Date: June 25, 2024

To: Responsible and Trustee Agencies, Interested Parties, and Organizations

Subject: Notice of Availability and Intent to Consider Adoption of a Proposed Mitigated Negative Declaration for the Butte Slough Outfall Gates Repair Project

The California Department of Water Resources (DWR), Division of Flood Management, Flood Maintenance and Operations Branch (FMO), has directed the preparation of an initial study (IS) and intends to adopt the proposed mitigated negative declaration (MND) for the Butte Slough Outfall Gates Repair Project (project or proposed project) in compliance with the California Environmental Quality Act (CEQA) and State CEQA Guidelines.

Project Title: Butte Slough Outfall Gates Repair Project

Lead Agency: DWR, Division of Flood Management, Flood Maintenance and Operations Branch

Project Location: The proposed project site is located on Butte Slough adjacent to its confluence with the Sacramento River. The project site is located approximately 5 miles downstream from the town of Colusa in both Sutter and Colusa counties and is accessed by Marty Road on the Sutter County side and Butte Slough Road on the Colusa County side.

Project Description: DWR's Division of Flood Management proposes several maintenance repairs include installing supplemental outlet headwall support, replacing the existing inlet catwalk, repairing the inlet slide gates, installing a new facility control building, and installing water flow/condition monitoring equipment. These maintenance repairs would address both short-term flood safety goals by providing safer and more reliable gate operations but would also contribute to the longer-term objective of extending the functional life of the Butte Slough Outfall Gates (BSOG) facility to ensure it continues to be operated to reduce flood risk.

Environmental Review Process: DWR has directed the preparation of an IS/MND on the proposed project in accordance with the requirements of CEQA and the State CEQA Guidelines. The IS/MND describes the proposed project and provides an assessment of the proposed project's potential significant adverse effects on the physical environment. It concludes that the proposed project would not have any significant adverse effects on the environment after adoption, implementing, and monitoring the mitigation measures proposed in the IS/MND.

The project site is not present on any of the lists enumerated under Section 65962.5 of the Government Code including, but not limited to, lists of hazardous waste facilities, land designated as hazardous waste property, and hazardous waste disposal sites, and the information in the Hazardous Waste and Substances Statement required under subdivision (f) of that section (State CEQA Guidelines Section 15072[g][5]). Furthermore, there were no hazardous materials sites identified within 0.25 mile of the project site location.

Public Review Period: The IS/MND is being circulated for public review and comment for a review period of 30 days starting on 06/25/2024. Written comments on the IS/MND must be submitted and received at the following address no later than close of business (4:00 p.m.) on 07/24/2024:

Kristin Ford
California Department of Water Resources
Division of Flood Management
Flood Maintenance and Operations Branch (FMO)
Environmental Support Section
P.O. Box 219000
Sacramento, CA 95821-9000
Email: bsog@water.ca.gov

To Review or Obtain a Copy of the Environmental Document: An electronic copy of the IS/MND may be reviewed and/or downloaded at the following locations:

DWR's Web site: https://water.ca.gov/News/Public-Notices/2024/Jun-24/Butte-Slough-Outfall-Gates-IS-MND

A hard copy of the IS/MND may be reviewed during normal business hours (Monday through Friday, 8:00a.m. to 4:00p.m.) at the FMO address listed above.

Proposed Mitigated Negative Declaration

Project

Butte Slough Outfall Gates (BSOG) Repair Project (project or proposed project).

Lead Agency

The California Department of Water Resources (DWR), Division of Flood Management, Flood Maintenance and Operations Branch (FMO).

Project Location

The BSOG project site is located on Butte Slough adjacent to its confluence with the Sacramento River. The project site is located approximately 5 miles downstream from the town of Colusa in both Sutter and Colusa counties and is accessed by Marty Road on the Sutter County side and Butte Slough Road on the Colusa County side.

Project Description

In response to the need to restore the safe operability and function of the BSOG facility, to ensure it continues to be operated to reduce flood risk, FMO is proposing the following maintenance repairs:

- install supplemental outlet headwall support.
- replace the existing outlet/inlet catwalk support.
- repair the inlet slide gates.
- install a new facility control building.
- install water flow/condition monitoring equipment.

These maintenance repairs would address both short-term flood safety goals by providing safer and more reliable gate operations and would contribute to the longer-term objective of extending the functional life of the existing BSOG facility.

Findings

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

1. The proposed project would have no impacts on land use and planning, mineral resources, population and housing, and public services.

2. The proposed project would have less-than-significant impacts on aesthetics, agriculture and forestry resources, energy, greenhouse gas emissions, recreation, transportation, and wildfire.

3. The proposed project would have potentially significant impacts on air quality emissions, biological resources, cultural resources, tribal cultural resources, geology and soils, hazards and hazardous materials, hydrology and water quality, noise, and utilities and service systems, but feasible mitigation measures are proposed to avoid or reduce these effects to less-than-significant levels.

4. The proposed project would not have the potential to substantially degrade the quality of the environment; substantially reduce the habitat of a fish or wildlife species; cause a fish or wildlife population to drop below self-sustaining levels; threaten to eliminate a plant or animal community; substantially reduce the number or restrict the range of an endangered, rare, or threatened species; or eliminate important examples of the major periods of California history or prehistory.

5. The proposed project would not have the potential to achieve short-term environmental goals to the disadvantage of long-term environmental goals.

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

7. The environmental effects of the proposed project would not cause substantial adverse effects on human beings, either directly or indirectly.

The following are the proposed mitigation measures that would be implemented to avoid or reduce potentially significant and significant environmental impacts. Implementation of these mitigation measures would reduce the potentially significant and significant environmental impacts of the proposed project to less-than-significant levels. The responsibility for implementation of each mitigation measure is identified; however, DWR is ultimately responsible for ensuring each measure is implemented. DWR will also prepare, adopt, and implement a mitigation monitoring and reporting program as required by State CEQA Guidelines.

Mitigation Measure AIR-1: Implement FRAQMD Construction Phase Mitigation Measures.

The following FRAQMD Construction Phase Mitigation Measures, listed below, will be implemented to reduce construction-related emissions of criteria air pollutants:

- Develop and submit a fugitive dust control plan to FRAQMD and implement the FRAQMD-approved plan.
- The contractor will be responsible to ensure that all construction equipment is properly tuned and maintained prior to and for the duration of onsite operation.

- Utilize existing power sources (e.g., line power) or clean fuel generators rather than temporary power generators to the extent feasible and practicable.
- All grading operations will be suspended when average wind speeds exceed 20 miles per hour or when winds carry dust beyond the property line despite implementation of all feasible dust control measures.
- Work areas will be watered or treated with dust suppressants as necessary to prevent fugitive dust violations.
- An operational water truck will be available to apply water to control dust at least twice daily to prevent visible emissions violations and offsite dust impacts.
- Onsite dirt piles or other stockpiled material should be covered when inactive, wind breaks installed, and water and/or soil stabilizers employed to reduce wind-blown dust emissions. Incorporate the use of approved non-toxic soil stabilizers according to manufacturer's specifications to all inactive construction areas.
- All transfer processes involving a free fall of soil or other particulate matter will be operated in such a manner as to minimize the free fall distance and fugitive dust emissions.
- Apply approved chemical soil stabilizers according to the manufacturers' specifications to all inactive construction areas (previously graded areas that remain inactive for 96 hours) including unpaved roads and employee/equipment parking areas.
- To prevent track-out, wheel washers will be installed where project vehicles and/or equipment exit onto paved streets from unpaved roads. Vehicles and/or equipment will be washed prior to each trip. Alternatively, a gravel bed may be installed as appropriate at vehicle/equipment site exit points to effectively remove soil buildup on tires and tracks to prevent/diminish track-out.
- Paved streets will be swept frequently (water sweeper recommended; wet broom) if soil material has been carried onto adjacent paved, public thoroughfares from the project site.
- Provide temporary traffic control as needed during all phases of construction to improve traffic flow, as deemed appropriate by the County Department of Public Works and/or Caltrans and to reduce vehicle dust emissions.
- Reduce traffic speeds on all unpaved surfaces to 25 miles per hour or less and reduce unnecessary vehicle traffic by restricting access. Provide appropriate training, onsite enforcement, and signage.
- Reestablish ground cover on the construction site as soon as feasible, through seeding and watering.

Timing: Throughout all construction activities.

Responsibility: DWR and its construction contractor(s).

Mitigation Measure AIR-2: Reduce Construction-related Exhaust Emissions

DWR will require its contractor to prepare a comprehensive inventory list (i.e., make, model, engine year, horsepower, emission rates) of all heavy-duty (equal to or greater than 50 horsepower) off-road (portable and mobile) equipment that will be used an aggregate of 40 or more hours for the construction project (including owned, leased, and subcontractor vehicles).

Using the inventory list, the contractor will prepare and provide a plan for approval by FRAQMD demonstrating that the heavy-duty off-road equipment to be used in the construction project will achieve a project wide fleet-average 20 percent NOx reduction compared to the most recent CARB fleet average at time of construction. The contractor will implement the FRAQMD-approved plan.

A Construction Mitigation Calculator (MS Excel) will be downloaded from the Sacramento Metropolitan Air Quality Management District web site to perform the fleet average evaluation http://www.airquality.org/businesses/ceqa-land-use-planning/mitigation. Acceptable options for reducing emissions may include use of late model engines (Tier 4), CARB-approved low-emission diesel products, alternative fuels, engine retrofit technology (Carl Moyer Guidelines), aftertreatment products, voluntary offsite mitigation projects, provide funds for air district offsite mitigation projects, and/or other options as they become available. FRAQMD will be contacted to discuss alternative measures.

The results of the Construction Mitigation Calculator will be submitted and approved by FRAQMD prior to beginning construction work. The project will provide a monthly summary of heavy-duty off-road equipment usage to FRAQMD throughout project construction.

Timing: Prior to and throughout all construction activities.

Responsibility: DWR and its construction contractor(s).

Mitigation Measure AIR-3: Purchase Off-site NOx Mitigation Fees

Any excess emissions of NO_x above FRAQMD's established threshold will be mitigated through a contribution to the FRAQMD's Off-Site Mitigation Program to reduce emissions to less than significant. Accordingly, it is anticipated that DWR will need to purchase 0.54 ton of NO_x, if alternative options for reducing emissions are not used, to reduce emissions to the FRAQMD established threshold. DWR will comply with the following measures to pay an off-site construction mitigation fee to reduce NOx emissions:

- DWR will compile a list of all emission sources and consult with FRAQMD staff to implement this mitigation measure.
- The project will need to track emissions generated from equipment and vehicles throughout the project's construction phases that are estimated to exceed the threshold (for example, if a construction phase exceeds the threshold, then track emissions from off-road, portable, and on-road equipment and vehicles).

- DWR will pay a mitigation fee in the amount of $30,000 per ton of excess emissions of NOx caused by project construction above the FRAQMD-established threshold (as quantified by DWR in accordance with FRAQMD guidelines) and a 10% administrative fee to the FRAQMD mitigation fund, such as a Carl Moyer-type Program, to reduce the project impacts from construction NO_x emissions to below the significance threshold each year. If mitigation fees change, then DWR will pay the current fee at the time of the mitigation payment.
- DWR, or its designee, will make a down-payment prior to construction activities with the remainder due following the completion of construction activities. DWR will submit monthly usage summarizes to FRAQMD and will submit a final usage summary within 60 days after the completion of construction activities.

The mitigation amount may change based on the emissions sources and equipment inventory submitted to FRAQMD before beginning project construction. However, the mitigation amount/fee will be provided for all NOx emissions in exceedance of thresholds after implementation of Mitigation Measures AIR-1 and AIR-2.

Timing: Prior to construction activities and following the completion of construction activities.

Responsibility: DWR.

Mitigation Measure BIO-1: Minimize Impacts on Special-status Fish and other Sensitive Biological Resources

DWR and its construction contractor(s) will implement the following measures to minimize impacts on special-status fish and other sensitive resources on and adjacent to the project site:

- All project personnel working on the project site will attend a worker environmental awareness training program before beginning on-site work. The awareness training will be presented by a qualified biologist with knowledge of sensitive biological resources known or with potential to occur on the project site. The awareness training will address applicable Federal and State laws and regulations; sensitive habitats on and adjacent to the project site; biology, habitat needs, and distribution of special-status species on and adjacent to the project site; regulatory status of each resource and its associated protections; measures required to avoid and reduce impacts to these resources during project construction; potential penalties for non-compliance; and procedures to be followed if dead or injured wildlife are found during project activities. Upon completion of the orientation, employees will sign a form stating that they attended the program and understand all required measures. No untrained personnel will be allowed to work onsite.
- Use existing staging sites, maintenance toe roads, and levee crown roads to the extent practicable for staging and access to avoid affecting previously undisturbed areas. Limit the number of access routes and the size of staging and work areas to the minimum necessary to conduct the activity.

- Where feasible and practicable clearly mark work area limits (e.g., with flagging or fencing), including access roads, staging and equipment storage areas, stockpile areas, equipment fueling areas, and other areas where construction activities will occur. Work will occur only within the marked limits.

- The amount of revetment and similar materials used for bank protection and other maintenance activities will be limited to the amount necessary to meet maintenance obligations and ensure proper flood protection system integrity and function.

- Remove temporary fill, construction debris, and refuse, and properly dispose of these materials following completion of any maintenance activities.

- Habitats, including aquatic, will be restored to pre-project conditions wherever feasible.

- All in-water work will occur between June 15 to October 31 to minimize potential for anadromous special-status fish to be present during in-water construction activities.

- In-water construction work will be conducted only in dry, dewatered areas behind sheet pile cofferdams and all within one season (anticipated to be 2025). All construction equipment used for in-water work will be cleaned and free of invasive species. The cofferdams will be constructed on both sides of the BSOG facility, prior to any in-water soil-disturbing activities. The Sacramento River cofferdam will be constructed to an elevation high enough to avoid flooding during the construction period. Sutter Maintenance Yard staff will control the stage elevations downstream of the BSOG facility during the entirety of construction to avoid flooding the cofferdam on the Butte Slough side.

- A fish rescue plan will be developed and implemented by DWR after plan approval by CDFW and NMFS and prior to cofferdam installation. The plan will reference and implement adapted fish relocation measures defined in the CDFW California Salmonid Stream Habitat Restoration Manual (Flosi et al. 1998). Fish trapped inside the cofferdam will be rescued before the cofferdam is completely drained as removing or excluding fish during installation is difficult and not feasible. Qualified biologists will capture fish within the cofferdam areas and relocate as specified in the fish rescue plan.

- A qualified biologist will be onsite or on call during in-water construction activities. If a sensitive species is encountered during construction, activities will cease (where safely and mechanically possible) until appropriate corrective measures have been completed or it has been determined that the species will not be harmed.

- A dewatering plan will be prepared by DWR and submitted to CDFW and NMFS prior to commencing dewatering activities. The dewatering plan will be implemented by DWR during all dewatering activities, and pump intakes will be fitted with appropriately sized NMFS- and/or CDFW-approved fish screens to prevent fish from becoming entrained. The dewatering plan will address fish rescue measures (consistent with CDFW/NMFS) and water quality/discharge measures consistent with objectives of the CVRWQCB.

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

- Inspect under all vehicles and heavy equipment for the presence of wildlife before the start of each workday when equipment is staged overnight. All pipes, culverts, and similar structures that have been stored on-site for one or more nights will be inspected for wildlife before being buried, capped, or moved.

- Cover all excavated, steep-walled holes or trenches 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 escape ramps for wildlife.

- Ensure that all project-related trash items, such as wrappers, cans, bottles, and food scraps, are collected in closed containers, removed from maintenance sites each day, and disposed of at an appropriate off-site location to minimize attracting wildlife to work areas.

  Timing: Before and during construction activities.

  Responsibility: DWR and construction contractor(s).

Mitigation Measure BIO-2: Minimize Underwater Sound Pressure from Pile Driving with Impact Hammer

DWR and its construction contractor(s) will implement the following measures to minimize impacts on special-status fish from underwater sound pressure:

- If an impact hammer is needed to drive piles, noise levels will not exceed the following threshold levels established by USFWS and NMFS (for fish greater than 2 grams):
  - Peak pressure = 206 decibels.
  - Accumulated SEL = 187 decibels.

- To comply with the thresholds, DWR will employ the following measures:
  - Use of an impact hammer cushion block.
  - Hammers will be used only during daylight hours and will initially be used at low energy levels and reduced impact frequency.
  - Applied energy and frequency will be gradually increased until necessary full force and frequency are achieved.

- If noise thresholds are not met using the above measures, DWR will consult with CDFW and NMFS and one or both of the following mitigation measures may be implemented as feasible:
  - A bubble curtain may be implemented, surrounding the pile to be driven.

- Shortening the daily duration of pile-driving activities.

- A qualified biologist will be present to monitor pile driving and compliance with regulatory permit terms and conditions of permits. If any injury or mortality to fish is observed, CDFW and/or NMFS will be immediately notified, and in-water pile driving will cease temporarily until the issue is resolved to comply with the thresholds.

Timing: During construction activities.

Responsibility: DWR and construction contractor(s).

Mitigation Measure BIO-3: Prepare and Implement a Water Quality Control Plan

DWR and its construction contractor(s) will implement the following measures to minimize impacts on special-status fish from water quality degradation, including accidental spills, turbidity, erosion, and sedimentation. The measures will be included in a Water Quality Control Plan that will be developed by the contractor prior to the start of construction and implemented throughout construction. A copy of the plan will be available at all times on the construction site and will address the following measures:

- Spill prevention and contingency measures, including measures to prevent or clean up spills of hazardous materials used for equipment operation, and emergency procedures for responding to spills. Measures will be updated as needed to reflect changes in on-site hazardous materials. In addition, spill control materials will be available on-site and available for deployment during all phases of work.

- Best Management Practices (BMPs) for preventing or minimizing the discharge of sediments and other potential contaminants that have the potential to affect beneficial uses or lead to a violation of water quality objectives will be implemented by DWR and the construction contractor(s). The plan will identify and specify (but is not limited to) the use of an effective combination of appropriate temporary and/or between season erosion and sediment control BMPs for use on the project site, spill prevention and contingency measures, waste disposal, and emergency contacts and responsibilities. Erosion control will include measures for construction, long-term management, and stabilizing soils, if necessary, before the onset of winter. BMPs may include the careful use of grading management techniques, silt fences, silt or turbidity curtains, berms, sandbags, and revegetation.

- A dewatering plan will be developed and implemented that is designed so that any potential discharges to surface water will meet the water quality objectives of the CVRWQCB. The dewatering plan will include measures to minimize turbidity of discharge water and details on the approach to season the channel before reestablishing flows so that flushing flows do not cause surging of sediments downstream.

- Erosion control measures for construction, long-term management, and stabilizing soils, if necessary, before the onset of winter. Additional BMPs for erosion control will include the careful use of grading management techniques, silt fences, silt or turbidity curtains, berms,

sandbags, and revegetation. These erosion control BMPs will be implemented by DWR and its construction contractor(s) prior and during construction-related activities.

- Inspection, monitoring, and reporting measures to ensure CVRWQCB water quality objectives are met during construction and long-term management. BMPs are expected to be fully effective. Notwithstanding, DWR or its construction contractor will evaluate BMP effectiveness during construction. If the quantity or quality of the BMPs needs to be addressed, DWR or its contractor will implement improvements within 24 hours after the initial discovery or before the onset of an expected storm event.

- Turbidity measurements will be taken daily upstream and downstream of the work areas, as well as at any other discharge points, during project activities with potential to degrade water quality, such as pile driving and discharge to surface waters. If measurements have a weekly average of 50 Nephelometric Turbidity Units (NTUs) above baseline (upstream), the following steps will be taken (EPA 2022):

  - Keeping site safety precautions in mind, immediately take steps to prevent further discharge, including stopping work if necessary.

  - Determine if dewatering and/or other controls for discharge are operating effectively and if they may be causing turbid conditions.

  - Make necessary adjustments, repairs, or replacements to dewatering or other discharging mechanisms to lower turbidity levels below the benchmark or to prevent/remove a visible turbidity plume or water sheen.

  Timing: Before and during construction activities.

  Responsibility: DWR and construction contractor(s).

Mitigation Measure BIO-4: Minimize Impacts on Special-status Plants

DWR will implement the following measures to identify areas on and adjacent to the project site that support special-status plants:

- Prior to any project ground disturbance, a qualified botanist will be retained to perform focused surveys for special-status plants. These surveys will serve to document the presence/absence of these species in and adjacent to (within 100 feet, where appropriate) proposed impact areas, including new construction access routes. These surveys will be conducted in accordance with CDFW Protocols for Surveying and Evaluating Effects on Special-Status Native Plant Populations and Sensitive Natural Communities (2018) or other current protocols. These guidelines require that special-status plant surveys be conducted at the proper time of year when target species are both evident and identifiable. Surveys will be scheduled to coincide with known blooming periods, and/or during appropriate developmental periods that are necessary to identify the plant species of concern.

- If any special-status plant species are found within 100 feet of proposed impact areas during the surveys, these plant species will be avoided to the greatest extent possible and one the following will be implemented:

  - Any special-status plant species that are identified in or adjacent to the construction areas, but not proposed to be disturbed, will be protected by flagging, signage, orange construction fence, and/or silt fence as appropriate based on site conditions to limit the effects of project-related activities and material stockpiles on any special-status plant species.

  - If project-related activities would result in the loss of greater than 10% of a population or occupied habitat for a special-status plant species, a mitigation plan will be developed that describes a program to transplant, salvage, cultivate, and re-establish the species at suitable sites (if feasible). Alternatively, mitigation could be satisfied through off-site preservation or via payment to an in-lieu fee program, if available.

  - If the mitigation plan is chosen, it would include means and methods to propagate affected special-status plants via vegetative or reproductive means (e.g., harvesting of seed or seed bank through topsoil collection, salvaging and transplanting or collecting of cuttings), as appropriate for the species, and transplant at suitable receiving sites as close to the existing population as possible. Propagation and transplantation would occur prior to construction. The receiving location would be evaluated and chosen based on similarity to conditions at the transplant source location, to the extent feasible. Site conditions to consider when choosing a receiving site would include aspect, substrate, hydrology, associated species, and canopy cover. The transplanted plants would be monitored for at least one year following construction.

  - If the preservation option is chosen, preservation areas may include undisturbed areas of the site that will be preserved and managed in perpetuity, offsite mitigation lands, or a combination of both. The preserved habitat will be of equal or greater habitat value to the areas affected in terms of soil features, extent of disturbance, vegetation structure, and contain extant populations of the same or greater size as the area affected.

  - The actual level of mitigation may vary depending on the sensitivity of the species, its prevalence in the area, the location of the occurrence, and the current state of knowledge about overall population trends and threats to its survival; however, at a minimum, the species and habitat will be replaced at a minimum 1:1 ratio (individuals or acreage of occupied habitat).

  Timing: Before construction activities.

  Responsibility: DWR and construction contractor(s).

Mitigation Measure BIO-5: Minimize Impacts on Western Pond Turtle

DWR and its construction contractor(s) will implement the following measures to minimize impacts on western pond turtle:

- Ground disturbance (e.g., grading, disking, road construction or similar activities that could disturb or crush western pond turtles and their nests) will be avoided, if possible, within 200 feet of potentially suitable western pond turtle nesting or aquatic habitat, as determined by a qualified biologist. This 200-foot buffer, or another buffer approved in consultation with CDFW, will be marked in the field by a qualified biologist using temporary fencing, high-visibility flagging, or other means that are equally effective in clearly delineating the buffers.

- Project activities that could result in ground disturbance will not occur within the buffer to the extent feasible. If such activities must occur in buffers, a buffer of reduced width will be established (in consultation with CDFW) by a qualified biologist, marked, and avoided during maintenance activities in that location. All ground-disturbing project activities occurring within the buffer will be monitored by a qualified biologist who would be either on-call or on-site, as appropriate to reduce impacts.

- If western pond turtles are observed in the project area, DWR will stop work within approximately 200 feet of the turtle, and a qualified biologist will be notified immediately. If possible, the turtle will be allowed to leave on its own and the qualified biologist will remain in the area until the biologist deems his or her presence no longer necessary to ensure that the turtle is not harmed. Alternatively, the qualified biologist may capture and relocate the turtle, unharmed and with prior CDFW approval, to suitable downstream habitat at least 200 feet away. If the turtle does not voluntarily leave the project area and cannot be captured and relocated unharmed, project activities within approximately 200 feet of the turtle will not resume, and CDFW will be consulted to identify the next steps, if needed.

  Timing: Before and during construction activities.

  Responsibility: DWR and construction contractor(s).

Mitigation Measure BIO-6: Minimize Impacts on Nesting Birds

DWR and its construction contractor(s) will implement the following measures to minimize impacts on nesting birds:

- If project activities that could affect suitable habitat for nesting birds cannot be conducted outside of the nesting season (January 1 through September 15, dependent on specific species), DWR will complete pre-activity surveys for nesting birds (including raptor and passerine nests and heron and egret rookeries). Surveys will be conducted by a qualified biologist. Surveys will be conducted within suitable nesting habitat that could be affected by project activities (e.g., construction area, staging 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. These protocols include:

- Bald Eagle Nesting Territory Survey Form and Instructions (CDFG 2010)
- Staff Guidance Regarding Avoidance of Impacts to Tricolored Blackbird Breeding Colonies on Agricultural Fields in 2015 (CDFW 2015)
- Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley (SHTAC 2000).

