously documented within the United States Geological Services (USGS) 7.5-mile Quadrangles of Dunnigan, Kirkville, Tisdale Weir, Grimes, Arbuckle, Wildwood School, Bird Valley, Eldorado Bend, and Knights Landing.
- U.S. Fish and Wildlife Service (USFWS) Information for Planning and Conservation project planning tool (USFWS 2024a);
- Western Monarch Mapper (The Xerces Society for Invertebrate Conservation (Xerces) 2024)
- Critical Habitat Mapper (USFWS 2024b);

The repair site is located in an unincorporated portion of Colusa County, California. Land uses adjacent to the project site are primarily agricultural. Habitat within the project site (including staging and laydown areas) includes wild oats and annual brome grasslands and developed/ruderal areas. There are no aquatic habitats, including potential wetlands or non-wetland waters, within the project site. Directly to the west, and on the other side of the levee, of the project site is the Colusa Basin Drain, which is the single largest source of agricultural return flows to the Sacramento River. Directly to the east of the project site is an unnamed agriculture canal. The levee is regularly maintained to control vegetation growth by the local maintaining agency through a variety of physical methods (e.g., burning or mowing).

Habitat types are summarized in Table 3.2.4-2 and shown in the figure included in Appendix C.

Table 3.2.4-2. Summary of Land Covers and Vegetation Communities at Site 23-078

Land Cover	MCV Vegetation Alliance/Vegetation Community	Rarity
Developed/Ruderal	Not applicable	N/A
Wild oats and annual brome grasslands	*Avena* spp. - *Bromus* spp. Herbaceous Semi-Natural Alliance	N/A

Notes:
MCV = Manual of California Vegetation Online (CNPS 2024b)
N/A = Not applicable

Several species known to occur in the vicinity of the project site are protected pursuant to federal and/or State endangered species laws or have been designated as Species of Special Concern by the CDFW. In addition, Section 15380(b) of the CEQA Guidelines provides a definition of rare, endangered, or threatened species that are not included in any listing. For example, vascular plants listed as rare or endangered or as California Rare Plant Rank (CRPR) List 1 or 2 by the CNPS are considered to meet Section 15380(b) requirements. Species recognized under these terms are collectively referred to as “special-status species.”

Special-status species considered for this analysis are based on the CNDDB, CNPS, and USFWS lists. A comprehensive list of special-status plant and wildlife species that were considered in the analysis is provided in Appendix C. The list includes the common and scientific names for each species, regulatory status (federal, State, local, CNPS), habitat descriptions, and a discussion of the potential for occurrence. The following set of criteria determines each species’ potential for occurrence within the project site:

- No Potential: The project site is outside the species’ range, suitable habitat for the species is absent from the study area and adjacent areas, or surveys confirmed the species is absent from the study area.
- Unlikely to Occur: Marginally suitable habitat may occur in the study area; however, nearby records are not recent (i.e., within the past 50 years) or do not occur, and/or the species is considered extirpated from the area.
- Potential to Occur: The project site is within the species’ range, and no occurrences of the species have been recorded within the project site; however, suitable habitat for the species is present and recorded occurrences of the species are generally present in the vicinity.

The database queries returned 13 special-status plant species and 19 special-status wildlife species. Most of the special-status species identified by queries are not expected to occur in the project site because of a lack of suitable habitat or because the project site is outside the species' range. As a result of the information in Appendix C, the following three special-status wildlife species were determined to have the potential to occur at the project site:

- monarch butterfly: Federally Proposed as Threatened
- giant gartersnake: Federally Threatened, State Threatened
- Swainson's hawk: State Threatened

No special-status plant or wildlife species were observed within the project site during biological reconnaissance surveys conducted on June 16, 2024, and August 6, 2024.

Discussion

a) **Less-than-Significant Impact.** Three special status wildlife species and various migratory birds have the potential to occur, and/or nest in the project site based on the CNDDB search and the field surveys. Evaluations of direct and indirect impacts to special status species are provided below, organized by species or species group. General Conservation Measures and Best Management Practices detailed in Chapter 2, Sections 2.4, "Environmental Commitments" and summarized in Table 3.2.4-3 below would be implemented by DWR or their contractors to reduce potential substantial adverse temporary direct and indirect impacts on special-status species during construction. The measures in this table are referenced where appropriate throughout the impact evaluation.

Table 3.2.4-3. General Conservation Measures and Best Management Practices

General Measure No.	Description	Implementation Timing
GM-01	Approved Biologist	Preconstruction
GM-02	Preconstruction Biological Surveys	Preconstruction
GM-03	Worker Environmental Awareness Training	Preconstruction and Construction
GM-04	Staging and Access	Design and Construction
GM-05	Construction Area Limit Delineation	Preconstruction
GM-06	Equipment Inspection	Construction
GM-07	Open Excavation Covering	Construction
GM-08	Construction Site Best Management	Construction
GM-09	Clearing and Grubbing Best Management	Construction
GM-10	Erosion Control Materials	Construction
GM-11	Site Restoration	Post-Construction
GM-12	On-site Habitat Restoration	Construction
GM-13	Invasive Plant Species Control	Construction
GM-14	Resource Agency Access	Construction
GM-15	Stop Work Authority	Construction
GM-16	Listed Species Take Reporting	Construction

Notes:
GM = General Measures

Monarch Butterfly

Direct impacts could occur if any life stage of monarch butterflies is physically harmed, or if milkweed—their primary host plant—is removed or damaged, or if nectar plants are lost, disrupting monarch mating, foraging, and dispersal during repair activities. Indirect impacts may arise from increased human activity and construction operations, which could temporarily reduce habitat suitability. Additionally, pollutants and dust could impair plant growth and viability, further affecting monarch butterfly habitat. Two to four weeks of ingress and egress to the project site would not substantially increase fugitive dust emissions in the area, as the project site is located in an area of active agriculture that results in existing dust. The existing levee access road that would be utilized for the proposed project is also currently used for agricultural operations and levee maintenance resulting in dust, and the use of this road for the proposed project would not result in substantially more dust given the short timeframe and limited scale of construction. The direct and indirect construction-related impacts on monarch butterflies would be short in duration (two to four weeks), temporary, and localized. Minor habitat disturbances would primarily affect the landside levee bank where the sparse vegetation would be removed, and approximately 400 linear feet of soils would be temporarily disturbed for the repairs. The proposed project would restore the temporarily disturbed laydown/staging area, which would support long-term habitat recovery in and adjacent to the site.

Environmental commitments described in Section 2.4.1 and summarized in Table 3.2.4-3 will be implemented by DWR or their contractors. In addition, species-specific environmental commitment BIO-1: Monarch Butterfly identified in Section 2.4.2 will be implemented and would protect existing milkweed, if identified in pre-construction surveys. Given the relatively short duration of construction and the limited scale of construction there would be a low potential to substantially adversely affect monarch butterflies, and implementation of the environmental commitments identified above would minimize, avoid, or reduce potential substantial adverse effects. Impacts would be less than significant.

Giant Gartersnake

Direct impacts could occur if giant gartersnakes are physically harmed or if occupied burrows, cracks, or crevices collapse during repair activities. Indirect impacts may include temporary reductions in habitat suitability due to increased human activity. Construction-related impacts to giant gartersnake habitat would be temporary and localized. Minor habitat disturbances would primarily affect the landside levee bank where sparse vegetation would be removed, and soils temporarily disturbed for levee repairs. Because construction would primarily occur when giant gartersnakes are active any snakes present in near the limits of work would be expected to avoid construction activities. Additionally, construction activities would occur on the east facing, landside of the levee, where vegetation is sparse and sun is minimal and snakes would be less likely to be present.

Environmental commitments described in Section 2.4.1, summarized in Table 3.2.4-3, and Section 2.4.5 would be implemented by DWR or their contractors. In addition,

species-specific environmental commitments BIO-2 Giant Gartersnake described in Section 2.4.3 will be implemented. Given the relatively short duration, seasonal timing, and location of construction, there would be a low potential to substantially adversely affect giant gartersnake. Implementation of the environmental commitments identified above would also minimize, avoid, or reduce potential substantial adverse effects. Impacts would be less than significant.

Swainson's Hawk and Nesting Birds

Direct impacts could occur if nesting pairs are disturbed by human presence or noise associated with construction, nests or juveniles are physically harmed, or if vegetation surrounding the nests were removed during repair activities. Indirect impacts could include temporary reductions in habitat suitability due to increased human activity such as pollutants being accidentally discharged during these activities which could harm habitat quality, potentially leading to mortality or reduced growth and viability of vegetation essential to the species. Construction-related impacts to nesting bird habitats would be temporary and localized, and no nesting habitat for Swainson's hawk would be directly impacted by construction. Minor habitat disturbances would primarily affect the landside levee bank where the sparse vegetation would be removed and soils would be disturbed for levee repairs.

Environmental commitments described in Section 2.4.1 and summarized in Table 3.2.4-3 will be implemented by DWR or their contractors. In addition, species-specific environmental commitments BIO-3 Swainson's Hawk and Nesting Birds described in Section 2.4.4 will be implemented. Given the relatively short duration of construction and the limited scale of construction there would be a low potential to substantially adversely affect nesting birds, including Swainson's hawk, and implementation of the environmental commitments identified above would minimize, avoid, or reduce potential substantial adverse effects. Impacts to Swainson's hawk and other nesting birds would be less than significant.

b) **No Impact.** There is no riparian habitat or sensitive natural communities in the project site. There is riparian habitat directly adjacent to the project site, between the Colusa Basin Drain and the landside of the levee. Given work will be restricted to the slope of the levee, there would be no substantial adverse effect on the adjacent riparian habitat or other sensitive natural communities. There would be no impact.

c) **No Impact.** There are no state or federally protected wetlands in the repair site or directly adjacent to the project site. There would be no impact.

d) **No Impact.** There are no known wildlife corridors or nursery sites in the vicinity of the project site. Furthermore, the repairs would occur in a small segment of the existing landside levee for a short duration. Therefore, construction would not Interfere substantially with the movement of any native resident wildlife species. There would be no impact.

e) **No Impact.** The proposed project would not conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance. There would be no impact.

f) **No Impact.** The proposed project would not conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan because none exist. There would be no impact.

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3.2.5 Cultural Resources

Table 3.2.5-1. Environmental Issues and Determinations for Cultural Resources

Issues	Determination
a). Cause a substantial adverse change in the significance of a historical resource pursuant to in §15064.5?	LTS
b). Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	LTS/M
c). Disturb any human remains, including those interred outside of formal cemeteries?	LTS/M

Table Notes:
LTS = Less-than-Significant Impact
LTS/M = Less-than-Significant Impact with Mitigation Incorporated

Environmental Setting

This section provides a discussion of the existing conditions, as well as relevant precontact and historic-era conditions, related to cultural resources at the project site and the immediately surrounding area (one mile buffer). Cultural resources include architectural resources, archaeological resources, and human remains. The Area of Potential Effects (APE) for the purposes of cultural resources includes the limits of work for the repair site, the laydown/staging area, and the access/haul routes as depicted on Figure 2-2 in Chapter 2, Project Description. Information in this section is summarized from the 2023 Storm Damage, Department of Water Resources Rehabilitation Repair Site 23-078, Cultural Assessment, Colusa County (AECOM 2025) prepared for the proposed project.

Geomorphic Setting

The Sacramento Valley was a depositional basin throughout most of the late Mesozoic (252 to 66 million years ago) and Cenozoic (65 million years ago to present) time. A vast accumulation of sediments was deposited during cyclic transgressions and regressions of a shallow sea that once inundated the valley. These alluvial deposits consist of reworked fan and stream materials that were deposited by rivers and streams before the existing flood control systems were constructed. The youngest surficial geomorphic features in the valley are recent flood and over bank deposits, which are found primarily along the margin of the Sacramento River. The natural levees along watercourses formed through the deposition of alluvium during periods of flooding. As floodwaters lost energy, the coarser materials settled out nearest the rivers and streams, forming the natural levees and sand bars in the vicinity of the river channel. The natural levees were so large that many of the tributary streams draining from the Coast Range had no direct connection to the Sacramento River and instead emptied directly into the adjacent flood basin in the vicinity of the APE (Bay Institute 1998). There were once at least six topographically distinct basins in the Sacramento Valley that could hold an estimated four million acre-feet of water during seasonal flooding of the Sacramento River, including the Colusa Basin where the APE is located. Additionally, low points along the natural levees allowed river water to enter the basins annually regardless of flood events—the basins would remain flooded for long periods, until the water evaporated or the water level in the river fell below the level of the flood basin (Bay Institute 1998; Meyer and Rosenthal 2008).

Pre-Contact Setting

This section describes, in general terms, broad patterns in the prehistory of the Central Valley, focusing on major environmental, technological, and adaptive changes evident in the archaeological record of this region. The discussion of precontact occupation is derived from that presented in the data recovery report for CA-SAC-15/H (AECOM 2017) and divided into three major periods: Early, Middle, and Late Periods. The Early Period is further subdivided into the Paleo-Indian and the Lower and Middle Archaic Periods. The Middle Period is represented by the Upper Archaic. The Emergent Period defined by Fredrickson (1974) is used here for the discussion of the Late Period.

Paleo-Indian Period (13,500–10,500 calibrated years before the present [cal B.P.])

When humans first entered the Central Valley before about 13,000 years ago, the Sacramento Valley and northern San Joaquin Valley included extensive grasslands and riparian forest, providing forage for a diverse array of large mammals, many of which would shortly become extinct. The extensive Central California Delta estuary had not yet developed, and vegetation in the southern San Joaquin Valley resembled that of the Great Basin more than that of cismontane California.

Latest Pleistocene- to early-Holocene-age fluted points and eccentric crescents are the most recognizable signature of the Central Valley's earliest human inhabitants. On the northwestern edge of the Delta in Solano County, where heavily dissected Pleistocene alluvial fans extend well into the Sacramento Valley the base of a fluted point and several excessively large Napa Valley hydration readings are reported from CA-SOL-347 (Rosenthal et al. 2007). In the lower Sacramento Valley, a chert crescent was found on the surface of an older Pleistocene-age fan along Stony Creek, at CA-GLE-306 (Johnson et al. 1984:64; Rosenthal et al. 2007). One of the oldest cultural deposits from the Sacramento Valley proper was identified at CA-SAC-38, near the confluence of the American and Sacramento rivers where the majority of use, suggested by obsidian hydration, occurred as far back as 11,400 cal. B.P. (Tremaine and Associates, Inc. 2008:100).

Lower Archaic Period (10,500–7000 cal B.P.)

Although well-preserved Lower Archaic archaeological deposits are rare in the Central Valley, considerably more is known about the nature of human occupation during this time than during the latest Pleistocene. The first appearance of milling tools and diverse faunal and floral assemblages from early Holocene deposits reflect broad-spectrum economies, characteristic of Archaic adaptations throughout North America. Changes in California's climate resulted in the expansion of oak woodlands and grassland prairie at the expense of conifer forests. Alluvial fans and floodplains throughout the lowlands of central California responded with an important period of deposition after about 11,000 (before present [B.P.]). This episode of landscape evolution capped many late-Pleistocene alluvial landforms and resulted in a clear stratigraphic boundary between the late Pleistocene and early Holocene (Rosenthal et al. 2007). In a similar manner, changes in climate at the beginning of the middle Holocene, around 7000 cal B.P., provoked another cycle of fan and floodplain deposition. This latter event capped many of the earliest archaeological deposits known from central California (Meyer and Rosenthal 2008; Rosenthal and Meyer 2004a in Rosenthal et al. 2007).

Another striking characteristic of early Holocene assemblages in the Sierra Nevada foothills is the regular occurrence of large, well-thinned bifaces and other tools made of a distinctive greenstone (a metavolcanic stone). Although greenstone tools are also found in tool kits from later periods, use of greenstone was common during the early Holocene in the Sierra (this material is well represented at the Skyrocket and Clarks Flat sites).

Middle Archaic (Early) Period (7000–2450 cal B.P.)

The beginning of the Middle Archaic (circa [ca.] 7000 cal B.P.) in Central California is marked by a substantial change in climate, with warmer and drier conditions prevailing throughout the region. Oak woodlands expanded upslope in the California Coast Ranges, and conifer forest moved into alpine zones in the Sierra Nevada. Although conditions were generally arid, important new wetland habitats were forming in the Central Valley as sea level rise was forcing development of the Delta and associated marshlands.

As with earlier periods, well-substantiated cultural deposits assignable to the Middle Archaic (ca. 7000–2450 cal B.P.) are rare in the Central Valley, but are present within the Natomas Basin north of Sacramento at SAC-1142 and SAC-485/H (AECOM 2014, 2017) and in Colusa County at CA-COL-247 (White 2003a, 2003b), and the deepest stratum at Llano Seco in Butte County (CA-BUT-233).

As early as 6000 cal B.P., the mortar and pestle were used in lowland sites across Central California, particularly in marsh-side, riparian, and estuarine settings (Jones 1991, 1997; Levulett et al. 2002; Meyer and Rosenthal 1997 in Rosenthal et al. 2007). As part of the economic intensification thought to have accompanied a more sedentary lifestyle (e.g., Basgall 1987; Bouey 1995; Broughton 1994a), fishing may have taken on new importance in the Central Valley. Specialized fishing gear and fish remains are first represented in assemblages dating to the Middle Holocene (Broughton 1988; Ragir 1972; Rosenthal et al. 2006; White 2003b). Heavy reliance on the emerging mosaic of marshes, riparian forests, and adjacent grasslands is further indicated by the composition of faunal assemblages attributed to the late Middle Holocene. Tule elk, mule deer, and pronghorn are all represented, as are rabbit and hare, crane, goose, swan, duck, cormorant, turtle, river otter, beaver, coyote, and several other terrestrial carnivores, raptors, and rodents (Ragir 1972:159).

Upper Archaic (Middle Period) Period (2450–930 cal B.P.)

This period is subdivided into the Early-Middle Transition (2450–2150 cal B.P.), Middle Phase 1 (2150–1530 cal B.P.), Middle Phase 2 (1530–1365 cal B.P.), Middle Phase 3 (1365–1200 cal B.P.), and Middle Phase 4 (1200–930 cal B.P.), each of which corresponds to observable changes in the archaeological record. Evidence for Upper Archaic human occupation in the Central Valley is extensive, particularly for the last 2,000 years. Holocene landscape evolution (i.e., the burial of older landforms below younger sediments) has greatly biased the archaeological record toward these younger deposits, adding to a perception of substantial human population increases during the Upper Archaic (see, for example, Basgall 1987).

Economic, technological, and sociocultural developments are much better understood for the Upper Archaic than for preceding periods. Cultural diversity first apparent in the Middle Archaic becomes much more pronounced in the Upper Archaic, as evidenced by a complex mosaic of

distinct sociopolitical entities marked by contrasting burial postures, artifact styles, and other material culture elements (Bennyhoff 1994). It was this diversity that Bennyhoff (1994) was trying to accommodate in their Central California taxonomy.

During the Early and Middle Periods of the late Holocene, upland groups seem to have lived in low-density communities, employed generalized and expedient tools designed for a variety of extraction and processing tasks, and relied on seasonal movements to accommodate changes in resource productivity—an adaptation Binford (1980) associated with “foragers.” On the other hand, groups that occupied the lowland valleys of Central California appear to have lived in comparatively high-density villages, used a broad range of specialized technologies, and worked logistically from permanent or semi-permanent settlements to obtain resource surpluses for storage and exchange—behavior associated with “collectors” by Binford’s (1980) definition.

Most residential sites dating to the Upper Archaic include large quantities of fish bone and fishing implements, as well as a diverse assortment of mammal and bird remains. Sites from the drier open grasslands of the San Joaquin Valley include primarily pronghorn and elk bone (Delacorte 2001; Dougherty et al. 1993; and Peak and Weber 1978 in Rosenthal et al. 2007), whereas those closer to the Delta and riparian habitats include mostly deer and elk bone (Delacorte 2001; Meyer and Rosenthal 2008; Pierce 1988; Schulz and Simons 1973; and Schulz 1976 in Rosenthal et al. 2007; Soule 1976). Likewise, Delta sites and those along the Sacramento River south of Colusa include bone mainly from resident slow-water fishes. Bone from anadromous species such as salmon and resident fast-water fishes is common only at sites along tributary streams and north of Colusa, where the Sacramento River narrows (Broughton 1988 in Rosenthal et al. 2007; Meyer and Rosenthal 2008).

A broad range of nonlocal commodities (e.g., alabaster, quartz crystals, actinolite, hematite) are also found in valley sites from the Upper Archaic. Among the most common are marine shell beads and ornaments from the nearby Pacific coast (Bennyhoff 1994; Bennyhoff and Hughes 1987). People living throughout the Central Valley were also important consumers of obsidian from east of the Sierra Nevada and the North Coast Ranges (Ericson 1977; Jackson 1974; Jackson et al. 1994).

Emergent (Late) Period (930 cal B.P. to Contact)

A wholesale shift in material culture is evident after about 900–800 years ago, marking the beginning of the Emergent or Late Precontact Period in the Central Valley. Under dating Scheme D, four subperiods are recognized within the Emergent Period: the Middle/Late Transition (930–685 cal B.P.), Late Phases 1a and 1b (685–440 cal B.P.), Late Phase 2 (440–180 cal B.P.), and Historic Period (180 cal B.P. to contact). The Emergent (Late) Period represents the onset of cultural traditions most resembling those existing at the time of European contact.

In the Sacramento Valley, large, populous towns developed along the Sacramento River where fish weirs were constructed. Similar mound-villages and smaller hamlets were established in the Delta region and along major tributary streams. Fishing appears to have taken on a more important role in lowland economies.

Important shifts in material culture and technology are evident beginning in the Emergent Period, including the first appearance of big-head effigy ornaments thought to be related to the religious movement of the Kuksu (e.g., Atchley 1994). A local form of pottery known as Cosumnes Brownware was made in the lower Sacramento Valley (Johnson 1990; Kielusiak 1982), and baked-clay balls, probably used for cooking, are a common constituent in valley sites where stone is absent. Other items, including stone pipes, incised bone tubes, and ear spools, are diagnostic of this period (e.g., Bennyhoff 1994). Of particular interest is the introduction of the bow and arrow that replaced the dart and atlatl in different portions of central California between about 1100 and 700 cal B.P.

Sometime after about 800 years ago, a substantial change in obsidian production and exchange is recognized throughout Central California. In the northern San Joaquin Valley, this change is identified through shifts in obsidian source frequencies. Napa Valley obsidian becomes the primary source material used in this region (Jackson 1974), supplanting material obtained from eastern quarries. Napa Valley obsidian appears to have been traded in raw form to people living in the lower Sacramento Valley, based on high frequencies of Napa Valley production debris and debitage with cortical remnants found in Sacramento Valley sites (Rosenthal et al. 2007). Haliotis ornaments and large quantities of shell beads manufactured in Southern California and along the Central and Northern California Coast are found in residential sites throughout the Sacramento Valley and lower foothills of the Sierra Nevada and Coast Ranges. These beads were likely made by just a few coastal communities. Olivella wall-beads predominated (Bennyhoff and Hughes 1987) until sometime around 300–400 years ago, when clamshell disk beads became widely used. At that time, the nature of bead manufacturing changed from a centralized system to one in which many households made and used beads, perhaps as a form of currency (Chagnon 1970). Within the Central Valley, evidence of beadmaking is found only in a circumscribed region of the western Sacramento Valley, although clamshell disk beads occur widely throughout the valley and adjacent foothills.

Historic-era Setting

The following overview is primarily focused on the historic-era land use of the APE as it relates to early settlement, irrigation and development, reclamation, and agriculture. These principal themes can provide historical context for cultural resources that may be present within the APE.

The Early American Period

The Patwin were greatly impacted by early American intrusions into the region. In 1827, Jedediah Smith led a party of trappers through the Patwin territory before embarking upon his famous journey across the Sierra Nevada (Beck and Haase 1974). Smith was quickly followed by others, including a group of trappers from the Hudson Bay Company who entered the region in 1832. Infected by malaria, these trappers spread the disease among the aboriginal communities of the region. It is reported that this pestilence often killed the inhabitants of entire villages (Cook 1955; Powers 1975). Cook (1955) estimates that up to 75 percent of the population perished as a result of diseases introduced by non-native peoples.