- If no established survey protocol exists, the qualified biologist will complete surveys within 1 week of the start of on-site project activity, or within 2 weeks of restart of the activity after the activity has lapsed. If no nesting birds are detected during pre-activity surveys, no additional mitigation measures are required.
- If nesting birds are identified by a qualified biologist on or adjacent to the project site, DWR will establish an avoidance buffer as indicated below in **Table 3-4** for project activities that would potentially affect the nesting birds. Alternatively, a qualified biologist may determine that a buffer is not required to avoid adverse effects on nesting birds, based on the specific project activities to be conducted, species present, nest stage, and nest location.

Table 3-4. Buffer Distances for Protected Bird Species.

Bird Species	Buffer Distance
white-tailed kite	0.5 mile
bald eagle	0.5 mile
Swainson's hawk	0.5 mile
western yellow-billed cuckoo	500 feet
yellow-breasted chat	100 feet
song sparrow (Modesto population)	100 feet
tricolored blackbird	300 feet
common nesting passerines	100 feet
common nesting raptors	300 feet
common heron or egret rookeries	200 feet

Source: DWR 2017.

If required, buffers will be marked in the field by a qualified biologist using temporary fencing, high-visibility flagging, or other means that are equally effective in clearly delineating the buffers. Project activities will not occur within the buffer, and the buffer will be expanded if the nesting pair or their young exhibit agitated behavior. If project activities that may impact special-status nesting birds are required within the avoidance buffer indicated in **Table 3-4**, the activities will be monitored by a qualified biologist either continuously or periodically during work, as determined by the qualified biologist. The qualified biologist will be empowered to stop project activities that, in the biologist's opinion, threaten to cause nest disturbance or abandonment. If project activities are stopped, the qualified biologist will consult with CDFW (and USFWS if appropriate) to determine appropriate measures that DWR will implement to avoid

adverse effects. Buffers will be maintained until there is no longer a threat of disturbance to the sensitive biological resource (e.g., young have fledged, individuals have moved out of the area), as determined by a qualified biologist.

Timing: Before and during construction activities.

Responsibility: DWR and construction contractor(s).

Mitigation Measure BIO-7: Minimize Impacts on Special-status Bats

DWR and its construction contractor(s) will implement the following measures to minimize impacts on special-status bats:

- If project activities that could affect suitable habitat for occupied bat roosts cannot be conducted outside of the maternity season (April 1 through August 31, dependent on specific species; Johnston et al. 2004), DWR will complete pre-activity surveys for roosting bats. Surveys will be conducted by a qualified biologist. Surveys will be conducted within suitable roosting habitat that could be affected by project activities (e.g., construction area, staging areas, access routes) and will include a 500-foot buffer area surrounding these areas.

- The qualified biologist will complete surveys within 1 week before the start of the activity, or within 2 weeks before restart of the activity after the activity has lapsed. If no roosting bats are detected during pre-activity surveys, no additional mitigation measures are required.

- If roosting bats are identified by a qualified biologist in or adjacent to the project site, DWR will establish an avoidance buffer for project activities that would potentially affect the bats. Alternatively, a qualified biologist may determine that a buffer is not required to avoid adverse effects on roosting bats, based on the specific project activities to be conducted and location of the roost in relation to those activities.

- If required, buffers will be marked in the field by a qualified biologist using temporary fencing, high-visibility flagging, or other means that are equally effective in clearly delineating the buffers. Project activities will not occur within the buffer, and the buffer will be expanded if the roosting bats exhibit agitated behavior. If project activities that may impact roosting bats are required within the avoidance buffer the activities will be monitored by a qualified biologist either continuously or periodically during work, as determined by the qualified biologist. The qualified biologist will be empowered to stop project activities that, in the biologist's opinion, threaten to cause unanticipated and/or unpermitted adverse effects on special-status wildlife (e.g., nest abandonment). If project activities are stopped, the qualified biologist will consult with CDFW to determine appropriate measures that DWR will implement to minimize adverse effects. For example, tree removal would not occur during periods when roosting bats are most vulnerable (i.e., during maternity and wintering periods) and removal may occur in a staged process over several days to allow roosting individuals to relocate. Buffers will otherwise be maintained until there is no longer a threat of disturbance to the roosting bats (e.g., young have fledged, individuals have moved out of the area), as determined by a qualified biologist.

Timing: Before and during construction activities.

Responsibility: DWR and construction contractor(s).

Mitigation Measure BIO-8: Minimize Impacts of Vegetation Removal

DWR and its construction contractor(s) will implement the following measures to minimize impacts of vegetation removal:

- Limit clearing of vegetation and blading for temporary vehicle access to the minimum necessary; especially minimize the clearing of native riparian vegetation and native oaks to the extent practicable.

- Where feasible and consistent with project requirements, avoid removal of native trees with a trunk greater than 4 inches in diameter at breast height. Work will be done in a manner that ensures, to the extent feasible, that living native riparian vegetation within the project footprint is avoided and left undisturbed, where this can reasonably be accomplished without compromising project construction and maintenance requirements.

- Disturbed soil areas will be stabilized using appropriate erosion control BMPs during and at the completion of construction activities for all phases of work. If hydroseeding is used to cover disturbed areas, native grass/forb/herbaceous plant, sterile rye, or other non-invasive seed mixes will be used.

- A certified arborist will be present to supervise tree removal and trimming to preserve tree health and ensure that appropriate methods are used. Any riparian habitat that is removed along the Sacramento River and/or Butte Slough will be replaced, with replacement to occur onsite. Native willows, oaks, and/or other native plantings will be replanted on bank slopes in or near the project area. In areas where rip rap will be replaced or installed, native willows and/or other native trees and shrubs plantings will be incorporated into the voids/gaps. Lifts of riprap/soil mixes will be placed above the OHWM and where feasible (dependent upon slope and other factors) on the Butte Slough and Sacramento Riverbanks near the project site. Plantings will be incorporated into the rip rap/soil mix after construction is complete or during the final stages of construction.

- A mitigation and monitoring plan will be developed and implemented to ensure that there is no net long-term loss of shaded riverine aquatic habitat and other riparian habitat. Proposed mitigation habitat will be created at or near the site. DWR will coordinate with the appropriate regulatory agencies regarding compensation numbers/amount, locations, and details. If DWR cannot create on-site mitigation, off-site mitigation may be used with agency approval, including at existing and approved mitigation/conservation banks or at other approved sites including DWR managed restoration and/or multi-benefit projects.

Timing: During and after construction activities.

Responsibility: DWR and construction contractor(s).

Mitigation Measure CR-1: Protect the Archaeological Resource P-51-000233 Historic Component through Exclusion Fencing

To protect any possible damage to this component of P-51-000233, exclusion fencing will be placed 20 feet from the NWIC plotted boundary of the site prior to use of the area as a staging area. No vehicle traffic or placement of materials will occur past the exclusion fencing. This will protect any surface or near-surface portions of the resource that may exist within the Area of Potential Effect (APE).

Timing: Prior to and during construction activities.

Responsibility: DWR and construction contractor(s).

Mitigation Measure CR-2: Address Previously Known Historical, Archaeological, and Tribal Cultural Resources through Worker Environmental Awareness Program Training

Cultural resources awareness training, as part of an overall Workers Environmental Awareness Program (WEAP), will be conducted for all construction personnel by a cultural resources specialist who meets the SOI's Professional Qualifications Standards (36 CFR Part 61; 48 Federal Register 44716). The training will be conducted before any stages of physical project implementation and construction. Native American representatives from interested Native American Tribes will be encouraged to participate in the training.

The WEAP training will include information on the potential kinds of pre-contact Native American and historic-era cultural materials that could be encountered, how to identify buried faunal and human remains, and how to identify anthropogenic soils (e.g., midden soils). The WEAP training will also include a summary of the relevant laws concerning cultural resources and human remains, along with a summary of the following protocols to follow if workers encounter cultural resources or human remains.

Timing: Prior to and during construction activities.

Responsibility: DWR.

Mitigation Measure CR-3: Address Previously Known Historical, Archaeological, and Tribal Cultural Resources through Monitoring of Ground-disturbing Activities

Because of the sensitivity for archaeological resources in native soils, project-related, ground-disturbing activities conducted in native soils will be monitored by either a SOI-qualified archaeologist or supervised by a Secretary of the Interior qualified archaeologist or Tribal monitor, if available. Construction activities to be monitored will be restricted to work in native soils and where soils are able to be viewed; for example, installation of pilings that will not expose soils need not be monitored. Monitors will have the ability to temporarily stop work to inspect possible archaeological finds. Daily monitoring logs by all monitors will be kept with information regarding the type of work monitored, location of monitoring, time of monitoring,

and whether archaeological/Tribal resources were encountered. All monitoring logs will be submitted to DWR on a weekly or biweekly basis.

Timing: During construction activities.

Responsibility: DWR.

Mitigation Measure CR-4: Address Previously Undiscovered Historical, Archaeological, and Tribal Cultural Resources

If buried or previously unidentified historic properties or archaeological resources are discovered during project construction, all work within a 100-foot-radius of the find will cease. DWR will retain a professional archaeologist meeting the Secretary of the Interior's Professional Standards for Archaeologists to assess the discovery and recommend what, if any, further treatment, or investigation is necessary for the find. Interested Native American Tribes will also be contacted. Any necessary treatment/investigation will be developed in coordination with interested Native American Tribes providing recommendations and with DWR and will be completed before project activities continue in the vicinity of the find.

Timing: During construction activities.

Responsibility: DWR and construction contractor(s).

Mitigation Measure CR-5: Avoid Potential Effects on Undiscovered Burials

DWR and its construction contractors will implement the following protocol to reduce or avoid potential impacts related to undiscovered burials. In accordance with the California Health and Safety Code, if human remains are found, all excavation work will be halted in the immediate area and the Colusa and Sutter counties Coroner(s) be notified to determine the nature of the remains. The county 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 pre-contact Native American (i.e., not modern, and earlier than Euro-American incursion in the area), they must contact the NAHC by telephone within 24 hours of making that determination (California Health and Safety Code, Section 7050.5[c]).

Once notified by the Coroner, the NAHC will identify the person it believes is the Most Likely Descendant (MLD) of the Native American remains. With permission of the legal landowner, the MLD may visit the site and make recommendations regarding the treatment and disposition of the human remains and any associated grave goods. This visit should be conducted with 24 hours of the MLD's notification by the NAHC (PRC Section 5097.98[a]). If a satisfactory agreement for treatment of the remains cannot be reached, any of the parties may request mediation by the NAHC (PRC Section 5097.94[k]). Should mediation fail, the landowner or landowner's representative must reinter the remains and associated items with appropriate

dignity on the property in a location not subject to further subsurface disturbance (PRC Section 5097.98[b]).

Timing: During construction activities.

Responsibility: DWR and construction contractor(s).

Mitigation Measure GEO-1: Prepare and Implement a Stormwater Pollution Prevention Plan and BMPs to Reduce Erosion

DWR and its construction contractor(s) will implement the following measures to minimize impacts from erosion and sedimentation:

Construction activities will be subject to SWRCB's General Permit for Discharges of Storm Water Associated with Construction Activity (Order No. 2009-0009-DWQ, NPDES NO. CAS000002) (2009-0009-DWQ) (or to the water quality/erosion control measures included in the Mitigation Measure BIO-3: Prepare and Implement a Water Quality Control Plan) to meet construction-related stormwater permit requirements of the NPDES program. Any permits will be obtained by DWR or its contractor(s) before commencing ground-disturbing construction activity. The General Permit also requires preparing and implementing a SWPPP that identifies BMPs to prevent or minimize the introduction of contaminants into surface waters. Such BMPs could include, but would not be limited to, silt curtains, silt fencing, straw bale barriers, fiber rolls, storm drain inlet protection, hydraulic mulch, and a stabilized construction entrance. The SWPPP will include development of site-specific structural and operational BMPs to prevent and control impacts on runoff quality, measures to be implemented before each storm event, inspection, maintenance of BMPs, and monitoring of runoff quality by visual and/or analytical means.

Timing: Before and during construction activities.

Responsibility: DWR and construction contractor(s).

Mitigation Measure GEO-2: Bank Stabilization Prior to Dewatering

Prior to dewatering activities, denuded bank/slope areas between the cofferdam and Butte Slough/Marty Road (within the Sacramento River inlet area), and within Butte Slough proper, will be included in the dewatering plan. The dewatering plan will require that (as with Mitigation Measure BIO-8) disturbed soil areas (e.g., denuded banks and slopes) are stabilized using appropriate erosion control BMPs before, during, and after the completion of construction activities for all construction phases. Such stabilization will include vegetated fill; it would likely not include rip-rap unless banks are determined to be excessively unstable prior to construction. If hydroseeding is used to cover disturbed areas, native grass/forb/herbaceous plant, sterile rye, or other non-invasive seed mixes will be used. Vegetation, once seeded, will be given sufficient time to root into bank tops and cutbanks. Moreover, DWR will acquire appropriate regulatory permits related to erosion and water quality.

Timing: Before and during construction activities.

Responsibility: DWR and construction contractor(s).

Mitigation Measure HHM-1: Conduct Hazardous Materials Training and Response

DWR and its construction contractor will ensure that construction workers are trained on the potential to encounter hazardous materials and proper notification procedures. The training will specify that if stained or odorous soils from an unknown source are encountered: 1) work in the vicinity must cease; 2) a qualified hazardous materials specialist must be consulted; and 3) DWR will also notify the appropriate Federal, State, and/or local agencies. A variety of steps may be taken at the discretion of DWR. Among those steps are the following:

- Avoid the area containing the stained/odorous soils or infrastructure.
- Perform Site Assessments to evaluate the nature, extent, and level of hazard to the public and construction workers if construction needs to occur in the exact location of the soils or infrastructure.
- Clean up the area or coordinate with the owner of the affected parcel to perform cleanup activities.

Should DWR elect to clean up activities on its own, all hazardous substances encountered will be removed and properly disposed of by a licensed contractor in accordance with Federal and State regulations.

Timing: Before and During construction activities.

Responsibility: DWR and construction contractor(s).

Mitigation Measure HHM-2: Implement BMPs for Wildland Fire Prevention

DWR and its construction contractors will clear dried vegetation or other materials that could serve as fuel for combustion from construction or building areas. To the extent feasible, the contractor will keep these areas clear of combustible materials to maintain a firebreak. Construction contractors will ensure that any construction equipment that normally includes a spark arrester will be equipped with an arrester in good working order. This includes, but is not limited to, vehicles, heavy equipment, and chainsaws.

Timing: During construction.

Responsibility: DWR and Construction Contractor(s).

Mitigation Measure HWQ-1: Obtain Coverage and Comply with Requirements of the General Order for Limited Threat Discharges to Surface Water

Construction and operations involving dewatering would be subject to Central Valley RWQCB's Waste Discharge Requirement (WDR) R5-2016-0076-01 requirements for managing wastewater produced during dewatering activities. To obtain coverage under this General Order, which also serves as the NPDES Permit, the Discharger must submit a complete Notice of Intent and provide samples for analysis to determine the quality of the discharge (using tiers) and assign appropriate controls that would apply to the permit. DWR or its contractor(s) will submit a separate Notice of Intent under the General Order for applicable construction and/or operation activities.

Timing: Before and during construction activities.

Responsibility: DWR and construction contractor(s).

Mitigation Measure NOI-1 - Implement Noise-reducing Construction Practices

DWR and its construction contractors will implement the follow noise reducing measures during the project's dewatering activities near noise-sensitive receptors that could be subject to substantial construction noise in excess of applicable standards or substantially greater than existing conditions.

- Equipment will be operated, stored, and/or maintained as far away as practical from sensitive noise receptors.
- Construction scheduling and phasing will be designed so that impact equipment (e.g., pile drivers, pneumatic hammers) are used during daytime hours only.
- Housing of stationary equipment (e.g., generators) incorporating sound-attenuating enclosures if equipment would operate within a clear line-of-sight of offsite sensitive receptors. Sound attenuating enclosures will meet the following applicable criteria:
    - be installed as close as possible to the boundary of the construction site within the direct line of sight path of the nearby sensitive receptor(s);
    - will consist of durable, flexible composite material featuring a noise barrier layer bound to sound-absorptive material on one side; and
    - will consist of rugged, impervious, material with a surface weight of at least one pound per square foot, such that a minimum of 10 dBA reduction is achieved on the receiving side of the sound barrier.
- Construction equipment will be properly maintained per manufacturer specifications and fitted with the practicable noise suppression devices (e.g., mufflers, silencers, wraps). All impact tools will be shrouded or shielded, and all intake and exhaust ports on power equipment will be muffled or shielded. Construction equipment will be inspected before

first use and at least once during construction for compliance with these noise reduction measures.

- Equipment that is quieter than standard equipment will be used in the vicinity of sensitive noise receptors when practical. For example, electrically powered equipment will be used instead of internal combustion equipment where use of such equipment is a readily available substitute that accomplishes program tasks in the same manner as internal combustion equipment.

- Construction equipment operating in the vicinity of sensitive noise receptors will not be left idling for extended periods between construction activities.

Timing: Before and during construction activities.

Responsibility: DWR and construction contractor(s).

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

DWR and its construction contractors will implement the measures listed below before construction begins to avoid and minimize potential damage to utilities, infrastructure, and service disruptions during construction.

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

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

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

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

- Stage utility relocations during project construction to minimize service interruptions.

- Communicate construction activities with first responders to avoid response delays due to construction detours.

The construction contractor will follow standard procedures for further identifying underground utilities in the project area to confirm the site conditions. If underground utilities are identified by the utility

providers, the contractor will coordinate any necessary BMPs that will need to be implemented. Based on current site data and available information, no effects to public utilities are anticipated during construction.

Timing: Before and during construction activities.

Responsibility: DWR and construction contractor(s).

Initial Study
Butte Slough Outfall Gates Repair Project

Project Information

Item	Description
1. Project title:	Butte Slough Outfall Gates (BSOG) Repair Project
2. Lead agency name and address:	California Department of Water Resources Division of Flood Management Flood Maintenance and Operations Branch (FMO) P.O. Box 219000 Sacramento, CA 95821-9000
3. Contact person and email address:	Kristin Ford California Department of Water Resources Division of Flood Management Flood Maintenance and Operations Branch (FMO) Environmental Support Section P.O. Box 219000 Sacramento, CA 95821-9000 Email: bsog@water.ca.gov
4. Project location:	Butte Slough adjacent to its confluence with the Sacramento River, in Sutter and Colusa counties
5. Project sponsor's name and address:	Same as above.
6. General plan designation:	Commercial – Special Use (Colusa County) Open Space (Sutter County)
7. Zoning:	Exclusive Agriculture (Colusa County), Agricultural-40 (Sutter County)
8. Description of project: (Describe the whole action involved, including but not limited to later phases of the project, and any secondary, support, or off-site features necessary for its implementation. Attach additional sheets if necessary.)	In response to the need to restore the safe operability and function of the BSOG facility, to ensure it continues to be operated to reduce flood risk, FMO is proposing maintenance repairs to install supplemental outlet headwall support, replace the existing outlet/inlet catwalk support, repair the inlet slide gates, install a new facility control building, and install water flow/condition monitoring equipment.
9. Surrounding land uses and setting: Briefly describe the project's surroundings:	Agriculture, Open Space (both Colusa and Sutter Counties)
10. Other public agencies whose approval is required (e.g., permits, financing approval, or participation agreement.)	California Department of Fish and Wildlife, Central Valley Regional Water Quality Control Board, California State Lands Commission, National Marine Fisheries Service, U.S. Army Corps of Engineers, and U.S. Fish and Wildlife Service

Item	Description
11. Have California Native American tribes traditionally and culturally affiliated with the project area requested consultation pursuant to Public Resources Code (PRC) Section 21080.3.1? If so, is there a plan for consultation that includes, for example, the determination of significance of impacts to tribal cultural resources, procedures regarding confidentiality, etc.?	Yes. Consultation is described in more detail in Sections 3.5, "Cultural Resources," and 3.18, "Tribal Cultural Resources."

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

Environmental Factors Potentially Affected

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

☐	Aesthetics	☐	Agriculture and Forestry Resources	☒	Air Quality
☒	Biological Resources	☒	Cultural Resources	☐	Energy
☒	Geology/Soils	☐	Greenhouse Gas Emissions	☒	Hazards and Hazardous Materials
☒	Hydrology/Water Quality	☐	Land Use/Planning	☐	Mineral Resources
☒	Noise	☐	Population/Housing	☐	Public Services
☐	Recreation	☐	Transportation	☒	Tribal Cultural Resources
☒	Utilities/Service Systems	☐	Wildfire	☐	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.

Mitra Emami
Signature

6/20/2024
Date

Mitra Emami
Print Name

Manager, Flood Maintenance and Operations Branch
Title

State of California Department of Water Resources
Agency

Evaluation of Environmental Impacts

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

   Earlier Analysis Used. Identify and state where they are available for review.

   Impacts Adequately Addressed. Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards, and state whether such effects were addressed by mitigation measures based on the earlier analysis.

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

6. Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g., general plans, zoning ordinances). Reference to a previously prepared or outside document should, where appropriate, include a reference to the page or pages where the statement is substantiated.
7. Supporting Information Sources: A source list should be attached, and other sources used or individuals contacted should be cited in the discussion.
8. This is only a suggested form, and lead agencies are free to use different formats; however, lead agencies should normally address the questions from this checklist that are relevant to a project's environmental effects in whatever format is selected.
9. The explanation of each issue should identify:

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

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

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

Table of Contents

Appendices

Tables

Figures

Acronyms and Abbreviations

AB	Assembly Bill
APE	Area of Potential Effect
BMP	Best Management Practice
BSOG	Butte Slough Outfall Gates
CAAQS	California Ambient Air Quality Standards
CARB	California Air Resources Board
CCAA	California Clean Air Act
CCAPCD	Colusa County Air Pollution Control District
CCR	California Code of Regulations
CDFW	California Department of Fish and Wildlife
CDOC	California Department of Conservation
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
cfs	cubic feet per second
CMP	corrugated metal pipes
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Societ
CRHR	California Register of Historical Resources
CRPR	California Rare Plant Rank
CVRWQCB	Central Valley Regional Water Quality Control Board
CWA	Clean Water Act
DPS	Distinct Population Segment
DTSC	California Department of Toxic Substances Control
DWR	California Department of Water Resources
EFH	Essential Fish Habitat
EIR	Environmental Impact Report
EPA	U.S. Environmental Protection Agency
ESU	Evolutionarily Significant Unit
FMMP	Farmland Mapping and Monitoring Program
FMO	Division of Flood Management, Flood Maintenance and Operations Branch
FRAQMD	Feather River Air Quality Management District
FTA	Federal Transit Administration
GGERP	Greenhouse Gas Emission Reduction Plan
GHG	greenhouse gas
GPM	gallons per minute
GSA	groundwater sustainability agency
GSP	groundwater sustainability plan
IPaC	Information for Planning and Conservation
IS/MND	Initial Study/proposed Mitigated Negative Declaration

MRZ	Mineral Resource Zone
MTIP	Metropolitan Transportation Improvement Program
MTP/SCS	Metropolitan Transportation Plan Sustainable Communities Strategy
NAHC	Native American Heritage Commission
NAAQS	National Ambient Air Quality Standards
NMFS	National Marine Fisheries Service
NPDES	National Pollutant Discharge Elimination System
NSVPA	Northern Sacramento Valley Planning Area
NTU	Nephelometric Turbidity Units
O&M	operations and maintenance
OEM	Office of Emergency Management
OHWM	Ordinary High Water Mark
OPR	Office of Planning and Research
PCR	California Public Resources Code
PG&E	Pacific Gas and Electric Company
Porter-Cologne Act	Porter-Cologne Water Quality Control Act
PPV	peak particle velocity
SACOG	Sacramento Area County of Government
SGMA	Sustainable Groundwater Management Act
SLF	Sacred Lands Files
SMARA	Surface Mining and Reclamation Act
SRFCP	Sacramento River Flood Control Project
SWPPP	Storm Water Pollution Prevention Plan
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
VMT	vehicle miles traveled

1. Introduction

The California Department of Water Resources (DWR), Division of Flood Management, Flood Maintenance and Operations Branch (FMO) has prepared this Initial Study/proposed Mitigated Negative Declaration (IS/MND) in compliance with the California Environmental Quality Act (CEQA) to address the potentially significant and significant environmental impacts of the proposed Butte Slough Outfall Gates (BSOG) Repair Project (project or proposed project) in Colusa and Sutter counties, California. DWR is the lead agency under CEQA.

To satisfy CEQA requirements, this document includes:

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

After the required public review of this document is complete, DWR will consider adopting the MND, adopting a Mitigation Monitoring and Reporting Program, and approving the proposed project through the filing of a Notice of Determination at the State Clearinghouse.