Native peoples were no longer viewed as a source of labor as during the earlier Spanish mission era in California, but instead as obstacles to progress. During the Gold Rush period,

the wholesale removal of the Patwin from their lands began. Subsequently, the Patwin living in the southern portion of their territory became so overwhelmed by the diseases and encroachment of the Euro-Americans, that by 1923-1924 Kroeber could not identify any living members in this region (Johnson, 1978:352). See Chapter 3.21.15 “Tribal Cultural Resources” for information on the contemporary Tribes of the region.

The development of the mining industry in California in the late 1840s and early 1850s, along with the rapid population growth, led to shortages of raw materials and food. Besides mining, other industries soon developed to meet the needs of the miners and growing population centers, including lumbering, ranching, and agriculture. Much of the Sacramento Valley and surrounding foothills consisted of open range upon which large herds of cattle and sheep could be raised. At first, uncontrolled grazing was common; however, the prime agricultural land was soon fenced, and livestock was moved to higher ground.

Among the early American agriculturalists in the project vicinity was Dr. Hugh J. Glenn, who came in 1849 to California from Missouri. Glenn worked the gold camps of the American River for a time, returned home, and brought his family to California. In 1867, Glenn purchased 7,000 acres of Rancho Jacinto from Isaac Sparks. He added more property to his holdings, and by 1874 owned some 55,000 acres, including 41,000 acres planted in wheat. Glenn ultimately became known as the “Wheat King of the West” (Hoover et al., 1990:95).

In March 1891, a portion of the original 1850 boundaries of Colusa County was removed to become Glenn County, with the county seat established at Willows (Francis 1999:13; and Hoover et al., 1990:97).

Irrigation and the Development of Colusa County

The project area is located to the south and west of the small town of Delevan. The history of this area is also related to the development of ranching, farming, and irrigation within the west Sacramento Valley. By the 1880s, wheat farming had become less profitable for several reasons. First, the intensive dry farming was beginning to deplete the soil, and crops were thinning. Second, the completion of the transcontinental railroad reduced the West’s dependence on locally grown wheat. Finally, a drought in 1898 drove many farmers to abandon farming and the Sacramento Valley.

William S. Green, one of the founders of Colusa, envisioned revolutionizing agriculture in the area by constructing a major canal that would divert water from the Sacramento River to the farms along the western side of the Sacramento Valley. On November 22, 1887, the Central Irrigation District was founded in Colusa County (as described above, Glenn County was part of Colusa County until 1891) and construction on the Central Canal began.

Litigation over rights-of-way soon hampered the project, construction stopped, and portions of the canal were not built. The fate of the Central Irrigation District was not unique; most of the forty-nine districts proposed under the Wright Act were never completed (Davis 1984: 13-15). In 1897 a new law, the Bridgeford Act, was adopted that made forming irrigation districts easier. In 1903 the Central Canal and Irrigation Company purchased the works, with the hopes of irrigating a smaller area (JRP 2000: 23).

On June 15, 1909, the Kuhn banking firm from Pittsburgh founded the Sacramento Valley Irrigation Company, which purchased the Central Canal and Irrigation District (Davis 1984: 30). After the Kuhn bank failed in 1915, the Sacramento Valley West Side Canal Company was in receivership with the State Railroad Commission fixing the rates. During these years farmers discovered that rice could be grown on the alkaline and heavy clay soils. However, the fields had to be flooded during the growing season, a practice that required massive amounts of water.

Although it demanded lots of water, rice farming was attractive to many farmers, because prices were high due to a tremendous demand caused by World War I. Unfortunately, the existing irrigation system was inadequate to meet the increased demand, and the State Railroad Commission would not increase rates to pay for expansion (Davis 1984:63).

The canal was finally finished, but the weather and the economy combined to deal the district a serious blow. In 1920, rice crops were lost due to an early and continuous rain that resulted in the “Crash of 1920.” Ten years later, the Great Depression further devastated farmers. Holders of poorer lands increasingly were delinquent on their payments to the irrigation district, Reclamation District 2047, and taxes to the county. Those unable to pay lost their land. The irrigation and reclamation districts became rich in land but poor in fees. In the late 1930s, Charles Lambert headed the reorganization of district lands and the sale of the property back to farmers at low prices. Options to buy went first to those who had lost their lands. World War II increased demand for grains, and once again, rice was a profitable crop. The war years were a period of growth for the towns of Colusa county. Many of the farming structures within the project area were built at that time. Today, the land surrounding the project area is used for rice farming and for growing a variety of vegetable crops.

California today is the second largest producer of rice in the nation, totaling nearly 4.6 billion pounds, and more than 95 percent of California’s rice crop is grown 100 miles from Sacramento, which includes Colusa. In Colusa county, rice accounts for approximately 80 to 85 percent of the GCID’s irrigated acreage on an annual basis (GCID 2012).

Colusa Basin Drainage Canal

The Colusa Basin Drainage Canal is a 33-mile canal that stretches from the city of Colusa in Colusa county southeast to the city of Knights Landing in Yolo county. It is a 10- to 20-foot-wide dirt-lined canal initially constructed in 1903 as a result of linear borrow trenches created by building levees in the area (Les 1986). The canal was completed in 1911, and additions, such as culverts and headgates, were added in 1919 and 1920 (Les 1986), probably in conjunction with the Glenn-Colusa Canal and widespread irrigation development in the Sacramento Valley. Six types of features are associated with the canal, including levees, side irrigation ditches, pumphouses, culverts, concrete remnants, and orchard valves. The canal levees paralleled the entire canal length and dirt roads were accessible along the levee’s crown. Ninety percent of the canal is characterized by earthen side irrigation ditches that parallel the land side of the levee.

Sacramento River Flood Control Project

The following context is adapted from the Sacramento River Flood Control Project Multiple Property Listing (March 2021) by Susannah Lemke and Tatum Clinton-Selin, USACE, Sacramento District, with edits made for clarity and relevance.

In 1911, the State legislature established the State of California Reclamation Board (now the Central Valley Flood Protection Board [CVFPB]) to exercise jurisdiction over reclamation districts and levee plans. The Sacramento River Flood Control Project (SRFCP), authorized by the State legislature in the California Flood Control Act of 1911 and later authorized by Congress under the Flood Control Act of 1917, was one of the first comprehensive water management infrastructure projects in California. The ambitious project included the construction of levees, weirs, and bypasses along the Sacramento River to channel floodwaters away from population centers. Under the SRFCP, new reclamation districts were created, and levees, weirs, and bypasses were established that extend throughout the Sacramento River Basin north of Tehama through to Rio Vista. Construction on the project was completed by the early 1960s.

Legislation of the 1930s paved the way for large, federally funded reclamation projects in the Sacramento Valley, both for the Bureau of Reclamation and USACE. Under the Flood Control Act of 1936, USACE adopted flood control as a leading mission. Instead of acting with a non-federal sponsor, USACE was given the authority to build infrastructure, including dams and levees, to protect citizens and property in flood zones (Mount 1995:196). Three objectives under the Rivers and Harbors Act of 1937 were tailored to the missions of both the Bureau of Reclamation and USACE: Provide water for irrigation and domestic use (Bureau of Reclamation) and regulate rivers and improve flood control and navigation (USACE).

Power Generation

Construction on the SRFCP continued to expand throughout the valley. By 1944, 980 miles of levees had been added to the SRFCP and the system was considered nearly 90 percent complete (Kelley 1998:309). The Flood Control Act of 1944 expanded on the 1936 Flood Control Act to designate the responsibilities of flood control and navigation to USACE. The low-lying, flood-prone, agricultural Central Valley continued to be a major focus for USACE and the Bureau of Reclamation. Large-scale federal reclamation and flood control projects tapered in the late 1960s, and USACE and the Bureau of Reclamation shifted staff and resources toward managing existing projects rather than constructing new ones (Bureau of Reclamation 2020). In 1961, the infrastructure of the SRFCP was deemed completed and USACE turned toward managing the existing system.

Beginning in 1961, annual inspections of the SRFCP levees were conducted by USACE, the California Reclamation Board, and DWR (Scott 2017:4–13). At a national level, policy changes in the early 1960s also led to new approaches to federal flood protection in the United States. In 1966, the Federal Task Force on Flood Control Policy observed that the purpose of federal flood control projects had shifted from providing flood relief to existing communities to paving the way for property development (Elfring et al. 1995:165). Concurrently, a 1966 report by the National Resources Planning Board promoted flood management alternatives including

wetland conservation, planned land use, and evacuation systems. Many of these non-structural measures were adopted in the National Flood Insurance Act of 1968 (Elfring et al. 1995:22). The levees of the SRFCP, in particular, required substantial repairs after major flooding in 1986 and 1997, and additional measures were taken to identify and repair weaknesses in the system after Hurricane Katrina brought renewed national attention to levee safety in 2005 (Scott 2017:1-2, 1-3). The APE is located within the Sacramento River Westside Levee District which extends for a distance of 50 miles from the Colusa Bridge to the City of Knights Landing.

Methodology and Results

This section describes the various methods and results used to identify and document cultural resources at the project site.

Records Search and Literature Review

A records search was conducted by AECOM archaeologist, Karin G. Beck, at the Northwest Information Center (NWIC) of the California Historical Resources Information System (CHRIS). The search area includes the APE and a 1-mile radius buffer. Archival and literature review also included the following documents, maps, and listings:

- National Register of Historic Places listings
- California Register of Historical Resources listings
- Built Environment Resources Directory, Colusa County (OHP 2022)
- California State Historical Landmarks (OHP 1996)
- California Inventory of Historic Resources (State of California Department of Parks and Recreation 1976)
- California Points of Historical Interest (OHP 1992)
- California Place Names (Gudde 1998)
- Historic Spots in California (Kyle et al. 2002)
- Historical Atlas of California (Beck and Haase 1974)

The archival records search consisted of an archaeological and historical records and literature review and a review of previous research and documented sites on file at the NWIC (NWIC file No. 23-1902). This research provides a background of cultural resources investigations that have been conducted and the types of cultural resources that have been identified and would be expected. Table 3.2.5-2 summarizes the one previous investigation that included Site 23-078. One resource, the historic-era Colusa Basin Drainage Canal has been documented within the APE (Table 3.2.5-2). Two investigations have been conducted within 1-mile of the APE and no resources were identified within a mile of the APE.

A two-mile long segment of the Colusa Basin Drainage Canal was evaluated for the Carl Jacobson Wetland Reserve Program Project by Solano Archaeological Services in 2012, Because of a lack of historic integrity they recommended that this segment located north of the proposed project was not eligible for inclusion in the NRHP. The remaining 31 miles of the

canal including the proposed project have not been assessed for NRHP eligibility/CRHR significance.

Table 3.2.5-2. Summary of Previous Investigations Within the APE

NWIC Report No.	Report Title	Author/Date	Documented Resources
S-017949	Cultural Resources Inventory for the Colusa Basin/Knights Landing Ridge Cut Levees Project, Colusa and Yolo Counties, California	Shapiro (1992)	P-06-000703/COL-302H within the APE

Notes: Report is on file at the Northwest Information Center
APE = Area of Potential Effects
NWIC = Northwest Information Center

Table 3.2.5-3. Documented Site within the APE

Primary Number	Description	CRHR Significance/NRHP Eligibility
P-06-000703 / CA-COL-302H	Colusa Basin Drainage Canal	Not evaluated for the NRHP or the CRHR

Notes: Site documentation is on file at the Northwest Information Center
CRHR = California Register of Historical Resources
NRHP = National Register of Historic Places

Pedestrian Survey

On August 13, 2024, AECOM archaeologists conducted a survey of the project site, including the levee, access/haul routes, and the laydown/staging area. The survey method consisted of pedestrian survey utilizing 15-meter parallel transects. Vegetation was removed at random intervals to facilitate inspection of the ground surface and the back dirt from rodent burrows was inspected for the presence of subsurface archaeological deposits. Quarry rock consisting of granite, basalt, limestone and sandstone, commonly used in levee construction for riprap, was present on the water side of the levee. Ground visibility was high at approximately 99 percent as it appeared that fire was used to clear all the brush growing on the side of the levee. The levee separates wetlands from the farmlands adjacent to the levee. The staging area consists of a dirt road that is utilized by farmers. No cultural materials were observed during the pedestrian survey.

Tribal Consultation

Tribal consultation under Assembly Bill (AB) 52 and in accordance with DWR Tribal Policy was carried out for the proposed project. The details and results of this consultation are discussed in Section 3.2.15, “Tribal Cultural Resources.”

Discussion

a) **Less-than-Significant Impact.** CEQA Guidelines Section 15064.5 requires the lead agency to consider the effects of a project on historical resources. A historical resource is defined as any building, structure, site, or object listed in or determined to be eligible for listing in the California Register or determined by a lead agency to be significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, or cultural annals of California. This impact discussion evaluates potential

impacts on the architectural and structural resources. Archaeological resources, including archaeological resources that are potentially historical resources according to CEQA Guidelines Section 15064.5, are addressed under environmental issue area b), below.

Proposed project activities involve making repairs along existing levee slopes to restore the levee to its original design. These repairs and maintenance would not result in a significant physical change of the levee as a potentially eligible historical resource. As such, a less-than-significant impact to the levee as historical resource is anticipated. Once the repair is complete; no further disturbance to the levee would occur. Impacts would be less than significant.

b) & c) **Less-than-Significant Impact with Mitigation Incorporated.** This section discusses archaeological resources, both as historical resources according to CEQA Guidelines Section 15064.5, as well as unique archaeological resources as defined in PRC Section 21083.2(g). A significant impact would occur if the proposed project would cause a substantial adverse change to an archaeological resource through physical demolition, destruction, relocation, or alteration of the resource. Because no known precontact or historic-era archaeological sites have been previously recorded within the project site, and the field survey failed to identify any new cultural resources there would be no damage to or destruction of known precontact or historic-age archaeological resources during project construction.

Based on the CHRIS records search, the distribution of nearby archaeological sites, survey results, previous disturbance, and environmental context, the majority of the project site has a high potential to encounter or impact an unknown buried archaeological site or to encounter unknown human remains, which could result in physical demolition, destruction, or alteration of an unknown archeological resource. Potentially significant impacts on unknown archeological resources during construction would be mitigated to a less-than-significant level through DWR, or their contractors, implementation of preconstruction training, incorporation of Tribal monitoring and archeological monitoring, and the development and implementation of a plan in the unlikely instance of the inadvertent discovery (Mitigation Measures CUL-1, CUL-2, and CUL-3). These mitigation measures would allow for the appropriate monitoring and stop work authority during construction if unknown archaeological resources are discovered. These mitigation measures would also allow appropriate handling of such resources, and, for precontact resources, consultation and coordination with the appropriate Native American representative.

There is no indication that the project site has been used for human burials. However, due to the historical nature of levee construction there is a potential to encounter previously unidentified remains in subsurface context when conducting ground disturbance. The inadvertent unearthing, exposure, or disturbance of buried human remains would be a potentially significant impact. Implementation of Mitigation Measure CUL-4, which includes provisions compliant with the PRC and Health and Safety Code would reduce this impact to a less-than-significant level by notifying the

proper authorities and implementing the proper handling and care of unknown human remains inadvertently discovered.

The project site location and unknown precontact archaeological sites may also be considered Tribal Cultural Resources (TCRs) by tribal groups pursuant to PRC 21074; 21083.09. Refer to Section 3.2.15, “Tribal Cultural Resources”, for the impact analysis and proposed Mitigation Measures TCR-1 and TCR-2, as well as CULT-1 through CUL-4, which would reduce potentially significant impacts on TCRs.

Mitigation Measure CUL-1. Preconstruction Training.

Prior to construction, a qualified archaeologist with expertise in California archaeology will develop an archaeological resources training program in consultation with interested Tribes and present to all construction and field personnel. Only personnel who have received the training will be allowed to access the APE. Topics may include the potential presence and type of Native American and non-Native American resources that might be found during construction, and necessary reporting protocols in the event of an inadvertent discovery (see Mitigation Measure CUL-3 and CUL-4). Written materials will be provided to personnel as appropriate.

Mitigation Measure CUL-2. Conduct Monitoring at Locations Identified by Native Americans as Sensitive.

Native American monitoring may be conducted at sensitive locations under agreements between DWR and culturally affiliated Native American Tribes. DWR may include qualified tribal monitors during certain construction activities. The decision to do so is based on the nature of the activity and the cultural sensitivity of the specific location. Tribal monitors would be required to submit reports, and the results be maintained by DWR to determine the need for additional surveys related to future activities in the area. If cultural materials are encountered during construction, Mitigation Measure CUL-2 will be implemented.

Mitigation Measure CUL-3. Archaeological Monitoring and a Plan for Inadvertent Discovery of Archaeological Resources.

Archaeological monitoring will occur when ground-disturbing activities occur at the proposed project repair site given the high potential for unknown archaeological resources. Monitoring shall be conducted by or supervised by a qualified archaeologist who meets the Secretary of the Interior’s Professional Qualification Standards (SOIPQS). A Monitoring Plan shall be developed that includes the following components:

- Person(s) responsible for conducting monitoring activities;
- Person(s) responsible for overseeing and directing the monitors;
- How the monitoring shall be conducted at the repair site and the required format and content of monitoring reports;

- Schedule for submittal of monitoring reports and person(s) responsible for review and approval of monitoring reports;
- Protocol for notifications in the event inadvertent discoveries are encountered (e.g., collection, identification, curation);
- Methods to ensure security and protection of cultural resources;
- A protocol for notifying local authorities (i.e., Sheriff, Police) should site looting or other illegal activities occur during project implementation.
- The archaeologist in collaboration with the Tribal monitor, if present, may adjust the frequency of monitoring (e.g. from continuous to intermittent) based on the conditions and professional judgment regarding the potential to impact cultural resources.
- Contact information for all responsible personnel identified in the Plan

If Native American or historic-period resources are encountered, all activity within 100 feet of the find shall immediately halt until it can be evaluated by a SOIPQS archaeologist (and a Native American representative if the artifacts are precontact). DWR will be notified, and a SOIPQS archaeologist will inspect the findings within 24 hours of discovery. If it is determined that project activities could damage a significant cultural resource, DWR shall re-design the proposed project to avoid any adverse effects. If avoidance is not feasible, a qualified archaeologist shall prepare and implement a detailed Archaeological Resources Management Plan in consultation with the State Historic Preservation Officer and, for Native American resources, the appropriate Native American Tribal representative.

In considering any suggested mitigation proposed by the archaeologist and Native American representative, DWR shall determine whether avoidance is feasible in light of factors such as the nature of the find, project design, costs, and other considerations. If avoidance is not feasible, other appropriate measures (e.g., data recovery as agreed upon between DWR, the archaeological consultant, and Native American representatives) shall be instituted. DWR may re-instate work in other parts of the project site outside of designated culturally sensitive areas, while identifying appropriate management of resources.

Mitigation Measure CUL-4. Inadvertent Discovery of Human Remains

If an inadvertent discovery of human remains is made during project-related construction activities or project planning, DWR will implement the procedures listed below. Should human remains be identified in the project APE, the following performance standards shall be met prior to implementing or continuing actions such as construction, that may result in damage to or destruction of human remains. Avoiding or substantially lessening potential significant impacts to human remains or implementation of the procedures described below maybe considered to avoid or

minimize significant adverse impacts and constitute the standard by which an impact conclusion of less than significant may be reached:

- In accordance with the California Health and Safety Code, if human remains are uncovered during ground-disturbing activities, all work will halt within 100 feet of the maximum extent of the find. The Construction Lead or on-site inspector will immediately notify DWR. DWR notify the Yolo County Coroner and a professional archaeologist to determine the nature of 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 in ancestry, he or she must contact the NAHC by phone within 24 hours of making that determination (California Health and Safety Code Section 7050[c]).
- After the Coroner's findings have been made, a qualified archaeologist who meets the SOIQS and the NAHC-designated Most Likely Descendant (MLD), in consultation with the landowner, shall determine the ultimate treatment and disposition of the remains.

The responsibilities of DWR for acting upon notification of a discovery of Native American human remains are identified in California PRC Section 5097.9 et seq. Upon the discovery of Native American human remains, DWR will require that all construction work must stop within 100 feet of the discovery 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. California 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. Site-protection measures that DWR will employ are as follows:

- Record the site with the Native American Heritage Commission (NAHC) or the appropriate Information Center; and Record a document with the County in which the property is located;
- If agreed to by the MLD and the landowner, DWR or DWR's authorized representative will work with the landowner and MLD to rebury the Native American human remains and associated grave goods with appropriate dignity on the property in a location not subject to further subsurface disturbance if the NAHC is unable to identify an MLD, or if the MLD fails to make a recommendation within 48 hours after being granted access to the site. DWR or DWR's authorized representative may also reinter the remains in a location not subject to further disturbance if he or she rejects the recommendation of the MLD and mediation by the NAHC fails to provide measures acceptable to DWR. Mitigation may still

be needed if impacts occur to those burials; DWR will consult with the MLD to identify appropriate mitigation.

- If the human remains are of historic age and are determined to be not of Native American origin, DWR 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.

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3.2.6 Energy

Table 3.2.6-1. Environmental Issues and Determinations for

Issues	Determination
a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	LTS
b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	NI

Table Notes:
LTS = Less-than-Significant Impact
NI = No Impact

Environmental Setting

Energy is typically consumed as a result land use development in the form of electricity from renewable and non-renewable sources, natural gas, and petroleum. The primary energy resources that would be required for project construction is petroleum fuel in the form of gasoline and diesel.

Transportation is the largest energy consuming sector in California, accounting for approximately 42 percent of all energy use in the state (U.S. Energy Information Administration [EIA] 2025). More motor vehicles are registered in California than in any other state, and commute times in California are among the longest in the country (EIA 2024a). Transportation fuel has and will continue to diversify in California and elsewhere. While historically gasoline and diesel fuel accounted for nearly all demand, there are now numerous alternative fuel options becoming more market-available, including ethanol, natural gas, electricity, and hydrogen. Currently, despite advancements in alternative fuels and clean vehicle technologies, gasoline and diesel remain the primary fuels used for transportation in California and California remains the second highest consumer of motor gasoline in the country (EIA 2024a).

Discussion

a) **Less-than-Significant Impact.** The proposed project would require energy resources for the duration of construction, primarily in the form of fossil fuels (i.e., gasoline and diesel fuel) to power construction equipment and vehicles operating onsite, trucks delivering materials to the site, and construction workers driving to and from the site. Once constructed, the levee repairs would not require energy resources.

To quantify energy consumption that could result from the proposed project, this analysis uses the same project inputs and modeling as detailed in Section 3.2.3, “Air Quality”. Because CalEEMod, the emissions estimating model used to inform the air quality analysis, does not quantify fuel consumption, the proposed project’s fuel demand was quantified based on the greenhouse gas emissions estimates modeled using CalEEMod and application of the Energy Information Administration’s carbon dioxide emission coefficients (EIA 2024b). Table 3.2.6-2 presents the fuel consumption anticipated as a result of the proposed project.

Table 3.2.6-2. Modeled Construction Fuel Consumption

Energy Consuming Component	Gasoline (gallons)	Diesel (gallons)
On-site Equipment	0	2,696
On-road Vehicles	367	2,522
Total	367	5,219

Notes:
Modeled by AECOM in 2025.
See Appendix B for detailed emissions modeling and energy calculations.

Proposed project construction is expected to consume a total of 367 gallons of gasoline and 5,219 gallons of diesel fuel for construction worker trips, haul truck trips, and construction equipment use. This is considered a conservative estimate as it assumes that equipment would operation continuously for 11 hours daily over a 4-week construction duration, and also assumes maximum on-site workers every day and that all excavated material would be hauled offsite. However, fuel consumption rates would vary over the duration of construction based on the intensity of construction activities. The intensity of construction would be influenced by factors such as the amount and duration of equipment use during different construction activities, as well as the number of vehicle trips and distances traveled during each phase of construction.

The proposed construction-related activities and associated equipment use are necessary components of the repair to the levee. Related fuel consumption would be temporary, ceasing after the completion of construction, and would not represent a significant demand on available energy resources, beyond normal construction fuel usage. Furthermore, construction would be short in duration (approximately two to four weeks) and would not include unusual characteristics that would necessitate the use of construction equipment that would be less energy-efficient than at comparable construction sites. Therefore, construction associated with the proposed project would not result in inefficient, wasteful, or unnecessary use of fuel or other energy sources. This impact would be less than significant.

b) **No Impact.** Proposed project construction would result in energy consumption in the form of petroleum fuel, as detailed in a), and would not result in an inefficient or wasteful consumption of energy resources.

The primary energy use associated with the proposed project is transportation energy related to worker vehicle trips and haul trips. Existing energy standards are promulgated either through the regulation of fuel refineries and products, such as the Low Carbon Fuel Standard (LCFS), which mandates a 10 percent reduction in the non-biogenic carbon content of vehicle fuels by 2020. Additionally, there are other regulatory program with emissions and fuel efficiency standards established by USEPA and CARB such as Pavley II/LEV III and the Heavy-Duty (Tractor-Trailer) GHG Regulation. CARB has set a goal of 4.2 million Zero Emissions Vehicles (ZEV) on the road by the year 2030. Further, construction sites need to comply with State requirements designed to minimize idling of commercial vehicles and off-road equipment and associated emissions, which also minimizes use of fuel (e.g., California

Code of Regulations, Title 13 Sections 2449 and 2485, which prohibit diesel-fueled commercial motor vehicles and off-road diesel vehicles from idling for more than five minutes).

As the state's primary energy policy and planning agency, the California Energy Commission prepares the Integrated Energy Policy Report (CEC 2024). This report forecasts future energy demands and evaluates existing and planned energy resources to meet such demands, as well as provides a framework for next steps and recommendations to continue to advance California's renewable energy resource goals. The Integrated Energy Policy Report addresses various aspects of the energy sector, including transportation fuels and the transition to alternative transportation vehicles. The report documents energy forecasting and recommended action for plans, programs, and policies related to construction equipment and vehicles, including those regulations detailed above that have thus far been implemented as federal and state policy for renewable energy and energy efficiency in construction equipment and on-road vehicles. In addition, the California Energy Commission invests in programs and projects to make California's transportation sector cleaner, such as through the Alternative and renewable Fuel and Vehicle Technology Program that directs investments to develop and deploy low carbon fuels, infrastructure for zero and near-zero emission vehicles, and advanced vehicle technologies.

The plans and programs discussed above do not directly regulate the proposed project. However, the proposed project would comply with all applicable federal and state regulations, including use of compliant equipment and vehicles and operating equipment in accordance with regulation for vehicle and equipment idling limitations and maintenance requirements to maintain operational fuel efficiency. The proposed project would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency, and impacts would not occur.

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3.2.7 Geology and Soils

Table 3.2.7-1. Environmental Issues and Determinations for Geology and Soils

Issues	Determination
a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:	
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	NI
ii) Strong seismic ground shaking?	LTS
iii) Seismic-related ground failure, including liquefaction?	LTS
iv) Landslides?	NI
b) Result in substantial soil erosion or the loss of topsoil?	LTS
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?	LTS
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?	LTS
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	NI
f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	NI

Table Notes:
LTS = Less-than-Significant Impact
LTS/M = Less-than-Significant Impact with Mitigation Incorporated
NI = No Impact

Environmental Setting

Regional and Local Geology

The project site is situated in the Sacramento Valley which, together with the San Joaquin Valley, comprise the Central Valley Geomorphic Province. The Central Valley is a forearc basin composed of thousands of feet of sedimentary deposits, which has undergone alternating periods of subsidence and uplift over millions of years. The surface of the Sacramento Valley in the project area consists of Holocene-age (i.e., the last 11,700 years) natural basin deposits in the Sutter and Colusa Basins (including the project site), and Holocene alluvial deposits adjoining the Sacramento River (Gutierrez 2011).

Seismicity

The project site is situated in the flat alluvial plain of the Sacramento Valley. The nearest active fault is the Hunting Creek-Berryessa Fault System, which is approximately 26 miles west of the project site in the Coast Ranges (Jennings and Bryant 2010, U.S. Geological Survey and California Geological Survey 2017). This fault is zoned under the Alquist-Priolo Earthquake

Fault Zoning Act (California Geological Survey 2022). The Dunnigan Hills Fault, which is not considered active but has shown evidence of movement in the middle to late Quaternary period (i.e., the last 700,000 years), is approximately 9.5 miles southwest of the project site in the foothills of the Coast Ranges (Jennings and Bryant 2010, U.S. Geological Survey and California Geological Survey 2017).

The project site is situated in an area that is classified with a moderately low potential for strong seismic ground shaking (Branum et al. 2016), and is in a flat area that is not subject to landslide hazards.

Soil liquefaction occurs when ground shaking from an earthquake causes a sediment layer saturated with groundwater to lose strength and become fluid, similar to quicksand. The liquefaction potential depends on the type of soil, the level and duration of seismic ground motions, and the depth to groundwater. The locations that are most susceptible to liquefaction-induced damage have loose, water-saturated, granular sediment that is within 40 feet of the ground surface. Liquefaction poses a hazard to levees because the loss of soil strength can result in seismic deformations that destabilize the levee.

Soil Types and Characteristics

Based on a review of soil survey data provided by the U.S. Natural Resources Conservation Service (NRCS), native soil at the project site and the proposed staging area is classified as Clear Lake clay, 0 to 1 percent slopes, occasionally flooded (NRCS 2024). This soil type is rated with a low potential for water erosion, a moderately low potential for wind erosion, a very high expansion potential, a high stormwater runoff potential, and is frequently flooded (NRCS 2024).

The repair length is approximately 425 linear feet on landside of the levee along the Colusa Basin Drainage Canal. The levee itself consists of reworked, engineered, and compacted materials derived from native soil deposits in the area. Subsurface soil data for Site 23-078 was obtained from several boring logs provided in the U.S. Army Corps of Engineers' (USACE) Geotechnical Assessment and Remedial Levee Design for the Sacramento River Flood Control Project (USACE 1991). The borings were obtained along the levee crown and extended to a maximum depth of 40 feet below the ground surface. The boring materials were classified as fat clay (soft and compressible) and lean clay (with higher amounts of silt and sand).

Expansive soils are composed largely of clays, which greatly increase in volume when saturated with water and shrink when dried (referred to as "shrink-swell" potential). Expansive soils in levees can result in levee destabilization and shallow surface slides along the sides of levees. Laboratory test results indicated that the fat clay materials in the levee repair area are expansive.

Discussion

a) i) **No Impact**. Surface rupture is an actual cracking or breaking of the ground along a fault during an earthquake. Facilities built over a fault can be torn apart, and levees can be destabilized, if the ground ruptures. The Alquist-Priolo Earthquake Fault Zoning Act (Alquist-Priolo Act) was created to prohibit the location of structures designed for

human occupancy across the traces of active faults, thereby reducing the loss of life and property from an earthquake. The project site is not located within or near an Alquist-Priolo Earthquake Fault Zone (California Geological Survey 2022). Thus, there would be no impact.

a) ii) **Less-than-Significant Impact.** Geologists have determined that the greatest potential for surface fault rupture and strong seismic ground shaking is from active faults; that is, faults with evidence of activity during the Holocene epoch. The project site is located in an area that has not historically experienced large magnitude earthquakes (U.S. Geological Survey 2025). The nearest active fault is approximately 26 miles west of the project site in the Coast Ranges. The 2016 map showing the probabilistic *Earthquake Shaking Potential for California* (Branum et al. 2016) indicates that the project site is in an area of moderately low potential shaking hazard intensities (i.e., estimated peak horizontal ground acceleration of 0.55*g*). However, the proposed project is a levee maintenance and repair project, and as such (in particular due its small size and the minor nature of repairs), it is free from the need for seismic design or engineering requirements as specifically directed by U.S. Army Corps of Engineers (USACE) Engineering Manual 1110-2-1913 (USACE 2000) because the USACE has determined that repair projects of this nature would not be subject to seismic hazards. Therefore, this impact would be less than significant.

a) iii) **Less-than-Significant Impact.** Active seismic sources are a relatively long distance from the project site. The groundwater in the project area is relatively shallow, ranging from approximately 30 to 40 feet below the ground surface (California Department of Water Resources 2023) and the project site soils are composed of unstable clay. As noted under environmental issue area a)ii), the proposed project is free from the need for seismic design or engineering requirements as repair projects of this nature would not be subject to seismic hazards. As discussed in environmental issue area c) the proposed repairs have been designed and engineered for stability per USACE EM 1110-2-1913 (USACE 2000). Therefore, this impact would be less than significant.

a) iv) **No Impact.** The project site and the surrounding lands are flat. Thus, there is no potential for landslides due to terrain hazards and there would be no impact.

b) **Less-than-Significant Impact.** The proposed project would involve ground-disturbing construction activities, including vegetation clearing and grubbing, excavating, grading, and placing earthfill and soil-filled rockfill. These activities would expose soil to potential erosion from wind and rain. However, the area where levee repairs would be performed is very small, only 0.35 acre. The staging and laydown area is also small, approximately 0.16 acre. Thus, the proposed project would disturb less than 1 acre and a Stormwater Pollution Prevention Plan is not required. DWR will incorporate its standard environmental commitments related to water quality, which are described in detail in Section 2.4.5 (Chapter 2, “Project Description”). As part of these environmental commitments, DWR will install erosion control measures such as straw bales, silt fences, fiber rolls, or equally effective measures, at project locations adjacent to stream channels, drainage canals, and wetlands. Environmental awareness training to train

the contractor on the proper use of Best Management Practices (BMPs) and applicable permit requirements will be conducted to prevent erosion and protect receiving water quality. DWR will also minimize ground and vegetation disturbance by establishing designated equipment staging areas, access routes, spoils and soil stockpile areas, and equipment exclusion zones prior to the commencement of activity. Furthermore, the proposed levee repairs would occur on the landside rather than the waterside. Finally, once the levee bank construction is complete, the proposed project includes seeding all disturbed soil remaining on the repair site with a native erosion control seed mix according to the planting specifications, and the staging/laydown area would be restored to pre-project conditions. Therefore, this impact would be less than significant. (Please see Section 3.2.10, "Hydrology and Water Quality," for additional details and discussion related to construction and operational water quality impacts.)

c) **Less-than-Significant Impact.** The proposed project is a levee repair project that is intended to address existing levee instability resulting from damage during 2023 storm events. As described in detail in Chapter 2, "Project Description," the levee repair site would be excavated of existing rock and levee soils disturbed by the structural failure and transition zones. The repair site would then be excavated and graded to a 3H:1V or 3:1 slope. The back slope of the levee would be shaped for stability. Once bank construction is complete, all disturbed soil remaining on the repair site would be seeded with a native erosion control seed mix according to the planting specifications. The proposed levee repair has been appropriately designed and engineered to provide stability per USACE EM 1110-2-1913 (USACE 2000). Therefore, this impact would be less than significant.

d) **Less-than-Significant Impact.** Based on the results of site-specific soil borings, existing clay sediments are present within the levee repair site that are expansive. However, the proposed project includes excavating the existing expansive material at the repair site and replacing it with imported fill material that is not expansive, per USACE EM 1110-2-1913, to provide future levee stability (USACE 2000). Therefore, this impact would be less than significant.

e) **No Impact.** The proposed project involves repair of an existing levee, and does not include or require wastewater treatment systems. Temporary, portable restrooms would be provided for construction workers during the construction phase. Thus, there would be no impact.

f) **No Impact.** A unique geologic feature consists of a major natural element that stands out in the landscape, such as a large and scenic river or lake, gorge, major waterfall, volcanic cinder cone, lava field, or glacier. There are no unique geologic features at the project site; thus, there would be no impact.

Sediments at the project site consist of Historic-age (i.e., the last 200 years) levee deposits, which consist of reworked, engineered, and compacted materials derived from native soil deposits in the area. Based on a review of geologic mapping (Gutierrez 2011), the native sediments at the project site and in the project vicinity consist of basin deposits (fine-grained sediments of late Holocene age with horizontal stratification,

deposited by standing or slow moving water in topographic lows). To be considered a unique paleontological resource, a fossil must be more than 11,700 years old. Historic deposits are too young to contain fossils. Holocene deposits contain only the remains of extant, modern taxa (if any fossil resources are present), which are not considered "unique" paleontological resources. Thus, there would be no impact.

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3.2.8 Greenhouse Gas Emissions

Table 3.2.8-1. Environmental Issues and Determinations for Greenhouse Gas Emissions

Issues	Determination
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	LTS/M
b) Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	LTS/M

Table Note:
LTS/M = Less-than-Significant Impact with Mitigation Incorporated

Environmental Setting

Certain gases in the earth's atmosphere, classified as greenhouse gases (GHGs), play a critical role in determining the earth's surface temperature. Solar radiation enters the earth's atmosphere from space. A portion of the radiation is absorbed by the earth's surface, and a smaller portion of this radiation is reflected back toward space through the atmosphere. However, infrared radiation is selectively absorbed by GHGs in the atmosphere. As a result, infrared radiation released from the earth that otherwise would have escaped back into space is instead trapped, resulting in a warming of the atmosphere. This phenomenon, known as the "greenhouse effect," is responsible for maintaining a habitable climate on Earth. The principal GHGs contributing to climate change are carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), and fluorinated compounds. Human-caused, or anthropogenic, emissions of these GHGs in excess of natural ambient concentrations are generally considered responsible for intensifying the greenhouse effect, and have led to a trend of unnatural warming of the earth's climate, known as global climate change (Intergovernmental Panel on Climate Change [IPCC] 2021).

Methods have been set forth to describe emissions of GHGs in terms of a single gas to simplify reporting and analysis. The most commonly accepted method to compare GHG emissions is the global warming potential (GWP) methodology. The GWP of GHGs compares the ability of each GHG to trap heat in the atmosphere relative to another gas. GWP is based on several factors, including the relative effectiveness of a gas to absorb infrared radiation and the length of time the gas remains in the atmosphere (its "atmospheric lifetime"). The GWP of each gas is measured relative to CO_2. Therefore, CO_2 has a GWP of 1. GHGs with lower emissions rates than CO_2 may still contribute to climate change because they are more effective at absorbing outgoing infrared radiation than CO_2 (i.e., have a higher GWP). For example, N_2O has a GWP of 298, meaning that 1 ton of N_2O has the same contribution to the greenhouse effect as approximately 298 tons of CO_2 (CARB 2022). The concept of CO_2 equivalence (CO_2e) is used to account for the different GWP potentials of GHGs. GHG emissions are typically measured in terms of pounds or tons of CO_2e and are often expressed in metric tons (MT) CO_2e.

GHGs are emitted by natural processes and as a result of human (anthropogenic) activities. Anthropogenic GHG emissions are primarily associated with: (1) the burning of fossil fuels during motorized transport, electricity generation, natural gas consumption, industrial activity, manufacturing, and other activities; (2) deforestation; (3) agricultural activity; and (4) solid waste decomposition. GHGs are not monitored at local air pollution monitoring stations and do not

represent a direct impact to human health. Rather, GHGs generated locally contribute to global concentrations of GHGs, which changes the climate and environment.

The temperature record shows a decades-long trend of warming, with the newest release in long-term warming trends announcing 2023 ranked as the warmest year on record with an increase of 1.6 degrees Fahrenheit compared to the 1951-1980 average (NASA 2024). The IPCC concluded that variations in natural phenomena, such as solar radiation and volcanoes, produced most of the warming of the earth from pre-industrial times to 1950, while some variations in natural phenomena also had a small cooling effect, as opposed to more recent decades in which there is scientific consensus that warming is largely attributable to anthropogenic activities.

To better understand the sources and magnitudes of GHG emissions, public and private entities at the Federal, State, and local level are developing GHG inventories. At the state level, California GHG source emissions totaled 371.1 million MT CO_2e in 2022 (CARB 2024). The transportation sector represents the single largest source of California's GHG emissions in 2022, accounting for 39 percent of total GHG emissions. Transportation was followed by industrial sources, which accounted for 23 percent, and then by the electricity sector (in-state sources and imported electricity), which accounted for 16 percent of total GHG emissions (CARB 2024).

Approach to Analysis

Addressing the potential impacts from GHG emissions generated as a result of a project requires an agency to make a determination as to what constitutes a significant impact.

Because global climate change, by its very nature, is a global cumulative impact, an individual project's compliance with a qualifying GHG reduction plan may suffice to mitigate the project's incremental contribution to that cumulative impact to a level that is not "cumulatively considerable." (See State CEQA Guidelines Section 15064[h][3].) Pursuant to State CEQA Guidelines Sections 15064(h)(3) and 15183(b), lead agencies may rely on plans for the reduction of GHGs in evaluating a project's GHG emission; a project's incremental contribution to a cumulative GHG emissions effect may be determined not to be cumulatively considerable if it complies with the requirements of a previously adopted plan or mitigation program, including a GHG reduction plan or climate action plan, under specified circumstances.

DWR has developed a Greenhouse Gas Emissions Reduction Plan (GGERP), first adopted in 2012 and since updated in 2020 and 2023 to review GHG reductions achieved and update strategies for further reductions consistent with legislative changes for GHG reductions since the initial GGERP adoption. The GGERP guides DWR project development and decision making with respect to energy use and GHG emissions, and details steps that DWR will take to reduce its emissions.

Consistent with the State climate change laws, policies, and goals at the time, the 2012 GGERP established the following GHG emissions reduction goals to reduce emissions to 50 percent below 1990 levels by 2020 and 80 percent below 1990 levels by 2050. The 2012 Plan also included 11 specific measures designed to achieve these reduction goals. DWR achieved its near-term goal five years early. Update 2020 included a mid-range goal to reduce emissions to 60 percent below 1990 levels by 2030, exceeding the statewide emissions

reduction target of 40 percent below the 1990 level by 2030, which was established in Senate Bill 32 (2016); DWR met this goal nine years early. Update 2023 included substantive changes to the following three components of the 2012 Plan and Update 2020: (1) GHG emissions reduction goals; (2) GHG quantification; and (3) GHG emissions reduction measures. A key updated goal in DWR's GGERP Update 2023 is to, "[b]y 2035, supply 100 percent of electricity load with zero-carbon resources and achieve carbon neutrality," in alignment with current state GHG emissions reduction targets and strategies.

In addition to establishing DWR GHG emissions reduction goals, describing strategies for the achievement of these goals, and monitoring and revising the plan to GHG reduction targets are met and exceeded, the GGERP is also used to streamline DWR's CEQA analysis for most DWR projects' potential to contribute to the cumulative impact of increased GHG emissions in the atmosphere, pursuant to CEQA Guidelines sections 15064(h)(3), 15064.4(b)(3), 15130(d), and 15183.5. As required by the CEQA Guidelines, environmental documents for later projects that rely on Update 2023 will "identify those requirements specified in [Update 2023] that apply to the project, and, if those requirements are not otherwise binding and enforceable, incorporate those requirements as mitigation measures applicable to the project." (California Code of Regulations., Title. 14, Section 15183.5, subdivision (b)(2)). Therefore, for the purposes of analysis, the proposed project impacts related to GHG emissions are evaluated in the context of consistency with the DWR GGERP Update 2023.

Discussion

a) **Less-than-Significant Impact with Mitigation Incorporated.** Given the relatively small levels of emissions generated by a typical project in relationship to the total amount of GHG emissions generated on a national or global basis, individual projects, such as the proposed project, are unlikely to contribute to climate change significantly by themselves. However, given the magnitude of the impact of GHG emissions on the global climate, GHG emissions from new projects could result in significant, cumulative impacts with respect to climate change. Therefore, this impact is assessed within the cumulative context of the proposed project's potential contribution to significant impacts on global climate change.

The proposed project construction GHG emissions were modeled using the same methods and assumptions as those described in Section 3.2.3, "Air Quality". In addition to criteria air pollutants, the California Emissions Estimator Model (CalEEMod) also estimates GHG emissions associated with construction and operational activities. For construction, GHG emissions were estimated for off-road construction equipment, material delivery trucks, haul trucks, and construction worker vehicles. Project-specific inputs were used in conjunction with default model settings to estimate reasonably conservative conditions. Additional details of construction activity, selection of construction equipment, and other input parameters, are included in the CalEEMod output provided in Appendix B. Once constructed, the levee repairs would not require result in ongoing GHG emissions.

The local air district, Colusa County Air Pollution Control District, has not established any quantitative thresholds of significance by which to evaluate the significance of a

project pursuant to CEQA. As described above, in the “Approach to Analysis,” if the proposed project is consistent with DWR’s GGERP Update 2023, it may be considered to have a less than significant GHG impact.

GGERP Section X, “Future DWR Projects Use of Update 2023 for CEQA Process,” outlines the steps that each DWR project will take to demonstrate consistency with the GGERP. Among these steps are the following:

- Analyze GHG emissions from construction of the project.
- Identify, quantify, and analyze the project’s GHG emissions.
- Determine that the project’s construction emissions do not exceed the levels of construction emissions analyzed in the GGERP.
- Incorporate DWR’s project-level GHG emissions reduction strategies into the design of the project.
- Determine that the project does not conflict with DWR’s ability to implement any of the specific project GHG emissions reduction measures identified in the GGERP.
- Determine that the project would not add electricity demands to the State Water Project system of 100 gigawatt-hours per year of greater.

GHG emissions from construction of the proposed project have been analyzed, identified, and quantified and are presented in detail in Appendix B. The proposed project’s construction emissions do not exceed the levels of construction emissions analyzed in the GGERP. The GGERP notes that projects that generate 25,000 MT of CO_2e over the entire project construction period, or 12,500 MT of CO_2e in any single construction year, are considered to be “extraordinary construction projects.” Such extraordinary projects are not included in the GGERP and are not eligible to use the plan to streamline the cumulative impacts analysis of later projects under CEQA. As detailed in Appendix B, over the duration of construction, the proposed project would result in approximately 56.3 MT CO_2e. Using the GGERP threshold, the proposed project is not considered an extraordinary construction project and would not, by itself, potentially adversely affect DWR’s ability to achieve its GHG emissions reduction goals. In addition, the proposed project would not conflict with DWR’s specific project GHG emissions reduction measures identified in the GGERP, and would not increase electricity demands of the State Water Project.

Nonetheless, the proposed project could be considered inconsistent with the GGERP if it did not implement applicable project-level GHG emissions reduction strategies of the GGERP. Mitigation Measure GHG-1, below, identifies the emissions reduction measures applicable to the proposed project to ensure consistency with the GGERP. With implementation of Mitigation Measure GHG-1, the proposed project would have a less-than-significant impact with respect to conflicts with an applicable plan, policy, or

regulation adopted for the purpose of reducing the emissions of greenhouse gases Therefore, this impact would be less-than-significant with mitigation.

Mitigation Measure GHG-1: Implement DWR BMPs for Construction Practices

The following GGERP Plan BMPs shall be implemented as part of construction activities associated with the proposed project:

- **BMP 1.** Evaluate project characteristics, including location, project workflow, site conditions, and equipment performance requirements, to determine whether specifications of the use of equipment with repowered engines, electric drive trains, or other high efficiency technologies are appropriate and feasible for the project or specific elements of the project.
- **BMP 2.** Evaluate the feasibility and efficacy of performing on-site material hauling with trucks equipped with on-road engines.
- **BMP 3.** Ensure that all feasible avenues have been explored for providing an electrical service drop to the construction site for temporary construction power. When generators must be used, use alternative fuels, such as propane or solar, to power generators to the maximum extent feasible.
- **BMP 6.** Limit deliveries of materials and equipment to the site to off peak traffic congestion hours.
- **BMP 8.** Evaluate the feasibility of restricting all material hauling on public roadways to off-peak traffic congestion hours. During construction scheduling and execution minimize, to the extent possible, uses of public roadways that would increase traffic congestion
- **BMP 9.** Minimize idling time by requiring that equipment be shut down after five minutes when not in use (as required by the State airborne toxics control measure [Title 13, Section 2485 of the California Code of Regulations]). Provide clear signage that posts this requirement for workers at the entrances to the site and provide a plan for the enforcement of this requirement.
- **BMP 10.** Maintain all construction equipment in proper working condition and perform all preventative maintenance. Required maintenance includes compliance with all manufacturer's recommendations, proper upkeep and replacement of filters and mufflers, and maintenance of all engine and emissions systems in proper operating condition. Maintenance schedules shall be detailed as required by Air Quality Control Plans.
- **BMP 11:** Implement tire inflation program on jobsite to ensure that equipment tires are correctly inflated. Check tire inflation when equiment arrives on site and every two weeks for equipment that remains on site. Check vehciesl used for haulting materials off site weekly for correct tire inflation. Procedures for the tire inflation program shall be documented as required in Air Quality Control Plans.