1.1. Purpose of the Initial Study

This document is an IS prepared in accordance with CEQA (California Public Resources Code [PRC], Section California Code of Regulations [CCR] 21000 et seq.) and the State CEQA Guidelines (Title 14, Section 15000 et seq. of the CCR). The purpose of this IS is to (1) determine whether project implementation would result in potentially significant or significant impacts on the physical environment; and (2) implement mitigation measures, as necessary, to eliminate the project's potentially significant or significant project impacts or reduce them to a less-than-significant level. An MND is prepared if the IS identifies potentially significant impacts, and: (1) feasible measures are available to mitigate the potentially significant impacts to less-than-significant levels; and (2) there is no substantial evidence, in light of the whole record before the lead agency, that the proposed project, with mitigation, may have a potentially significant or significant impact on the physical environment.

An IS presents environmental analysis and substantial evidence in support of its conclusions regarding the significance of environmental impacts. Substantial evidence may include expert opinion based on facts, technical studies, or reasonable assumptions based on facts. An IS is neither intended nor required to include the level of detail provided in an Environmental Impact Report (EIR).

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

If there is substantial evidence (including the analyses in an IS) that a project, either individually or cumulatively, may have a significant or potentially significant impact on the physical environment, the lead agency must prepare an EIR (State CEQA Guidelines, Section 15064[a]). If the IS concludes that impacts would be less than significant, or that mitigation measures committed to by the project proponent would reduce impacts to a less-than-significant level, a Negative Declaration or MND may be prepared.

DWR has prepared this IS to evaluate the potential environmental impacts of the proposed project and has identified feasible mitigation measures to reduce or eliminate any potentially significant project-related impacts. Therefore, a proposed MND has been prepared for this project. DWR will also prepare, adopt, and implement a mitigation monitoring and reporting program as required by State CEQA Guidelines Section 15097 if DWR approves the proposed project.

1.2. Summary of Findings

Chapter 3, Environmental Checklist, of this document contains the analysis and discussion of potential environmental impacts of the project. Based on the issues evaluated in that chapter, it was determined that:

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

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

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

- Aesthetics
- Agriculture and Forestry Resources
- Energy
- Greenhouse Gas Emissions
- Transportation/Traffic
- Recreation
- Wildfire

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

- Air Quality
- Biological Resources
- Cultural Resources
- Tribal Cultural Resources
- Geology and Soils
- Hazards and Hazardous Materials
- Hydrology and Water Quality

- Noise
- Utilities and Service Systems
- Mandatory Findings of Significance (including cumulative impacts)

1.3. Document Organization

This document is divided into five key sections:

- Chapter 1, “Introduction,” describes the purpose of the IS/MND, summarizes findings, and describes the organization of the IS.
- Chapter 2, “Project Description,” describes the project location, project purpose, project components, construction activities, project operations and maintenance, and discretionary actions and approvals that may be required.
- Chapter 3, “Environmental Checklist,” presents an analysis of environmental issues identified in the CEQA Environmental Checklist and determines whether project implementation would result in a beneficial impact, no impact, less-than-significant impact, less-than-significant impact with mitigation incorporated, potentially significant impact, or significant impact, on the physical environment in each issue area. If any impacts are determined to be potentially significant or significant with mitigation incorporated, an EIR would be required. For this project, however, mitigation measures have been identified, as needed, to reduce all potentially significant and significant impacts to less-than-significant levels.
- Chapter 4, “References,” lists the references used to prepare this IS.
- Chapter 5, “Report Preparers,” identifies individuals who helped prepare or review this IS.

2. Project Description

2.1. Introduction

DWR proposes to implement several maintenance repairs to the BSOG facility. As a key component of the Sacramento River Flood Control Project (SRFCP), the BSOG has regulated flood and agricultural water since 1935. This important function has become increasingly threatened by the degradation of the gates and surrounding infrastructure. In response, the project proposes maintenance repairs necessary to restore the safe operability and function of the BSOG facility and maintain flood and agricultural water runoff equilibrium. The proposed maintenance repairs include installing supplemental outlet headwall support, replacing the existing inlet catwalk, repairing the inlet slide gates, installing a new facility control building, and installing water flow/condition monitoring equipment. These maintenance repairs would address both short-term flood safety goals by providing safer and more reliable gate operations but would also contribute to the longer-term objective of extending the functional life of the BSOG facility to ensure it continues to be operated to reduce flood risk. This section describes the project location, background and history, purpose and objectives, design and construction details, operations and maintenance, and permits and regulatory approvals that may be necessary to implement the project.

2.2. Project Location

The BSOG project site is located at the confluence of Butte Slough and the Sacramento River, approximately 5 miles downstream from the town of Colusa in both Sutter and Colusa counties, as shown in **Figure 2-1**. The BSOG structure is located on both sides of the Sacramento River levee, within both Butte Slough and the Sacramento River. The project site is straddled by Marty Road on the Sutter County side and Butte Slough Road on the Colusa County side. The project site is directly east of the Sacramento River and directly west of Butte Slough. As shown in **Figure 2-2**, the project site is located southeast of Ward's Boat Landing and just northwest of a single-family residence.

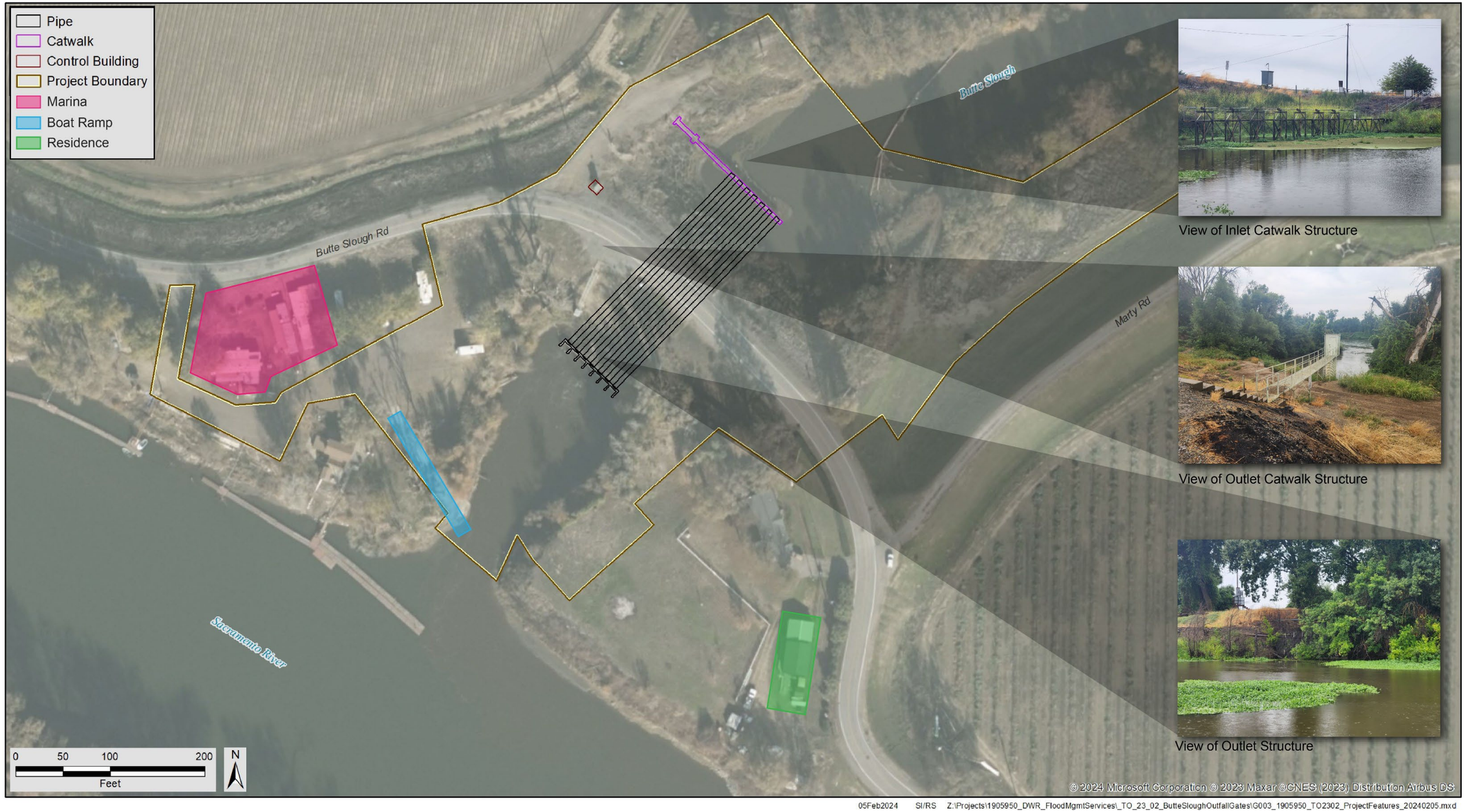
2.3. Background and History

The BSOG facility is an integral part of the joint Federal-State flood control system in the Central Valley known as the Sacramento River Flood Control Project (SRFCP). The BSOG is operated and maintained to aid in flood risk reduction by managing flood discharges from Butte Slough into the Sacramento River during the flood season, and by maintaining water surface elevation (stage) during the remainder of the year.

Figure 2-1. Project Location and Vicinity Map of the BSOG Facility

Source: California Department of Water Resources, 2023

Figure 2-2. Project Site Overview and Existing Conditions



Source: Prepared by GEI Consultants Inc., 2024

The system provides positive closure from Sacramento River water entering Butte Slough and only permits flows out of Butte Slough into the Sacramento River as congressionally authorized and operated. The State of California through the Central Valley Flood Protection Board accepted responsibility from the Federal government through the U.S. Army Corps of Engineers (USACE) to operate and maintain certain features of the SRFCP according to USACE's Operation and Maintenance Manual (USACE 1957). The facility is operated and maintained by DWR's FMO Sutter Maintenance Yard. The BSOG is part of California's State Plan of Flood Control, and California Water Code Section 8361(d) obligates DWR to maintain certain levee, channels, and flood control structures of the SRFCP, including the BSOG.

The BSOG facility was originally constructed in 1935 by USACE to replace prior, private embankment/dam facilities erected (in the general vicinity of the present facility) by local landowners to manage flooding to their properties. The original project consisted of the placement of seven 66-inch diameter corrugated metal pipes (CMP) with flap gates on the downstream (Sacramento River) side and slide gates attached to an overhead catwalk (for access to the gate control mechanisms) on the upstream (Butte Slough) side. The inlets and outlets of the pipes were supported by timber piles driven into the ground. The BSOG facility was rehabilitated in 1985 by installing new 60-inch-diameter steel pipe sleeves inside the previous 66-inch CMPs, grouting the annular space between the inner and outer pipes, constructing a concrete headwall on the outlet side to support the pipe ends, and constructing individual concrete headwall faces on each pipe at the inlet side to support the slide gate frames and gates. The original catwalk was not improved but was retained to provide accessibility to the gate operation mechanisms (stems and actuators).

The BSOG facility has degraded due to normal wear and tear, debris impacts, seasonal submergence impacts, and corrosion to an extent that the physical operation (opening and closing) of the gates has become difficult and is no longer always fully functional. In addition, the safety of the operators/maintainers entering the workspace on the original catwalk to access and actuate the positioning of the gates has become a serious life safety condition. Maintenance to keep the BSOG facility operational may reach a point where continued full function is no longer achievable, and where safe access by operators is questionable and dangerous. Therefore, the BSOG is approaching the end of its service life. Required safe operable conditions necessitates DWR to implement significant maintenance and refurbishment to continue the State's ability to provide flood risk reduction assurances at the BSOG facility as required under the terms of the congressionally authorized SRFCP, as well as ensure improved safety conditions for its operators working on-site.

Flood Safety Risk

The antiquated BSOG facility currently poses a genuine safety risk to operators/maintainers entering the facility. The present catwalk is the original 1935 construction and is likely deficient of present-day safety standards in addition to the natural wear and tear, weathering, and overall degradation of the last 90-plus years of BSOG operations. The present risk to the inlet mechanisms (inlet slide gate apparatus) is that of continued degradation, seasonal and flood event debris impacts, and continuing unsafe working conditions that impede DWR's ability to operate the flow control devices for both flood operations (during the wet season), as well as river stage management (during the remainder of the year).

From a functional perspective, the outfall flap gates located on the Sacramento River side of the structure ensure complete positive closure against Sacramento River waters entering Butte Slough. The present concrete outlet headwall rests atop the original 1935 timber piles. There is no restraint or anchoring of the headwall to the piles, and the headwall position is maintained by gravity.

The present risk of outfall structure failure is due to the ongoing scour and erosion at and around the outlet headwall that could precipitate a shifting of soil mass behind and above the headwall. A lateral shift or rotation of the headwall off the supporting timber piles could bind and/or torque the flap gates into a non-operable position or literally tear the flap gates off the pipe ends. Either response would result in a complete loss of positive flood control. Under a positive head condition from the Sacramento River to Butte Slough, the slide gates and frames on the inlet side could not resist the hydraulic load conditions and could subsequently be damaged and or dislodged from the inlet works resulting in complete loss of stage management. Simple placement of backfill material in scour areas in an attempt to stave off erosion could impose unacceptable lateral forces on the headwall during compaction. This would increase the potential for outlet failure and, therefore, is not recommended until structural repairs can be made to stabilize the outlet works.

2.4. Project Purpose and Objectives

The purpose of the proposed project is to make maintenance repairs necessary to restore safe operation and function of the BSOG facility.

DWR believes its employees and others have a right to a safe work environment and that all incidents are preventable. Furthermore, safety is one of DWR's core values and DWR is committed to its employees, contractors, cooperating agencies, and the visiting public to prevent occupational injuries and illnesses. Maintaining and improving safety considerations at all DWR facilities is critical, especially at aging critically important facilities such as the 90-year-old BSOG facility.

California's State Plan of Flood Control requires functionality of the BSOG facility to prohibit Sacramento River flow into Butte Slough, to provide the ability to release flood flows from Butte Slough into the Sacramento River during the flood season (November 1 through April 15), and to manage non-flood stages for both Butte Slough and the Sacramento River during the remainder of the year (April 16 through October 31).

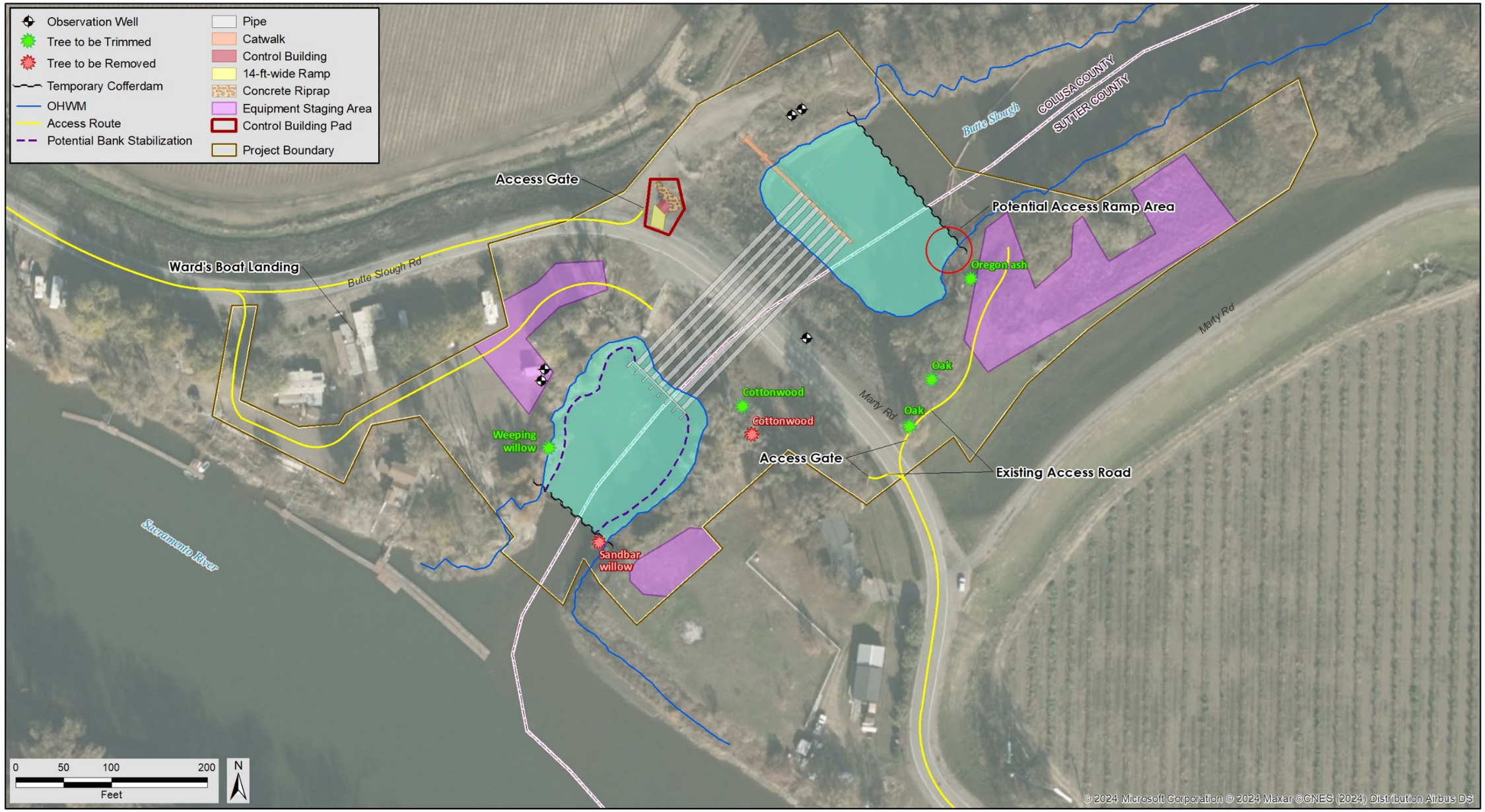
The objectives of the proposed project are as follows:

- restore reliability and functional life to the BSOG facility,
- repair the BSOG facility so that daily and emergency flood operations work can be conducted in a safe and efficient manner,
- implement a project as soon as reasonably possible to minimize ongoing safety risks during BSOG operations, and
- complete the necessary repairs in a manner that minimizes environmental impacts to the surrounding environment.

2.5. Project Description

FMO plans to implement the following maintenance repairs necessary to restore the safe operability and function of the BSOG. **Figure 2-3** provides an overview of the project site and identifies locations of the proposed repairs, equipment staging, and areas proposed for construction-related dewatering. These maintenance repairs are further described below.

Figure 2-3. Overview of Proposed Project

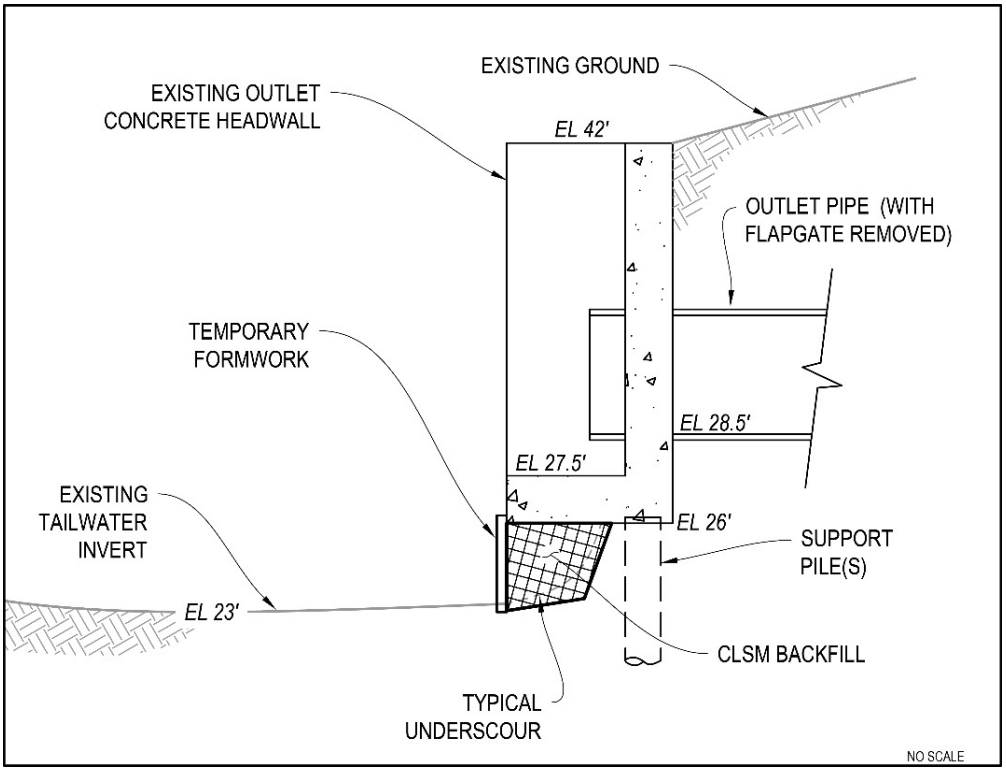


Source: Prepared By GEI Consultants Inc., 2024

Outlet Headwall

To ensure safe flood control positive closure, the outfall gates would be improved in-place to resist both lateral and rotational movement from exterior loads thereby reinforcing the continued full functionality of the flap gates to provide a complete closure as required. Activities to stabilize the outlet headwall (prevent it from rotating or settling) would consist of backfilling the scour area beneath the outlet concrete headworks and applying a lightweight concrete slurry to protect exposed timber piles (installed in 1935) against future scour. The total volume of fill needed is approximately 34 cubic yards and was estimated by assuming a void or "fill space" of the entire length of the outlet headwall (77 feet) at 4 feet deep and 3 feet high (see **Figure 2-4**). The construction contractor would perform this work over a 1- or 2-day period and the work would be contained within the dewatered work area.

Figure 2-4. Proposed Concrete Slurry Backfill



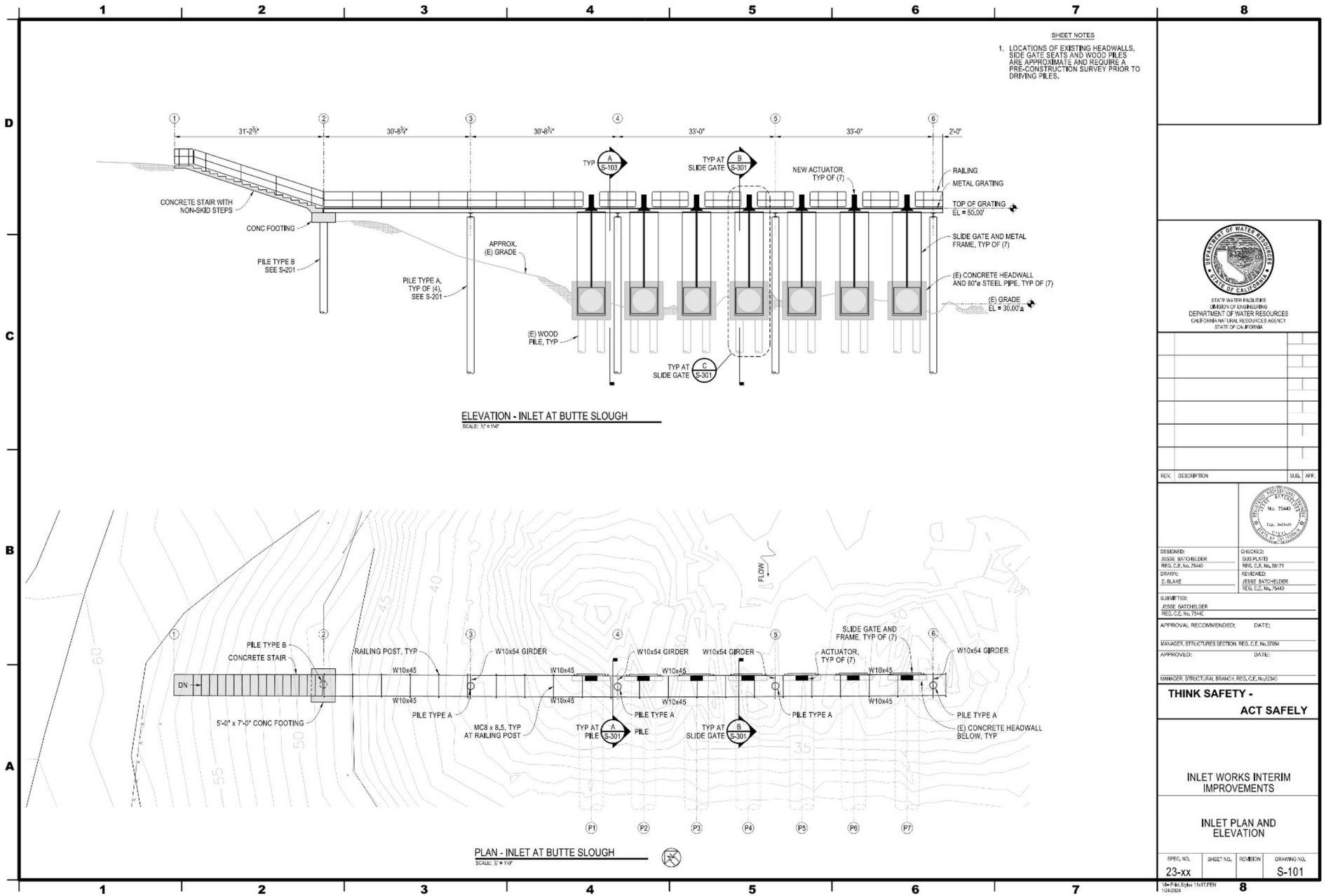
Source: California Department of Water Resources, 2024

Inlet Catwalk

To ensure safe access and operability of the inlet slide gate apparatus, a new catwalk supported by a system of foundation piles would be installed to replace the existing catwalk (see **Figure 2-5**) provides. Activities to improve the inlet catwalk include:

- Removing the existing catwalk and support framing, which is presently attached directly to the pipes at the inlet side to unload excess deflection or torsional forces on the pipe ends;
- installing four new support piles; and
- erecting a new catwalk system to provide safe accessibility to operate the slide gates.