- **BMP 14.** For deliveries to project sites where the haul distance exceeds 100 miles and a heavy-duty class 7 or class 8 semi-truck or 53-foot or longer box type trailer is used for hauling, a SmartWay[1] certified truck will be used to the maximum extent feasible.

b) **Less-than-Significant Impact with Mitigation Incorporated.** DWR adopted its GGERP, which details DWR's efforts to reduce GHG emissions consistent with Executive Order (EO) S-3-05 and AB 32 and consistent with more recent State targets established in Senate Bill (SB) 32 (2016), SB 100 (2018), EO B-18-12 (2012), EO B-30-15 (2015), EO B-55-18 (2018), SB 1020 (2022) and SB 1203 (2022). The GGERP estimates historical (back to 1990), current, and future GHG emissions from DWR's operations, construction, maintenance, and business practices (e.g., building-related energy use). The plan specifies aggressive 2035 and 2050 emissions reduction goals, and identifies a list of measures to achieve these goals. The plans 2035 goal is to achieve carbon neutrality by 2035, which exceeds the State's target for carbon neutrality by 2045 under AB 1279 (2022).

As detailed in Impact a), the proposed project would be consistent with the GGERP with implementation of Mitigation Measure GHG-1. The GGERP was specifically developed with consideration of State legislation including the State's GHG reduction targets and Scoping Plan. Therefore, with implementation of Mitigation Measure GHG-1, the proposed project would not conflict an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases, and this impact would be less-than-significant with mitigation.

References

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CARB. *See* California Air Resources Board.

DWR. *See* California Department of Water Resources.

[1] The U.S. Environmental Protection Agency has developed the SmartWay truck and trailer certification program to set voluntary standards for trucks and trailers that exhibit the highest fuel efficiency and emissions reductions. These tractors and trailers are outfitted at point of sale or retrofitted with equipment that significantly reduces fuel use and emissions including idle reduction technologies, improved aerodynamics, automatic tire inflation systems, advanced lubricants, advanced powertrain technologies, and low rolling resistance tires.

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NASA. *See* National Aeronautics and Space Administration.

National Aeronautics and Space Administration, Goddard Institute for Space Studies (NASA). 2024. Global Temperature. Available: https://climate.nasa.gov/vital-signs/global-temperature/?intent=121. Accessed December 23, 2024.

3.2.9 Hazards and Hazardous Materials

Table 3.2.9-1. Environmental Issues and Determinations for Hazards and Hazardous Materials

Issues	Determination
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	LTS
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?	LTS
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	NI
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?	NI
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?	NI
f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	NI
g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires?	NI

Table Notes:
LTS = Less-than-Significant Impact
NI = No Impact

Environmental Setting

Hazardous Materials Sites

AECOM performed a search of publicly available databases maintained under PRC Section 65962.5 (i.e., the "Cortese List") to determine whether any known hazardous materials are present either in or within 0.25 mile of the project site. These searches included the EnviroStor database maintained by the California Department of Toxic Substances Control (DTSC 2025), and the GeoTracker database maintained by the State Water Resources Control Board (SWRCB 2025). The results of the database search indicated there are two closed hazardous materials sites in the project vicinity, which are briefly described below. The nearest open, active hazardous materials site is in College City approximately 3.6 miles northwest of the proposed repair site.

The Pacific Gas & Electric Company Mumma Drip No. 2 Dehydrator Station site is situated on White Road approximately 0.25 mile west of the proposed laydown/staging area. White Road would serve as one of the project access roads. Contaminated soil was excavated and removed from this hazardous materials site, except for soil directly underneath White Road.

Groundwater contamination is being addressed through biodegradation. A No Further Action letter was issued in 2015 and the case was closed.

The Arbuckle Ammonium Spill site is situated near the north end of the proposed haul route and approximately 0.5 mile northeast of the proposed repair area. In 2013, approximately 7,000 gallons of aqueous ammonium was spilled on the landside of the irrigation ditch levee during transport to a field tank. Groundwater was not affected. Contaminated soil was excavated and removed, and biodegradation with woody mulch was implemented. A No Further Action letter was issued in 2017 and the case was closed.

In addition, AECOM performed a search of the U.S. Environmental Protection Agency's (USEPA) National Priorities List (Superfund) database. The nearest Superfund site (the former McClellan Air Force Base) is approximately 35 miles southeast of the project site (USEPA 2024).

Schools

There are no schools within 0.25 mile of the project site. The nearest K–12 schools are in Arbuckle, approximately 6.5 miles northwest of the project site.

Airports

The nearest airport is a small private airstrip, Pacific Valley Aviation, approximately 10 miles northwest of the project site. The nearest public airport is Colusa County Airport, approximately 13.5 miles north of the project site.

Wildland Fire Hazards

State Responsibility Areas (SRAs) are areas where the California Department of Forestry and Fire Protection (CAL FIRE) is the primary emergency response agency responsible for fire suppression and prevention. Land where the primary responsibility for firefighting falls within the purview of a local agency are referred to as Local Responsibility Areas (LRAs). The project site is situated within an LRA in an area that has not been classified for fire hazards (CAL FIRE 2024). The primary entity with responsibility for fire suppression activities at the project site is the Arbuckle-College City Fire Protection District.

Discussion

a) **Less-than-Significant Impact.** Project construction would involve the use and transport of small amounts of hazardous materials such as fuels, oils, and grease. Transportation of hazardous materials on area roadways is regulated by the California Highway Patrol (CHP) and the California Department of Transportation (Caltrans), and use of these materials is regulated by DTSC, as outlined in CCR Title 22. DWR or their construction contractors would be required to use, store, and transport hazardous materials in compliance with applicable federal and State regulations during project construction and operation. No hazardous materials would be used, stored, or transported during project operation. Because the proposed project would be required to implement and comply with existing hazardous material regulations, and because each of these regulations is specifically designed to protect the public health through improved procedures for the handling of hazardous materials, better technology in the

equipment used to transport these materials, and a more coordinated quicker response to emergencies this impact would be less than significant.

b) **Less-than-Significant Impact.** The proposed project would involve minor earthwork associated with erosion repairs to approximately 425 linear feet along the landside of the Colusa Basin Drainage Canal. A small laydown/staging area (approximately 0.16 acre) south of the repair site would be used to store equipment and materials and for construction worker parking. Construction of the proposed project would involve the use of small amounts of hazardous materials such as fuel, oils, and grease. None of these materials would be acutely hazardous. No hazardous materials would be used or stored during project operation. The use of these materials is heavily regulated at the federal, state, and local level, and DWR and the construction contractor are required to follow all applicable laws and regulations. Furthermore, as described in detail in Subsection 2.4.5, “Water Quality,” (in Chapter 2, “Project Description”) DWR or their construction contractor will implement appropriate BMPs to reduce the potential release of water quality pollutants, including hazardous materials, to receiving waters and the environment and will comply with the terms and conditions contained in any applicable permits (e.g., DWR will prepare and implement a hazardous materials management and spill response plan). Therefore, the proposed project would not 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, and this impact would be less than significant.

c) **No Impact.** The project site and the proposed haul and access routes are not located within 0.25 mile of a school. Furthermore, only small amounts of hazardous materials such as fuels and oils to maintain construction equipment would be used in the construction laydown/staging area, for a period of two to four weeks. Thus, there would be no impact from hazardous emissions (i.e., toxic air contaminants from construction equipment or haul trucks) or handling of hazardous or acutely hazardous materials, substances, or waste, within 0.25 mile of a school.

d) **No Impact.** The results of the GeoTracker and EnviroStor database searches, which are maintained as part of the Cortese List, indicate there are two closed hazardous materials sites in the project vicinity (SWRCB 2025, DTSC 2025). Closed sites are not part of the Cortese List. However, closed sites can pose a human health or environmental hazard if excavation occurs in areas where contaminated soil or groundwater are still present; thus, both closed sites in the project vicinity are briefly discussed below.

The Pacific Gas & Electric Company Mumma Drip No. 2 Dehydrator Station site is situated on White Road approximately 0.25 mile west of the proposed laydown/staging area, and White Road would be used as one of the project access roads. Although a small area of contaminated soil was unable to be excavated from the levee along White Road, the proposed project would not include excavation in this area; White Road would simply serve as an access route. Thus, there would be no hazard from this closed site.

The Arbuckle Ammonium Spill site is along the landside of the irrigation ditch levee, directly across from (east of) the levee along the Colusa Basin Drainage Canal at the north end of the proposed haul route. This spill site is approximately 0.5 mile north of the proposed levee repair site. Most of contaminated soil was excavated and removed, and a bioremediation remedy (wood mulch) was implemented for the contaminated soil area. The proposed project would not involve excavation in this area, and the haul route would be situated on the opposite levee bank. Thus, there would be no hazard from this hazardous materials site.

The nearest open, active site on the Cortese List is in College City approximately 3.6 miles northwest of the project site. There are also no Superfund sites in the project vicinity. Thus, there would be no impact related to hazardous materials from construction on a Cortese-listed site or other known hazardous materials site.

e) **No Impact.** The project site is not located within the boundaries of an airport land use plan or within two miles of a public airport or public use airport. Thus, there would be no impact from airport or aircraft hazards.

f) **No Impact.** Project-related construction equipment and materials would be staged and stored in a small area (0.16 acre) along the landside of the Colusa Basin Drainage Canal, adjacent to White Road. During the construction period (between two and four weeks), the proposed project would involve an estimated 175 round trip truckloads along the haul route shown in Figure 2-2 (in Chapter 2, “Project Description”). This haul route consists of the levee crown along the Colusa Basin Drainage Canal, which is not available for public access.

Project operation would not alter the existing drainage pattern of the Colusa Basin Drainage Canal or any upstream or downstream waterbodies, or any high water events that are contained by the State Plan of Flood Control levees. Restoration of the flood capacity of the Colusa Basin Drainage Canal that would result from the proposed levee erosion repair work would better accommodate high water events and would therefore help reduce the need for emergency evacuation on local roadways.

For the reasons listed above, the proposed project would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan, and thus there would be no impact.

g) **No Impact.** The project site is located in an LRA, in an area that has not been classified for fire hazards (CAL FIRE 2024). The project site and vicinity are situated in the middle of the Sacramento Valley. The surrounding lands are used for agriculture (row crops and irrigated orchard trees). A thin line of vegetation, consisting of shrubs and trees, is present along the waterside of the Colusa Basin Drainage Canal. The wildfire hazard potential in the project area is low, and the proposed project would not exacerbate existing or create new fire hazards. Thus, there would be no impact.

References

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USEPA. *See* U.S. Environmental Protection Agency.

3.2.10 Hydrology and Water Quality

Table 3.2.10-1. Environmental Issues and Determinations for Hydrology and Water Quality

Issues	Determination
a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?	LTS
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	NI
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or through the addition of impervious surfaces, in a manner which would:	
i) result in substantial erosion or siltation on- or off- site;	LTS
ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;	LTS
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	LTS
iv) impede or redirect flood flows?	NI
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	LTS
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	LTS

Table Notes:
LTS = Less-than-Significant Impact
NI = No Impact

Environmental Setting

The project area is located adjacent to the Colusa Basin Drainage Canal (also referred to as the Colusa Basin Drain). The Colusa Basin Drainage Canal is a 33-mile canal that stretches from the City of Colusa in Colusa County southeast to the City of Knights Landing in Yolo County. The drainage system transports rainfall, runoff, agricultural runoff, and return flows away from the agricultural lands in the area to the Sacramento River (Colusa Groundwater Authority and Glenn Groundwater Authority 2024). The Colusa Basin Drain primarily empties into the Knights Landing Ridge Cut, which then conveys water to the Tule Canal and ultimately the Sacramento River Deep Water Ship Canal and Sacramento River (Colusa Groundwater Authority and Glenn Groundwater Authority 2024). The Sacramento River approximately 12 miles south of the project area. The hydrology of the Colusa Basin Drain consists of combination of natural and artificial sources. Seasonal precipitation, typically rain, occurs in the winter/early spring and results in overland flow which contributes to flow in the Colusa Basin Drain. Additionally, artificial sources of hydrology such as agricultural irrigation influence flow in the Colusa Basin Drain. Much of the Colusa Basin Drainage Canal is characterized by earthen side irrigation ditches that paralleled the land side of the levee. The project area is located on

the land side slope of the Colusa Bain Drainage Canal's northeast levee (i.e., the project area is not on the waterside slope of the Colusa Basin Drainage Canal levee). A levee crown road is located at the top of the levee and an existing irrigation ditch is located at the land side toe. Colusa Basin Drain is identified on the Central Valley Regional Water Quality Control Board 303(d) Impaired Waterbodies list as being impaired by unknown sources for pesticides, nutrients, and metals (SWRCB 2024).

With the exception of the levee crown road, the Colusa Bain Drainage Canal and all adjacent areas within a mile or more of repair site are within a Federal Emergency Management Agency (FEMA) designated 100-year floodplain, Zone AE.[2] The project site is partially located within the 100-year floodplain, as the limit of work for the repair includes the levee crown road. The laydown and staging areas are entirely within the FEMA-designated 100-year floodplain.

The project site is located in the Sacramento Valley groundwater basin, Colusa subbasin. This groundwater basin is a high priority basin and is required to develop Groundwater Sustainability Plans (DWR 2020). Parts of the groundwater basin have experienced persistent groundwater level decline and groundwater storage reductions in recent years, and it is estimated that the subbasin is in overdraft (Colusa Groundwater Authority and Glenn Groundwater Authority 2024).

Discussion

a) **Less-Than-Significant Impact.** The proposed project construction would take place between May 1 and November 1, primarily during the dry season for a period of two to four weeks, in an area of less than one acre. The limits of work for the repair area would be approximately 0.71 acres and the staging/laydown area would be approximately 0.16 acres (a total of 0.87 acres of disturbed soil). The proposed levee repairs would occur on the landslide slope of the levee and would not require in-water work. Construction activities would include excavation, grading, and the placement of levee fill material (earthfill) and the placement of agricultural soil.[3] Stormwater runoff from disturbed soils could cause the release of construction-generated sediment to the existing irrigation ditch and any directly connected surface water bodies. In addition, stormwater runoff could be contaminated with chemicals used during construction (e.g., fuels and oils) through the transportation, storage, and use of the materials, including the refueling and servicing of construction equipment within the laydown area, if they are not properly controlled. DWR or their construction contractor would implement the best management practices (BMPs) described in Chapter 2, Section 2.4.5, "Water Quality," to reduce the potential release of water quality pollutants into the existing irrigation ditch and any directly connected surface water bodies by controlling erosion and runoff from the project site, minimizing ground and vegetation disturbance, and preparing and implementing a hazardous materials management and spill response plan during construction. The proposed repairs would not involve use of

[2] Zone AE is a 100-year floodplain where base flood elevations are defined by FEMA.
[3] Agricultural soil used would have limited amounts of salts and would not contain petroleum hydrocarbons, pesticides, heavy metals, or other deleterious substances in excess of DWR's Draft Borrow Material Chemical Acceptance Criteria.

groundwater and the depth of disturbance on the levee (i.e., 1 to 3 feet) is not expected to indirectly affect groundwater or degrade groundwater quality given the shallow depth of disturbance. Implementation of construction site BMPs described in Section 2.4.5 would reduce and eliminate potential contamination of stormwater discharges at the construction site and minimize and substantially avoid the release of construction-generated sediment to surface water bodies. As such, construction activities are expected to comply with water quality standards and waste discharge requirements and avoid substantial degradation of surface or ground water quality. Therefore, impacts would be less than significant.

b) **No Impact.** The proposed project involves repairing erosion on an existing levee for a period of two to four weeks. None of repair activities require the use of groundwater or reduce groundwater recharge such that the groundwater table would be altered. There would be no additional impervious surfaces created as part of the proposed project that would further reduce infiltration. Therefore, the proposed project would not substantially decrease groundwater supplies and would not interfere substantially with groundwater recharge or impede sustainable groundwater management of the basin. There would be no impact.

c) i) **Less-Than-Significant Impact.** The proposed project would not alter the existing drainage pattern of the Colusa Basin Drain or the existing agricultural drain to the east of the levee. The proposed project would repair a section of levee approximately 425 feet long and less than one acre. The relatively small repair would not substantially alter the existing drainage pattern of the site or area. Rainfall on the land side slope of the levee would continue to discharge to the existing agricultural drain. Furthermore, the proposed repair would occur primarily during the dry season. As described in environmental issue area a) DWR or their construction contractor would implement best management practices described in Chapter 2, Section 2.4.5, “Water Quality” for controlling erosion. Therefore, the proposed project would not result in substantial erosion or siltation on- or off-site. Impacts would be less than significant.

c) ii) **Less-Than-Significant Impact.** The proposed project would not increase impervious surface area, alter the existing drainage pattern of the Colusa Basin Drain or the agricultural canal to the east of the levee, or alter high water events contained by this State Plan of Flood Control Levees. The Colusa Basin Drain and the agricultural canal would continue to convey flows as they currently do under multiple hydrologic conditions and the Colusa Basin Drain and levee system would continue to serve as flood protection to the surrounding area. Therefore, the proposed project would not substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite. Impacts would be less than significant.

c) iii) **Less-Than-Significant Impact.** The proposed project would not create or contribute additional runoff from new impervious surfaces water or alter high water events contained by the State Plan of Flood Control Levees. The proposed project would repair existing erosion on a flood control levee primarily during the dry season and once the repairs are completed the project area would be returned to approximate pre-

project grades and existing conditions. In addition, as described in environmental issue area a) DWR or their construction contractor would implement the BMPs as described in Chapter 2, Section 2.4.5, “Water Quality” for controlling pollution. Therefore, the proposed project is not expected to provide substantial additional sources of polluted runoff. Impacts would be less than significant.

c) iv) **No Impact.** The proposed project would repair existing erosion on a flood control levee primarily during the dry season and once the repairs are completed the project area would be returned to approximate pre-project grades and existing conditions. The proposed project would not change the capacity of Colusa Basin Drain or the agricultural canal to the east of the levee. As described under environmental issue area cii) the Colusa Basin Drain and existing agricultural canal would continue to convey flows as they currently do and continue to afford flood protection to the surrounding area. Therefore, the proposed project would not impede or redirect flood flows and impacts would not occur.

d) **Less-Than-Significant Impact.** The proposed project would not be located in a tsunami or seiche hazard zone. The proposed repair site of the State Plan of Flood Control levees would be located in zones protected by flooding by the State Plan of Flood Control and partially located within the FEMA-designated 100-year floodplain. The proposed project is unlikely to be exposed to flooding hazards during the timing of construction activities because activities would occur primarily during the dry season. Therefore, the risk of a release of pollutants due to project inundation during construction would be substantially avoided impacts would be less than significant.

e) **Less-Than-Significant Impact.** As described in environmental issue area b) the proposed project would not use groundwater. Therefore, the proposed project would not conflict or obstruct a sustainable groundwater management plan and impacts would not occur. As described in environmental issue area a), given the short duration, timing of construction, and compliance with required BMPs in permits, this would reduce the likelihood and/or prevent water quality pollutants such as silt, sediment, hazardous materials, and construction related fluids from entering receiving waters. Therefore, the proposed project would not conflict with or obstruct implementation of a water quality control plan and impacts would be less than significant.

References

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SWRCB. *See* State Water Resources Control Board.

3.2.11 Land Use and Land Use Planning

Table 3.2.11-1. Environmental Issues and Determinations for Land Use and Land Use Planning

Issues	Determination
a) Physically divide an established community?	NI
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?	NI

Table Note:
NI = No Impact

Environmental Setting

The levee repair site is located along the Colusa Basin Drainage Canal, east of the community of Harrington, in unincorporated northern Sacramento Valley. Land adjacent to the project site is primarily used for agricultural purposes.

The levee repair site and laydown/staging area are designated as Agriculture General (AG) and Designated Floodway (DF) areas per the Colusa County General Plan. The AG land use designation is intended to preserve and protect areas for agriculture or complementary uses, and the DF land use designation is for designated floodways, including levees (Colusa County 2012). The levee repair site and laydown/staging area are zoned E-A for Exclusive Agriculture, which is intended to protect agricultural uses and agricultural operations in areas where fertile soils particularly suited to crop production are present, areas where agriculture is the natural and desirable primary land use, and where the protection of agriculture from the encroachment of incompatible land uses is essential to the general welfare and economic prosperity of the County (Colusa County 2024; 2014). Lands adjacent to the project site are designated as Prime Farmland.

Discussion

a) **No Impact.** The proposed project would repair and rehabilitate the existing levee at Site 23-078. The proposed project would not include any physical features that would create a barrier, divide, or separate adjacent uses; or impede movement or circulation on existing public roads or paths. There is no established community adjacent to the project site that the levee repairs would physically divide. Following levee rehabilitation construction, all equipment and materials would be removed from the repair site and excess materials would be disposed of at appropriate facilities. Therefore, the proposed project would not physically divide an established community and no impact would occur.

b) **No Impact.** The proposed project supports the DF General Plan land use designation by protecting the floodplain and ensuring flood protection to the surrounding area from the Colusa Basin Drain. In doing so, the proposed project would help protect the designated agriculture areas adjacent to the project site consistent with the AG General Plan land use designation and E-A zoning designation. In addition, proposed project activities would be temporary and would not affect ongoing or future agricultural

activities near the project site, nor would it change existing or future designated land uses in the project area. Therefore, the proposed project would not conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect. There would be no impact.

References

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3.2.12 Mineral Resources

Table 3.2.12-1. Environmental Issues and Determinations for Mineral Resources

Issues	Determination
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?	NI
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?	NI

Table Note:
NI = No Impact

Environmental Setting

Under the Surface Mining and Reclamation Act (SMARA), the State Mining and Geology Board may designate certain mineral deposits as being regionally significant to satisfy future needs. The State Mining and Geology Board's decision to designate an area is based on a classification report prepared by the California Geological Survey (CGS) and on input from agencies and the public. The project site is not located within an area that has been classified for mineral resources by CGS (CGS 2025). The historic Putah Creek Mine was a placer mine which obtained gold from stream deposits; the mine is approximately 3.3 miles northwest of the project site (The Diggings 2025). Colusa County has identified areas of known mineral resources including construction aggregate, chromium, copper, mercury, and gold, in the western portion of the county, approximately 25 miles northwest of the project site (De Novo Planning Group 2011).

Discussion

a) **No Impact.** The project site is not located within an area that has been classified for mineral resources by CGS (CGS 2025). A review of active and historic mining claims indicates there is no active mining activity in the project vicinity (The Diggings 2025). The proposed repair consists of approximately 425 linear feet along the landside of the Colusa Basin Drainage Canal levee. This area is on a flat alluvial plain within the northern Sacramento Valley. The levee consists of reworked, engineered, and compacted materials derived from various sources in the project area. Because the project site consists of the existing levee and does not contain any known mineral resource deposits, there would be no impact from loss of availability of a known mineral resource that would be of value to the region and the residents of the state.

b) **No Impact.** The project site is not located within a designated locally important area of known mineral resources under the *Colusa County General Plan* (De Novo Planning Group 2011). Thus, there would be no impact from loss of availability of a locally-important mineral resource recovery site.

References

California Geological Survey. 2025. Mineral Land Classification. Available: https://maps.conservation.ca.gov/cgs/minerals/?page=Mineral-Land-Classification. Accessed January 14, 2025.

CGS. *See* California Geological Survey.

De Novo Planning Group. 2011. *Public Draft Environmental Impact Report for the 2030 Colusa County General Plan Update.* State Clearinghouse No. 2011062052. Available: https://www.countyofcolusaca.gov/137/General-Plan. Accessed January 14, 2025.

The Diggings. 2025. Upper Lake California Mining Claims and Mines. Available: https://thediggings.com/places/ca0332409382. Accessed January 8, 2025.

3.2.13 Noise

Table 3.2.13-1. Environmental Issues and Determinations for Noise

Issues	Determination
a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	LTS
b) Generation of excessive groundborne vibration or groundborne noise levels?	LTS
c) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	NI

Table Notes:
LTS = Less-than-Significant Impact
NI = No Impact

Environmental Setting

Sound, Noise, and Acoustics

Sound is the mechanical energy of a vibrating object transmitted by pressure waves through a liquid or gaseous medium (e.g., air). Noise is defined as sound that is unwanted (i.e., loud, unexpected, or annoying). Acoustics is the physics of sound.

The amplitude of pressure waves generated by a sound source determines the perceived loudness of that source. A logarithmic scale is used to describe sound pressure level in terms of decibels (dB). The threshold of human hearing (near-total silence) is approximately 0 dB. A doubling of sound energy corresponds to an increase of 3 dB. In other words, when two sources at a given location are each producing sound of the same loudness, the resulting sound level at a given distance from that location is approximately 3 dB higher than the sound level produced by only one of the sources. For example, if one automobile produces a sound pressure level of 70 dB when it passes an observer, two cars passing simultaneously do not produce 140 dB; rather, they combine to produce 73 dB.

The typical human ear is not equally sensitive to all frequencies of the audible sound spectrum. As a consequence, when assessing potential noise impacts, sound is measured using an electronic filter that de-emphasizes the frequencies below 1,000 hertz (Hz) and above 5,000 Hz in a manner corresponding to the human ears decreased sensitivity to low and extremely high frequencies instead of the frequency mid-range. This method of frequency weighting is referred to as A-weighting and is expressed in units of A-weighted decibels (dBA). All noise levels reported in this section are in terms of A-weighting. There is a strong correlation between A-weighted sound levels and community response to noise. As discussed above, doubling sound energy results in a 3-dB increase in sound. In typical noisy environments, noise-level changes of 1 to 2 dB are generally not perceptible by the healthy human ear; however, people can begin to detect 3-dB increases in noise levels. An increase of 5 dB is generally perceived as distinctly noticeable and a 10-dB increase is generally perceived as a

doubling of loudness. The following are the sound level descriptors commonly used in environmental noise analysis:

- Equivalent sound level (L_{eq}): An average of the sound energy occurring over a specified time period. In effect, the L_{eq} is the steady-state sound level containing the same acoustical energy as the time-varying sound that actually occurs during the same period. The 1-hour, A-weighted equivalent sound level ($L_{eq[h]}$) is the energy average of A-weighted sound levels occurring during a 1-hour period.
- Maximum sound level (L_{max}): The highest instantaneous sound level measured during a specified period.
- Statistical Descriptor (L_n): The n-percent exceeded level, L_n, is the sound pressure level exceeded for n percent of the time. The noise level exceeded n percent of a specific period of time, generally accepted as an hourly statistic. An L_{10} would be the noise level exceeded 10 % of the measurement period.

Sound from a localized source (i.e., point source) propagates uniformly outward in a spherical pattern, and the sound level attenuates (decreases) at a rate of 6 dB for each doubling of distance from a point/stationary source. Roadways and highways and, to some extent, moving trains consist of several localized noise sources on a defined path; these are treated as “line” sources, which approximate the effect of several point sources. Sound levels attenuate at a rate of 3 dB for each doubling of distance from a line source. Therefore, noise from a line source attenuates less with distance than noise from a point source with increased distance.

The project site is located in a rural setting. Typical noise producing activities in rural settings include intermittent agricultural equipment and roadway noise generated by cars or trucks. Typical ambient noise levels are generally low during the day, ranging from approximately 30 to 40 dBA. The nearest potential noise sensitive receptor is located approximately 3,500 feet from the project site.

Groundborne Vibration

Groundborne vibration is energy transmitted in waves through the ground. Vibration attenuates at a rate of approximately 50 percent for each doubling of distance from the source. This approach considers only the attenuation from geometric spreading and tends to provide for a conservative assessment of vibration level at the receiver.

Vibration is an oscillatory motion that can be described in terms of the displacement, velocity, or acceleration. Vibration typically is described by its peak and root-mean-square (RMS) amplitudes. The RMS value can be considered an average value over a given time interval. The peak vibration velocity is the same as the “peak particle velocity” (PPV), generally presented in units of inches per second. PPV is the maximum instantaneous positive or negative peak of the vibration signal and is generally used to assess the potential for damage to buildings and structures. The RMS amplitude typically is used to assess human annoyance to vibration, and the abbreviation “VdB” is used in this document for vibration decibels to reduce the potential for confusion with sound decibels.

Regulatory Setting

According to Colusa County's 2030 General Plan, the Noise Element establishes guidelines to protect residents from excessive noise exposure. The County has identified high-noise traffic corridors, and has set maximum allowable noise exposure levels for various land uses to ensure compatibility and minimize noise-related impacts.

The Colusa County Noise Ordinance, as outlined in Chapter 13 of the County Code, establishes regulations to prevent excessive noise and protect the health and welfare of the community. The ordinance sets maximum allowable noise levels for various land uses, with exterior noise limits of 55 dBA during daytime hours (7:00 a.m.–10:00 p.m.) and 50 dBA during nighttime hours (10:00 p.m.–7:00 a.m.) for residential and agricultural areas. Construction activities are exempt from these limits, provided they occur within the permitted hours: weekdays (7:00 a.m.–7:00 p.m.) and weekends (8:00 a.m.–8:00 p.m.). Compliance with the ordinance permitted hours for construction activities ensures temporary construction noise is consistent with the local noise regulation.

Discussion

a) **Less-than-Significant Impact.** Short-term temporary project-generated stationary noise and long-term permanent project-generated stationary noise are described and evaluated below. As discussed below, there would be an increase in short-term temporary project-generated stationary noise associated with construction for the duration of two to four weeks. Given the temporary and intermittent nature of construction activities, adherence to the Colusa County noise ordinance permitted construction hours, and implementation of noise reducing BMPs as part of Mitigation Measure GHG-1, the proposed project would not result in a substantial temporary increase in ambient noise levels in excess of applicable standards and would be consistent with the Colusa County noise ordinance. There would be no noise generated after proposed project construction is complete and therefore there would be no substantial increase in long-term permanent project-generated stationary noise. Impacts would be less than significant.

Short-Term Temporary Project-Generated Stationary Noise

The proposed project would repair and rehabilitate the levee using a variety of construction equipment. Project construction equipment would include an excavator, compactor, dozer, skid steer loader, and backhoe, and trucks for material transport. Based upon the Federal Highway Administration (FHWA) Roadway Construction Noise Model (RCNM) (FHWA 2006), noise levels for these types of individual project equipment can range from 75 dB to 80 dB, L_{eq}, and 79 to 84 dB L_{max} at 50 feet, as shown in Table 3.2.13-2.

Sensitive land uses are located approximately 3,500 feet from the project site where active construction would occur. Based upon the equipment noise levels, usage factors, and a typical noise-attenuation rate of 6 dB for every doubling of distance, exterior noise levels at noise-sensitive receptors located 3,500 feet from the project site could be as high as 37 dB to 41 dB, L_{eq}. Table 3.2.13-2 summarizes modeled

construction noise levels at the nearest noise-sensitive locations to the project site, demonstrating that the proposed construction activities would not exceed applicable County noise standards.

Table 3.2.13-2. Proposed Project Construction Noise Levels

Receiver	Noise Level, dBA L_{eq}, at 50 feet	Noise Level, dBA L_{max}, at 50 feet	Noise Level, dBA L_{eq}, at 3500 feet	Noise Level, dBA L_{max}, at 3500 feet
Excavator	77	81	40	44
Compactor (ground)	76	83	39	46
Dozer	78	82	41	45
Front End Loader	75	79	38	42
Backhoe	74	78	37	41

Refer to Appendix D for modeling input parameters and output results.
dBA = A-weighted decibels; FHWA = Federal Highway Administration; L_{eq} = Equivalent Noise Level; L_{max} = Instantaneous Maximum Noise Level.
Sources: FHWA Roadway Construction Noise Model, January 2006; Modeled by AECOM 2025

Give the results presented in Table 3.2.13-2, temporary noise from project construction activities, such as heavy equipment operation, may temporarily elevate noise levels above typical rural ambient conditions, but would not exceed County noise standards. The County's Noise Ordinance exempts certain activities, including construction activities provided they occur between the daytime hours of 7 a.m. and 7 p.m. on weekdays, and 8 a.m. and 8 p.m. on weekends. These exemptions are typical of municipal noise ordinances and reflect a recognition that construction noise is temporary, generally is acceptable when limited to daylight hours, and is expected as part of a typical noise environment (along with sirens). The proposed project would be consistent with these timeframes in the Noise Ordinance.

In addition, Mitigation Measure GHG-1 would also implement DWR's BMPs for Construction Practices which include the following:

- **BMP 9.** Minimize idling time by requiring that equipment be shut down after five minutes when not in use
- **BMP 10.** Maintain all construction equipment in proper working condition and perform all preventative maintenance. Required maintenance includes compliance with all manufacturer's recommendations, proper upkeep and replacement of filters and mufflers, and maintenance of all engine and emissions systems in proper operating condition. Maintenance schedules shall be detailed as required by Air Quality Control Plans

Implementation of Mitigation Measure GHG-1 would further reduce and minimize the temporary increase in ambient noise.

The proposed project would generate traffic noise associated with 30 worker vehicle trips and 2 truck trips during peak hours. These trips would primarily occur on local roadways near the project site. Worker vehicles are generally light-duty passenger

vehicles, which contribute minimally to overall traffic noise levels. The addition of 2 truck trips per peak hour represents a minor increase in heavy vehicle traffic, which typically generates higher noise levels compared to passenger vehicles. However, the limited number of truck trips and worker vehicles is not anticipated to result in a substantial increase in ambient noise levels along the affected roadways. Based on the Federal Highway Administration (FHWA) Traffic Noise Model and typical vehicle noise emission levels, the overall increase in traffic noise due to project-related trips would likely be less than 1 dBA L_{eq}, which is below the threshold of perceptibility and significance for traffic noise impacts.

Long-Term Permanent Project-Generated Stationary Noise

The proposed project is construction only, and there would be no noise associated with operation. Therefore, the operation of the proposed project would not create a substantial permanent increase in ambient noise levels in the vicinity of the proposed project in excess of standards established in the local general plan, noise ordinance, or applicable standards.

b) **Less-than-Significant Impact**. Construction activities have the potential to result in varying degrees of temporary groundborne vibration, depending on the specific construction equipment used and operations involved. Vibration generated by construction equipment spreads through the ground and diminishes in magnitude with increases in distance. The heaviest vibration-generating construction equipment on-site would be the dozer, which is conservatively assumed to generate vibrations similar to a bulldozer. According to the Federal Transit Administration (FTA 2018), the vibration level for a bulldozer is 0.089 inches per second (in/sec) PPV and 87 vibration decibels (VdB) at a reference distance of 25 feet. Using FTA's recommended procedure for applying a propagation adjustment to these reference levels, predicted worst-case vibration levels would not be perceptible at the closest existing structures, located at 3,500 feet from the project site, and would not exceed Caltrans's recommended standard of 0.2 in/sec PPV (Caltrans 2020) with respect to the prevention of structural damage for normal buildings, or the FTA's maximum-acceptable vibration standard of 80 VdB (Federal Transit Administration 2018) with respect to human annoyance for residential uses. The long-term operation of the proposed project would not include any vibration sources, and short-term construction would not result in the exposure of persons or structures to or generation of excessive groundborne vibration or groundborne noise levels.

c) **No Impact**. As described in Section 3.2.9, "Hazards and Hazardous Materials" the project site is not located within 2 nautical miles of any airports. Furthermore the proposed project would not use any aircraft for project construction or operation. Therefore, the proposed project would not expose people residing in the area to aircraft noise. No impact would occur.

References

California Department of Transportation. 2020. *Transportation and Construction Vibration Guidance Manual*. Division of Environmental Analysis, Environmental Engineering, Hazardous Waste, Air, Noise, Paleontology Office, Sacramento, CA.

Caltrans. *See* California Department of Transportation.

Colusa County Community Development Department. 2012. *Colusa County 2030 General Plan: Noise Element*.

Federal Highway Administration. 2006. *Roadway Construction Noise Model User's Guide.* FHWA-HEP-05-054. Washington, DC. January.

Federal Transit Administration. 2018. *Transit Noise and Vibration Impact Assessment. FTA Report No. 0123.* Washington, DC: Office of Planning and Environment. September.

FHWA. *See* Federal Highway Administration.

FTA. *See* Federal Transit Administration.

3.2.14 Transportation and Traffic

Table 3.2.14-1. Environmental Issues and Determinations for Transportation and Traffic

Issues	Determination
a) Conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?	LTS
b) Would the project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?	LTS
c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	LTS
d) Result in inadequate emergency access?	LTS

Table Note:
LTS = Less-than-Significant Impact

Environmental Setting

The focus of this analysis centers around construction traffic associated with repair of levee site. No operational traffic impacts would result from the proposed project.

Roadway Network

Regionally, access to the project site would be provided primarily by Interstate 5 (I-5). I-5 runs north to south and provides interregional access to Sacramento, Los Angeles, and the Pacific Northwest (Colusa County Local Transportation Commission 2019).

Local access to the project site would be from Yolo County Line Road, Johns School Road, and White Road:

- Yolo County Line Road is a local road that runs east-west, generally comprising two lanes, and directly links to I-5.
- Johns School Road is a local road that runs north-south from the Colusa County/Yolo County line, generally comprising two lanes. The road serves as access for local agricultural traffic and connects to Yolo County Line Road. It does not directly link to major highways.
- White Road is a local road that runs east-west, generally comprising of two lanes, with some unpaved sections. The road serves as access for local agricultural traffic and connects to Johns School Road. It does not directly link to major highways.

Access to the repair site would occur primarily along existing paved public roads, levee crown roads, or unpaved private farm roads. Proposed access routes and haul routes are shown in Figure 2-1 and Figure 2-2.

Public Transit, Pedestrian, and Bicycle System

No bus stops, pedestrian, or bicycle facilities are located near the project site (Colusa County Local Transportation Commission 2019).

Discussion

a) **Less-than-Significant Impact.** The proposed project would not include any permanent changes to the public roadway network. Temporary construction activities would be temporally limited (two to four weeks), as well as geographically limited and localized to the project site and immediate regional or local roadways as described above. As a result, the direct impacts of construction would not substantially impact the area's regional or local public roadways.

No bus stops, pedestrian, or bicycle facilities are located near the project site, and as a result, there would be no adverse effects from project construction on existing or planned facilities (Colusa County Local Transportation Commission 2019). Given the limited duration and geography of construction activities, proposed project construction is not anticipated to conflict with any applicable plan, policy, or ordinance related to the transportation system that could result in a substantial adverse environmental effect. Therefore, the impact on traffic circulation, transit, bicycle and pedestrian facilities would be less than significant.

b) **Less-than-Significant Impact.** Section 15064.3 (b)(3) of the CEQA Guidelines allows a qualitative analysis of potential impacts related to Vehicle Miles Traveled (VMT). The *Technical Advisory on Evaluating Transportation Impacts in CEQA* also states that "for many projects, a qualitative analysis of construction traffic may be appropriate" (Office of Planning and Research [OPR] 2018). VMT analysis is intended to capture the long-term impacts of a proposed project, and vehicle trips associated with proposed construction activities would generally be temporary, with minimal VMT generation that would not lead to long-term trip generation.

Pursuant to CEQA Guidelines Section 15064.7, agencies have the discretion to adopt their own thresholds of significance. Colusa County does not have a threshold of significance for VMT. Therefore, for the purposes of this analysis to disclose potential impacts associated with construction, the OPR recommended threshold for VMT is referenced. The *Technical Advisory on Evaluating Transportation Impacts in CEQA* suggests for projects that generate or attract fewer than 110 trips per day generally may be assumed to cause a less-than-significant impact (OPR 2018). Although 110 trips per day is used to evaluate long-term operational impacts, it is applied to disclose the small change in VMT due to construction of the proposed project.

During construction, the proposed project would result in temporary, short-term increases in commute trips. However, temporary construction worker commute trips and truck trips associated with materials and equipment deliveries are anticipated to originate from the greater Colusa County, and adjacent Yolo County, region. During the two to four week construction period, approximately 15 daily roundtrip worker trips and 9 daily roundtrip truck trips are expected. The estimated total trips per day are well below the suggested criterion of 110 trips per day, and thus detailed CEQA transportation analysis of construction VMT is not required.

Any adverse physical environmental impacts associated with the minor increases in VMT during construction, such as greenhouse gas emissions and transportation-related noise, are identified in relevant sections throughout this document, in connection with discussions of construction-related impacts. There are no additional significant impacts beyond those comprehensively considered throughout the other sections of this document. Therefore, given the limited number of trips generated during the short-term proposed project construction period, there would be no conflict with CEQA Guidelines Section 15064.3 and the VMT impact associated with the proposed project would be less than significant.

c) **Less-than-Significant Impact.** The proposed project does not include design features or incompatible uses that would substantially increase hazards. During project construction activities, heavy truck vehicles, such as haul trucks or flatbed trailers, would access the project site via White Road or along existing levee crown roads or unpaved private farm roads. Slow-moving trucks entering and exiting at this location could pose a hazard to other vehicles traveling on the area roadways. However, construction activities would be temporary, a clear line of sight is available in both directions on Johns School Road and White Road, and the project site would have clear ingress and egress marked. In addition, no unusual angles or other hazardous design elements would exist in the proposed circulation and access. Therefore, the proposed project would not substantially increase hazards due to a design feature or incompatible use. This impact would be less than significant.

d) **Less-than-Significant Impact.** Site access would be available from White Road or along existing levee crown roads and unpaved private farm roads. Construction activities would not directly impede access to or from nearby properties. Slow- moving trucks entering and exiting the work area, staging area, and laydown area could slightly delay the movement of emergency vehicles. However, the trucks would typically pull to the side of the road when emergency vehicles use their sirens. Additionally, truck traffic would be temporary and intermittent, and no public roads would require closure during proposed project construction. Therefore, the proposed project would not pose a significant obstacle to emergency response vehicles and would not result in inadequate emergency access. This impact would be less than significant.

References

Colusa County Local Transportation Commission. 2019. 2018 Colusa County Regional Transportation Plan Update. Available: https://www.countyofcolusaca.gov/DocumentCenter/View/11093/Adopted-2018-Colusa-County-RTP?bidId=. Accessed January 2025.

Office of Planning and Research. 2018. Technical Advisory on Evaluation Transportation Impacts in CEQA. Available: https://lci.ca.gov/docs/20190122-743_Technical_Advisory.pdf. Accessed January 2025.

3.2.15 Tribal Cultural Resources

Table 3.2.15-1. Environmental Issues and Determinations for Tribal Cultural Resources

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

Table Note:
LTS/M = Less-than-Significant Impact with Mitigation Incorporated

Environmental Setting

This section provides a discussion of the Tribal Cultural Resources existing conditions at the project site (including access/haul roads and laydown/staging area), as well as the immediately surrounding area (one-mile buffer). Information in this section summarized from the 2023 Storm Damage, Department of Water Resources Rehabilitation Repair Site 23-078, Cultural, Tribal, Archaeological & Historical Resources Assessment, Colusa County (AECOM 2025) prepared for the proposed project. Section 3.2.5, “Cultural Resources,” also provides details. Tribal Cultural Resources are resources that have cultural value to a California Native American tribe. Tribal Cultural Resources could include any site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object. Such resources must be listed or eligible for listing in the California or National Registers or can be identified at the discretion of the lead agency. These can include Native American archaeological sites, ethnobotanical resources, Native American ceremonial or sacred areas, and Native American human remains.

Ethnohistoric Context

The project site is situated in the traditional lands of the Patwin (Johnson 1978). Beginning in the early 16th century, but primarily during the late 19th and early 20th centuries, Native American lifeways and languages were documented throughout California. Whether by professional ethnographers or anthropologists, field personnel from government agencies such as the Bureau of Indian Affairs, soldiers, merchants, settlers, or travelers, ethnographic accounts partly illuminate the traditions, beliefs, and cultures of Native American groups during specific points in time. Synthesized narratives such as the Handbook of North American

Indians (Heizer 1978) categorize Native traditions and practices; however, the complexity of regional diversity should not be overlooked.

Depopulation and relocation of Central Valley Native Americans in the 19th century resulted in conflicting and incomplete information about Tribal locations. Though cultural descriptions of these groups in the English language are known from as early as 1849, most of our current cultural knowledge comes from various early 20th-century anthropologists (Levy 1978:413). The uncertainty regarding the territorial boundaries of the Native American groups that occupied the project site and vicinity derives from the fact that ethnographies historically demarcated contact-period Tribal boundaries in various and conflicting ways.

While traditional anthropological literature portrays native peoples as having static cultures and boundaries, it is well understood that many variations of culture and ideology existed within and between villages. While these “static” descriptions of separations between native cultures of California make it an easier task for ethnographers to describe past behaviors and ascribe people to a particular geographic locale, this approach masks native adaptability and self-identity. Most of California’s Native Americans never saw themselves as members of larger “cultural groups,” as described by anthropologists. Instead, they saw themselves as members of specific village communities, perhaps related to others by marriage or kinship ties, but viewing the village as the primary identifier of their origins. In short, all Tribal group boundaries should be viewed as permeable and approximate.

Prior to the appearance of European American explorers and settlers, the Upper Sacramento Valley within Colusa County was occupied by Wintun, specifically the Patwin who occupied the southernmost extent of Wintuan speakers. The Patwin lived in what is now Colusa, Yolo, and Solano counties.

As with other California Native American groups, the Gold Rush of 1849 had a devastating effect on the Native Americans who historically inhabited the project site. The flood of miners that came to the area in search of gold brought diseases with them that decimated Tribal populations. Those who survived were subjected to violence and prejudice at the hands of the miners, and the Native Americans were eventually pushed out of their ancestral territory. By the early twentieth century, the Patwin population was roughly 20 adults living in six dilapidated homes in Rumsey on the bank of Cache Creek, forcibly removed by the federal government from their villages and placed on a rancheria (Heizer 1978; Yocha Dehe 2025a).

Although this contact with settlers had a profound negative impact on the Native American populations through disease and violent actions, these groups survived and have maintained strong communities and action-oriented organizations to this day. These groups have continued to protect their cultural heritage and identity and maintain their languages and traditions (Heizer 1978).

Contemporary Native American Setting

Today, Tribes are actively involved in defining their role as stewards of their ancestral sites and homelands including subject matter expertise on the identification of TCRs. TCRs represent areas of cultural significance that rooted in or contribute to cultural practices, traditional stories, traditional knowledge, and cultural identity. TCRs provide the backdrop to

religious understanding, traditional stories, knowledge of resources such as varying landscapes, bodies of water, animals and plants, and self-identity. Wintun stories passed down through generations through spoken word feature the animals, plants, and geographical features of their traditional lands. Knowledge of place is central to the continuation and persistence of culture, even if former Tribal occupants live removed from their traditional homeland. Tribal groups view these interconnected sites and places as living entities; their associations and feelings persist and connect with descendant communities (Yocha Dehe 2025a).

Archaeologists routinely focus on traditional Native American culture and ignore current and vibrant Native American culture. This approach is not sufficient to provide a context or set of values maintained by the current Native American community related to their history and the landscape. Tribes view themselves as contemporary stewards of their culture and the landscape, representing a continuum from time immemorial to the present. They are resilient, vibrant, and active in the community. Tribes maintain their connection to their history and ongoing culture by practicing traditional ceremonies, engaging in traditional practices (e.g., basketry), and contributing to public education and interpretation. California has acknowledged the importance and contributions of Native American history, traditional knowledge and cultural practices, as well as the persistence of Tribes and the Tribal community (Executive Order B-10-11 and N-15-19).

The Yocha Dehe Wintun Tribe

In the 1980s, the tribe opened Cache Creek Indian Bingo on a portion of their 188-acre trust land. Powered by hard work and determination, the Tribe transformed the bingo hall into the Cache Creek Casino Resort, which now provides economic stability and opportunity for their Tribal Citizens. The financial independence gained from gaming revenue allowed the Tribe to reacquire more of their traditional lands, invest in education for their children, and to provide philanthropic support for communities in need. In 2009, the tribe legally changed its name from the federally-assigned Rumsey Band of Wintun Indians to the Yocha Dehe Wintun Nation, to honor the name of their homeland in the Patwin language. This name change represents an important mark in time for Tribal Citizens of Yocha Dehe, connecting their heritage and sense of pride and hope for the future. Today, the Tribe continues to pursue the recovery and revitalization of their language and traditions, as well as the protection of cultural and burial sites from disturbance and desecration. The mission of the Cultural Resources Department of the Yocha Dehe Wintun Nation is to identify, preserve and protect Patwin language, culture and sacred sites (Yocha Dehe 2025a; 2025b).