Figure 2-5. Inlet Repairs



Source: California Department of Water Resources, 2024

Inlet Slide Gate

To ensure safe and to restore full operation of the inlet slide gate, replacement and repair of the gate actuators and related gate infrastructure would be conducted. Activities to repair operation of the inlet slide gate include:

- replacing the inlet slide gates, gate frame(s), and stems;
- attaching and aligning the slide frames to the new catwalk;
- replacing the old manual slide gate actuators with modern actuators to improve the operator's ability to both fully open and close the gates and make fine adjustments in partial opened conditions; sealed bearings and watertight actuators would be used, reducing introduction of mechanical lubricants into the waterway relative to current conditions.

Facility Control Building

A new facility control building to maintain electrical equipment necessary for facility operation (shown in **Figure 2-6)** would be built at the location shown in **Figure 2-3.** The proposed structure would be a modular container with climate control and electrical service. The proposed control building would be developed on the Butte Slough side of the project site and the building would be supported by a power generator and an above-ground propane tank that would be protected by fencing and concrete walls. Power for the controls would be routed through a trench from an existing Pacific Gas and Electric Company (PG&E) pole near the control building and a PG&E meter would be mounted on the outside of control building, inside the fenced area. New security cameras and lights would be installed at the facility control building.

Resource Monitoring Capabilities

The project also includes improvements to the collection and monitoring of local water flow and fisheries conditions in the project area by installing additional small-scale resource monitoring equipment such as, flag gate angle monitors or inclinometers. Installation of this equipment would be supported by operations at the facility control building described above.

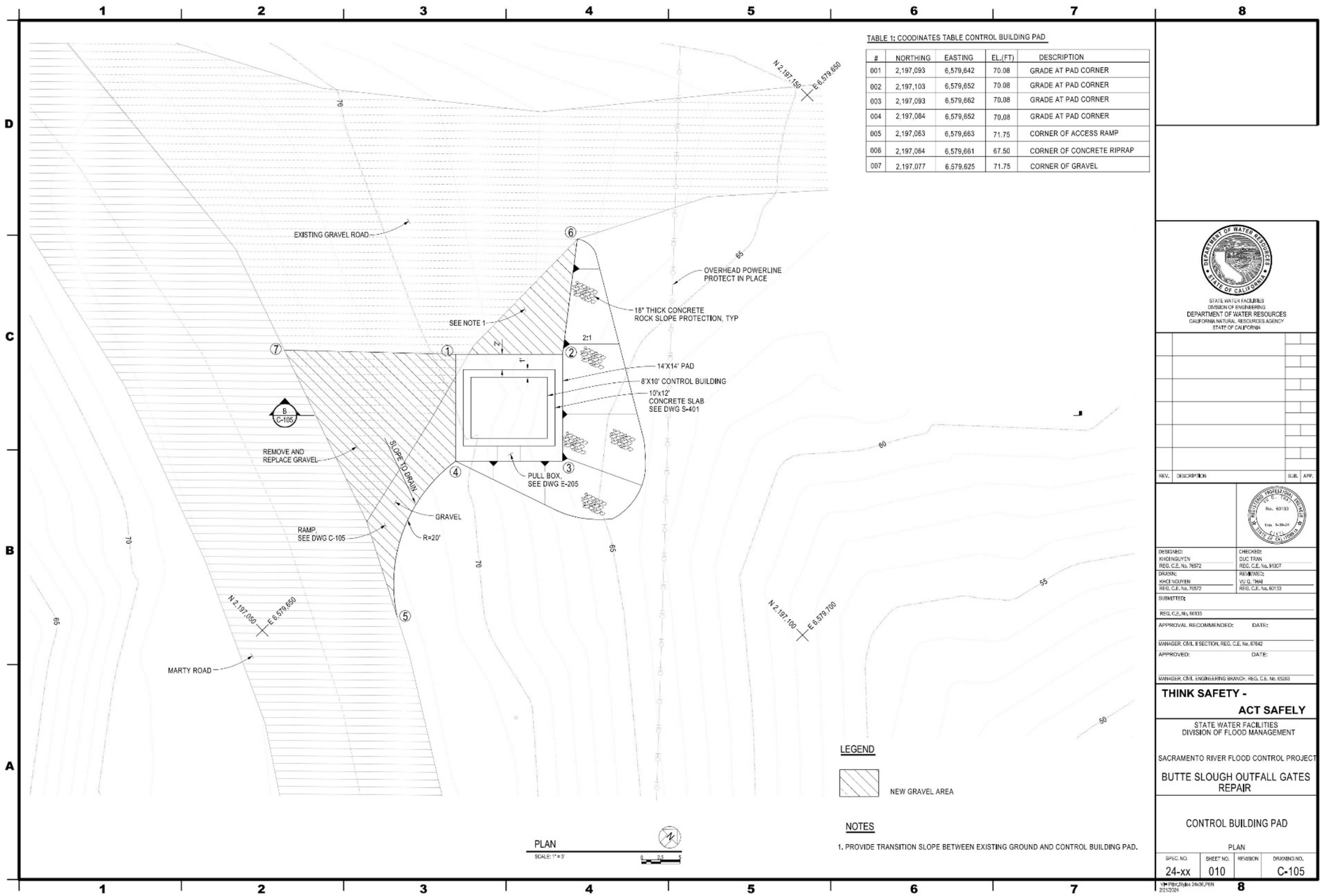
Other Supporting Infrastructure

Additional maintenance repairs would include installing new security cameras and lights at the facility control building and the inlet structure.

2.6. Project Construction Phasing, Equipment, and Schedule

The proposed project construction area, shown in **Figure 2-3**, is approximately 6.35 acres. Construction equipment would depend on the selected contractor's planned operations; however, typical labor and equipment that would likely be needed to construct the proposed project, along with an approximate duration of each construction activity proposed, are shown in **Table 2-1**. There would be three general construction phases: (1) mobilization and dewatering (including any pre-construction activities), (2) infrastructure installation, and (3) post construction and site restoration.

Figure 2-6. Facility Control Building Pad Overview



Source: California Department of Water Resources, 2024

Table 2-1. Construction Equipment and Phasing

Construction Phase/Equipment Type (Number)		Schedule (6 days per week)
Mobilization and Dewatering		November 2025 - June 2026
- 1/2-ton utility vehicle (1) - 1-ton utility vehicle (1) - 10-wheel dump trucks (6) - crane track mounted (1) - Flatbed delivery truck/trailer (1) - Large excavator (1)	- Skidsteer (1) - Water trucks (2) - Dewatering pumps (up to 2) and generator (1)	
Infrastructure Installation		April 2026 - October 2026
- 1/2-ton utility vehicle (1) - 1-ton utility vehicle (1) - 10-wheel dump trucks (6) - crane-track mounted (1) - Flatbed delivery truck/trailer (1) - Large excavator - Skidsteer (1)	- Front-end loader (1) - Drilling rig (1) - Water trucks (2) - Impact pile driver/vibratory hammer (1) - Dewatering pumps (up to 2) and generator (1)	
Post Construction and Site Restoration		November 2026 - April 2027
- 1/2-ton utility vehicle (1) - 10-wheel dump trucks (6) - Flatbed delivery truck/trailer (1) - Large excavator (1)	- Front-end loader (1) - Water trucks (2) - Generator (1)	

Source: Data Prepared by Department of Water Resources, 2023 and GEI Consultants Inc., 2024

This project is required to be completed within an 18-month construction season to minimize the in-water work window, which would occur outside of flood season restrictions, generally between April and November, as shown in **Table 2-1**. Dewatering of the construction area would occur between June 15 and October 31, when sensitive fish and wildlife species are less likely to be present in or near the project area due to seasonal flow and other changes. To the maximum practicable extent, as many project components and features as possible would be either prefabricated elements acquired in whole, or components acquired and assembled prior to installation at the project site (e.g., catwalk platform, railing, walkway support cross members, etc.). The objective is to minimize the time to construct within the in-water work window constraint timeframe.

General Work Conditions

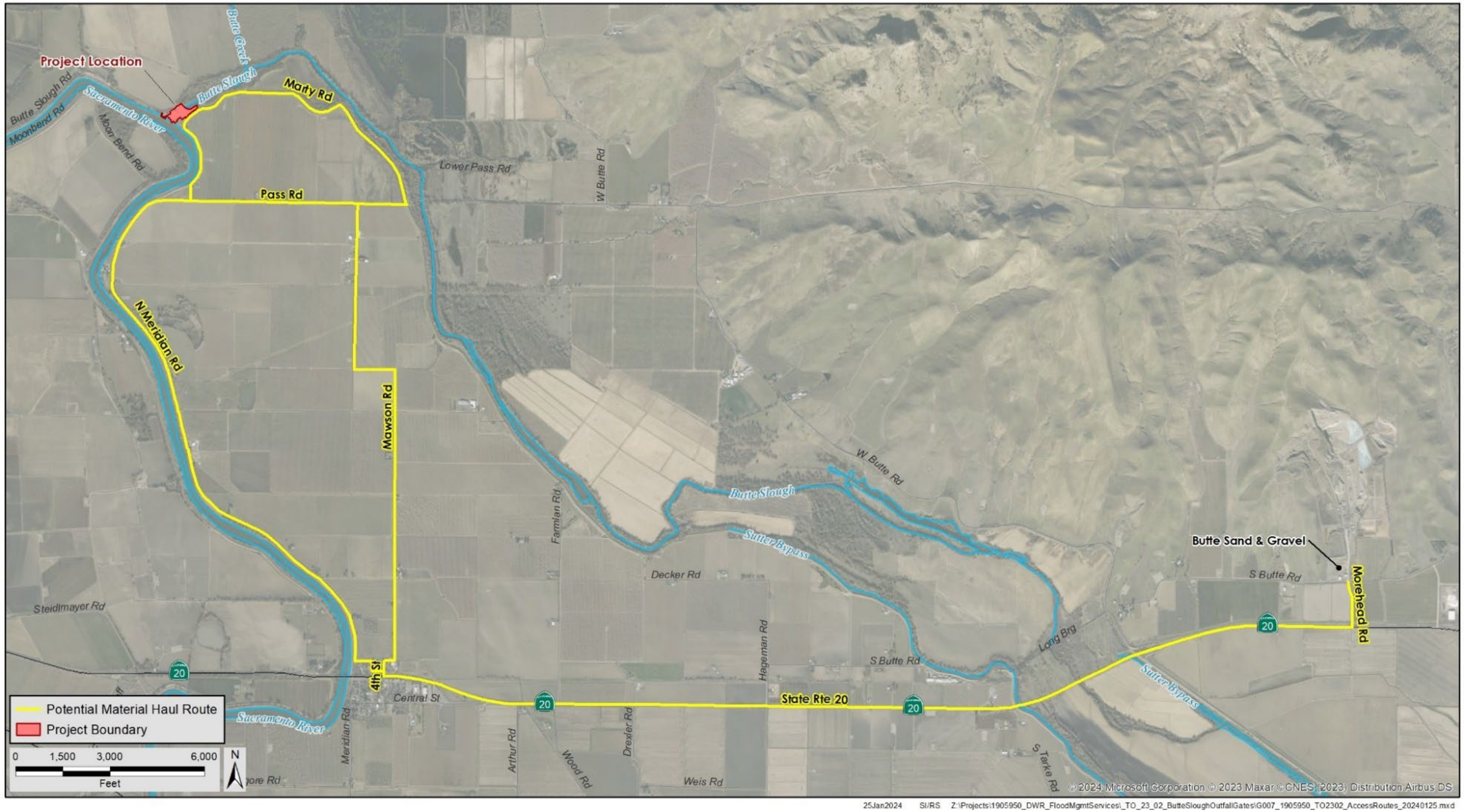
Most construction activities would occur Monday through Friday between 7 a.m. and 7 p.m. during the construction phase of the proposed project. These work times may be extended at key points in the construction phase that must proceed continuously (dewatering, concrete placements). For example, the project's initial dewatering activities will require the operation of a water pump and generator unit beyond these work times (e.g., up to 24 hours per day). Additionally, depending on surface water flow

conditions in Butte Slough, up to 24 hour or continuous operation of the dewatering equipment may be required. **Table 2-1** identifies the key construction activities by time period.

Equipment anticipated to be used for construction includes dump trucks, generators, backhoes, bulldozers, concrete trucks, cranes, earthmovers, vibratory hammers, impact hammers, excavators, flatbed trucks, and front-end loaders (see **Table 2-1**). Construction activities would include the daily arrival and departure of the construction workers and trucks hauling equipment and materials. Construction trucks on local roadways would include dump trucks, concrete trucks, and other delivery trucks and trailers. Dump trucks would be used for earth-moving and clearing, removing excavated material, and importing fill material and other structural and paving materials. Trucks would also deliver heavy construction equipment, job trailer items, concrete forming materials, piping materials, piles, new facility equipment, and other miscellaneous deliveries. Other trucks would remove vegetation materials, replaced infrastructure/construction debris, and concrete slurry waste materials to appropriate offsite disposal facilities.

Local roads being affected by the construction of the proposed project would be Marty Road and Butte Slough Road. Project-related fill material would be provided from a local source as shown in **Figure 2-7**. Potential haul routes to the project site are also identified in the figure.

Figure 2-7. Material Location and Potential Haul Routes to the Project Site



Source: Prepared by GEI Consultants Inc., 2024

Equipment Staging Activities

Equipment laydown or staging areas are depicted in **Figure 2-3**. Access from Marty Road and Butte Slough Road to the equipment staging areas and project features are also shown in the Figure. Portions of these areas will also be cleared/grubbed of vegetation prior to offloading/storing equipment at the project site. In addition to scrub/shrub understory and grassy vegetation, a total of seven trees will also be impacted by construction access, as shown in **Figure 2-3** and further described below.

- One Oregon ash (*Fraxinus latifolia*) on the southeastern side of the Butte Slough component of the proposed project would be trimmed/topped to remove dead tissue that has been parasitized by mistletoe (*Viscum album*).

- Likewise on the southeastern side of the Butte Slough component of the proposed project, but closer to Marty Road, two mature oak trees (*Quercus* sp.) will have the edges of their canopies trimmed to accommodate the existing access road's maintenance in anticipation of heavy equipment entering/exiting the site from that location. As part of the proposed project, this existing access road down to Butte Slough will be maintained/repaired through placing additional soil/fill material and through minor grading with the goal of creating smoother and safe access for larger equipment to the base of the Butte Slough bank from Marty Road.

- On the Sacramento River side of the project site, two dead Fremont cottonwoods (*Populus fremontii*) on the southern side (approximately in between Marty Road and the ordinary high water mark [OHWM] of the Sacramento River outlet) will be impacted. The cottonwood furthest to the north will be trimmed for safety reasons and to accommodate project access to nearby infrastructure. The cottonwood further south will be completely removed for safety reasons and to accommodate project access to nearby infrastructure.

- One small sandbar willow (*Salix exigua*) will be removed on the southern bank of the Sacramento River portion of the project area to accommodate equipment access to be used to install the cofferdam. Another weeping willow (*Salix babylonica*) on the northern side of the Sacramento River portion will be trimmed/topped to accommodate the crane swing radius for cofferdam installation, though this portion of the tree is already in poor health and appears dead. The main trunk of the tree would remain intact. The two impacted willow species are within the OHWM of the Sacramento River.

Temporary Construction Easement

Staging areas along the Butte Slough side of the project site will require a small temporary construction easement from the parcel (APN 015-250-003) located to the north of the project site.

Dewatering

The project site within Butte Slough would require dewatering on both the inlet and outlet sides of the BSOG facility to facilitate clearing and grubbing, removing the existing features to be replaced/repaired, constructing new features, and testing installed components. Dewatering would occur during the in-

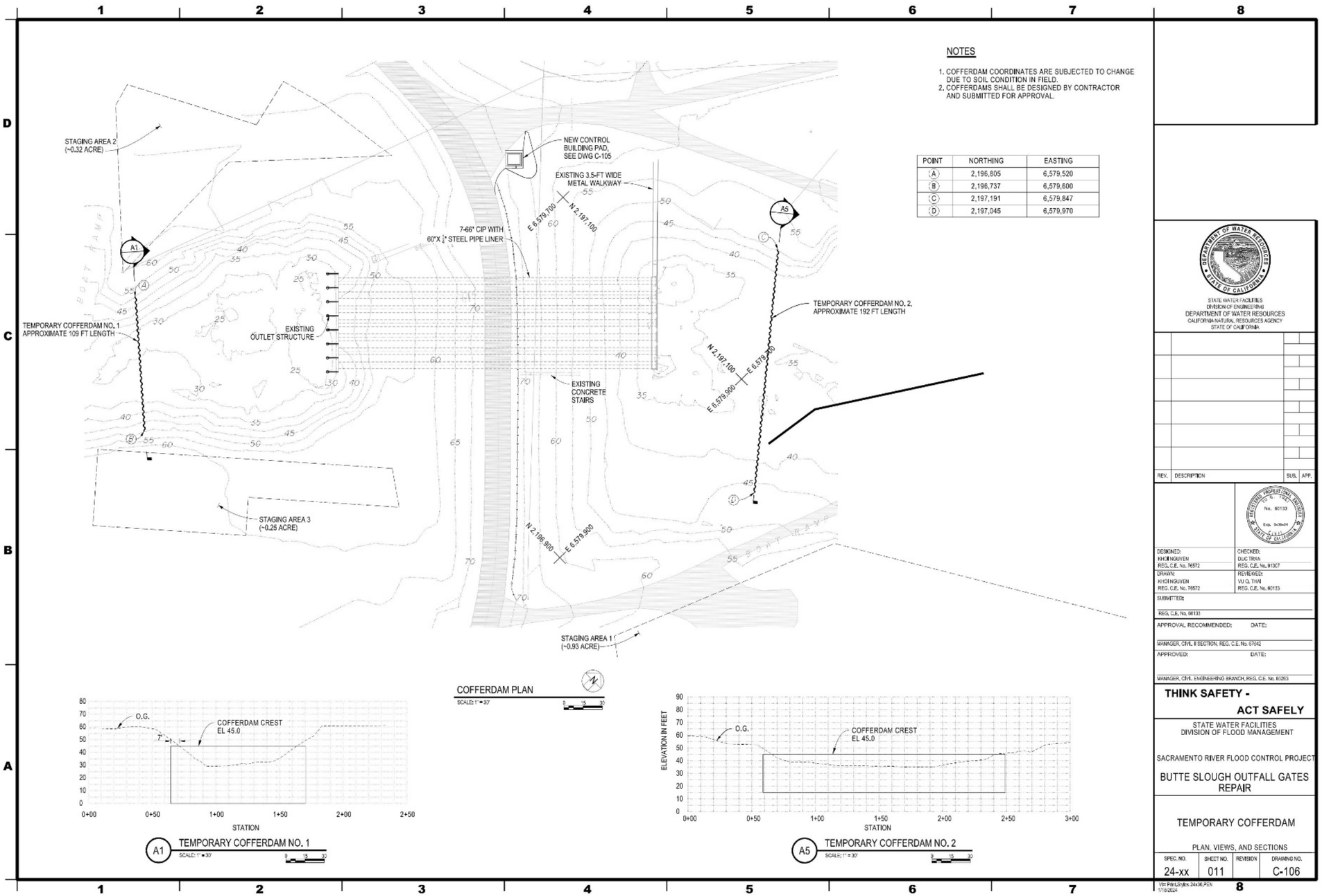
water work window between June 15 through October 31, with all dewatering apparatus removed before November 1 (closure of in-water work window).

Dewatering using a cofferdam, such as with sheet piles or other similarly effective methods, would be used to create an area that can be dewatered, as shown in **Figure 2-3** and **Figure 2-8**. Dewatering with up to five dewatering wells placed outside the coffer dam would be required to manage seepage in proximity to the sheet piling areas, as shown in **Figure 2-3**. These wells would extract water just below the surface water, and sump pumps within sheet piling areas would be used to dewater the project site within Butte Slough. Initial dewatering of the project site would take place over approximately 4 to 6 days, depending on stage-volume relationships of Butte Slough within the project site. Pumping would continue throughout the dewatering phase. A preliminary evaluation of dewatering rates identified a sump pumping rate of 215 gallons per minute (gpm) and 185 gpm in the west and east cofferdam areas, respectively (AECOM, 2021).

Drawdown rates will be established with the contractor to reduce and/or avoid bank collapse; however, the areas isolated by the cofferdams (see **Figure 2-3**) have the potential to destabilize bank sediments during construction dewatering activities due to existing bank slope conditions. If bank collapse occurs, bank stabilization measures (with the objective of restoring pre-project slope conditions) that would be implemented as part of construction include recontouring of existing soils, a vegetated fill, or rip-rap. Hydroseeding with native grass species would also be implemented as appropriate.

The dewatered area on the western side of the BSOG facility is estimated to cover an approximately 0.52-acre area and the dewatering area on the eastern side of the BSOG facility would cover an approximately 0.54-acre area. The dewatered area would be approximately 23 feet deep on both sides of the BSOG facility. Because the dewatered area would be confined behind sheet piling, fish could become stranded and would need to be relocated. Screens would be fitted on pumps to avoid fish entrainment, and a fish rescue and relocation plan will provide the methods for fish rescue. Water pumped out of the project site would be discharged back into the contributing surface waters – the Sacramento River or Butte Slough. **Figure 2-3** shows the areas where dewatering mechanisms are anticipated to be placed to facilitate construction dewatering. Overall, the process would be conducted in compliance with all applicable permits, including any surface water discharge permit(s) from the Central Valley Regional Water Quality Control Board (CVRWQCB).

Figure 2-8. Temporary Cofferdam Overview



Source: California Department of Water Resources, 2024

Pile Driving

Impact or vibratory pile driving is typically required for installing sheet piles to both reduce potential environmental sonic/shockwave impacts as well as reduce the sphere of disturbance to subsurface soil conditions. Four piles would be used to support the new inlet catwalk and the cofferdams used for dewatering of the site would also require the installation of sheet piles by a vibratory pile driver, if feasible and by impact pile drivers if needed. The four support piles would be driven into the top of the lower sand layer (approximately 60 feet below the top layer of bottom substrate, approximately 75 to 90 feet below the surface of the water depending on flow level). Although it is anticipated that most sheet pile installation would occur using equipment staged on the banks in areas with minimal existing riparian habitat, it is possible that up to two temporary construction pads may need to be constructed adjacent to the bank in Butte Slough and/or the Sacramento River to facilitate installation of the sheet pile beyond the crane's reach. The staging and use of a shallow draft barge on the Butte Slough or upstream side of the project site may also be used during construction. **Figure 2-3** identifies the potential location for the staging and access ramp necessary for this activity.

Prefabrication

To the maximum practicable extent, as many components and features as possible will be either prefabricated elements acquired in whole, or components acquired and assembled prior to installation at the project site (e.g., catwalk platform, railing, walkway support cross members, etc.). The objective is to minimize the time to construct or install the in-water work window constraint timeframe.