Methodology and Results

This section describes the regulatory requirements related to TCRs and the various methods and results used to identify and document potential TCRs at the project site.

Public Resources Code 21074; 21083.09 and CEQA

In September of 2014, the California Legislature passed AB 52, which added provisions to the PRC concerning the evaluation of impacts on tribal cultural resources under CEQA, and consultation requirements with California Native American tribes. In particular, AB 52 now requires lead agencies to analyze a project's impacts on "tribal cultural resources," separately

from paleontological resources (PRC Section 21074; 21083.09). The Bill defines “tribal cultural resources” in a new section of the PRC, Section 21074. The Bill also requires lead agencies to engage in additional consultation procedures with respect to California Native American tribes (PRC Sections 21080.3.1, 21080.3.2, 21082.3). Section 21074(a) defines a TCR as any of the following:

- Sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe that are either of the following:
  - included or determined to be eligible for inclusion in the California Register; or
  - included 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 Section 5024.1. In applying these criteria, the lead agency would consider the significance of the resource to a California Native American tribe.

According to PRC Section 21074(a)(c), a historical resource, unique archaeological resource, or non-unique archaeological resource may also be a TCR if it is included or determined eligible for the California Register or included in a local register of historical resources.

Section 3.2.5, Cultural Resources, describes the archival and field survey methods implemented by AECOM archaeologists to identify potential precontact archaeological resources. As detailed in that discussion, results of the records search indicated that precontact archaeological sites were identified in proximity to the project site (refer to Table 3.2.5-2 and Table 3.2.5-3).

California Natural Resources Agency Tribal Consultation Policy

In 2012, the California Natural Resources Agency, of which the DWR is under, issued a final California Natural Resources Agency Tribal Consultation Policy that laid out the agency’s duties towards collaborative, meaningful tribal consultation. This policy has five components:

- Outreach—this component emphasizes early, meaningful, and regular consultation, dissemination of public documents to tribes for their review, and engaged follow-up and meetings with tribal representatives.
- Tribal Liaisons—this component recommends the designation of a tribal liaison that serves as a central point of contact for tribes and that provides oversight of department tribal communications.
- Tribal Liaison Committee—this component creates a tribal liaison committee, consisting of all the agency’s tribal liaisons, who are mandated to meet regularly and report back to the agency about consultation efforts and opportunities.
- Access to Contact Information: this component mandates that the agency will work with the Native American Heritage Commission to maintain a contact list of tribal representatives.

- Training—this final component mandates that the agency will provide training for tribal liaisons, executive staff, managers, and employees on implementation of the policy.

California Department of Water Resources Tribal Policy

Similar to the Natural Resource Agency's policy document, in 2016 DWR released its own Tribal Engagement Policy. This policy consists of seven bullet points, given below verbatim:

- Establish meaningful dialogue between DWR and California Tribes early on in planning for CEQA projects to ensure that DQR's tribal outreach efforts are consistent with mandated tribal consultation policies, and to ensure that California Tribes know how information from consultation affected DWR's decision making process;
- Establish guidelines to share information between DWR and California Tries, while protecting their confidential information to the fullest extent of the law;
- Consult with California Tribes to identify and protect tribal cultural resources where feasible, and to develop treatment and mitigation plans to mitigate for impacts to tribal cultural places;
- Develop criteria in communication plans and grant funding decisions for all applicable DWR programs that will facilitate tribal participation;
- Provide cultural competency training for DWR executives, managers, supervisors, and staff on tribal engagement and consultation practices;
- Recognize that California Tribes have distinct cultural, spiritual, environmental, economic, public health interests, and traditional ecological knowledge about California's natural resources;
- Enable California Tribes to manage and act as caretakers of tribal cultural resources.

Native American Correspondence

AECOM contacted the NAHC via email requesting a search of the Sacred Lands File and Native American Contacts List of traditionally and culturally affiliated Tribes within the geographic area. The NAHC responded via email on September 10, 2024 yielding negative results for the presence of sacred lands on file and attached a list of Native American Groups who may have knowledge of cultural resources in the project area.

In compliance with CEQA and DWR's Tribal Engagement Policy, DWR sent certified letters and emails dated April 28, 2025 to each Tribe and Tribal representative identified by the Native American Heritage Commission Native American Contact List and DWR's AB 52 Notification List. AB 52 consultation notifications were sent to Yocha Dehe Wintun Nation. The Cortina Rancheria - Kletsel Dehe Wintun Nation, Grindstone Indian Rancheria of Wintun-Wailaki Indians, and Cachil Dehe Band of Wintun Indians of the Colusa Indian Community received DWR Tribal Policy Letters. As of May 29, 2025 none of the Tribes contacted have commented on the proposed project.

DWR's Tribal outreach has not yet resulted in any responses or scheduled consultation meetings with Tribes. Consistent with DWR's *Tribal Engagement Policy* and the California Natural Resources Agency *Tribal Consultation Policy*, DWR considers Tribal consultation

ongoing to provide opportunities for interested and consulting Tribes to collaborate with DWR in the identification and protection of potential Tribal cultural resources that may be encountered during the proposed project.

Discussion

ai & aii) **Less-than-Significant with Mitigation Incorporated.** The Sacred Lands File review failed to identify resources of importance to the Native American Community. As of May 29, 2025 none of the Tribes that received AB 52 Request for Notification Letters or Tribal Policy Letters have provided comments on the proposed project.

Survey work and literature review have not identified any known TCRs within the APE, and Tribal consultation is ongoing. The proposed project potential impacts to precontact archaeological resources or human remains that could also be considered a TCR are discussed in Section 3.2.5, “Cultural Resources”, environmental issue areas b) and c). As noted in that section, there is the potential for discovery of unknown precontact archaeological resources and unknown human remains during construction. Mitigation Measures CUL-1 through CUL-4 described in Section 3.2.5 require preconstruction training, a protocol to follow in the event of an inadvertent discovery of precontact archaeological resources or human remains, and archaeological and Tribal monitoring at the project site. These measures also apply to TCRs, and with continued consultation efforts with Native American tribes would reduce impacts on TCRs to a less-than-significant level. In addition, implementation of mitigation measures TCR-1 and TCR-2 for addressing TCRs are included below, would further reduce impacts to less-than-significant levels because these measures would allow for the appropriate oversight and stop work authority during construction and would require continue coordination and Tribal involvement regarding impacts on TCRs.

Mitigation Measure TCR-1: Implement Procedures for Inadvertent Discovery of Cultural Material and Implement an Inadvertent Discovery Plan

Project-related activities associated with the project will require ground-disturbance, including excavation, grading, and use of staging and borrow areas. These ground disturbing activities could result in damage to or destruction of previously unidentified TCRs, which could be present within the project sites.

In the event that archaeological resources that are considered TCRs are discovered during construction, Mitigation Measure TCR-2, described below, shall be implemented.

- If an inadvertent discovery of archaeological cultural materials (e.g., unusual amounts of shell, animal bone, any human remains, bottle glass, ceramics, building remains) is made at any other time during project-related construction activities or project planning, DWR, in consultation with the appropriate tribe(s), and other interested parties, will develop and implement appropriate protection and avoidance measures where feasible.

Mitigation Measure TCR-2: In the Event that Tribal Cultural Resources or Traditional Cultural Properties are Discovered during Construction, Implement Procedures to Evaluate Tribal Cultural Resources/Traditional Cultural Properties and Implement Avoidance and Minimization Measures to Avoid Significant Adverse Effects.

California Native American Tribes traditionally and culturally affiliated with the geographic area of the APE for Site 23-078 may have expertise on the identification and management of TCRs (California PRC Section 21080.3.1). DWR considers Tribal coordination and consultation ongoing to support identification and protection of TCRs. If potential TCRs are identified during construction further consultation with culturally affiliated Tribes will be conducted and focus on measures to avoid or minimize effects. The following performance standards shall be met prior to continuance of construction and associated activities that may result in damage to or destruction of TCRs:

- DWR shall evaluate each identified TCR, prior to construction, for CRHR eligibility through application of established eligibility criteria (California Code of Regulations 15064.636), in consultation with interested Native American Tribes
- If a TCR is determined to be eligible for listing on the CRHR, DWR will avoid damaging effects to the TCR in accordance with California PRC Section 21084.3, if feasible.
- If DWR determines that the proposed project may cause a substantial adverse change to a TCR, and measures are not otherwise identified in the consultation process, the following are examples of mitigation capable of avoiding or substantially lessening potential significant impacts to a TCR or alternatives that would avoid significant impacts to a TCR. These measures may be considered to avoid or minimize significant adverse impacts and constitute the standard by which an impact conclusion of less-than significant may be reached:
    - Avoid and preserve resources in place, including, but not limited to, planning construction to avoid the resources and protect the cultural and natural context, or planning greenspace, parks, or other open space, to incorporate the resources with culturally appropriate protection and management criteria.
    - Treat the resource with culturally appropriate dignity taking into account the Tribal cultural values and meaning of the resource, including, but not limited to, the following:
        - Protect the cultural character and integrity of the resource.
        - Protect the traditional use of the resource.
        - Protect the confidentiality of the resource.

- Establish permanent conservation easements or other interests in real property, with culturally appropriate management criteria for the purposes of preserving or using the resources or places.
- Protect the resource.

References

AECOM. 2025. *2023 Storm Damage, Department of Water Resources Rehabilitation Repair Site 23-078, Cultural Assessment, Colusa County. Prepared for: California Department of Water Resources. Prepared by: AECOM.*

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Johnson, Patti J. 1978. Patwin, In *California*, pp. 350–360, edited by Robert F. Heizer, Handbook of North American Indians, Vol. 8, William C. Sturtevant, general editor, Smithsonian Institution, Washington, D.C.

Levy, Richard. 1978. Eastern Miwok, In *California*, pp. 398–413, edited by Robert F. Heizer, Handbook of North American Indians, Vol. 8, William C. Sturtevant general editor, Smithsonian Institution, Washington, D.C. Yocha Dehe. 2025a. “Our Story.” Available: https://yochadehe.gov/heritage/our-story/. Accessed: May 8, 2025.

Yocha Dehe. 2025b. “Our History.” Available: https://yochadehe.gov/heritage/our-history/. Accessed: May 8, 2025.

3.2.16 Wildfire

If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:

Table 3.2.16-1. Environmental Issues and Determinations for Wildfire

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

Table Notes:
NI = No Impact

Environmental Setting

State Responsibility Areas (SRAs) are areas where the California Department of Forestry and Fire Protection (CAL FIRE) is the primary emergency response agency responsible for fire suppression and prevention. Land where the primary responsibility for firefighting falls within the purview of a local agency are referred to as Local Responsibility Areas (LRAs). The project site is situated within an LRA in an area that has not been classified for fire hazards (CAL FIRE 2024). The primary entity with responsibility for fire suppression activities at the project site is the Arbuckle-College City Fire Protection District.

There are no lands within or near the project site that are classified as an SRA or Very High Fire Hazard Severity Zone; the closest lands classified as such are located over 9 miles west of the project site (CAL FIRE 2024).

CAL FIRE requires counties in the state to develop fire protection management plans that address potential threats of wildland fires. The project site is within the boundaries of the Sonoma-Lake-Napa Unit. The Sonoma-Lake-Napa Unit 2023 Strategic Fire Plan (CAL FIRE 2023) governs fire protection activities in Colusa, Lake, Napa, Solano, Sonoma, and Yolo counties. The plan assesses fire potential within the unit and identifies strategies for pre-fire solutions and fire safety planning.

Discussion

a)–d) **No Impact.** As discussed above, the project site is not located in or near an SRA, or within a Very High Fire Hazard Severity Zone, and it is more than 9 miles from the nearest such area or zone (CAL FIRE 2024). Furthermore, there are no structures

located on or adjacent to the project site, and the proposed project would not expose people or structures to wildfire risks. Therefore, no impact would occur.

References

CAL FIRE. *See* California Department of Forestry and Fire Protection.

California Department of Forestry and Fire Protection. 2023. CAL FIRE Sonoma-Lake-Napa Unit 2023 Strategic Fire Plan. Available: https://cdnverify.osfm.fire.ca.gov/media/e33a3ior/2023-sonoma-lake-napa-unit-fire-plan.pdf. Accessed January 2025.

California Department of Forestry and Fire Protection. 2024. Fire Hazard Severity Zone Viewer. Available: https://experience.arcgis.com/experience/03beab8511814e79a0e4eabf0d3e7247/. Accessed January 2025.

3.2.17 Mandatory Findings of Significance

Table 3.2.17-1. Environmental Issues and Determinations for Mandatory Findings of Significance

Issues	Determination
a) Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	LTS/M
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)?	LTS/M
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	LTS/M

Table Notes:
LTS/M = Less-than-Significant Impact with Mitigation Incorporated

Discussion

a) **Less-than-Significant with Mitigation Incorporated.** The proposed project would be temporary in nature and would involve construction activities to repair and rehabilitate Site 23-078 to improve flood protection; thus, providing a net benefit to the surrounding areas. Based on the analysis contained herein, 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 or restrict the range of rare or endangered plants or animals; or, eliminate important examples of the major periods of California history or prehistory. As discussed in Section 3.2.4, "Biological Resources," impacts to protected wildlife species and habitat would be less than significant. As discussed in Section 3.2.5, "Cultural Resources," and Section 3.2.15, "Tribal Cultural Resources," the proposed project would implement the following mitigation measures to reduce impacts to less than significant: Mitigation Measure CUL-1. Preconstruction Training; Mitigation Measure CUL-2. Conduct Monitoring at Locations Identified by Native Americans as Sensitive; Mitigation Measure CUL-3. Archaeological Monitoring and a Plan for Inadvertent Discovery of Archaeological Resources; Mitigation Measure CUL-4. Inadvertent Discovery of Human Remains; Mitigation Measure TCR-1: Implement Procedures for Inadvertent Discovery of Cultural Material and Implement an Inadvertent Discovery Plan; and, Mitigation Measure TCR-2: In the Event that Tribal Cultural Resources or Traditional Cultural Properties are Discovered during Construction, Implement Procedures to Evaluate Tribal Cultural Resources/Traditional

Cultural Properties and Implement Avoidance and Minimization Measures to Avoid Significant Adverse Effects.

Adherence to federal, State, and local regulations, as well as implementation of the Environmental Commitments and proposed mitigation measures discussed herein, would reduce potentially significant impacts to less-than-significant levels.

a) **Less-than-Significant with Mitigation Incorporated.** The potential impacts of the proposed project are restricted to temporary and short-term construction related impacts that are site-specific and localized to the area of the levee repair. The proposed project would not result in significant impacts on environmental resources. DWR, or their contractors, would comply with all applicable federal, State, and local regulations, implement required Environmental Commitments described in Section 2.4, and implement required mitigation measures described in Section 3.2.5, “Cultural Resources”, Section 3.2.8, “Greenhouse Gas Emissions”, and Section 3.2.15, “Tribal Cultural Resources”, to avoid, reduce, or minimize potentially significant impacts. As discussed in Section 3.2.8, no single project could generate enough GHG emissions to noticeably change the global average temperature. Instead, GHG emissions cumulatively contribute to the significant adverse environmental impacts of global climate change; the combined GHG emissions from past, present, and future projects have contributed to and continue to contribute to global GHG emissions and the associated environmental impacts from climate change. The proposed project would implement Mitigation Measure GHG-1, Implement DWR BMP’s for Construction Practices, to ensure consistency with DWR’s GGERP, which was prepared in accordance with CEQA Guidelines Section 15183.5(b) for a “plan for the reduction of GHG emissions.” An individual project’s compliance with a qualifying GHG reduction plan, such as DWR’s GGERP, suffices to mitigate the project’s incremental contribution to that cumulative impact to a level that is not cumulatively considerable (see State CEQA Guidelines Section 15064[h][3].). Once constructed there would be no long-term operational impacts associated with the proposed project and therefore no long-term incremental contribution to cumulatively considerable impacts. Given the temporary and spatially limited impacts, and the incorporation and implementation of required Environmental Commitments and mitigation measures, the proposed project would not result in cumulatively considerable incremental effects when viewed in connection with the effects of past, present, or probable future projects. Impacts would be less-than-significant with mitigation incorporated.

c) **Less-than-Significant with Mitigation Incorporated.** As discussed above, the proposed project would result in temporary and limited construction activities and would not include any operational impacts. Further, the proposed project would comply with all applicable federal, State, and local regulations, and implement Environmental Commitments. Implementation of the above-mentioned mitigation measures, including Mitigation Measure GHG-1, which includes measures to minimize the temporary increase in ambient noise throughout construction, would ensure that impacts on human beings would be reduced to less-than-significant levels. No other activities or uses are proposed that may cause substantial adverse effects on human beings, either

directly or indirectly, or on the physical environment. Therefore, impacts would be less-than-significant with mitigation incorporated.

Reference

None.

APPENDIX A SITE SPECIFIC REPAIRS

A.1 Introduction

The following describes the features of the proposed levee repair site 23-078.

A.2 Materials

A.2.1 Earthfill

Earthfill material is used where the repair requires backfilling voids from removed rocks or disturbed material. Earthfill is natural or processed material, which is free from organic matter, petroleum hydrocarbons, pesticides, excessive heavy metals and other deleterious substances.

The earthfill shall conform to the following requirements as identified in California Department of Water Resources (DWR) contract Specification No. 02300:

- Standard Sieve Size 3-inch: 100 Percent Passing (American Society for Testing and Materials [ASTM] D 6913).
- Standard Sieve Size Number 200: Minimum of 20 Percent Passing (ASTM D 1140).
- Liquid Limit: Less than 50 (ASTM D 4318).
- Plasticity Index: Minimum of 8 (ASTM D 4318).

Earthfill will be moisture conditioned at the borrow source or in laydown areas to ensure thorough penetration and uniform distribution of moisture in the materials before the material is transported to the placement site. Material will be placed uniformly in horizontal layers (or lifts) not to exceed 6 inches loose thickness before compaction. Lifts will be placed with moisture content at time of compaction within plus or minus 2 percent of optimum moisture content determined in accordance with ASTM D 698. Each layer must be compacted to not less than 97 percent relative compaction.

The Contractor will perform compaction tests during the placement of the earthfill materials. Earthfill materials that fail compaction tests must be re-compacted to meet specified requirements prior to the Contractor placing additional materials over the tested fill. Contractor will be required to perform specified testing for every 500 cubic yards of proposed material, and at least one set of tests (see project specifications) will be performed for each borrow area or change of material.

Locally excavated materials will not be used for earthfill placement unless approved by DWR. Before any of the excavated material is approved for placement, the appropriate lab/field testing to substantiate minimum required specifications must be completed, and the results must be reviewed by DWR.

A.2.2 Agricultural Soil

Agricultural soil is used to facilitate vegetation growth on the repair slope. The agricultural soil is placed above the native topsoil in a 1-inch uncompacted layer.

Agricultural soil shall be free of stones, lumps, roots and other debris larger than 1 inch and shall contain limited amounts of salts or other chemical compounds toxic to plant growth, aquatic flora and fauna or humans. Agricultural soil shall be loam, sandy clay loam, clay loam, or silty clay loam. The agricultural soil shall have an organic matter content between 0 and 15, and a chemical reaction of 6.0 to 7.8 pH. The agricultural soil shall have an electric conductivity less than 3.0 deciSiemens per meter, and a sodium absorption ratio less than 12. The agricultural soil shall have a boron concentration less than 1 milligram per kilogram, and a calcium-magnesium ratio between 0.35 and 11.0. The agricultural soil shall not contain petroleum hydrocarbons, pesticides, heavy metals, or other deleterious substances in excess of the Department of Water Resources Draft Borrow Material Chemical Acceptance Criteria. If the proposed borrow is found to exceed the concentrations listed in the DWR Draft Borrow Acceptance Criteria the Contractor shall demonstrate that the respective exceedance(s) is/are within natural background concentrations and will not result in a net adverse impact to human health, water quality, or the environment.

A.2.3 Seeding

Appropriate seeding, as indicated on the contract documents, of exposed ground or targeted surfaces is performed with approved hydroseeding equipment. The work must be performed by experienced contractor(s) familiar with native grass and herbaceous plant seeding, the horticulture of these plants, and the employed modern equipment and methods for proper placement. In addition to proper seed mix, the revegetation will incorporate the use of compost, wood cellulose fiber mulch, straw, tackifier and mycorrhizal inoculum (to aid in root propagation).

Native grass and herbaceous plant mixes have been developed for designated planting zones and disturbed upland areas.

Refer to the DWR contract Specification No. 02925 for more details regarding selection, handling, placement and seeding conditions.

A.2.4 Erosion Control Fabric

Upon seeding earthfill levee slopes, erosion control fabric (ECF) will be installed per the design to minimize erosion on the slope until grass and herbaceous seeds have time to germinate and establish. ECF is made of 100% biodegradable coconut fiber. ECF needs to be placed on seeded surfaces within 48 hours of seed placement.

Refer to the DWR contract Specification No. 02935 for more details on the product requirements and installation.

A.3 Aggregate Base Resurfacing

Aggregate base (AB) will be used to restore non-paved levee crown patrol roads to pre-construction conditions, including, any pre-existing ramps, turn-outs, etc., that are degraded or affected by construction related activities.

Material shall conform to California Department of Transportation Standard Specifications Section 26-1.02B, ¾-inch maximum grading. Subgrades shall be scarified to a depth of 6 inches, moisture conditioned and compacted to not less than 95 percent compaction prior to AB placement.

AB will be placed, spread and compacted in lifts not to exceed 6 inches per layer. Refer to the DWR Contract Specification No. 02720 for more details in use and acceptability of AB.

A.4 Site 23-078 Specific Repair Activities

General Characteristics	
Waterbody	Colusa Basin Drainage Canal
Bank (view downstream)	Left bank, landside
County	Colusa
Local Maintaining Agency	Reclamation District 108
Levee Problem Characteristics	
Levee Problem	Landside Stability
Levee Miles (LM)	LM 15.47
Repair Characteristics	
Repair Type	Stability
Repair location (latitude/longitude)	38.9771333/ -121.9373250
Limits of Work Area (acres)	0.71
Repair Area (acres)	0.35
Staging and laydown Area (acres)	0.16
Repair Length (linear feet)	425
Temporary Fencing (linear feet)	1,504
Estimated excavation (cubic yards)	1,262
Earthfill (cubic yards)	1,279
Agricultural Soil (cubic yards)	48
Topsoil (tons)	143
Aggregate base (tons)	181
Truck Loads	175
Erosion Control Fabric (square yards)	1,781
Seeding (acres)	1.1
Final landside slope (H:V)	3:1, 3.5:1, 4:1
OHWM (estimated elevation in feet)	None (landside repair)
Area of repair below OHWM (acres)	N/A
Area of repair above OHWM (acres)	N/A

H:V = horizontal:vertical
N/A = not appliable
OHWM = Ordinary High Water Mark

Repair of Site 23-078 would involve the following activities.

1. Prior to construction, all surface vegetation shall be removed from the work area.
2. Disturbed material shall be excavated to a maximum depth of three feet.
3. Levee fill material shall be placed in four-to-six-inch layers and compacted with a sheepsfoot roller, or equivalent, to a relative compaction of not less than ninety-seven percent per ASTM D698-91.
4. The finished landside slope must be 2H:1V or flatter.
5. Place hydroseed and install erosion control fabric on repaired slope.
6. Place hydroseed on disturbed areas outside of the repair.

Figure A-1 and Figure A-2 show the design and cross sections of the repairs at this site. In-water work is not expected at Site 23-078 given the location of the repair on the landside of the levee and the timing of construction. Photos at the end of this appendix document on-site existing conditions at the time of the site survey in summer of 2024.

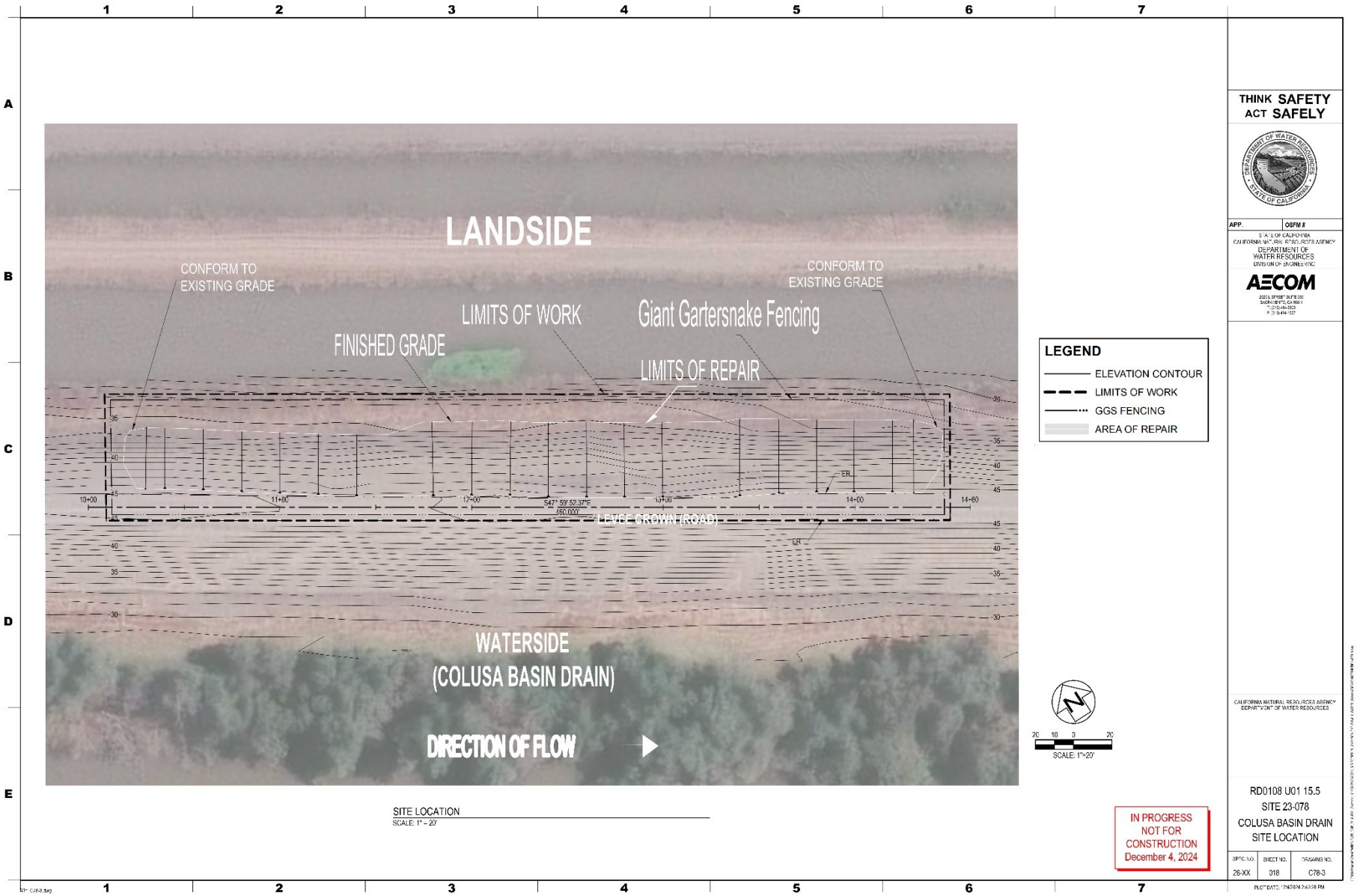

Figure A-1. Design of the Repairs at Site 23-078

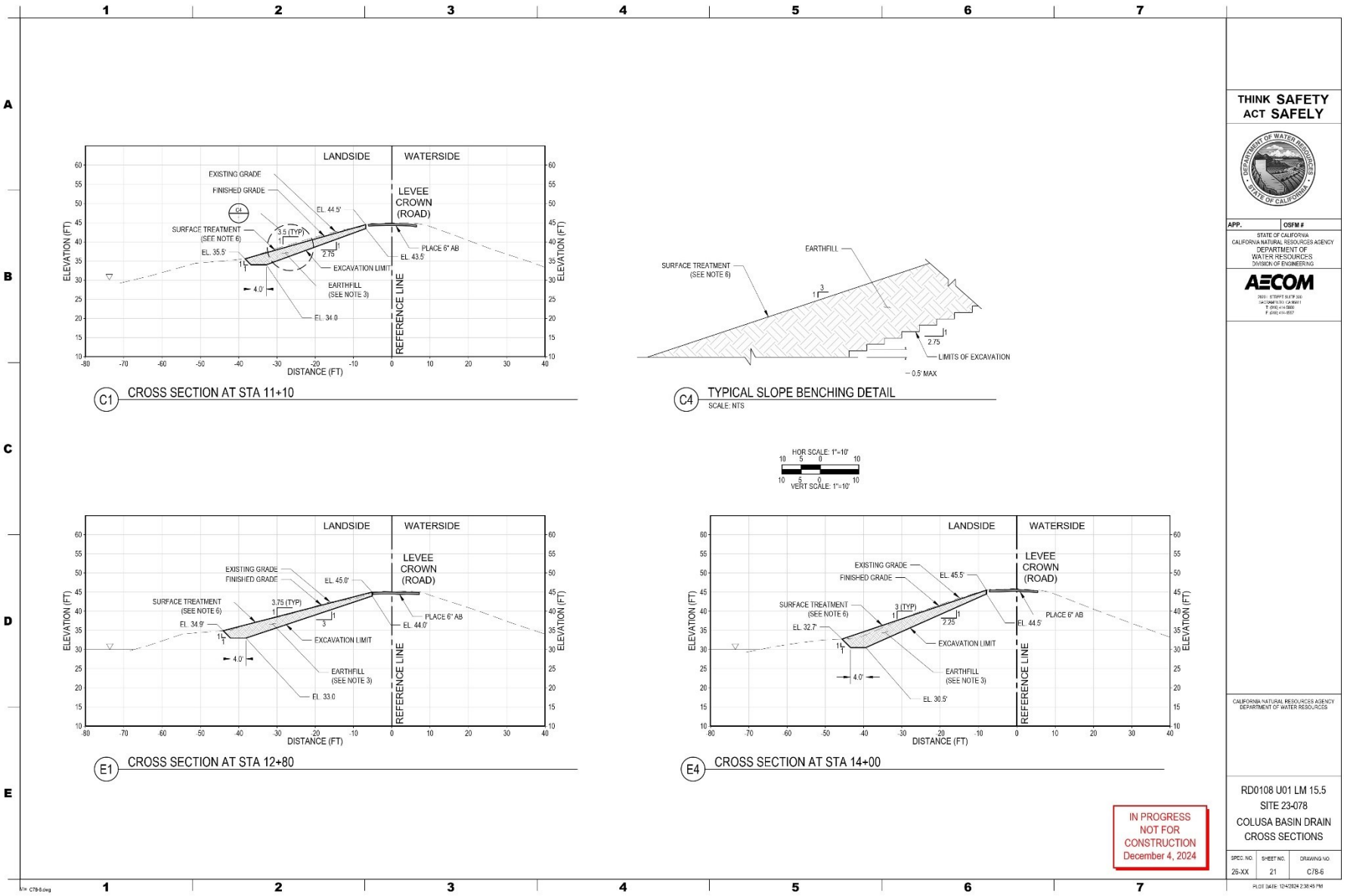

Figure A-2. Cross-Sections of the Repairs at Site 23-078

Photo 1. Levee crown - approximate width of 15 feet at LM 15.46.

Photo 2. Longitudinal cracking observed on landside slope at LM 15.47.

Photo 3. Longitudinal cracking located on landside toe stability berm at LM 15.47.

Photo 4. View upstream of prospective staging and laydown

APPENDIX B AIR QUALITY AND GREENHOUSE GAS

Levee Repair 23.78 **Location: Colusa County**

Standard inputs for all repair sites:

Land Use	User Defined Recreation
Size	0.71 acres (using work area acreage for this purpose)
Sensitive Receptors	-
	-
	-
	-
Construction equipment	1 each of the following, all operate 11 hours per day (use default horsepower and load factors):
	excavator
	plate compactor
	rubber tired dozer
	skid steer loader
	backhoe
Construction Schedule	Use "Grading" Phase in CalEEMod as the only construction phase - captures fugitive dust from earth moving activities
	Begin in August
	Duration of 4 weeks
Acres of Grading	0.83 acres
Worker Trips	15 workers * 2 one-way trips = 30 daily worker trips
Total Haul Truck Delivery Trips (one-way)	-
Daily Haul Truck Delivery Trips (one-way)	-
Total Haul Truck Tips Traveled On-site (unpaved)	-
Daily Haul Truck Trips Traveled On-Site (one-way)	-
Worker Trip Distance	Use CalEEMod defaults
Haul Truck On-site Unpaved Road Travel Trips	-
Unpaved Roadway Travel:	-
Worker Trips	0 miles - Assume turnaround at work site and no unpaged roadway travel
Haul Truck Delivery Trips (one-way)	0 - paved road to levee top
Haul Truck Travel On-Site	0.93 haul route on unpaved roadway
Operations	Zero-out all operational inputs to only calculate construction emissions.

* Modeled as HHDT; 44 miles to Western Aggregates LLC, 4500-4712 Hammonton Rd, Marysville, CA 95901

Item	Estimated Quantity	Units	Truckloads (this is a round-trip, one-way trips assumed to be 2x)	Unit Conversion	Units
Temporary Fencing (linear feet)	1,504	LF			
Estimated excavation (cubic yards)	1262	CY	79	**1262**	CY
Earthfill (cubic yards)	1279	CY	80	1279	Cy
Agricultural Soil (cubic yards)	48	Cy	3	34	CY
Topsoil (tons)	143	Tons	8	102	Cy
Launch rock (tons)	0	Tons	0	0	CY
Aggregate Base (ton)	181	Tons	10	129	CY
Geotextile Fabric (square yards)	0	yd^2			
Erosion Control Fabric (square yards)	1781	yd^2			
Seeding (acres)	1.1	acres			

**highlighted cells are understood to be outside the 4-week heavy construction period, but details are useful to demonstrate the limited intensity during these times.*

Item	Quantity	Units
Total imported material per year:	1,545	Cubic Yards
Annual haul trucks	-	*assumes excavated material hauled offsite, NOT used onsite
Total one-way haul truck trips:	-	*assumes excavated material hauled offsite, NOT used onsite
Total one-way haul truck trips per day:	-	*assumes excavated material used onsite, NOT hauled off

	Quantity	Units
Total excavated material per year:	1,262	Cubic Yards

Truck Capacity:	Truck Capacity Estimtes Used for Prior Levee Projects:
CY	16
Tons	20

SDDER_Site 23.78
Energy Calculations

Conversion Factors		
pounds	2204.6	1 metric ton

Construction Energy Consumption

Summary	Diesel (gallons)	Gasoline (gallons)
Offroad Equip	2,696	0
On-Road Vehicles	2,522	367
Total	**5,219**	**367**

Construction Energy Calculations

Phase	Source	Total Construction MT CO_2 [a]	Fuel Type	Emission Factor (lb CO_2/gallon) [b]	Gallons
Project Construction	Offroad Equip	27.46	Diesel	22.45	2696.378
	Worker	3.12	Gasoline	18.73	367.049
	Hauling	25.69	Diesel	22.45	2522.403

gallons
Total Consumption Diesel 5,219
Gasoline 367

Sources:
[a] Modeled by AECOM in 2025.
[b] U.S. Energy Information Administration released September 18, 2024 (https://www.eia.gov/environment/emissions/co2_vol_mass.php)

SDDER 23.78 Detailed Report

Table of Contents

1. Basic Project Information

1.1 Basic Project Information

Data Field	Value
Project Name	SDDER 23.78
Construction Start Date	8/1/2025
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	3.40
Precipitation (days)	1.20
Location	38.976613463664734, -121.93699975215797
County	Colusa
City	Unincorporated
Air District	Colusa County APCD
Air Basin	Sacramento Valley
TAZ	227
EDFZ	4
Electric Utility	Pacific Gas & Electric Company
Gas Utility	Pacific Gas & Electric
App Version	2022.1.1.29

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 Recreational	1.00	User Defined Unit	0.71	0.00	0.00	0.00	—	—

1.3 User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

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	PM10 E	PM10 D	PM10 T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	2.30	1.93	19.7	19.3	0.04	0.74	48.8	49.5	0.69	8.76	9.45	—	5,802	5,802	0.13	0.44	7.24	5,943
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.13	0.11	1.15	1.08	< 0.005	0.04	2.80	2.84	0.04	0.50	0.54	—	332	332	0.01	0.03	0.18	340
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.02	0.02	0.21	0.20	< 0.005	0.01	0.51	0.52	0.01	0.09	0.10	—	55.0	55.0	< 0.005	< 0.005	0.03	56.3

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**	**PM10 E**	**PM10 D**	**PM10 T**	**PM2.5E**	**PM2.5D**	**PM2.5T**	**BCO2**	**NBCO2**	**CO2T**	**CH4**	**N2O**	**R**	**CO2e**
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	2.30	1.93	19.7	19.3	0.04	0.74	48.8	49.5	0.69	8.76	9.45	—	5,802	5,802	0.13	0.44	7.24	5,943
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	0.13	0.11	1.15	1.08	< 0.005	0.04	2.80	2.84	0.04	0.50	0.54	—	332	332	0.01	0.03	0.18	340
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	0.02	0.02	0.21	0.20	< 0.005	0.01	0.51	0.52	0.01	0.09	0.10	—	55.0	55.0	< 0.005	< 0.005	0.03	56.3

3. Construction Emissions Details

3.1 Grading (2025) - 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-Roa d Equipment	2.07	1.74	16.7	16.7	0.03	0.69	—	0.69	0.64	—	0.64	—	2,873	2,873	0.12	0.02	—	2,883
Dust From Material Movement	—	—	—	—	—	—	9.02	9.02	—	4.63	4.63	—	—	—	—	—	—	—
Onsite truck	0.01	0.01	0.17	0.11	< 0.005	< 0.005	38.8	38.8	< 0.005	3.87	3.87	—	78.5	78.5	< 0.005	0.01	0.19	81.8
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Roa d Equipment	0.12	0.10	0.96	0.96	< 0.005	0.04	—	0.04	0.04	—	0.04	—	165	165	0.01	< 0.005	—	166
Dust From Material Movement	—	—	—	—	—	—	0.52	0.52	—	0.27	0.27	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	2.22	2.22	< 0.005	0.22	0.22	—	4.52	4.52	< 0.005	< 0.005	< 0.005	4.70
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Roa d Equipment	0.02	0.02	0.18	0.18	< 0.005	0.01	—	0.01	0.01	—	0.01	—	27.4	27.4	< 0.005	< 0.005	—	27.5
Dust From Material Movement	—	—	—	—	—	—	0.09	0.09	—	0.05	0.05	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.41	0.41	< 0.005	0.04	0.04	—	0.75	0.75	< 0.005	< 0.005	< 0.005	0.78
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.17	0.15	0.11	2.14	0.00	0.00	0.32	0.32	0.00	0.07	0.07	—	356	356	0.02	0.01	1.30	361
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	0.03	2.77	0.32	0.02	0.05	0.68	0.73	0.05	0.19	0.24	—	2,495	2,495	< 0.005	0.39	5.75	2,618
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.09	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	18.6	18.6	< 0.005	< 0.005	0.03	18.8
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	0.17	0.02	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01	—	144	144	< 0.005	0.02	0.14	150
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	3.07	3.07	< 0.005	< 0.005	0.01	3.12
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	< 0.005	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	23.8	23.8	< 0.005	< 0.005	0.02	24.9

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	PM10 E	PM10 D	PM10 T	PM2.5 E	PM2.5 D	PM2.5 T	BCO2	NBCO 2	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	PM10 E	PM10 D	PM10 T	PM2.5 E	PM2.5 D	PM2.5 T	BCO2	NBCO 2	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	PM10 E	PM10 D	PM10 T	PM2. 5E	PM2. 5D	PM2. 5T	BCO2	NBC O2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequest ered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Remove d	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequest ered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Remove d	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequest ered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Remove d	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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
Grading	Grading	8/1/2025	8/29/2025	5.00	21.0	Levee Repair

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
Grading	Rubber Tired Dozers	Diesel	Average	1.00	11.0	367	0.40
Grading	Tractors/Loaders/Back hoes	Diesel	Average	1.00	11.0	84.0	0.37
Grading	Excavators	Diesel	Average	1.00	11.0	36.0	0.38
Grading	Plate Compactors	Diesel	Average	1.00	11.0	8.00	0.43
Grading	Skid Steer Loaders	Diesel	Average	1.00	11.0	71.0	0.37

5.3 Construction Vehicles

5.3.1 Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Grading	—	—	—	—
Grading	Worker	30.0	14.9	LDA,LDT1,LDT2
Grading	Vendor	—	10.8	HHDT,MHDT
Grading	Hauling	16.7	44.0	HHDT
Grading	Onsite truck	17.0	1.55	MHDT

5.4 Vehicles

5.4.1 Construction Vehicle Control Strategies

Non-applicable. No control strategies activated by user.

5.5 Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)

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)
Grading	1,262	1,545	14.4	0.00	—

5.6.2 Construction Earthmoving Control Strategies

Non-applicable. No control strategies activated by user.

5.7 Construction Paving

Land Use	Area Paved (acres)	% Asphalt
User Defined Recreational	0.00	0%

5.8 Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2025	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 Biomass Cover Type

5.18.1.1 Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.1 Sequestration

5.18.1.1 Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

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	27.7	annual days of extreme heat
Extreme Precipitation	4.10	annual days with precipitation above 20 mm
Sea Level Rise	—	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	2	0	0	N/A
Extreme Precipitation	1	0	0	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	1	0	0	N/A
Flooding	0	0	0	N/A
Drought	0	0	0	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	2	1	1	3
Extreme Precipitation	1	1	1	2
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	1	1	1	2
Flooding	1	1	1	2
Drought	1	1	1	2
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	37.6
AQ-PM	11.5
AQ-DPM	14.5
Drinking Water	67.0
Lead Risk Housing	53.4
Pesticides	90.8
Toxic Releases	17.9
Traffic	2.05
Effect Indicators	—
CleanUp Sites	50.3
Groundwater	74.8
Haz Waste Facilities/Generators	61.6
Impaired Water Bodies	83.0
Solid Waste	86.5
Sensitive Population	—
Asthma	45.4
Cardio-vascular	77.8
Low Birth Weights	18.0
Socioeconomic Factor Indicators	—
Education	88.0
Housing	20.3
Linguistic	74.8
Poverty	56.2
Unemployment	71.7

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	33.63274734
Employed	47.8121391
Median HI	42.91030412
Education	—
Bachelor's or higher	26.52380341
High school enrollment	23.85474143
Preschool enrollment	33.37610676
Transportation	—
Auto Access	84.51174131
Active commuting	11.16386501
Social	—
2-parent households	71.14076736
Voting	79.96920313
Neighborhood	—
Alcohol availability	51.36661106
Park access	22.40472219
Retail density	1.527011421
Supermarket access	40.57487489
Tree canopy	66.88053381
Housing	—
Homeownership	60.9393045
Housing habitability	69.10047479
Low-inc homeowner severe housing cost burden	33.28628256
Low-inc renter severe housing cost burden	85.87193635
Uncrowded housing	34.15886052
Health Outcomes	—
Insured adults	24.93263185
Arthritis	0.0
Asthma ER Admissions	65.7
High Blood Pressure	0.0
Cancer (excluding skin)	0.0

Indicator	Result for Project Census Tract
Asthma	0.0
Coronary Heart Disease	0.0
Chronic Obstructive Pulmonary Disease	0.0
Diagnosed Diabetes	0.0
Life Expectancy at Birth	42.1
Cognitively Disabled	54.2
Physically Disabled	21.0
Heart Attack ER Admissions	52.6
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	0.2
SLR Inundation Area	0.0
Children	14.8
Elderly	59.3
English Speaking	37.6
Foreign-born	58.0
Outdoor Workers	2.5
Climate Change Adaptive Capacity	—
Impervious Surface Cover	89.6
Traffic Density	1.5
Traffic Access	0.0
Other Indices	—
Hardship	70.6
Other Decision Support	—
2016 Voting	70.4

7.3 Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	65.0
Healthy Places Index Score for Project Location (b)	44.0
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

Screen	Justification
Land Use	Project work area is 0.71 acres.
Construction: Construction Phases	Levee repair modeled as grading phase - single 4-week phase for all construction activity/equipment/vehicles.
Construction: Off-Road Equipment	Project-specific equipment list.
Construction: Trips and VMT	Increased worker trips based on project description estimate of up to 15 workers daily (2 round-trips per worker); default worker trip length; Increased haul trip distance to 44 miles to nearby supply (Marysville); included on-site trucks traveling levee road haul route.
Construction: On-Road Fugitive Dust	Travel to/from site is entirely paved. On-site unpaved travel accounted for through on-site trucks.

APPENDIX C BIOLOGICAL RESOURCES

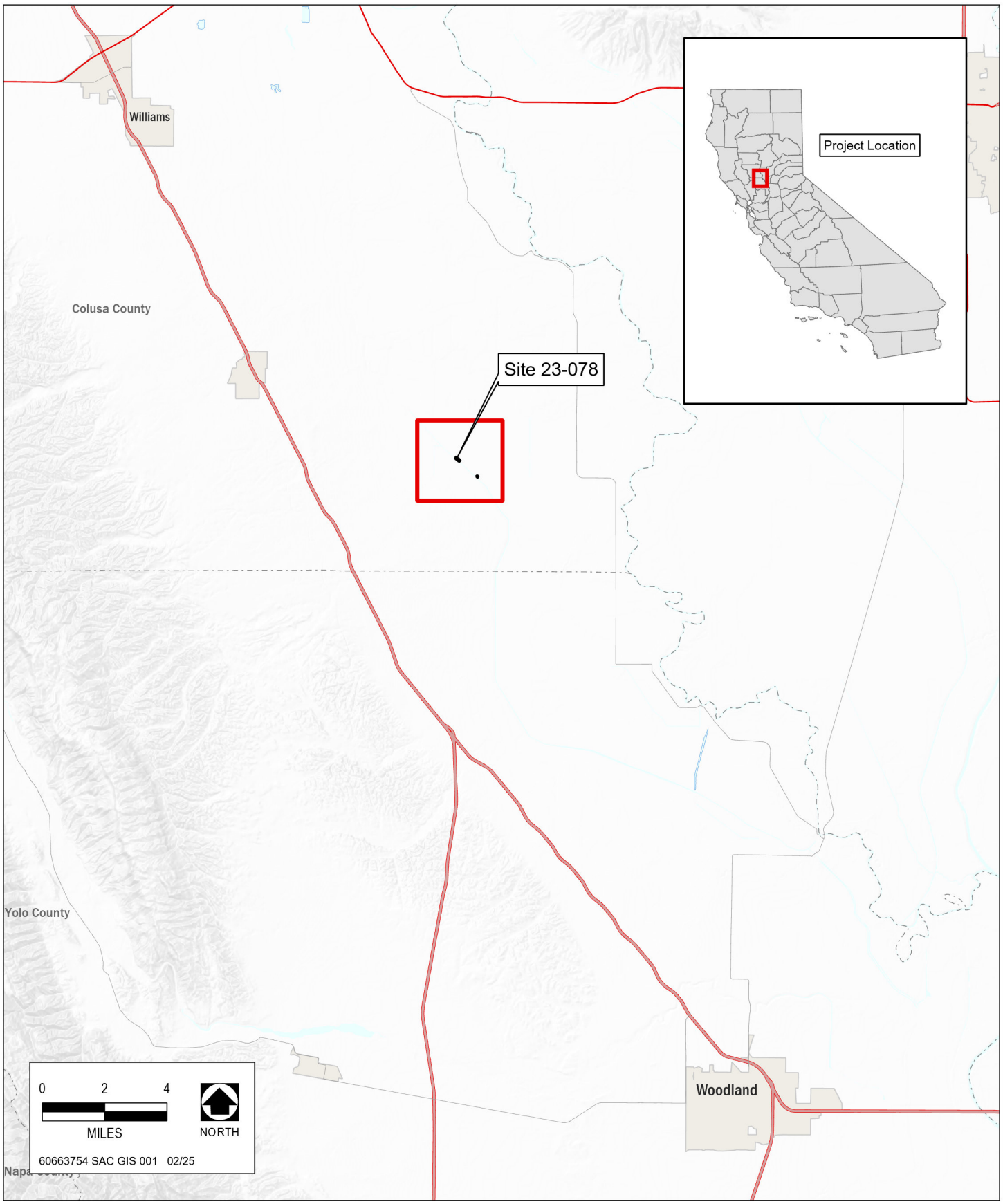

Figure 1. Project Vicinity

Source: AECOM, 2024

Figure 2: Project Site

AECOM

Source: AECOM 2024

Figure 3: Site 78 Vegetation Communities And Other Land Cover Types

AECOM

Special-Status Plant Species with Potential to Occur in the Project Site

Scientific Name	Common Name	Federal Regulatory Status[1]	State Regulatory Status[1]	CRPR Status[1]	Bloom Period	Habitat Requirements[2]	Potential for Occurrence
Astragalus tener var. *ferrisiae*	Ferris' milkvetch	–	–	1B.1	Apr-May	**Habitat**: Meadows and seeps (vernally mesic), Valley and foothill grassland (subalkaline flats) **Microhabitat**: N/A **Elevation**: 5 to 245	**No Potential to Occur:** Grassland habitat within the project site is not mesic or alkaline. No CNDDB records of the species within 10 miles of the project site are from the past 100 years.
Atriplex depressa	brittlescale	–	–	1B.2	Apr-Oct	**Habitat**: Chenopod scrub, Meadows and seeps, Playas, Valley and foothill grassland, Vernal pools **Microhabitat**: alkaline, clay **Elevation**: 0 to 1,050	**No Potential to Occur:** Levee fill soils in the project site do not support the microhabitats suitable for the species. The nearest CNDDB record is over 10 miles from the project site.
Atriplex persistens	vernal pool smallscale	–	–	1B.2	Jun, Aug, Sep, Oct	**Habitat**: Vernal pools (alkaline) **Microhabitat**: N/A **Elevation**: 30 to 375	**No Potential to Occur:** Suitable habitat for the species is absent from the study area and adjacent areas.
Chloropyron palmatum	palmate salty bird's-beak	FE	CE	1B.1	May-Oct	**Habitat**: Chenopod scrub, Valley and foothill grassland **Microhabitat**: alkaline **Elevation**: 15 to 510	**No Potential to Occur:** Levee fill soils in the project site do not support the alkaline microhabitat suitable for the species. One historical record of the species (CNDDB occurrence #9) is located within 5 miles of the project site, a possibly extirpated occurrence from 1916.