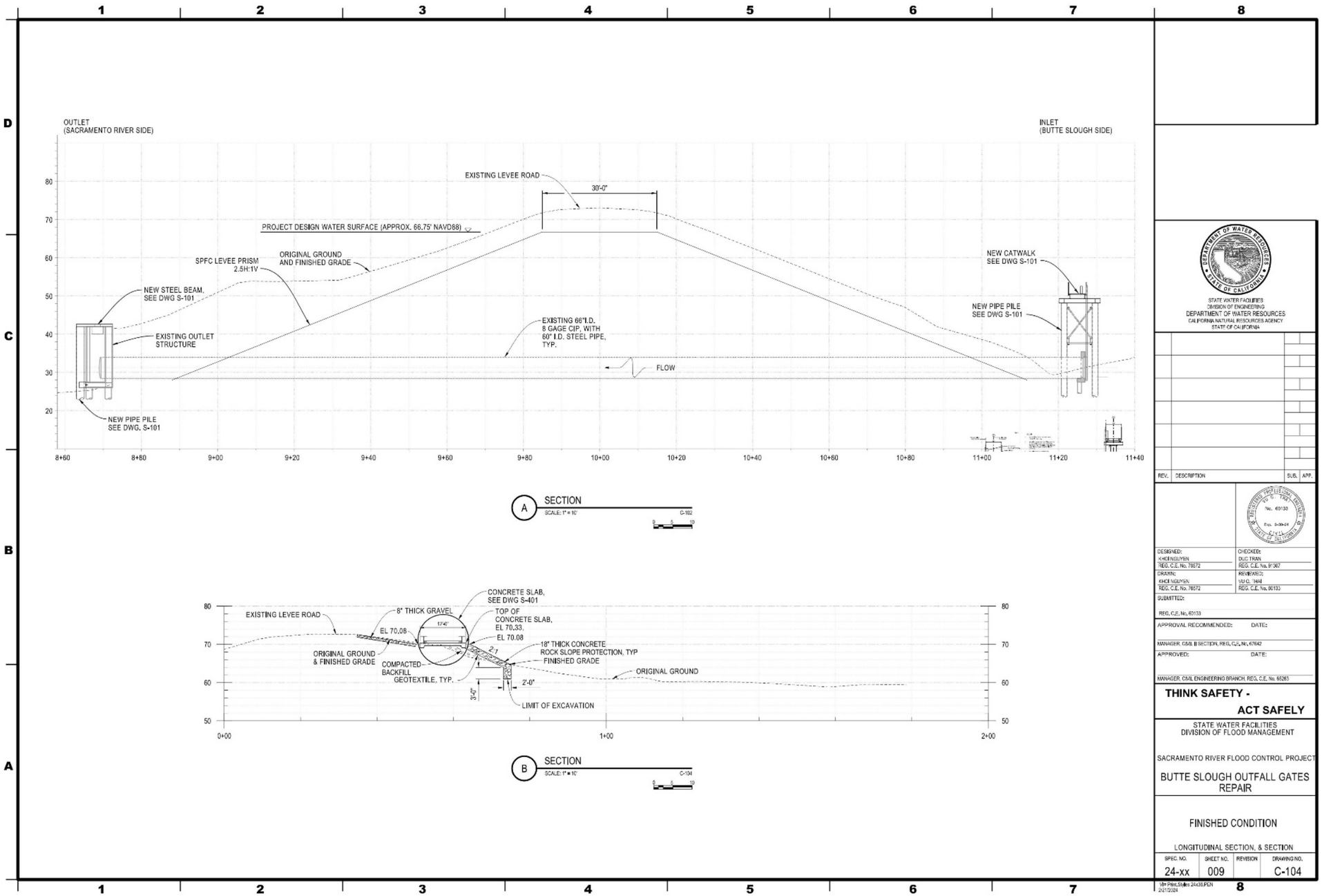
Project Close Out

Following completion of the maintenance and repair activities, the dewatered areas and cofferdams would be removed. Disturbed areas would be hydroseeded with a native seed mix and/or covered with native vegetation after construction activities have been completed for the project. Erosion and stormwater controls would be removed, and site clean-up would be completed. An overview of the completed project is shown in **Figure 2-9**.

2.7. Post-Project Operations and Maintenance

Post-project operations and maintenance (O&M) would remain unchanged and be consistent with the existing USACE O&M manual for the BSOG facility (USACE 1957). There would not be changes to the existing manual. Once the maintenance repairs (proposed project) are completed, the outlet gates would be able to be automatically programmed or manually operated and would allow for previously unattainable gate opening adjustments and accuracy. The repairs would also provide flexibility in the operation of the inlet gates. On-site equipment would be maintained annually or semi-annually, as necessary, as occurs under existing conditions. The structure would be monitored by off-site maintenance yard personnel by using flow, stage, and temperature data that are corrected and posted on the California Data Exchange Center. Outages of 2-4 weeks would be required for major equipment inspections or maintenance.

Figure 2-9. Finished Project Overview



Source: California Department of Water Resources, 2024

After the project repairs are completed, DWR would continue its existing program of routine annual maintenance of the structure, levees, vegetation, and adjacent roads within the area that has been ongoing since the BSOG facility was constructed. There would be no change in the routine annual maintenance that is ongoing by DWR.

2.8. Permits and Regulatory Approvals

Several Federal, State, and local permits and regulatory approvals may be required, as shown in **Table 2-2**. DWR would coordinate with individual permitting authorities to determine and obtain specific permits as needed.

Table 2-2. Potential Project Permits, Authorizations, and Approvals

Permit	Permitting Authority	Affected Project and Construction Activity
Federal Permits and Approvals		
Clean Water Act Section 404	U.S. Army Corps of Engineers	In-water work
Federal Endangered Species Act Compliance	U.S. Fish and Wildlife Service National Marine Fisheries Service	Land and in-water work
State and Local Permits and Approvals		
Clean Water Act Section 401 Water Quality Certification	Central Valley Regional Water Quality Control Board	Land and in-water work
Porter Cologne Waste Discharge Requirements	Central Valley Regional Water Quality Control Board	Land and in-water work
National Pollutant Discharge Elimination System General Construction Activity Permit	Central Valley Regional Water Quality Control Board	Land and in-water work
General Order for Dewatering and Other Low Threat Discharge to Surface Water Permit	Central Valley Regional Water Quality Control Board	Dewatering operations
Fish and Game Code Section 1602 et seq. Streambed Alteration Agreement	California Department of Fish and Wildlife	Land (channel) and/or in-water
State Endangered Species Act Compliance	California Department of Fish and Wildlife	Land and/or in-water
General Lease	State Lands Commission	In-water
Local Encroachment Permit	Colusa/Sutter County	Land and/or in-water County roads/ROW
National Historic Preservation Act Section 106 Compliance	State Historic Preservation Office	Land and/or in-water
Construction Permission	Feather River Air Quality Management District	Air quality emissions

3. Environmental Checklist

3.1. Aesthetics

	Environmental Issue	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact	Beneficial Impact
I.	**AESTHETICS.** Except as provided in PRC Section 21099, **would the project:**					
a)	Have a substantial adverse effect on a scenic vista?	☐	☐	☐	☒	☐
b)	Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a State scenic highway?	☐	☐	☐	☒	☐
c)	In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from a publicly accessible vantage point.) If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	☐	☐	☒	☐	☐
d)	Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☒	☐	☐

Environmental Setting

Visual Resources and Viewer Sensitivity

The project site is located within the flat alluvial plain of the Sacramento Valley and straddles both the Sacramento River to the west and Butte Slough to the northeast. The Sacramento River, Butte Slough, and views of the Sutter Buttes (to the east) are considered scenic resources located in the project vicinity and within the project viewshed. Open space land uses (agricultural and waterway) contribute to the larger visual character of the area. Both motorists (travelling locally and regionally to State Route 20) and river-related recreationists would be the primary user groups affected by aesthetic impacts occurring at the project site.

In the project vicinity, Marty Road (Sutter County)/Butte Slough Road (Colusa County) is a narrow two-lane levee-top roadway, with traffic counts or volumes currently unavailable, but considered low given the rural nature of the area (see **Section 3.17** "**Transportation**"). As a point of reference, estimated traffic volumes along State Route 20 are significantly higher at 8,200 vehicles (annual average daily) near the Colusa County/Sutter County line (see Section 3.17 "Transportation"). Marty/Butte Slough Road provides access for predominantly rural residential, agricultural, or seasonal recreation-related vehicle traffic. Typical motorist views (both north and southbound views) along the roadway are predominately agricultural in nature on the land side of the levee, consisting of predominately row crop and orchards interspersed with smaller scale supporting development (equipment sheds/barns, water pumps, etc.). Typical water-side views experienced by motorists along the levee road are predominately of the Sacramento River and its riparian corridor. Motorists approaching the project site (nearing the Sacramento River and Butte Slough conflux, with slightly steeper slopes) experience views of more developed uses (including an existing walkway/gage house, rock stabilization, and an access gate) interspersed between the open space uses. **Figure 3-1** shows views at the project site.

Viewer sensitivity for residential/agricultural activity-related motorists travelling between home or workplace and the regional State route roadway network is considered low due to the low number of viewers (vehicle trips), frequency of use, and the limited area affected by the proposed project. Compared to the larger Sacramento River corridor, the approximately 6-acre project site is relatively small in scale.

The Sacramento River provides opportunities for a number of aquatic-based recreation activities including boating, swimming, and fishing. Butte Slough also provides a number of formal and informal fishing access points. Ward's Landing, a privately-owned boat landing, is adjacent to the project site to the south and west, as shown in **Figure 3-1**, and includes boat ramps, docks, a bait shop, and trailer parking. Viewer sensitivity for recreation-related motorists, boaters, or recreational fishing along accessible watercourse banks is considered to be slightly higher, given the nature of the activity and the infrequency of use. Views of the project site from the Sacramento River, which are primarily provided to boaters, would be limited to the immediate area given the surrounding riparian corridor along the riverbank and the project's location at the Butte Slough/Sacramento River inlet/confluence point (see **Figure 3-1**). Similarly, views of the project site from the Butte Slough side would also be focused on the immediate area, and only be temporarily affected during the project's construction phase.

Scenic Routes and Vistas

According to the Caltrans State Scenic Highway Program, no proposed or officially designated State Scenic Highways are located within Colusa or Sutter counties (Caltrans, 2019). The nearest officially designated scenic roadways are in Sacramento and Nevada counties. While the surrounding Sacramento River corridor, agricultural land uses, and the Sutter Buttes provide important views and vistas, a review of the 2030 Sutter County General Plan Background Report (Chapter 4.0 Environmental Resources) and the 2030 Colusa County General Plan ("Circulation," "Open Space and Recreation," and "Conservation" Elements) did not identify any additional scenic routes, roadways, vistas, or trails within the project site or surrounding area.

Light and Glare

Light pollution is defined as any adverse effect of artificial light, including sky glow, glare, light trespass, light clutter, decreased visibility at night, and energy waste. Existing sources of light and glare are generally from motorists travelling on Marty Road/Butte Slough Road and adjacent properties (including the single-family residence and the marina) with outdoor lighting that illuminates the surrounding area. Overhead utility and electrical lines are located on both sides of the levee road. Existing lighting at the project site includes some roadway light fixtures and individual lights illuminating the gage station and small building.

Discussion

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

There are no designated scenic vistas within the project area. Therefore, the project would have **no impact**.

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

There are no designated State scenic highways within the project area. Therefore, the project would have **no impact**.

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?

As shown in **Figure 3-1**, public views of the project site and the Sacramento River are experienced by both motorists and recreationists.

Project maintenance and repairs including outlet headwall improvements, catwalk replacement, and inlet slide gate repairs would slightly alter the BSOG facility through replacement with updated catwalk railing and the new facility control building. However, the scale and location (vertical and horizontal alignment) would be in character with the existing BSOG facility/structure. Repairs would not substantially degrade the existing visual character of the area or adversely affect views from the roadway or waterway, including Ward's Landing. Additionally, following the project's construction period, all disturbed areas, including those affected by construction staging and dewatering activities, would be reseeded/planted with native plant species. Therefore, vegetation changes would be temporary as disturbed areas are replanted and regrow over time. Overall, the proposed project repairs would blend into the landscape and be consistent with views of other human-made structures in the Sacramento River corridor.

Figure 3-1. Project Views

Source: Prepared by GEI Consultants Inc., 2024

During construction, the presence of heavy equipment, trucks, and construction materials would be visible from the roadway and waterway, including Ward's Landing. Traffic control equipment, such as orange cones, K-rail, temporary traffic control lights, would also be visible during construction. The night work that would be required would be limited to operation of the dewatering equipment (pump and generator) and would not include large scale or permanent increase in light and glare from the project. The general construction footprint is small, and changes in views due to construction activity would be minor and temporary. Consequently, these impacts to the visual quality of a public view are considered to be **less than significant**.

This less-than-significant impact would be further reduced by implementing Mitigation Measure BIO-8, which would revegetate the site using native vegetation, avoid the spread of invasive plant species, and minimize erosion during and following construction (see Mitigation Measure BIO-8 in **Section 3.4** "**Biological Resources**") to restore the construction site to pre-project conditions.

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

Existing lighting at the project site includes some roadway light fixtures and individual lights at the existing structure locations. Any outdoor lighting associated with the new facility control building would be consistent with existing on-site lighting at the gage facility and would be positioned/angled downward to prevent substantial spillover light or glare. Any lighting associated with the proposed inlet structure repairs would be shielded away from local residents by the existing levee roadway. Additionally, the prefabricated facility control building would be built using neutral-colored materials to minimize reflective light and glare to the surrounding area. Therefore, this impact is considered **less than significant**.

3.2. Agriculture and Forestry Resources

Environmental Issue	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact	Beneficial Impact
II. AGRICULTURE AND FORESTRY RESOURCES. In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997, as updated) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the State's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. **Would the project:**					
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?	☐	☐	☐	☒	☐
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒	☐
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in PRC Section 12220(g)), timberland (as defined by PRC Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))?	☐	☐	☐	☐	☐
d) Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☒	☐	☐

	Environmental Issue	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact	Beneficial Impact
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?	☐	☐	☒	☐	☐

Environmental Setting

The project site is located in a rural agricultural area within Colusa and Sutter counties, as is shown in **Figure 3-2** by the presence of farmland and grazing land surrounding the project site.

California Department of Conservation – Farmland Mapping and Monitoring Program

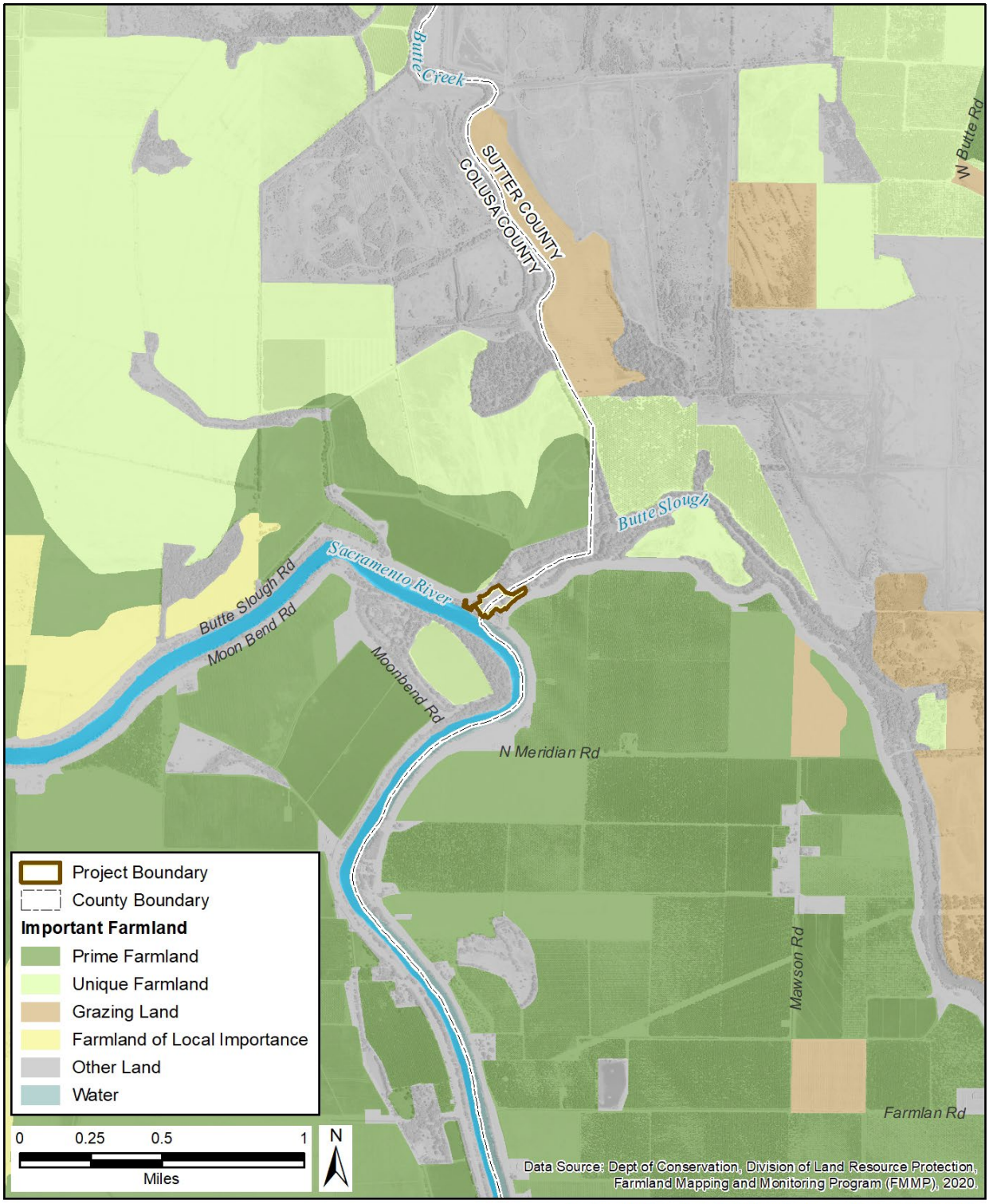
Agricultural areas within the State are categorized by the California Department of Conservation (CDOC), Division of Land Resource Protection, and Farmland Mapping and Monitoring Program (FMMP). The FMMP maps the Statewide inventory of farmlands with the use of aerial photographs, color infrared imagery, satellite data, a computer mapping system, public review, and field reconnaissance. These farmlands are divided into the following five categories based on their suitability for agriculture:

- **Prime Farmland.** Land that has the best combination of physical and chemical characteristics for crop production. It has the soil quality, growing season, and moisture supply needed to produce sustained yields of crops when treated and managed.
- **Farmland of Statewide Importance.** Land other than Prime Farmland that has a good combination of physical and chemical characteristics for crop production.
- **Unique Farmland.** Land that does not meet the criteria for Prime Farmland or Farmland of Statewide Importance but has been to produce specific crops with high economic value.
- **Farmland of Local Importance.** Land that either is currently producing crops or has the capability of production but does not meet the criteria of the categories above.
- **Grazing Land.** Land on which the vegetation is suited for livestock grazing.

Onsite Agricultural and Forestry Resource Conditions

As shown in **Figure 3-2**, while the project site itself does not include any officially designated farmland or support agricultural activities, the project site is surrounded by farmland that is primarily classified as Prime Farmland, consisting of row crops, walnut orchards, and winter wheat.

Figure 3-2. Important Farmlands in the Project Area



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The riparian corridor that borders Butte Slough is considered forestland as defined by Public Resources Code 12220(g), which states that forestland is land that can support 10-percent native tree cover of any species, including hardwoods, under natural conditions, and that allow for the management of one or more forest resources, including timber, aesthetics, fish and wildlife, biodiversity, water quality, recreation, and other public benefits.

The Colusa County side of the project site and surrounding area is classified as Farmland Security Zone under the Williamson Act (CDOC 2022). On the Sutter County side of the project site, adjacent farmlands are not enrolled under the Williamson Act, with a few parcels of mixed enrollment agricultural land in the general vicinity (CDOC 2022). The Sutter County side of the project site is classified as Agricultural-40 (AG-40), a designation for agricultural lands with a minimum of 40 acres, and the Colusa County side of the project site is classified as Exclusive Agriculture (Sutter County 2014, Colusa County 2023).

Discussion

a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?

The project site does not contain farmland. There would be **no impact**.

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

The project site does not have agricultural zoning or Williamson Act contracts. There would be **no impact**.

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 PRC Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))?

The proposed project would not conflict with existing zoning for forest land, but a small amount of riparian vegetation along Butte Slough would be removed as part of the project construction activities. Since the project would not conflict with zoning, this impact would be **less than significant**.

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

A small amount of riparian vegetation along Butte Slough would be removed as part of the project construction activities. Post-construction activities would include hydroseeding disturbed areas with a native seed mix/or covering with native vegetation. Where trees are removed from construction, vegetation and potentially trees would eventually re-establish. See Section 3.4 “Biological Resources,” for a detailed discussion regarding impacts to oak trees. The riparian corridor along Butte Slough and the Sacramento River in the project vicinity would remain intact and continue to provide benefits to wildlife and recreation. Therefore, this impact would be **less than significant**.

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?

There would be no conversion of farmland to non-agricultural uses. Dewatering activities may affect the surrounding bankside vegetation within the construction area, as shown in F**igure 2-3**. However, these construction-related activities would be temporary and post construction activities would include revegetation. While seven trees are planned to be removed or trimmed, vegetation would re-establish and this change would not preclude existing uses of the larger riparian corridor in the area, as discussed in criterion d) above. Therefore, this impact would be **less than significant**.

3.3. Air Quality

Environmental Issue	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact	Beneficial Impact
III. AIR QUALITY. Where available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied on to make the following determinations. **Would the project:**					
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☒	☐	☐	☐
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?	☐	☒	☐	☐	☐
c) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒	☐	☐
d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	☐	☐	☒	☐	☐

Environmental Setting

The proposed project site is located within Colusa and Sutter counties, and both are part of the Sacramento Valley Air Basin. Air quality conditions for portions of the project site within Colusa County (north of Buttel Slough) are under the jurisdiction of the Colusa County Air Pollution Control District (CCAPCD) and the portion of the project site in Sutter County (south of Butte Slough) is under the jurisdiction of the Feather River Air Quality Management District (FRAQMD). The nearest sensitive receptor to the project site is located in Sutter County. This single-family residence is located approximately 75 to 100 feet from the staging area boundary (and southern boundary access point to staging area) and 170 to 200 feet from the dewatering/construction area. Within Colusa County, the nearest sensitive receptor (single-family residence) is located 400 feet northwest of the project site.

Federal and State Air Quality Standards

The Federal Clean Air Act and California Clean Air Act (CCAA) required the U.S. Environmental Protection Agency (EPA) and California Air Resources Board (CARB) to establish health-based air quality standards at the Federal and State levels. National Ambient Air Quality Standards (NAAQS) and California Ambient Air Quality Standards (CAAQS) were established for the criteria pollutants identified in **Table 3-1** (see first table column). Areas of the State are designated as attainment, nonattainment, maintenance, or

unclassified for these criteria pollutant standards according to the Federal Clean Air Act and CCAA. The air quality standards are also identified in **Table 3-1**.

Table 3-1. Federal and California Ambient Air Quality Standards and Attainment Status.

Pollutant	Averaging Time	California Standards Concentration	Federal Primary Standards Concentration
Ozone (O^3)	8-hour	0.070 ppm (137 micrograms per cubic meter)	0.070 ppm (137 micrograms per cubic meter)[1]
Ozone (O^3)	1-hour	0.09 ppm (180 micrograms per cubic meter)	None [2]
Respirable Particulate Matter (PM_{10})	24-hour	50 micrograms per cubic meter	150 micrograms per cubic meter
Respirable Particulate Matter (PM_{10})	annual arithmetic mean	20 micrograms per cubic meter	None
Fine Particulate Matter ($PM_{2.5}$)	24-hour	None	35 micrograms per cubic meter
Fine Particulate Matter ($PM_{2.5}$)	annual average	12 micrograms per cubic meters	12 micrograms per cubic meter
Carbon Monoxide	8-hour	9 ppm (10 milligrams per cubic meter)	9 ppm (10 milligrams per cubic meter)
Carbon Monoxide	1-hour	20 ppm (23 milligrams per cubic meter)	35 ppm (40 micrograms per cubic meter)
Nitrogen Dioxide	annual average	0.03 ppm (57 micrograms per cubic meters)	0.053 ppm (100 micrograms per cubic meters.)
Nitrogen Dioxide	1-hour	0.18 ppm (339 micrograms per cubic meters)	0.100 ppm (188 micrograms per cubic meters)
Lead	30-day average	1.5 micrograms per cubic meters	None
Lead	rolling 3-month average	None	0.15 micrograms per cubic meter
Lead	quarterly average	None	1.5 micrograms per cubic meter
Sulfur Dioxide	24-hour	0.04 parts per million (105 micrograms per cubic meter)	0.14 ppm (for certain areas)
Sulfur Dioxide	3-hour	None	None
Sulfur Dioxide	1-hour	0.25 ppm (655 micrograms per cubic meter)	0.075 ppm (196 micrograms per cubic meter)

Notes: PPM = parts per million

1. On October 1, 2015, the national 8-hour ozone (O_3) primary and secondary standards were lowered from 0.075 to 0.070 ppm.

2. 1-Hour O_3 standard revoked effective June 15, 2005, although some areas have continuing obligations under that standard.

Sources: San Joaquin Valley Air Pollution Control District 2012a, U.S. Environmental Protection Agency 2016

An “attainment” designation for an area signifies that pollutant concentrations did not violate national (NAAQS) or State (CAAQS) criteria for that pollutant in that area. A “nonattainment” designation indicates that a pollutant concentration violated the standard at least once, excluding those occasions when a violation was caused by an exceptional event, as identified in the criteria. A “maintenance”

designation indicated that the area previously categorized as nonattainment is currently categorized as attainment for the applicable pollutant although the area must demonstrate continued attainment for a specific number of years before it can be re-designated as an attainment area. An "unclassified" designation signifies that data do not support either an attainment or a nonattainment status. EPA established NAAQS in 1971 for six air pollution constituents. States have the option to add other pollutants, require more stringent compliance, or include different exposure periods.

Under the NAAQS, both Sutter and Colusa counties are not designated as nonattainment for any criteria air pollutant (CARB 2022 and FRAQMD 2023). Under CAAQS, Sutter County is designated nonattainment for 1- and 8-hour ozone and PM_{10} (FRAQMD 2023), and Colusa County is designated nonattainment for PM_{10} (CARB 2022).

Local Air District Air Quality Attainment Plans

DWR is not subject to local regulations unless expressly authorized by the Legislature. Local plans, policies, regulations, and ordinances potentially relevant to the project are addressed in this section for informational purposes because they may be relevant to certain responsible agencies. CARB and local air districts have primary implementation responsibility for Federal standards, per delegation by EPA. In addition, CARB and local air districts are responsible for ensuring that State standards are met. At the local level, air quality is managed through land use and development planning practices and is implemented in the counties through the general planning process. Therefore, DWR and responsible agencies are subject to all rules and regulations enforced by CCAPCD and FRAQMD.

As required by the CCAA, each district must prepare a plan to improve district air quality to meet CARB and EPA standards. The CCAPCD, FRAQMD, 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. As a part of the NSVPA 2012 tri-annual review, each district considered adopting CEQA air quality guidelines to reduce stationary source emissions of non-attainment air pollutants by identifying potential development projects with significant adverse effects on air quality and identifying measures to mitigate for those significant effects. The CCAPCD does not currently have CEQA guidelines or thresholds of significance. FRAQMD has adopted Indirect Source Review Guidelines (FRAQMD Guidelines) for CEQA air quality reviews for development projects within the district, including for emissions from construction activities. Therefore, the FRAQMD Guidelines are used to evaluation emissions from the proposed project.

Within the FRAQMD Guidelines, FRAQMD adopted significance thresholds for key pollutants to assist Lead Agencies determine in an Initial Study if a proposed project may have a significant impact on air quality. **Table 3-2** identifies applicable FRAQMD significant thresholds.

Table 3-2. Feather River Air Quality Management District Thresholds

Project Phase	Nitrogen Oxides (NO_x)	Reactive Organic Gases (ROG)	Particulate Matter less than 10 microns (PM_{10})	Particulate Matter less than 2.5 microns ($PM_{2.5}$)
Operational	25 lbs/day	25 lbs/day	80 lbs/day	Not yet established
Construction	25 lbs/day multiplied by project length, not to exceed 4.5 tons/year	25 lbs/day multiplied by project length, not to exceed 4.5 tons/year[a]	80 lbs/day	Not yet established

Notes: [a] NOx and ROG construction emissions may be averaged over the life of the project but may not exceed 4.5 tons/year.
Source: Feather River Air Quality Management District 2010.

If the project is at or below the thresholds, the project would have less-than-significant impacts to air quality. If a project's life emissions exceed any of the thresholds, the project impact is considered significant and feasible mitigation is required under CEQA.

Discussion

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

FRAQMD is responsible for establishing and enforcing local air quality rules and regulations that address the requirements of Federal and State air quality laws. In 2018, an update to the 2010 Air Quality Attainment Plan was prepared for the NSVPA. The plan proposes rules and regulations that would limit the amount of ozone emissions, in accordance with the 1994 State Implementation Plan for ozone, as well as assesses the progress made in implementing the previous Attainment Plan. The 2018 update summarizes the feasible control measure adoption status of each air district in the NSVPA, including FRAQMD. The 2018 update was adopted by FRAQMD, and the proposed project would be required to comply with the outlined rules and regulations.

As stated in FRAQMD Guidelines (2010), projects are considered to have a significant impact on air quality if they generate emissions over the thresholds previously identified in **Table 3-2**. Project construction would temporarily generate criteria air pollutant emissions from exhaust associated with on-site equipment operation, material hauling, and worker vehicle trips, as well as fugitive dust from ground-disturbing activities. Construction-related emissions were modeled using the California Emissions Estimator Model (CalEEMod) (see **Appendix A** "**Air Quality Modeling**"). **Table 3-3** provides estimates of daily and annual construction-related criteria air pollutant emissions, based on maximum anticipated material hauling, equipment usage, numbers of workdays, and standard emission reduction measures. **Table 3-2** assumes that all project construction-related emissions occur in Sutter County and the FRAQMD. Since a portion of the emissions would occur in Colusa County and the CCAPCD, the estimates within FRAQMD are considered conservative.

Table 3-3. Estimated Unmitigated and Mitigated Construction-related Criteria Air Pollutant Emissions.

Construction Year	PM_{10} (pounds per day)[a] unmitigated/mitigated	NOx (tons per year)[b] unmitigated/mitigated	ROG (tons per year)[b] unmitigated/mitigated
Year 1 (2025)	0.70/0.70	0.43/0.43	0.07/0.07
FRAQMD Threshold	80	1.5	1.5
Exceeds Threshold?	*No/No*	*No/No*	*No/No*
Year 2 (2026)	1.82/1.82	4.45/4.45	0.72/0.72
FRAQMD Threshold	80	3.9	3.9
Exceeds Threshold?	*No/No*	***Yes**/No*	*No/No*
Year 3 (2027)	0.65/0.65	0.25/0.25	0.05/0.05
FRAQMD Threshold	80	1.69	1.69
Exceeds Threshold?	*No/No*	*No/No*	*No/No*

ROG=reactive organic gases; NO_X=oxides of nitrogen; PM_{10}=particulate matter with aerodynamic diameter less than 10 micrometers; FRAQMD=Feather River Air Quality Management District

[a] Emissions of PM_{10} are presented in units of maximum pounds per day. FRAQMD's significance threshold for PM_{10} is in units of maximum daily pounds. PM_{10} emissions include both exhaust and fugitive dust emissions.

[b] Emissions of NO_X and ROG are in units of total tons. FRAQMD's thresholds of significance for NO_X and ROG are determined by multiplying 25 pounds per day by the project length (i.e., workdays) each year (not to exceed 4.5 tons per year for both NO_X and ROG).

Source: GEI Consultants, Inc. 2024

The only change to O&M activities compared to existing practices would be power to the control building for operations. Power would be purchased from PG&E and is not anticipated to result in new criteria air pollutant emissions in the FRAQMD.

The project would not generate emissions exceeding applicable daily FRAQMD thresholds for PM_{10} nor applicable annual FRAQMD thresholds for ROG during the construction period, as shown in **Table 3-2**. However, the project would generate emissions exceeding applicable annual FRAQMD thresholds for NO_X during the construction period. Therefore, this impact is considered **significant**. The following mitigation measures would be implemented to address this impact.

Mitigation Measure AIR-1: Implement FRAQMD Construction Phase Mitigation Measures.

The following FRAQMD Construction Phase Mitigation Measures, listed below, will be implemented to reduce construction-related emissions of criteria air pollutants:

- Develop and submit a fugitive dust control plan to FRAQMD and implement the FRAQMD-approved plan.
- The contractor will be responsible to ensure that all construction equipment is properly tuned and maintained prior to and for the duration of onsite operation.
- Utilize existing power sources (e.g., line power) or clean fuel generators rather than temporary power generators to the extent feasible and practicable.
- All grading operations will be suspended when average wind speeds exceed 20 miles per hour or when winds carry dust beyond the property line despite implementation of all feasible dust control measures.

- Work areas will be watered or treated with dust suppressants as necessary to prevent fugitive dust violations.
- An operational water truck will be available to apply water to control dust at least twice daily to prevent visible emissions violations and offsite dust impacts.
- Onsite dirt piles or other stockpiled material should be covered when inactive, wind breaks installed, and water and/or soil stabilizers employed to reduce wind-blown dust emissions. Incorporate the use of approved non-toxic soil stabilizers according to manufacturer's specifications to all inactive construction areas.
- All transfer processes involving a free fall of soil or other particulate matter will be operated in such a manner as to minimize the free fall distance and fugitive dust emissions.
- Apply approved chemical soil stabilizers according to the manufacturers' specifications to all inactive construction areas (previously graded areas that remain inactive for 96 hours) including unpaved roads and employee/equipment parking areas.
- To prevent track-out, wheel washers will be installed where project vehicles and/or equipment exit onto paved streets from unpaved roads. Vehicles and/or equipment will be washed prior to each trip. Alternatively, a gravel bed may be installed as appropriate at vehicle/equipment site exit points to effectively remove soil buildup on tires and tracks to prevent/diminish track-out.
- Paved streets will be swept frequently (water sweeper recommended; wet broom) if soil material has been carried onto adjacent paved, public thoroughfares from the project site.
- Provide temporary traffic control as needed during all phases of construction to improve traffic flow, as deemed appropriate by the County Department of Public Works and/or Caltrans and to reduce vehicle dust emissions.
- Reduce traffic speeds on all unpaved surfaces to 25 miles per hour or less and reduce unnecessary vehicle traffic by restricting access. Provide appropriate training, onsite enforcement, and signage.
- Reestablish ground cover on the construction site as soon as feasible, through seeding and watering.

Timing: Throughout all construction activities.

Responsibility: DWR and its construction contractor(s).

Mitigation Measure AIR-2: Reduce Construction-related Exhaust Emissions.

DWR will require its contractor to prepare a comprehensive inventory list (i.e., make, model, engine year, horsepower, emission rates) of all heavy-duty (equal to or greater than 50 horsepower) off-road (portable and mobile) equipment that will be used an aggregate of 40 or more hours for the construction project (including owned, leased, and subcontractor vehicles).

Using the inventory list, the contractor will prepare and provide a plan for approval by FRAQMD demonstrating that the heavy-duty off-road equipment to be used in the construction project will achieve a project wide fleet-average 20 percent NOx reduction compared to the most recent CARB fleet average at time of construction. The contractor will implement the FRAQMD-approved plan.

A Construction Mitigation Calculator (MS Excel) will be downloaded from the Sacramento Metropolitan Air Quality Management District web site to perform the fleet average evaluation http://www.airquality.org/businesses/ceqa-land-use-planning/mitigation. Acceptable options for reducing emissions may include use of late model engines (Tier 4), CARB-approved low-emission diesel products, alternative fuels, engine retrofit technology (Carl Moyer Guidelines), aftertreatment products, voluntary offsite mitigation projects, provide funds for air district offsite mitigation projects, and/or other options as they become available. FRAQMD will be contacted to discuss alternative measures.

The results of the Construction Mitigation Calculator will be submitted and approved by FRAQMD prior to beginning construction work. The project will provide a monthly summary of heavy-duty off-road equipment usage to FRAQMD throughout project construction.

Timing: Prior to and throughout all construction activities.

Responsibility: DWR and its construction contractor(s).

Mitigation Measure AIR-3: Purchase Off-site NOx Mitigation Fees

Any excess emissions of NO_x above FRAQMD's established threshold will be mitigated through a contribution to the FRAQMD's Off-Site Mitigation Program to reduce emissions to less than significant. Accordingly, it is anticipated that DWR will need to purchase 0.54 ton of NO_x, if alternative options for reducing emissions are not used, to reduce emissions to the FRAQMD established threshold. DWR will comply with the following measures to pay an off-site construction mitigation fee to reduce NOx emissions:

- DWR will compile a list of all emission sources and consult with FRAQMD staff to implement this mitigation measure.
- The project will need to track emissions generated from equipment and vehicles throughout the project's construction phases that are estimated to exceed the threshold (for example, if a construction phase exceeds the threshold, then track emissions from off-road, portable, and on-road equipment and vehicles).
- DWR will pay a mitigation fee in the amount of $30,000 per ton of excess emissions of NOx caused by project construction above the FRAQMD-established threshold (as quantified by DWR in accordance with FRAQMD guidelines) and a 10% administrative fee to the FRAQMD mitigation fund, such as a Carl Moyer-type Program, to reduce the project impacts from construction NO_x emissions to below the significance threshold each year. If mitigation fees change, then DWR will pay the current fee at the time of the mitigation payment.

- DWR, or its designee, will make a down-payment prior to construction activities with the remainder due following the completion of construction activities. DWR will submit monthly usage summarizes to FRAQMD and will submit a final usage summary within 60 days after the completion of construction activities.

The mitigation amount may change based on the emissions sources and equipment inventory submitted to FRAQMD before beginning project construction. However, the mitigation amount/fee will be provided for all NOx emissions in exceedance of thresholds after implementation of Mitigation Measures AIR-1 and AIR-2.

Timing: Prior to construction activities and following the completion of construction activities.

Responsibility: DWR.

Implementation of Mitigation Measures AIR-1 and AIR-2 will require implementation of Best Management Practices (BMPs) and other on-site controls, including use of Tier 4 equipment, to reduce NO_x emissions at the project site to the extent possible. Implementation of Mitigation Measure AIR-3 would further reduce this impact to a less-than-significant level by paying a fee to reduce NO_x emissions at off-site sources. Therefore, this impact is considered **less than significant with mitigation incorporated**.

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?

The applicable FRAQMD significance thresholds discussed in item a) above also represent an amount of daily or annual emissions which, if exceeded, would be considered to contribute substantially to a potential air quality violation (i.e., exceedance of an ambient air quality standard). As discussed in item a) above, the only change to O&M activities compared to existing practices would be power to the facility control building for operations, which would be supported by a power generator. Power would be purchased from PG&E and is not anticipated to result in new criteria air pollutant emissions in the FRAQMD. The project would not generate emissions exceeding applicable daily FRAQMD thresholds for PM_{10} nor applicable annual FRAQMD thresholds for ROG during the construction period. However, the project would generate emissions exceeding applicable annual FRAQMD thresholds for NO_X during the construction period, which would be a **significant impact**. The following mitigation measures would be implemented to address this impact.

Mitigation Measure AIR-1: Implement FRAQMD Construction Phase Mitigation Measures.

Refer to Air Quality mitigation above under Impact a) discussion for full mitigation measure text.

Mitigation Measure AIR-2: Reduce Construction-related Exhaust Emissions.

Refer to Air Quality mitigation above under Impact a) discussion for full mitigation measure text.

Mitigation Measure AIR-3: Purchase Off-Site NOx Mitigation Fees

Refer to Air Quality mitigation above under Impact a) discussion for full mitigation measure text.

Implementation of Mitigation Measures AIR-1 and AIR-2 would require implementation of BMPs and other on-site controls, including use of Tier 4 equipment, to reduce NO_x emissions at the project site to the extent possible, as shown by **Table 3-3**. Implementation of Mitigation Measure AIR-3 would further reduce this impact to a less-than-significant level by paying a fee to reduce NO_x emissions at off-site sources. Therefore, this impact is considered **less than significant with mitigation incorporated**.

c) Expose sensitive receptors to substantial pollutant concentrations?

Some people are especially sensitive to emissions of air pollutants and should be given special consideration while evaluating project air quality impacts. These people include children, senior citizens, and persons with pre-existing respiratory or cardiovascular illnesses, and athletes and others who engage in frequent exercise, especially outdoors. Sensitive receptors include schools, residences, playgrounds, childcare centers, athletic facilities, long-term health care facilities, rehabilitation centers, convalescent centers, and retirement homes. The project site in a rural area in Sutter and Colusa counties. Transport to and from the project site would be on paved and unpaved roads. The nearest sensitive receptor is a residence located 75 to 100 feet from the staging area boundary (and southern boundary access point to staging area) and 170 to 200 feet from the dewatering/construction area. Another single-family residence is located 400 feet northwest of the project site.

EPA has determined that ozone and diesel PM would have the greatest effect on human health. The health effects for ozone include mortality, emergency room visits (respiratory), and hospital admissions (respiratory) (SMAQMD 2020). As shown in **Table 3-3**, project construction would not exceed established thresholds for PM or ROG; however, it would exceed established thresholds for NOx. The health effects for diesel PM include mortality (all causes), hospital admissions (respiratory, asthma, cardiovascular), emergency room visits (asthma), and acute myocardial infarction (non-fatal). Diesel PM, which is classified as a carcinogenic by CARB, is the primary pollutant of concern regarding indirect health risks to sensitive receptors. Nearby land uses, especially residences and schools downwind of the project sites, could be exposed to diesel PM during construction activities, resulting in potential adverse health effects. However, PM generated during construction activities would be minor, less than 1.5 pounds per day throughout the construction period, and only a portion of these emissions would be exhaust PM from diesel trucks and equipment, with other emissions from gasoline vehicles and fugitive dust.

The assessment of health risks associated with exposure to diesel exhaust typically is associated with chronic exposure, in which a 30- or 70-year exposure period is often assumed. However, while cancer can result from exposure periods of less than 30 or 70 years, acute exposure periods (i.e., exposure periods of 2 to 3 years) to diesel exhaust are not anticipated to result in increased health risk, as health risks associated with exposure to diesel exhaust are typically seen in exposure periods that are chronic (OEHHA 2015). Construction activities associated with the project would require the use of diesel-powered heavy-duty equipment over the approximately 1.5-year construction period. Therefore, construction of the proposed project would not occur over a prolonged period, minimizing exposure

from diesel PM at any one receptor. Additionally, as required by 13 CCR Section 2449(d)(3), no off-road diesel vehicles may idle for more than 5 consecutive minutes. Therefore, the project would not have a significant health risk associated with construction activities and impacts would be **less than significant**.

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

Human response to odors is subjective, and sensitivity to odor varies from person to person. Typically, odors are considered an annoyance rather than a health hazard. However, a person's response to odor can range from psychological (e.g., irritation, anger, anxiety) to physiological (e.g., circulatory and respiration reaction, nausea, headaches, etc.). Diesel exhaust emissions are the only anticipated odor created from the project. These diesel exhaust emissions would be temporary, intermittent, and dissipate over time and distance. Therefore, the project's short-term construction activities would not present exposure of nearby residents to substantial odors from diesel exhaust emissions. Various chemicals used in construction, and dust may cause localized odor, but this would be temporary, intermittent, and dissipate over time and distance. This impact would be **less than significant**.

3.4. Biological Resources

Environmental Issue	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact	Beneficial Impact
IV. BIOLOGICAL RESOURCES. **Would the project:**					
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	☐	☒	☐	☐	☐
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	☐	☒	☐	☐	☐
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?	☐	☐	☐	☐	☐
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	☒	☐	☐
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☒	☐	☐	☐
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or State habitat conservation plan?	☐	☐	☐	☒	☐

Environmental Setting

The BSOG, located at the downstream end of Butte Slough channel, discharges into the Sacramento River at approximately River Mile (RM) 138, approximately 3.7 miles downstream from the town of Colusa. The BSOG facility is operated to discharge floodwaters and excess agricultural water from Butte Basin to the Sacramento River and to control water levels in the Butte Basin for irrigation and drainage purposes (USACE 1957). During the flood season when stages in the Sacramento River are higher than water elevations behind the BSOG, the flap gates close and Sacramento River water is prevented from flowing into the Butte Slough Basin. When stages in the Sacramento River are lower than water elevations behind the gates, the gates can be opened and drainage from Butte Slough flows through the BSOG into the Sacramento River. During the irrigation season, the BSOG facility is used to control water levels from the Butte Basin so that diversions downstream of the BSOG can be provided with water. The elevation of the project area ranges from 36 feet near the water surface on either side of the BSOG facility, depending on flow, to 66 feet at the highest point of Marty Road over the BSOG facility.

Field surveys to characterize the biological resources on and adjacent to the project site were conducted by a GEI biologist in July 2023. Vegetation on and adjacent to the project site is a mix of native and nonnative riparian species. Annual grasses and ruderal vegetation are common in disturbed areas along dirt roads and areas that have been maintained by discing or burning. Active agricultural fields and ornamental vegetation (at the residential and marina areas) surround the project site.

The plant community along Butte Slough consists of valley oak (*Quercus lobata*) and closely associated riparian species (Sawyer and Keeler-Wolf 1995), including Goodding's black willow (*Salix gooddingii*), Northern California black walnut (*Juglans hindsii*), California wild grape (*Vitis californica*), arroyo willow (*Salix lasiolepis*), Oregon ash (*Fraxinus latifolia*), box elder (*Acer negundo*), white alder (*Alnus rhombifolia*), and Fremont cottonwood (*Populus fremontii*) comprising the overstory. California rose (*Rosa californica*), Himalayan blackberry (*Rubus armeniacus*), and poison oak (*Toxicodendron diversilobum*) comprise the understory waterside of the levees. Buttonbush (*Cephalanthus occidentalis*) and woolly rose-mallow (*Hibiscus lasiocarpos* var. *occidentalis*) occur near the water's edge. Oregon ash grows higher up on the levees above the buttonbush and woolly rose-mallow, and the levee tops are dominated by valley oak and willow.

Agricultural lands occur landside of the levees, including rice and other row/field crops to the north and orchards to the south. California annual grassland-associated species (Sawyer and Keeler-Wolf 1995) such as slender wild oats (*Avena barbata*), wild oats (*Avena fatua*), ripgut brome (*Bromus diandrus*), soft chess brome (*Bromus hordeaceus*), and rye grass (*Festuca perennis*), mixed with ruderal forbs such as yellow star-thistle (*Centaurea solstitialis*), redstem filaree (*Erodium cicutarium*), and black mustard (*Brassica nigra*) are common in disturbed areas along dirt roads and areas that have been disced or disturbed.

Vegetation on the Sacramento River side of the BSOG facility consists of many of the same native tree and understory species as the levees along Butte Slough. Valley oak, Oregon ash, willows, California wild grape, and poison oak are present, with Fremont cottonwood the dominant overstory species. Ornamental tree species such as mulberry (*Morus alba*) and mimosa (*Albizia julibrissin*) are planted near the campsites in the marina, and the private residence across from the marina has oleander (*Nerium*

oleander) planted along Butte Slough Road. Common annual grasses and ruderal plant species such as those listed above also occur along the perimeter of the marina and the private residence.

Sensitive biological resources discussed below include those that are afforded consideration or protection under CEQA, the California Fish and Game Code (CFGC), California Endangered Species Act (CESA), Federal Endangered Species Act (ESA), the Clean Water Act (CWA), and Porter-Cologne Water Quality Control Act (Porter-Cologne Act).

Sensitive Habitats

Sensitive habitats include those that are of special concern to resource agencies or are afforded specific consideration under Federal or State regulations. Sensitive habitats may be of special concern for a variety of reasons, including their locally or regionally declining status or because they provide important habitat for special-status species.

Critical Habitat and Essential Fish Habitat

Section 3(5)A of the Federal ESA defines "critical habitat" as the specific areas within the geographical area occupied by Federally listed species on which are found physical or biological features essential to the conservation of the species and that may require special management considerations or protection. No units of proposed or designated critical habitat for Federally listed species under U.S. Fish and Wildlife Service (USFWS) jurisdiction overlap the project site (USFWS 2024b). However, the reach of the Sacramento River west of the BSOG is designated critical habitat for Chinook salmon (*Oncorhynchus tshawytscha*)-Central Valley spring-run Evolutionarily Significant Unit (ESU), Chinook salmon-Sacramento River winter-run ESU, steelhead (*Oncorhynchus mykiss*)-California Central Valley Distinct Population Segment (DPS), and green sturgeon (*Acipenser medirostris*)-southern DPS by the National Marine Fisheries Service (NMFS). Butte Slough and the immediately adjacent reach of Butte Creek to the east of the BSOG facility is designated critical habitat for steelhead-California Central Valley DPS and Chinook salmon-Central Valley spring-run ESU.

The Sacramento River west of the BSOG facility is within designated Essential Fish Habitat (EFH) for groundfish and Chinook salmon, both as designated by the Pacific Coast Salmon Fishery Management Plan and defined by the Magnuson-Stevens Fishery Conservation and Management Act. Butte Slough is also Chinook salmon EFH.

Waters and Wetlands

Under Section 404 of the CWA, USACE has jurisdiction over and regulates discharge of dredged and fill materials into features that qualify as waters of the United States, including some wetlands that support appropriate vegetation, soils, and hydrology. Similarly, under Section 401 of the CWA, Section 404 applicants are regulated by the CVRWQCB for discharge of dredged or fill material into waters of the United States that drain to the Central Valley, to ensure such activities do not violate Federal or State water quality standards. CVRWQCB also regulates waters of the State, in compliance with the Porter-Cologne Water Quality Control Act. In addition, diversions, obstruction, or changes to the natural flow or bed, channel, or bank of any river, stream, or lake in California that supports wildlife resources are subject to the regulatory approval of California Department of Fish and Wildlife (CDFW) pursuant to

Section 1602 of the CFGC, including the Sacramento River and Butte Slough. All waters up to the OHWM on the project site are assumed to qualify as waters of the U.S. and waters of the State, both in the Sacramento River and Butte Slough.

Natural Communities of Special Concern

CDFW maintains a list of sensitive natural communities (CDFW 2023a). Riparian vegetation throughout the project site is considered a sensitive natural community, with the designation of valley oak riparian forest and woodland. However, almost all riparian vegetation classified as a sensitive natural community is outside the construction area.

National Wildlife Refuge Lands

A portion of the project site overlaps a unit of the Steve Thompson North Central Valley Wildlife Management Area, which is part of the Sacramento National Wildlife Refuge complex. The management area is primarily composed of conservation easements on private lands. Activities proposed on lands managed by the National Wildlife Refuge System are required to undergo a "Compatibility Determination" conducted by the refuge (USFWS 2024b).

Special-status Species

For purposes of this analysis, special-status species include plants and animals in one or more of the following categories:

- taxa (i.e., taxonomic categories or groups) officially listed, candidates for listing, or proposed for listing under ESA or CESA as endangered, threatened, or rare.
- taxa that meet the criteria for listing, even if not currently included on any list, as described in State CEQA Guidelines California Code of Regulations Section 15380.
- wildlife identified by CDFW as species of special concern.
- species listed as fully protected under the CFGC.
- plant taxa considered by CDFW to be rare, threatened, or endangered in California (California Rare Plant Rank [CRPR] 1B); rare, threatened, or endangered in California but more common elsewhere (CRPR 2B); about which more information is needed (CRPR 3); or of limited distribution (CRPR 4).