Special-Status Plant Species with Potential to Occur in the Project Site

Scientific Name	Common Name	Federal Regulatory Status[1]	State Regulatory Status[1]	CRPR Status[1]	Bloom Period	Habitat Requirements[2]	Potential for Occurrence
Extriplex joaquinana	San Joaquin spearscale	–	–	1B.2	Apr-Oct	**Habitat**: Chenopod scrub, Meadows and seeps, Playas, Valley and foothill grassland **Microhabitat**: alkaline **Elevation**: 0 to 2,740	**No Potential to Occur:** Levee fill soils in the project site do not support the alkaline microhabitat suitable for the species. No records of the species are located within 5 miles of the project site.
Hibiscus lasiocarpos var. *occidentalis*	woolly rose-mallow	–	–	1B.2	Jun-Sep	**Habitat**: Marshes and swamps (freshwater) **Microhabitat**: Often in riprap on sides of levees. **Elevation**: 0 to 395	**Unlikely to occur:** Suitable habitat occurs adjacent to but not within the project site. The species was not identified during the August 13, 2024, survey.
Lasthenia glabrata ssp. *coulteri*	Coulter's goldfields	–	–	1B.2	Feb-Jun	**Habitat**: Marshes and swamps (coastal salt), Playas, Vernal pools **Microhabitat**: N/A **Elevation**: 0 to 4,005	**No Potential to Occur:** Suitable habitat for the species is absent from the project site and adjacent areas.
Layia septentrionalis	Colusa layia	–	–	1B.2	Apr-May	**Habitat**: Chaparral, Cismontane woodland, Valley and foothill grassland **Microhabitat**: sandy, serpentinite **Elevation**: 325 to 3,595	**No Potential to Occur:** Suitable habitat for the species is absent from the project site and adjacent areas, and the project site is outside the species' elevational range.
Lepidium latipes var. *heckardii*	Heckard's pepper-grass	–	–	1B.2	Mar-May	**Habitat**: Valley and foothill grassland (alkaline flats) **Microhabitat**: N/A **Elevation**: 5 to 655	**No Potential to Occur:** Alkaline flats are not present within the project site or adjacent areas. The nearest CNDDB record (#6) of the species is 12 miles from the project site and from 1902.

Special-Status Plant Species with Potential to Occur in the Project Site

Scientific Name	Common Name	Federal Regulatory Status[1]	State Regulatory Status[1]	CRPR Status[1]	Bloom Period	Habitat Requirements[2]	Potential for Occurrence
Navarretia leucocephala	Baker's navarretia	–	–	1B.1	Apr-Jul	**Habitat**: Cismontane woodland, Lower montane coniferous forest, Meadows and seeps, Valley and foothill grassland, Vernal pools **Microhabitat**: Mesic **Elevation**: 15 to 5,710	**No Potential to Occur:** Grassland habitat within the project site does not support mesic microhabitats. One record of the species (CNDDB occurrence #16) is located within 5 miles of the project site, a historical occurrence from 1916.
Puccinellia simplex	California alkaligrass	–	–	1B.2	Mar-May	**Habitat**: Chenopod scrub, Meadows and seeps, Valley and foothill grassland, Vernal pools **Microhabitat**: Alkaline, vernally mesic; sinks, flats, and lake margins **Elevation**: 5 to 3,050	**No Potential to Occur:** Levee fill soils in the project site do not support suitable microhabitats for the species. The nearest CNDDB record is over 10 miles from the project site.
Sidalcea keckii	Keck's checkerbloom	FE	–	1B.1	Apr-May (Jun)	**Habitat**: Cismontane woodland, Valley and foothill grassland **Microhabitat**: serpentinite, clay **Elevation**: 245 to 2,135	**No Potential to Occur:** Suitable habitat for the species is absent from the project site and adjacent areas, and the project site is outside the species' elevational range.
Trichocoronis *wright*ii	Wright's trichocoronis	–	–	2B.1	May-Sep	**Habitat**: Meadows and seeps, Marshes and swamps, Riparian forest, Vernal pools **Microhabitat**: alkaline **Elevation**: 15 to 1,425	**Unlikely to Occur:** Suitable habitat for the species is absent from the project site and present in adjacent areas. One CNDDB occurrence (#7) of the species within 5 miles of the project site is from 1953.

Special-Status Plant Species with Potential to Occur in the Project Site

Notes: CESA = California Endangered Species Act CNDDB = California Natural Diversity Database; CRPR = California Register of Historic Places; ESA = Endangered Species Act; N/A = not applicable

[1] Regulatory Status Definitions

– = not applicable

Federal Status Categories

FE = Listed as endangered under the Federal Endangered Species Act

California State Status Categories

CE = A candidate for listing as endangered under California Endangered Species Act

California Department of Fish and Wildlife (CDFW) Categories

1B = Plant species considered rare or endangered in California and elsewhere (protected under CEQA, but not legally protected under ESA or CESA)

2B = Plant species considered rare or endangered in California but more common elsewhere (protected under CEQA, but not legally protected under ESA or CESA)

CDFW Threat Rank Extensions:

.1 Seriously endangered in California (>80% of occurrences are threatened and/or high degree and immediacy of threat)

.2 Fairly endangered in California (20 to 80% of occurrences are threatened)

[2] Habitat Requirements.

The California Native Plant Society habitat requirements refer to the specific environmental conditions necessary for the survival, growth, and reproduction of native plant species in California.

Potential to Occur: There are records of the species in or within 5 miles of the project site, and/or the species could occur within or in close proximity to the project site due to the presence of moderate- to high-quality habitat.

Unlikely to Occur: Marginally suitable habitat may occur in the project area; however, nearby records are not recent (i.e., within the past 50 years) or do not occur, and/or the species is considered extirpated from the area.

No Potential to Occur: The project area is not located within the range of the species; suitable habitat does not exist in the project area; the species is restricted to a specific area outside of the project area; previous CNDDB occurrences of the species in the project area may have been misidentified or are known to be extirpated; and/or there are no CNDDB records of the species within the past 50 years

Special-Status Wildlife Species with Potential to Occur in the Project Site

Scientific Name	Common Name	Federal Regulatory Status[1]	State Regulatory Status[1]	CDFW Regulatory Status[1]	Habitat Requirements	Distribution	Potential for Occurrence[2]
Insects							
Branchinecta lynchi	vernal pool fairy shrimp	FT	–	–	Vernal pools in valley and foothill grassland; small, clear-water sandstone-depression pools and grassed swale, earth slump, or basalt-flow depression pools.	Endemic to the grasslands of the Central Valley, Central Coast mountains, and South Coast mountains.	**No Potential to Occur:** Suitable habitat for the species is absent from the project site and adjacent areas.
Lepidurus packardi	vernal pool tadpole shrimp	FE	–	–	Vernal pools in valley and foothill grassland; pools commonly found in grass-bottomed swales of unplowed grasslands. Some pools are mud-bottomed and highly turbid.	Sacramento Valley	**No Potential to Occur:** Suitable habitat for the species is absent from the project site and adjacent areas.
Bombus crotchii	Crotch bumblebee	–	SC	–	Open grassland and scrub; nests underground. Food plants include Asclepias, Chaenactis, Lupinus, Medicago, Phacelia, and Salvia.	Historically occurring from the Northern Central Valley to Baja California, Crotch Bumble Bee is now believed to be absent from 70% of its historic region. and now primarily persists in coastal southern California habitats, though also survives in a few areas around Sacramento.	**No Potential to Occur:** The project is within the species' range, however; because there are no small mammal burrows and the project site is subject to routine vegetation maintenance, the habitat in the project site is unsuitable for bumblebee nesting. The nearest CNDDB occurrence (#9) is approximately 4 miles east of the BSA.

Special-Status Wildlife Species with Potential to Occur in the Project Site

Scientific Name	Common Name	Federal Regulatory Status[1]	State Regulatory Status[1]	CDFW Regulatory Status[1]	Habitat Requirements	Distribution	Potential for Occurrence[2]
Danaus plexippus	monarch butterfly	FP	–	–	This species can breed or forage in a field, roadside area, open area, wet area, or urban garden, as long as there is milkweed and flowering plants around. This species requires milkweed for breeding.	Occurs as north as northeast United States and as south as Central Mexica.	**Potential to Occur:** The project site is within the species' range, and there is a large population of milkweed at the slope of the levee.
Desmocerus californicus dimorphus	valley elderberry longhorn beetle	FT	–	–	Riparian scrub, elderberry savannah. Host plant is the elderberry shrub (*Sambucus nigra* ssp. *cerulea*). Prefers to lay eggs in elderberries 2–8 inches in diameter; some preference shown for "stressed" elderberries.	Occurs only in the Central Valley.	**No Potential to Occur:** Suitable habitat for the species is absent from the project site and adjacent areas.
Fish							
Acipenser medirostris pop. 1	green sturgeon - southern DPS	FT	–	SSC	Anadromous fish found mostly from inshore waters to 200 feet, primarily in the seawater and mixing zones of bays and estuaries. In estuaries, they concentrate in deep areas with soft bottoms and move into intertidal areas to feed at high tides.	Found in the ocean from the Bering Sea, Alaska, as far south as Ensenada, Mexico; they frequent estuaries and bays from British Columbia, Canada, to Monterey Bay, California, and river mouths from the Skeena River, British Columbia, to the Sacramento River, California. They spawn only in Oregon's Rogue River and the Klamath and Sacramento River systems in California	**No Potential to Occur:** Aquatic habitat is absent from the project site, and fish trapping efforts at Wallace Weir and the Knights Landing Outfall Gates limit passage of anadromous fish into the adjacent Colusa Basin Drainage Canal and agricultural canal (CDFW 2023).

Special-Status Wildlife Species with Potential to Occur in the Project Site

Scientific Name	Common Name	Federal Regulatory Status[1]	State Regulatory Status[1]	CDFW Regulatory Status[1]	Habitat Requirements	Distribution	Potential for Occurrence[2]
Oncorhynchus mykiss irideus pop. 11	steelhead – Central Valley DPS	FT	–	SSC	Cool, clear streams with abundant cover and well-vegetated banks, with relatively stable flows. Pool and riffle complexes and cold gravelly streambeds for spawning.	Populations in the Sacramento and San Joaquin rivers and their tributaries.	**No Potential to Occur:** Aquatic habitat is absent from the project site, and fish trapping efforts at Wallace Weir and the Knights Landing Outfall Gates limit passage of anadromous fish into the adjacent Colusa Basin Drainage Canal and agricultural canal (CDFW 2023).
Oncorhynchus tshawytscha	Central Valley winter-run Chinook salmon	FE	SE	–	Occurs in well-oxygenated, cool, riverine habitat with water temperatures from 8.0 to 12.5°C. Habitat types are riffles, runs, and pools.	Mainstem Sacramento River below Keswick Dam.	**No Potential to Occur:** Aquatic habitat is absent from the project site, and fish trapping efforts at Wallace Weir and the Knights Landing Outfall Gates limit passage of anadromous fish into the adjacent Colusa Basin Drainage Canal and agricultural canal (CDFW 2023).
Oncorhynchus tshawytscha	Central Valley spring-run Chinook salmon	FT	ST	–	Has the same general habitat requirements as winter-run Chinook salmon. Coldwater pools are needed for holding adults.	Upper Sacramento River and Feather River	**No Potential to Occur:** Aquatic habitat is absent from the project site, and fish trapping efforts at Wallace Weir and the Knights Landing Outfall Gates limit passage of anadromous fish into the adjacent Colusa Basin Drainage Canal and agricultural canal (CDFW 2023).

Special-Status Wildlife Species with Potential to Occur in the Project Site

Scientific Name	Common Name	Federal Regulatory Status[1]	State Regulatory Status[1]	CDFW Regulatory Status[1]	Habitat Requirements	Distribution	Potential for Occurrence[2]
Pogonichthys macrolepidotus	Sacramento Splittail	–	–	SSC	Aquatic; estuary, freshwater marsh, Sacramento/San Joaquin flowing waters. Slow moving river sections, dead end sloughs. Requires flooded vegetation for spawning and foraging for young.	Endemic to the lakes and rivers of the Central Valley, but now confined to the Delta, Suisun Bay, and associated marshes.	**No Potential to Occur:** Aquatic habitat is absent from the project site, and fish trapping efforts at Wallace Weir and the Knights Landing Outfall Gates limit passage of anadromous fish into the adjacent Colusa Basin Drainage Canal and agricultural canal (CDFW 2023).
Amphibians							
Ambystoma californiense pop. 1	California tiger salamander - central California DPS	FT	ST	–	Small ponds, lakes, or vernal pools in grasslands and oak woodlands for reproduction and larval development; rodent burrows, rock crevices, or fallen logs for cover for adults and juveniles for summer dormancy.	Central Valley, including Sierra Nevada foothills, up to approximately 1,000 feet, and coastal region from Butte County south to northeastern San Luis Obispo County.	**No Potential to Occur:** Suitable habitat for the species is absent from the project site and adjacent areas. There nearest CNDDB occurrence (#517) is 5.5 miles southwest of the study area.
Spea hammondii	western spadefoot	FP	–	SSC	Occurs primarily in grassland habitats but can be found in valley–foothill hardwood woodlands. Vernal pools are essential for breeding and egg-laying.	Throughout the Central Valley and adjacent foothills.	**No Potential to occur:** Suitable breeding habitat for the species is absent from the project site and adjacent areas. The nearest vernal pool habitat potentially suitable for western spadefoot breeding is farther from the project site than the species' maximum dispersal distance, 0.3 mile (Halstead et al. 2021).

Special-Status Wildlife Species with Potential to Occur in the Project Site

Scientific Name	Common Name	Federal Regulatory Status[1]	State Regulatory Status[1]	CDFW Regulatory Status[1]	Habitat Requirements	Distribution	Potential for Occurrence[2]
Reptiles							
Actinemys marmorata	northwestern pond turtle	FP	–	SSC	Aquatic; ponds, marshes, rivers, streams and irrigation ditches, usually with aquatic vegetation. Needs basking sites and suitable (i.e., sandy banks or grassy open fields) upland habitat up to 0.5 km from water for egg-laying.	West of the Sierra-Cascade crest and absent from desert regions, except in the Mojave Desert along the Mojave River and its tributaries. Below 6,000 feet elevation.	**Unlikely to occur:** The agricultural canal and the Colusa Basin Drainage Canal adjacent to the study area provide marginal aquatic habitat for this species. The study area provides marginally suitable upland habitat for this species because the upland habitat is managed (burned) on a regular basis, and the levee orientation (northeast) is not in full sun exposure. There are no CNDDB occurrences within 10 miles of the study area.

Special-Status Wildlife Species with Potential to Occur in the Project Site

Scientific Name	Common Name	Federal Regulatory Status[1]	State Regulatory Status[1]	CDFW Regulatory Status[1]	Habitat Requirements	Distribution	Potential for Occurrence[2]
Thamnophis gigas	giant gartersnake	FT	ST	–	Prefers freshwater marsh and low gradient streams. Has adapted to drainage canals and irrigation ditches.	Historical range was in the Sacramento and San Joaquin valleys, but its current range is much reduced, and it apparently is extirpated south of Fresno County, except for western Kern County.	**Potential to Occur:** The agricultural canal and the Colusa Basin Drainage Canal adjacent to the project site provide suitable aquatic habitat for this species. The project site provides suitable upland habitat for this species. The species has been recorded at many locations surrounding the project site with the nearest being less than 2 miles south and southeast of the study area (CNDDB Occurrences #384 and #158).
Birds							
Agelaius tricolor	tricolored blackbird	–	ST	SSC	Highly colonial. Requires open water, protected nesting substrate, and foraging area with insect prey within a few kilometers of the colony.	Most numerous in the Central Valley and vicinity. Generally endemic to California.	**No Potential to Occur:** Suitable habitat for the species is absent from the project site and adjacent areas. Ruderal vegetation in and adjacent to the project site is too low for tricolored blackbird nesting, and regular maintenance in adjacent agricultural areas precludes nesting.

Special-Status Wildlife Species with Potential to Occur in the Project Site

Scientific Name	Common Name	Federal Regulatory Status[1]	State Regulatory Status[1]	CDFW Regulatory Status[1]	Habitat Requirements	Distribution	Potential for Occurrence[2]
Athene cunicularia (burrow sites and some wintering sites)	burrowing owl	–	SC	SSC	Open, dry, annual or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation. Dependent on burrowing mammals, most notably, the California ground squirrel, for underground nests.	Resident throughout California in suitable habitat.	**Unlikely to Occur:** Marginally suitable habitat is present in grassland areas in and adjacent to the project site. However, regular management (e.g., burning, tilling) of grassland and agricultural areas in and adjacent to the project site likely preclude the species' nesting in these areas.
Buteo swainsoni	Swainson's hawk	–	ST	–	Breeds in grasslands with scattered trees, juniper-sage flats, riparian areas, savannahs, and agricultural or ranch lands with groves or lines of trees. Requires adjacent suitable foraging areas, such as grasslands, or alfalfa or grain fields supporting rodent populations.	Uncommon breeding resident and migrant in the Central Valley, Klamath Basin, Northeastern Plateau, Lassen County, and Mojave Desert.	**Potential to Occur:** The large trees adjacent to Colusa Basin Drainage Canal provide suitable nesting habitat for this species, and the species has been recorded less than 1 mile southeast of the project (CNDDB Occurrence #1007).
Charadrius montanus	mountain plover	–	–	SSC	Does not breed in California; in winter, found in the Central Valley south of Yuba County, along the coast in parts of San Luis Obispo, Santa Barbara, Ventura, and San Diego Counties; parts of Imperial, Riverside, Kern, and Los Angeles Counties	Occupies open plains or rolling hills with short grasses or very sparse vegetation; nearby bodies of water are not needed; may use newly plowed or sprouting grainfields	**No Potential to Occur:** The project site is outside the breeding range for the species, and project activities will not occur during winter.

Special-Status Wildlife Species with Potential to Occur in the Project Site

Scientific Name	Common Name	Federal Regulatory Status[1]	State Regulatory Status[1]	CDFW Regulatory Status[1]	Habitat Requirements	Distribution	Potential for Occurrence[2]
Riparia riparia	bank swallow	–	ST	–	Colonial nester; nests primarily in riparian and other lowland habitats west of the desert. Requires vertical banks/cliffs with fine-textured/sandy soils near streams, rivers, lakes, and the ocean to dig nesting holes.	Riparian and other lowland habitats in California west of the deserts, during the breeding season.	**No Potential to Occur:** Suitable nesting habitat for the species is absent from the project site and adjacent areas.

Notes: – = not applicable; °C = degrees Celsius; BSA = biological study area; CDFW – California Department of Wildlife; CNDDB = California Natural Diversity Database; DPS = Distinct Population Segments.

[1] **Regulatory Status Definitions:**

Federal Status Categories

FE = Listed as endangered under the Federal Endangered Species Act
FP = Proposed for listing under Federal Endangered Species Act
FT = Listed as threatened under Federal Endangered Species Act

California State Status Categories

SC = Listed as candidate under California Endangered Species Act
SE = Listed as endangered under California Endangered Species Act
ST = Listed as threatened under California Endangered Species Act

California Department of Fish and Wildlife (CDFW) Categories

SSC = Species of Special Concern

[2] **Potential for Occurrence:**

No Potential: The study area is outside the species' range, suitable habitat for the species is absent from the study area and adjacent areas, or surveys confirmed the species is absent from the study area.

Unlikely to Occur: Marginally suitable habitat may occur in the study area; however, nearby records are not recent (i.e., within the past 50 years) or do not occur, and/or the species is considered extirpated from the area.

Potential to Occur: The project site is within the species' range, and no occurrences of the species have been recorded within the project site; however, suitable habitat for the species is present and recorded occurrences of the species are generally present in the vicinity.

Sources: CDFW. 2023. Wallace Weir Fish Trapping and Relocation Efforts 2022–2023. Report prepared by: Hideaki Shig Kubo. North Central Region. October;. Halstead, B.J., K.L. Baumberger, A.R. Backlin, P.M. Kleeman, M.N. Wong, E.A. Gallegos, J.P. Rose, and R.N. Fisher. 2021. Conservation Implications of Spatiotemporal Variation in the Terrestrial Ecology of Western Spadefoots. Journal of Wildlife Management 85:1377–139

APPENDIX D NOISE MODELING

Project-Generated Construction Source Noise Prediction Model

Location	Distance to Nearest Receiver in feet	Combined Predicted Noise Level (L_{eq} dBA)	Assumptions:	Reference Emission Noise Levels (L_{max}) at 50 feet[1]	Usage Factor[1]
Threshold*	726	60	Excavator	81	0.4
Threshold*	50	83	Compactor (ground)	83	0.2
Receptor	500	63	Dozer	82	0.4
Receptor	3,500	46	Front End Loader	79	0.4
			Backhoe	78	0.4

Ground Type	Hard
Ground Factor	0.00

Predicted Noise Level 2	L_{eq} dBA at 50 feet[2]
Excavator	77.0
Compactor (ground)	76.0
Dozer	78.0
Front End Loader	75.0
Backhoe	74.0

Combined Predicted Noise Level (L_{eq} dBA at 50 feet)
83.2

Notes:
dBA = A-weighted decibel(s)
FHWA = Federal Highway Administration
L_{eq} = Equivalent Sound Level
L_{max} = Maximum Noise Level

Sources:
[1] Obtained from the FHWA Roadway Construction Noise Model, January 2006.
[2] Based on the following from the Federal Transit Noise and Vibration Impact Assessment, 2006.
L_{eq}(equip) = E.L.+10*log (U.F.) - 20*log (D/50) - 10*G*log (D/50)
Where: E.L. = Emission Level; U.F.= Usage Factor; G = Constant that accounts for topography and ground effects; D = Distance from source to receiver.
*Project specific threshold