The California Natural Diversity Database (CNDDB) (CDFW 2023b) and online Inventory of Rare and Endangered Vascular Plants of California (California Native Plant Society [CNPS] 2023) were reviewed for information on special-status plants and animals that have been documented in the project vicinity. These reviews included the U.S. Geological Survey (USGS) 7.5-minute quadrangle on which the project site is located (Meridian) and the eight surrounding quadrangles. A list of resources under USFWS jurisdiction that could occur in the project vicinity was obtained from the Information for Planning and Conservation (IPaC) website (USFWS 2024b), and the National Oceanic and Atmospheric Administration Fisheries West Coast Region Protected Resources App (NOAA Fisheries 2024) was reviewed. The

database search results and special-status species summary tables referenced below are provided in **Appendix B,** "Biological Resources."

3.4.1.1.1. Special-status Fish

Native and non-native fish that use habitat within and around the project site (on both the Sacramento River side and Butte Slough/Butte Creek watershed side) include the species listed in **Table B1** (see **Appendix B**). Special-status species include Chinook salmon-Central Valley spring-run (*Oncorhynchus tshawytscha*), Chinook salmon-Sacramento River winter-run (*O. tshawytscha pop. 7*), green sturgeon (*Acipenser medirostris pop. 1*), and steelhead-Central Valley (*O. mykiss pop. 11*). Non-native species include common carp (*Cyprinus carpio*), channel catfish (*Ictalurus punctatus*), and bluegill (*Lepomis macrochirus*). All these species are likely present within the project area, though abundance and/or presence may vary seasonally. For example, salmonids within the project vicinity are anadromous and individuals of varying life stages may be present depending on if adults are migrating upstream towards headwaters for spawning, or if juveniles are migrating downstream while enroute to the Pacific Ocean.

3.4.1.1.2. Special-status Plants

Information on special-status plants that have documented occurrences within the Meridian and surrounding eight 7.5-minute USGS quadrangles (Sanborn Slough, Pennington, Sutter Buttes, Tisdale Weir, Grimes, Arbuckle, Colusa, and Moulton Weir) is presented in **Table B2** (see **Appendix B**). Two special-status plants, heartscale (*Atriplex cordulata* var. *cordulata*) and wooly rose-mallow (*Hibiscus lasiocarpos* var*. occidentalis*), have been documented at the project site or have a moderate potential to occur on the project site. All other special-status plants identified have no or only low potential to occur at the project site.

3.4.1.1.3. Special-status Wildlife

Information on special-status wildlife that have documented occurrences within the Meridian and surrounding eight 7.5-minute USGS quadrangles (Sanborn Slough, Pennington, Sutter Buttes, Tisdale Weir, Grimes, Arbuckle, Colusa, and Moulton Weir) is presented in **Table B3** (see **Appendix B**). Western pond turtle (*Emys marmorata*) and a variety of special-status bird species have been documented at the project site or are likely to occur on the project site.

Discussion

a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or the U.S. Fish and Wildlife Service

This impact discussion focuses on special-status species with reasonable potential to occur on or adjacent to the project site and be affected by the proposed project. Therefore, plant and wildlife species that were determined to little or no potential to occur (because of poor or unsuitable habitat conditions or known extant range of the species) are not addressed in this discussion.

Special-status Fish

The BSOG facility was constructed in 1935. Since that time, most of the spring-run Chinook salmon population has used the Sutter Bypass as their main migration route through the area. DWR has completed recent improvements over the past 10 years along the Sutter Bypass, including fish passage improvements to the Willow Slough Weir and Weir 2. These fish passage improvements make it easier for spring-run Chinook, as well as steelhead and other Chinook salmon runs, to access upstream spawning areas in Butte Creek.

In summer and fall (during proposed in-water work windows), little to no water is released from the BSOG facility and into the Sacramento River. On rare occasions when some water is released, there is limited space for fish to enter Butte Slough from the Sacramento River as the culverts are covered with flap gates that do not completely open. Most, if not all, of the summer and fall runoff and agricultural water flows are directed down Sutter Bypass where it meets the Sacramento River near Verona.

No major changes are being made to the BSOG facility that would change its function or operations (e.g., no change in flows or water management activities). Project-related pile driving, concrete slurry backfill, cofferdam establishment, and dewatering activities could potentially impact special-status fish. Construction of improvements to the inlet and outlet structures would require installing sheet pile cofferdams on each side of the levee, followed by temporary dewatering of the construction areas. Cofferdam dewatering for construction would be accomplished with engine-driven dewatering pumps and either trench sumps, pit sumps, groundwater wells, or a combination of these methods. Drawdown rates would be established to reduce and/or avoid bank collapse. Water from dewatering efforts would be used for construction water (dust control, etc.) with the remaining balance being pumped back into Butte Slough and/or the Sacramento River. Upon completion of construction, the dewatering wells would be capped and abandoned in compliance with applicable regulations. Dewatering activities could adversely affect water quality in waterways to which excess water would be discharged if the discharge water includes high levels of sediment or disturbs sediment in receiving waters.

Sheet piles would be installed on both sides of the BSOG facility to isolate the in-water work area for dewatering. Sheet piles for the cofferdams would be driven primarily using a vibratory pile driver hammer. An impact pile driver would only be used if resistant soil layers are encountered. Hydroacoustic impacts on fish from pile installation can potentially cause damage ranging from behavioral (i.e., a fish leaving feeding or spawning sites) to physical (body tissue damage and/or death) (Transportation Research Board 2011). In addition, once sheet pile installation is completed, fish may become trapped in the isolated area behind the cofferdams. While the project is in construction and cofferdams are installed, fish outside the project site would be able to access the Sacramento River via the Sutter Bypass. Sheet piles on the Sacramento River side would be removed following construction. Due to its variable flow and intermittent gate closures, anadromous fish, including spring-run Chinook salmon and steelhead, are less likely to use Butte Slough for adult migration to spawning habitat than the Sutter Bypass, through which access would still be available during project construction when seasonal flows are high enough (McReynolds 2021). However, passage of some individuals could be disrupted by project construction.

Although it is anticipated that most sheet pile installation would occur using equipment staged on the banks, it is possible that up to two temporary construction pads may need to be constructed adjacent to the bank in Butte Slough and/or the Sacramento River to facilitate installation of the sheet pile beyond the crane's reach. This activity and other construction activities would disturb soils and could mobilize sediment into the Sacramento River and/or Butte Slough, producing temporary increases in turbidity and sedimentation downstream of the construction site. Potential impacts could include periods of localized, high suspended-sediment concentrations which could cause clogging and abrasion of gill filaments in fish and reduce feeding opportunities for sight-feeding fish. Accidental spills or seepage of hazardous materials could also occur, causing a significant impact to fish species and their environment.

Additionally, project work could potentially involve bank stabilization if, during dewatering, slope instability occurs. Bank stabilization would involve altering slopes below OHWM if needed to avoid further erosion, though slopes would be designed to restore pre-project angles and maintain/create habitat where plants may colonize the banks and further aid in bank stability. This alteration of slope would have a **less-than-significant** impact on the total amount of protected waters below OHWM (which includes designated critical habitat for Chinook-Central Valley spring-run ESU, Chinook-Sacramento River winter-run ESU, steelhead-California Central Valley DPS, and green sturgeon-southern DPS; and EFH for groundfish and Chinook salmon) as original bank locations and slopes would be maintained to the furthest extent possible.

Construction activities in and adjacent to the waterways have the potential to substantial adverse impacts on special-status fish present in or downstream of the project site. Therefore, this impact is considered **significant**.

Mitigation Measures BIO-1, BIO-2, and BIO-3 will be implemented to address this impact. In addition, DWR will obtain necessary water quality and other biological resource permits (e.g., CWA 401 certification, General Order for surface water discharge, NMFS Biological Opinion, etc.) and will adhere to all required avoidance and minimization measures, further ensuring water quality objectives are met.

Mitigation Measure BIO-1: Minimize Impacts on Special-status Fish and other Sensitive Biological Resources

DWR and its construction contractor(s) will implement the following measures to minimize impacts on special-status fish and other sensitive resources on and adjacent to the project site:

- All project personnel working on the project site will attend a worker environmental awareness training program before beginning on-site work. The awareness training will be presented by a qualified biologist with knowledge of sensitive biological resources known or with potential to occur on the project site. The awareness training will address applicable Federal and State laws and regulations; sensitive habitats on and adjacent to the project site; biology, habitat needs, and distribution of special-status species on and adjacent to the project site; regulatory status of each resource and its associated protections; measures required to avoid and reduce impacts to these resources during project construction; potential penalties for non-compliance; and procedures to be followed if dead or injured wildlife are found during project activities. Upon completion of the orientation, employees

will sign a form stating that they attended the program and understand all required measures. No untrained personnel will be allowed to work onsite.

- Use existing staging sites, maintenance toe roads, and levee crown roads to the extent practicable for staging and access to avoid affecting previously undisturbed areas. Limit the number of access routes and the size of staging and work areas to the minimum necessary to conduct the activity.

- Where feasible and practicable clearly mark work area limits (e.g., with flagging or fencing), including access roads, staging and equipment storage areas, stockpile areas, equipment fueling areas, and other areas where construction activities will occur. Work will occur only within the marked limits.

- The amount of revetment and similar materials used for bank protection and other maintenance activities will be limited to the amount necessary to meet maintenance obligations and ensure proper flood protection system integrity and function.

- Remove temporary fill, construction debris, and refuse, and properly dispose of these materials following completion of any maintenance activities.

- Habitats, including aquatic, will be restored to pre-project conditions wherever feasible.

- All in-water work will occur between June 15 to October 31 to minimize potential for anadromous special-status fish to be present during in-water construction activities.

- In-water construction work will be conducted only in dry, dewatered areas behind sheet pile cofferdams and all within one season (anticipated to be 2025). All construction equipment used for in-water work will be cleaned and free of invasive species. The cofferdams will be constructed on both sides of the BSOG facility, prior to any in-water soil-disturbing activities. The Sacramento River cofferdam will be constructed to an elevation high enough to avoid flooding during the construction period. Sutter Maintenance Yard staff will control the stage elevations downstream of the BSOG facility during the entirety of construction to avoid flooding the cofferdam on the Butte Slough side.

- A fish rescue plan will be developed and implemented by DWR after plan approval by CDFW and NMFS and prior to cofferdam installation. The plan will reference and implement adapted fish relocation measures defined in the CDFW California Salmonid Stream Habitat Restoration Manual (Flosi et al. 1998). Fish trapped inside the cofferdam will be rescued before the cofferdam is completely drained as removing or excluding fish during installation is difficult and not feasible. Qualified biologists will capture fish within the cofferdam areas and relocate as specified in the fish rescue plan.

- A qualified biologist will be onsite or on call during in-water construction activities. If a sensitive species is encountered during construction, activities will cease (where safely and mechanically possible) until appropriate corrective measures have been completed or it has been determined that the species will not be harmed.

- A dewatering plan will be prepared by DWR and submitted to CDFW and NMFS prior to commencing dewatering activities. The dewatering plan will be implemented by DWR during

all dewatering activities, and pump intakes will be fitted with appropriately sized NMFS- and/or CDFW-approved fish screens to prevent fish from becoming entrained. The dewatering plan will address fish rescue measures (consistent with CDFW/NMFS) and water quality/discharge measures consistent with objectives of the CVRWQCB.

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

- Inspect under all vehicles and heavy equipment for the presence of wildlife before the start of each workday when equipment is staged overnight. All pipes, culverts, and similar structures that have been stored on-site for one or more nights will be inspected for wildlife before being buried, capped, or moved.

- Cover all excavated, steep-walled holes or trenches 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 escape ramps for wildlife.

- Ensure that all project-related trash items, such as wrappers, cans, bottles, and food scraps, are collected in closed containers, removed from maintenance sites each day, and disposed of at an appropriate off-site location to minimize attracting wildlife to work areas.

  Timing: Before and during construction activities.

  Responsibility: DWR and construction contractor(s).

Mitigation Measure BIO-2: Minimize Underwater Sound Pressure from Pile Driving with Impact Hammer

DWR and its construction contractor(s) will implement the following measures to minimize impacts on special-status fish from underwater sound pressure:

- If an impact hammer is needed to drive piles, noise levels will not exceed the following threshold levels established by USFWS and NMFS (for fish greater than 2 grams):

  - Peak pressure = 206 decibels.

  - Accumulated SEL = 187 decibels.

- To comply with the thresholds, DWR will employ the following measures:

  - Use of an impact hammer cushion block.

  - Hammers will be used only during daylight hours and will initially be used at low energy levels and reduced impact frequency.

- Applied energy and frequency will be gradually increased until necessary full force and frequency are achieved.

- If noise thresholds are not met using the above measures, DWR will consult with CDFW and NMFS and one or both of the following mitigation measures may be implemented as feasible:

  - A bubble curtain may be implemented, surrounding the pile to be driven.

  - Shortening the daily duration of pile-driving activities.

  - A qualified biologist will be present to monitor pile driving and compliance with regulatory permit terms and conditions of permits. If any injury or mortality to fish is observed, CDFW and/or NMFS will be immediately notified, and in-water pile driving will cease temporarily until the issue is resolved to comply with the thresholds.

  Timing: During construction activities.

  Responsibility: DWR and construction contractor(s).

Mitigation Measure BIO-3: Prepare and Implement a Water Quality Control Plan

DWR and its construction contractor(s) will implement the following measures to minimize impacts on special-status fish from water quality degradation, including accidental spills, turbidity, erosion, and sedimentation. The measures will be included in a Water Quality Control Plan that will be developed by the contractor prior to the start of construction and implemented throughout construction. A copy of the plan will be available at all times on the construction site and will address the following measures:

- Spill prevention and contingency measures, including measures to prevent or clean up spills of hazardous materials used for equipment operation, and emergency procedures for responding to spills. Measures will be updated as needed to reflect changes in on-site hazardous materials. In addition, spill control materials will be available on-site and available for deployment during all phases of work.

- Best Management Practices (BMPs) for preventing or minimizing the discharge of sediments and other potential contaminants that have the potential to affect beneficial uses or lead to a violation of water quality objectives will be implemented by DWR and the construction contractor(s). The plan will identify and specify (but is not limited to) the use of an effective combination of appropriate temporary and/or between season erosion and sediment control BMPs for use on the project site, spill prevention and contingency measures, waste disposal, and emergency contacts and responsibilities. Erosion control will include measures for construction, long-term management, and stabilizing soils, if necessary, before the onset of winter. BMPs may include the careful use of grading management techniques, silt fences, silt or turbidity curtains, berms, sandbags, and revegetation.

- A dewatering plan will be developed and implemented that is designed so that any potential discharges to surface water will meet the water quality objectives of the CVRWQCB. The dewatering plan will include measures to minimize turbidity of discharge water and details on the approach to season the channel before reestablishing flows so that flushing flows do not cause surging of sediments downstream.

- Erosion control measures for construction, long-term management, and stabilizing soils, if necessary, before the onset of winter. Additional BMPs for erosion control will include the careful use of grading management techniques, silt fences, silt or turbidity curtains, berms, sandbags, and revegetation. These erosion control BMPs will be implemented by DWR and its construction contractor(s) prior and during construction-related activities.

- Inspection, monitoring, and reporting measures to ensure CVRWQCB water quality objectives are met during construction and long-term management. BMPs are expected to be fully effective. Notwithstanding, DWR or its construction contractor will evaluate BMP effectiveness during construction. If the quantity or quality of the BMPs needs to be addressed, DWR or its contractor will implement improvements within 24 hours after the initial discovery or before the onset of an expected storm event.

- Turbidity measurements will be taken daily upstream and downstream of the work areas, as well as at any other discharge points, during project activities with potential to degrade water quality, such as pile driving and discharge to surface waters. If measurements have a weekly average of 50 Nephelometric Turbidity Units (NTUs) above baseline (upstream), the following steps will be taken (EPA 2022):

    - Keeping site safety precautions in mind, immediately take steps to prevent further discharge, including stopping work if necessary.

    - Determine if dewatering and/or other controls for discharge are operating effectively and if they may be causing turbid conditions.

    - Make necessary adjustments, repairs, or replacements to dewatering or other discharging mechanisms to lower turbidity levels below the benchmark or to prevent/remove a visible turbidity plume or water sheen.

    Timing: Before and during construction activities.

    Responsibility: DWR and construction contractor(s).

Implementing Mitigation Measures BIO-1, BIO-2, and BIO-3 will reduce construction-related impacts to special-status fish, by requiring pre-construction training for workers on site, delineating the project site to prevent disturbance outside of necessary areas, conducting biological monitoring and stopping work if necessary, implementing a fish rescue plan, monitoring underwater sound pressure levels during impact pile driving and adhering to identified performance thresholds, and preparing and implementing a Water Quality Control Plan. Therefore, project impacts would be **less than significant with mitigation incorporated**.

Special-status Plants

Two special-status plant species, heartscale and wooly rose-mallow, have been documented at the project site or have moderate potential to occur on the site, and therefore have the potential to be directly impacted through trampling or other damage inflicted during ground-disturbing activities, including pre-construction staging, equipment movement (both work equipment and workers' automobiles coming to/from the project site, construction activities, and post-construction cleanup and revegetation. Therefore, this impact is considered **significant**.

Mitigation Measures BIO-1 and BIO-4 will be implemented to address this impact.

Mitigation Measure BIO-1: Minimize Impacts on Special-status Fish and other Sensitive Resources.

Refer to Special-status Fish mitigation above under Impact a) discussion for full mitigation measure text.

Mitigation Measure BIO-4: Minimize Impacts on Special-status Plants

DWR will implement the following measures to identify areas on and adjacent to the project site that support special-status plants:

- Prior to any project ground disturbance, a qualified botanist will be retained to perform focused surveys for special-status plants. These surveys will serve to document the presence/absence of these species in and adjacent to (within 100 feet, where appropriate) proposed impact areas, including new construction access routes. These surveys will be conducted in accordance with CDFW Protocols for Surveying and Evaluating Effects on Special-Status Native Plant Populations and Sensitive Natural Communities (2018) or other current protocols. These guidelines require that special-status plant surveys be conducted at the proper time of year when target species are both evident and identifiable. Surveys will be scheduled to coincide with known blooming periods, and/or during appropriate developmental periods that are necessary to identify the plant species of concern.

- If any special-status plant species are found within 100 feet of proposed impact areas during the surveys, these plant species will be avoided to the greatest extent possible and one the following will be implemented:

    - Any special-status plant species that are identified in or adjacent to the construction areas, but not proposed to be disturbed, will be protected by flagging, signage, orange construction fence, and/or silt fence as appropriate based on site conditions to limit the effects of project-related activities and material stockpiles on any special-status plant species.

    - If project-related activities would result in the loss of greater than 10% of a population or occupied habitat for a special-status plant species, a mitigation plan will be developed that describes a program to transplant, salvage, cultivate, and re-establish the species at

suitable sites (if feasible). Alternatively, mitigation could be satisfied through off-site preservation or via payment to an in-lieu fee program, if available.

- If the mitigation plan is chosen, it would include means and methods to propagate affected special-status plants via vegetative or reproductive means (e.g., harvesting of seed or seed bank through topsoil collection, salvaging and transplanting or collecting of cuttings), as appropriate for the species, and transplant at suitable receiving sites as close to the existing population as possible. Propagation and transplantation would occur prior to construction. The receiving location would be evaluated and chosen based on similarity to conditions at the transplant source location, to the extent feasible. Site conditions to consider when choosing a receiving site would include aspect, substrate, hydrology, associated species, and canopy cover. The transplanted plants would be monitored for at least one year following construction.

- If the preservation option is chosen, preservation areas may include undisturbed areas of the site that will be preserved and managed in perpetuity, offsite mitigation lands, or a combination of both. The preserved habitat will be of equal or greater habitat value to the areas affected in terms of soil features, extent of disturbance, vegetation structure, and contain extant populations of the same or greater size as the area affected.

- The actual level of mitigation may vary depending on the sensitivity of the species, its prevalence in the area, the location of the occurrence, and the current state of knowledge about overall population trends and threats to its survival; however, at a minimum, the species and habitat will be replaced at a minimum 1:1 ratio (individuals or acreage of occupied habitat).

Timing: Before construction activities.

Responsibility: DWR and construction contractor(s).

Implementing Mitigation Measure BIO-1 will educate on-site workers regarding sensitive species and necessary impact avoidance and minimization measures. Implementing Mitigation Measure BIO-4 will reduce impacts to special-status plants because pre-construction surveys will be conducted and, if species are present, measures such as no-disturbance buffers and plant replacement will be implemented to minimize and mitigate potential impacts. Therefore, project impacts would be **less than significant with mitigation incorporated**.

Special-status Reptiles

Project implementation may result in the loss or disturbance of individual and active nests of western pond turtle. Nest disturbance resulting from project construction has the potential to cause loss of eggs or hatchlings and dewatering could result in direct injury or mortality to any juvenile or adult turtles in vicinity of the project site. The loss or disturbance of active nests and/or mobile juveniles or adults in the Butte Slough and surrounding area is considered **significant**.

Mitigation Measures BIO-1 and BIO-5 will be implemented to address this impact.

Mitigation Measure BIO-1: Minimize Impacts on Special-status Fish and other Sensitive Biological Resources.

Refer to Special-status Fish mitigation above under Impact a) discussion for full mitigation measure text.

Mitigation Measure BIO-5: Minimize Impacts on Western Pond Turtle

DWR and its construction contractor(s) will implement the following measures to minimize impacts on western pond turtle:

- Ground disturbance (e.g., grading, disking, road construction or similar activities that could disturb or crush western pond turtles and their nests) will be avoided, if possible, within 200 feet of potentially suitable western pond turtle nesting or aquatic habitat, as determined by a qualified biologist. This 200-foot buffer, or another buffer approved in consultation with CDFW, will be marked in the field by a qualified biologist using temporary fencing, high-visibility flagging, or other means that are equally effective in clearly delineating the buffers.

- Project activities that could result in ground disturbance will not occur within the buffer to the extent feasible. If such activities must occur in buffers, a buffer of reduced width will be established (in consultation with CDFW) by a qualified biologist, marked, and avoided during maintenance activities in that location. All ground-disturbing project activities occurring within the buffer will be monitored by a qualified biologist who would be either on-call or on-site, as appropriate to reduce impacts.

- If western pond turtles are observed in the project area, DWR will stop work within approximately 200 feet of the turtle, and a qualified biologist will be notified immediately. If possible, the turtle will be allowed to leave on its own and the qualified biologist will remain in the area until the biologist deems his or her presence no longer necessary to ensure that the turtle is not harmed. Alternatively, the qualified biologist may capture and relocate the turtle, unharmed and with prior CDFW approval, to suitable downstream habitat at least 200 feet away. If the turtle does not voluntarily leave the project area and cannot be captured and relocated unharmed, project activities within approximately 200 feet of the turtle will not resume, and CDFW will be consulted to identify the next steps, if needed.

Timing: Before and during construction activities.

Responsibility: DWR and construction contractor(s).

Implementing Mitigation Measure BIO-1 would educate on-site workers regarding sensitive species and necessary impact avoidance and minimization measures, minimize disturbance of pond turtle habitat, and would limit in-water activity to June 15 to November 1, when pond turtles are more likely to be active in aquatic habitats and can actively move to avoid activities in aquatic habitat. Implementing Mitigation Measure BIO-5 would reduce impacts to western pond turtle because work in and within 200 feet of suitable aquatic habitat would be minimized and if pond turtles are encountered during project

activities, they would be allowed to leave the project area or relocated if in harm's way and safe capture is feasible. Therefore, project impacts would be **less than significant with mitigation incorporated**.

Special-status Birds

Project implementation could result in the loss or disturbance of active nests of special-status bird species such as Swainson's hawk, white-tailed kite, bald eagle, yellow-breasted chat, tricolored blackbird, and Modesto song sparrow. Although western yellow-billed cuckoo nests in the region, the project site and adjacent riparian areas do not provide suitable nesting habitat for this species. In addition to special-status species, common resident and migratory bird species could nest on and adjacent to the project site. The nests of nearly all native birds are protected under the CFGC and/or the Migratory Bird Treaty Act. Nest disturbance resulting from project construction has the potential to cause nest abandonment or the loss of eggs or chicks as a result of reduced parental care, and removal of nesting vegetation could result in direct nest destruction.

Project activities would temporarily disturb foraging habitat for special-status birds with potential to occur on or immediately adjacent to the project site, but these impacts would be minor, given the small area (seven trees total) that would be affected and the temporary nature of the disturbance. Habitat of similar foraging quality is present in the immediate environs and project-related disturbance of foraging habitat would be a minor impact and would not have a substantial adverse effect on any special-status species. However, the loss or disturbance of active nests is considered **significant**.

Mitigation Measures BIO-1 and BIO-6 will be implemented to address this impact.

> **Mitigation Measure BIO-1: Minimize Impacts on Special-status Fish and other Sensitive Biological Resources**
>
> Refer to Special-status Fish mitigation above under Impact a) discussion for full mitigation measure text.
>
> **Mitigation Measure BIO-6: Minimize Impacts on Nesting Birds**
>
> DWR and its construction contractor(s) will implement the following measures to minimize impacts on nesting birds:
>
> - If project activities that could affect suitable habitat for nesting birds cannot be conducted outside of the nesting season (January 1 through September 15, dependent on specific species), DWR will complete pre-activity surveys for nesting birds (including raptor and passerine nests and heron and egret rookeries). Surveys will be conducted by a qualified biologist. Surveys will be conducted within suitable nesting habitat that could be affected by project activities (e.g., construction area, staging 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. These protocols include:
>
>   - Bald Eagle Nesting Territory Survey Form and Instructions (CDFG 2010)

- Staff Guidance Regarding Avoidance of Impacts to Tricolored Blackbird Breeding Colonies on Agricultural Fields in 2015 (CDFW 2015)

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

- If no established survey protocol exists, the qualified biologist will complete surveys within 1 week of the start of on-site project activity, or within 2 weeks of restart of the activity after the activity has lapsed. If no nesting birds are detected during pre-activity surveys, no additional mitigation measures are required.

- If nesting birds are identified by a qualified biologist on or adjacent to the project site, DWR will establish an avoidance buffer as indicated below in **Table 3-4** for project activities that would potentially affect the nesting birds. Alternatively, a qualified biologist may determine that a buffer is not required to avoid adverse effects on nesting birds, based on the specific project activities to be conducted, species present, nest stage, and nest location.

Table 3-4. Buffer Distances for Protected Bird Species.

Bird Species	Buffer Distance
white-tailed kite	0.5 mile
bald eagle	0.5 mile
Swainson's hawk	0.5 mile
western yellow-billed cuckoo	500 feet
yellow-breasted chat	100 feet
song sparrow (Modesto population)	100 feet
tricolored blackbird	300 feet
common nesting passerines	100 feet
common nesting raptors	300 feet
common heron or egret rookeries	200 feet

Source: DWR 2017.

If required, buffers will be marked in the field by a qualified biologist using temporary fencing, high-visibility flagging, or other means that are equally effective in clearly delineating the buffers. Project activities will not occur within the buffer, and the buffer will be expanded if the nesting pair or their young exhibit agitated behavior. If project activities that may impact special-status nesting birds are required within the avoidance buffer indicated in **Table 3-4**, the activities will be monitored by a qualified biologist either continuously or periodically during work, as determined by the qualified biologist. The qualified biologist will be empowered to stop project activities that, in the biologist's opinion, threaten to cause nest disturbance or abandonment. If project activities are stopped, the qualified biologist will consult with CDFW (and USFWS if appropriate) to determine appropriate measures that DWR will implement to avoid adverse effects. Buffers will be maintained until there is no longer a threat of

disturbance to the sensitive biological resource (e.g., young have fledged, individuals have moved out of the area), as determined by a qualified biologist.

Timing: Before and during construction activities.

Responsibility: DWR and construction contractor(s).

Implementing Mitigation Measure BIO-1 will educate on-site workers regarding sensitive species and necessary impact avoidance and minimization measures. Implementing Mitigation Measure BIO-6 will reduce impacts on nesting birds, including special-status species, because pre-construction nesting bird surveys will be conducted, and buffers will be implemented to avoid project-related disturbance and failure of any active nests present during construction activities. Therefore, project impacts would be **less than significant with mitigation incorporated**.

Special-status Mammals

While the project site does contain riparian habitat preferred for roosting by western red bat and other protected bat species, the site is subject to high levels of human disturbance and only a small patch of potential roosting habitat occurs on the project site. This small amount of potential roosting habitat is unlikely to support colonial roosting, including maternity roosting. If roosting occurs onsite, it is likely to be limited to a relatively small number of individual bats that may occasionally day-roost within the project area. Project-related tree removal may directly impact roosting bats and other project activities may indirectly impact roosting bats through any vibration, loud noises, or other disturbance that may cause individuals to awaken during daylight hours, leaving them disoriented and vulnerable to prey attack. Consequently, the impact to roosting bats is considered **significant**.

Mitigation Measures BIO-1 and BIO-7 will be implemented to address this impact.

Mitigation Measure BIO-1: Minimize Impacts on Special-status Fish and other Sensitive Biological Resources

Refer to Special-status Fish mitigation above under Impact a) discussion for full mitigation measure text.

Mitigation Measure BIO-7: Minimize Impacts on Special-status Bats

DWR and its construction contractor(s) will implement the following measures to minimize impacts on special-status bats:

- If project activities that could affect suitable habitat for occupied bat roosts cannot be conducted outside of the maternity season (April 1 through August 31, dependent on specific species; Johnston et al. 2004), DWR will complete pre-activity surveys for roosting bats. Surveys will be conducted by a qualified biologist. Surveys will be conducted within suitable roosting habitat that could be affected by project activities (e.g., construction area, staging areas, access routes) and will include a 500-foot buffer area surrounding these areas.

- The qualified biologist will complete surveys within 1 week before the start of the activity, or within 2 weeks before restart of the activity after the activity has lapsed. If no roosting bats are detected during pre-activity surveys, no additional mitigation measures are required.

- If roosting bats are identified by a qualified biologist in or adjacent to the project site, DWR will establish an avoidance buffer for project activities that would potentially affect the bats. Alternatively, a qualified biologist may determine that a buffer is not required to avoid adverse effects on roosting bats, based on the specific project activities to be conducted and location of the roost in relation to those activities.

- If required, buffers will be marked in the field by a qualified biologist using temporary fencing, high-visibility flagging, or other means that are equally effective in clearly delineating the buffers. Project activities will not occur within the buffer, and the buffer will be expanded if the roosting bats exhibit agitated behavior. If project activities that may impact roosting bats are required within the avoidance buffer the activities will be monitored by a qualified biologist either continuously or periodically during work, as determined by the qualified biologist. The qualified biologist will be empowered to stop project activities that, in the biologist's opinion, threaten to cause unanticipated and/or unpermitted adverse effects on special-status wildlife (e.g., nest abandonment). If project activities are stopped, the qualified biologist will consult with CDFW to determine appropriate measures that DWR will implement to minimize adverse effects. For example, tree removal would not occur during periods when roosting bats are most vulnerable (i.e., during maternity and wintering periods) and removal may occur in a staged process over several days to allow roosting individuals to relocate. Buffers will otherwise be maintained until there is no longer a threat of disturbance to the roosting bats (e.g., young have fledged, individuals have moved out of the area), as determined by a qualified biologist.

Implementing Mitigation Measure BIO-1 will educate on-site workers regarding sensitive species and necessary impact avoidance and minimization measures. Implementing Mitigation Measure BIO-7 will reduce impacts on roosting special-status bats, because pre-construction surveys will be conducted, and buffers will be implemented, and trees will be removed in a manner that minimizes project-related disturbance of active roosts. Therefore, project impacts would be **less than significant with mitigation incorporated**.

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

The CNDDB identifies Great Valley Mixed Riparian Forest on the Sacramento River side of the project site (CDFW 2023b). No Great Valley Mixed Riparian Forest habitat is designated on the Butte Slough side of the project. Seven trees and associated understory along and near the Sacramento River and Butte Slough banks would be impacted or removed as part of the project construction activities, with two occurring below the OHWM (see **Section 2.5, Laydown and Staging Activities**). Riparian trees are considered a natural sensitive community and provide shade and important ecological functions for fish and reduction of this vegetation below OHWM would also cause an impact to designated critical habitat for Chinook-Central Valley spring-run ESU, Chinook-Sacramento River winter-run ESU, steelhead-

California Central Valley DPS, and green sturgeon-southern DPS, and EFH for groundfish and Chinook salmon. While one tree planned for removal below the OHWM provides shade to a portion of the Sacramento River channel, it does not meet the definition of shaded riverine aquatic (SRA) habitat (as defined in USFWS 1992) as the underlying substrate is not natural and is instead armored with rock. When flows vary within the channel to fall below the OHWM, the bank is protected from eroding due to the armored bank. In addition, the habitat along the southern bank of the BSOG outlet is not a mature riparian community and instead is immature scrub/shrub habitat However, the proposed impacts to riparian vegetation would be a **significant** impact.

Mitigation Measures BIO-1 and BIO-8 will be implemented to address this impact.

Project work could potentially involve bank stabilization measures if slope instability becomes an issue during dewatering. This potential alteration of slope would have a **less-than-significant** impact on critical habitat and EFH because original bank locations and slopes would be maintained to the maximum extent possible and there would be no long-term impact.

Mitigation Measure BIO-1: Minimize Impacts on Special-status Fish and other Sensitive Biological Resources

Refer to Special-status Fish mitigation above under Impact a) discussion for full mitigation measure text.

Mitigation Measure BIO-8: Minimize Impacts of Vegetation Removal

DWR and its construction contractor(s) will implement the following measures to minimize impacts of vegetation removal:

- Limit clearing of vegetation and blading for temporary vehicle access to the minimum necessary; especially minimize the clearing of native riparian vegetation and native oaks to the extent practicable.

- Where feasible and consistent with project requirements, avoid removal of native trees with a trunk greater than 4 inches in diameter at breast height. Work will be done in a manner that ensures, to the extent feasible, that living native riparian vegetation within the project footprint is avoided and left undisturbed, where this can reasonably be accomplished without compromising project construction and maintenance requirements.

- Disturbed soil areas will be stabilized using appropriate erosion control BMPs during and at the completion of construction activities for all phases of work. If hydroseeding is used to cover disturbed areas, native grass/forb/herbaceous plant, sterile rye, or other non-invasive seed mixes will be used.

- A certified arborist will be present to supervise tree removal and trimming to preserve tree health and ensure that appropriate methods are used. Any riparian habitat that is removed along the Sacramento River and/or Butte Slough will be replaced, with replacement to occur onsite. Native willows, oaks, and/or other native plantings will be replanted on bank slopes in or near the project area. In areas where rip rap will be replaced or installed, native

willows and/or other native trees and shrubs plantings will be incorporated into the voids/gaps. Lifts of riprap/soil mixes will be placed above the OHWM and where feasible (dependent upon slope and other factors) on the Butte Slough and Sacramento Riverbanks near the project site. Plantings will be incorporated into the rip rap/soil mix after construction is complete or during the final stages of construction.

- A mitigation and monitoring plan will be developed and implemented to ensure that there is no net long-term loss of shaded riverine aquatic habitat and other riparian habitat. Proposed mitigation habitat will be created at or near the site. DWR will coordinate with the appropriate regulatory agencies regarding compensation numbers/amount, locations, and details. If DWR cannot create on-site mitigation, off-site mitigation may be used with agency approval, including at existing and approved mitigation/conservation banks or at other approved sites including DWR managed restoration and/or multi-benefit projects.

  Timing: During and after construction activities.

  Responsibility: DWR and construction contractor(s).

Implementing Mitigation Measure BIO-1 would educate on-site workers regarding sensitive habitats and necessary impact avoidance and minimization measures. Implementing Mitigation Measure BIO-8 will reduce impacts on riparian habitat, designated critical habitat, and EFH because revegetation of the relatively small areas where vegetation removal may be required will restore habitat and prevent further deleterious runoff impacts. Alternatively, permanent habitat removal will be compensated at an off-site location. Therefore, project impacts would be **less than significant with mitigation incorporated**.

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?

The project site does not support Federally protected wetlands, marsh, vernal pool, or coastal wetlands as defined by Section 404 of the CWA. However, construction activities would take place below the OHWM of State and Federally protected waters and the project is subject to USACE and CVRWQCB regulation under Sections 404 and 401 of the CWA. There would be no permanent loss of protected waters, but construction activities would temporarily affect approximately 1.5 acres of open water in Butte Slough, potentially degrading water quality on and downstream of the project site. This impact would be **significant**.

Mitigation Measures BIO-1 and BIO-3 will be implemented to address this impact.

Additionally, project work could potentially involve bank stabilization if during dewatering, slope instability occurs. Bank stabilization would involve altering slopes below OHWM if needed to avoid further erosion. This alteration of slope would have a **less than significant** impact on the total amount of protected waters below OHWM as original bank locations and slopes would be maintained to the furthest extent possible.

Mitigation Measure BIO-1: Minimize Impacts on Special-status Fish and other Sensitive Biological Resources.

Refer to Special-status Fish mitigation above under Impact a) discussion for full mitigation measure text.

Mitigation Measure BIO-3: Implement Water Quality Control Plan

Refer to Special-status Fish mitigation above under Impact a) discussion for full mitigation measure text.

Implementing Mitigation Measures BIO-1 and BIO-3 will reduce impacts to protected waters within the project area, resulting from water quality degradation. Therefore, the small amount of impact on protected waters from project activities would be reduced to **less than significant with mitigation incorporated**.

d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?

Project implementation would have minor impacts on fish migration because no changes would be made to the BSOG facility that would alter its function and operations (e.g., change in flows or water management activities), and the project site is a minor migratory route. As discussed under impacts to special-status fish above, Sutter Bypass is the preferred migratory route for spring-run Chinook salmon and steelhead to and from spawning and/or rearing areas in Butte Creek (McReynolds 2012 pers. comm. and CSU Chico 1998) and fish passage conditions in Sutter Slough have been improved, providing easier fish passage than through the project area to and from upstream waters of Butte Creek at all times during the year. In addition, all work below the OHWM would occur during the dewatering period, which would be limited to one construction season from June 15 through October 31 (anticipated in 2025). Overall, fish movement in the Sacramento River is unlikely to be affected by the short-term nature of the project activities; therefore, the project would not interfere substantially with fish migration.

Butte Slough and the Sacramento River provide movement corridors for various wildlife species and nesting habitat for numerous native resident and migratory bird species. Impacts on nesting birds, including potential nursery sites such as heron and egret nest colonies are addressed above under impact discussion “a).” above. Potential impacts on wildlife movement would be limited to temporary disturbance during project construction. These impacts are not anticipated to have a substantial adverse effect because species could continue to move along the edge of the project area when work is occurring. In addition, work would not occur at night, when many wildlife species are most active. Therefore, this impact would be **less than significant**.

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

DWR is not subject to local laws or ordinances unless specifically authorized by the Legislature. Colusa and Sutter counties both have policies in their respective General Plans to avoid removal of native oak trees if possible. If oak trees are removed, replanting onsite is preferred over offsite. Due to the site size limitations and safe access between the structure's two sides along Butte Slough Road/the levee, at least two oak trees on the Butte Slough side of the project would need to be trimmed to allow access to the structure and new boat ramp. Minor trimming or limbing of additional oak tree(s) may be necessary around the project site and staging area for vehicle access. Minor oak tree trimming at the project site would not conflict with General Plan policies protecting those trees. However, if on-site circumstances change and/or trimming leads to death or accidental felling of an oak tree, this impact would be **significant.**

Mitigation Measure BIO-8 will be implemented to address this potential impact.

Mitigation Measure BIO-8: Minimize Impacts of Vegetation Removal

Refer to riparian mitigation above under Impact b) discussion for full mitigation measure text.

Implementing Mitigation Measure BIO-8 will ensure the project complies with Colusa County's and Sutter County's General Plan policies to avoid native oak tree removal. DWR is not subject to local laws or ordinances unless specifically authorized by the Legislature. Therefore, the impact would be reduced to **less than significant with mitigation incorporated**.

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

The project area is partially within the former Yuba-Sutter Natural Community Conservation Planning (NCCP) and Habitat Conservation Planning (HCP) plan area. A final Yuba-Sutter NCCP/HCP planning agreement was signed by all participating parties in 2012 and development of the Yuba-Sutter Regional Conservation Plan began. The plan was intended to address indirect growth-inducing impacts that would result from improvements to regional highways. However, work on the plan ended in 2018 because forecasted growth in the plan area never materialized. Therefore, the project would not conflict with an adopted conservation plan, and **no impact** related to conflict with such a plan would occur.

3.5. Cultural Resources

Environmental Issue	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact	Beneficial Impact
V. CULTURAL RESOURCES. **Would the project:**					
a) Cause a substantial adverse change in the significance of a historical resource pursuant to California Code of Regulations (CCR) Section 15064.5?	☐	☒	☐	☐	☐
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to CCR Section 15064.5?	☐	☒	☐	☐	☐
c) Disturb any human remains, including remains interred outside of dedicated cemeteries?	☐	☒	☐	☐	☐

Environmental Setting

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

Pre-contact Setting

This brief overview of the pre-contact history (sometimes called "prehistory") of the region is adapted from Rosenthal et al. (2007), which analyzed and synthesized the archaeology of central California and expanded and refined earlier chronological schemes.

Humans first entered the Central Valley sometime prior to 13,000 years ago (Late Pleistocene), during the Paleo-Indian Period. At that time glaciers had receded to the mountain crests leaving conifer forests on the middle and upper elevations of the Sierra Nevada and a nearly contiguous conifer forest on the Coast Ranges. The Central Valley was covered with extensive grasslands and riparian forests. The central California Delta system had not yet developed. The Central Valley was home to a diverse community of large mammals, which soon became extinct. People were likely focused on large game hunting, although evidence remains scant, as does understanding of lifeways during this period. The primary social unit was likely extended family (Frederickson 1992).

The Paleo-Indian Period was followed by the Lower Archaic Period (10,550 to 7,550 Before Present or BP). During this time, ancient lakes, which had supported subsistence strategies during the Paleo-Indian Period, began to dry up because of climate change. This led to the rapid expansion of oak woodland and

grassland prairies across the Central Valley. After 10,550 BP, a significant phase of soil deposition ensued in the Valley, capping older Pleistocene landforms. This was followed (around 7,000 BP) by a second phase of substantial soil deposition in the Valley. During this second phase, the first evidence of milling stone technology appears, indicating an increased reliance on processing plants for food. The appearance of milling technology may also indicate less emphasis on hunting as individuals became more familiar with the local plant resources. The Lower Archaic also saw the development of well-made bifaces used for projectile points and cutting tools, commonly formed from meta-volcanic greenstone and volcanic basalts. Most artifacts during this period were manufactured of local materials and trade was limited. The primary social unit remained the extended family (Fredrickson 1992).

The Middle Archaic period (7,550 to 2,550 BP) was marked by a change in climate with warmer and drier conditions throughout the region. Oak woodland expanded upslope in the Coast Ranges and conifer forest moved into the alpine zone in the Sierra Nevada. Rising sea levels led to the formation of the Sacramento-San Joaquin Delta (Delta) and associated marshlands. An initial period of upland erosion and lowland deposition was followed by a long period of stabilization of landforms. Scant evidence of human occupation from this period has been found in the Sacramento Valley or the adjacent Coast Ranges. Most evidence comes from the Sierra Foothills in Calaveras and Tuolumne counties.

During the Upper Archaic Period (2,550 to 900 BP), human occupation in the Central Valley became much more extensive than during earlier periods. The development of the Holocene landscape buried older deposits, resulting in the identification of more sites from the Upper Archaic than from older periods. Alluvial deposition was partially interrupted by two consecutive droughts known as the Medieval Climatic anomaly. Two fundamental adaptations developed side-by-side during the Upper Archaic, evidenced by a diversification in settlements patterns. Populations in the Valley tended towards large, high-density, permanent settlements. These villages were used as hubs from which the populace roamed to collect resources, utilizing a wide range of technologies. The populations in the foothills and mountains lived in less dense settlements, moving with the seasons to maximize resource returns. Tools tended to be expedient and multi-purpose, useful for a variety of activities. Village sites show extended occupation as evidenced by well-developed midden, frequently containing hundreds of burials, storage pits, structural remains, hearths, ash dumps, and extensive floral and faunal remains.

A major shift in material culture occurred during the Emergent Period (900 to 300 BP). Particularly notable was the introduction of the bow and arrow. The adoption of the bow occurred at slightly different times in different parts of the Sacramento Valley, but by 750 BP it was in use in the Delta region. The bow was accompanied by the Stockton Serrated point, a seemingly Indigenous invention, distinctive from point types used in other parts of the State. Another key element of material culture from this period includes big-head effigy ornaments thought to be associated with the Kuksu religious movement. In areas where stone was scarce, baked clay balls are found, presumably for cooking in baskets. Other diagnostic items from this period are bone tubes, stone pipes, and ear spools. Along rivers, villages are frequently associated with fish weirs, with fishing taking on an increasing level of importance in the diet of the local populace.

Ethnographic Setting

The BSOG facility is located within the traditional territory of the Patwin. Patwin homelands encompass an extensive region within north-central California and include the lower portion of the west side of the Sacramento Valley west of the Sacramento River from about the town of Princeton in the north to Benicia in the south (Kroeber 1925 [1976]). The Patwin territory was bounded to the north, northeast, and east by other Penutian-speaking peoples (Nomlaki, Wintu, and Maidu, respectively), and to the west by the Pomo and other coastal groups. Within this large territory, the Patwin have traditionally been divided into River, Hill, and Southern groups, although in actuality a more complex set of linguistic and cultural differences existed than is indicated by these three geographic divisions (McCarthy 1985).

As with most of the hunting-gathering groups of California, the "tribelet" represented the basic social and political unit. Typically, a tribelet chief would reside in a major village where ceremonial events were also typically held. The status of such individuals was patrilineally inherited among the Patwin, although village elders had considerable power in determining who succeeded to particular positions. The chief's main responsibilities involved administration of ceremonial and economic activities. Such individuals decided when and where various fishing, hunting, or gathering expeditions would occur, and similarly made critical decisions concerning the more elaborate ceremonial activities. He also played a central role in resolving conflicts within the community or during wars which occasionally broke out with neighboring groups. Apparently, a Patwin chief had more authority than his counterparts among many of the other central California groups (McKern 1922; Kroeber 1925 [1976]).

The onslaught of Euro-American culture negatively impacted Patwin culture and peoples. By 1871 to 1872, when Stephen Powers surveyed the state gathering ethnographic information, the Patwin culture appeared to him to be virtually extinct. Euro-American influences within Patwin territory increased dramatically as ranching and farming became popular in the area. Euro-American settlers, especially within the Sacramento Valley, quickly made inroads into lands occupied by Native Americans. Conflicts grew in number, and Patwin populations continued to decline from military skirmishes, vigilante raids, and other causes. In 1972, the Bureau of Indian Affairs listed only 11 remaining Patwin descendants (Johnson 1978:352). Despite the massive decline in population, the Patwin still reside in Sutter County, many having intermarried with the Wintu (Johnson 1978:352).

Historic Setting and Flood Management

Colusa County (County) (originally named Colusi County) was one of the first counties established in California shortly after statehood in 1850. The first settler to arrive in the region was John S. Williams who established a prominent cattle ranch nearly 2 miles south of present-day Princeton in 1847 (McComish et al. 1918:27). In the 1850s, the County population increased with the advent of the Gold Rush as individuals moved into the region. The town of Colusa (which later became the county seat) emerged around the same time as the County. (McComish et al. 1918:53). Residents of the small community became primarily involved in livestock raising and agriculture although adequate irrigation proved to be an ongoing challenge. Agriculture remains a chief driver of the of county, overall (McComish et al. 1918:53). By the late 19th century, State officials took portions of the County to create Glenn and Tehama counties (Colusa County 2023). Today, approximately 22,043 people live within the County (Rural County Representatives of California 2018:2).

Sutter County was one of the State's original 27 counties and was named for John Augustus Sutter. After several moves, settlers Samuel Brannan, Pierson B. Reading, and Henry Cheever finally designated Yuba City as the county seat in 1849. Sutter established his Hock Farm, his principal stock farm, in 1841, making it the first permanent Euro-American settlement in the County. The settlement was located on the west side of the Feather River, approximately 8 miles from Yuba City (Hoover et al. 1990:492–493). In 1842, Nicolaus Allgeier founded the town of Nicolaus in Sutter County. Over the next few decades, the local population grew as more individuals settled in the area and established farms and small ranches. Agriculture became a staple of the Sutter County economy.

The BSOG facility is located near the Sacramento River, south of Colusa approximately 3.7 miles within Levee Unit 157. In 1934, the firm of S.H. Palmer and A.J. Grier started construction on the BSOG facility, completing it in 1935 (USACE 1957:3). The BSOG facility s to relieve flood pressure from the Sacramento River through controlling the amount of water traveling from the Butte Basin up to a maximum of 3,500 cubic feet per second. The BSOG facility also assists with irrigation and drainage during the summer months when water levels are typically low. Water flows from the outfall gates, through Butte Slough, into the Sutter Bypass approximately 8 miles downstream (USACE 1957:3). RD 70 and the State Reclamation Board of the State of California oversees the BSOG facility. RD70 was first recognized in 1870; previously, it was known as Swamp Land District No. 20 and consisted of 6,000 acres. The BSOG facility is part of the Sacramento River Flood Control Project and the State Plan of Flood Control (Sutter County Historical Society 1964:5).

Discussion

The cultural resources investigations completed to support this analysis included a records search conducted at two separate information centers in the California Historic Resources Information System. The records search was conducted by GEI Consultants, Inc. (GEI) archaeologist Amy Wolpert, MA, on March 2, 2023. The Northeast Information Center (NEIC) returned the results of the search of the Sutter County portion of the project site, and a 0.5-mile buffer, on March 14, 2023 (NEIC File No.: NE23-106). The Northwest Information Center (NWIC) returned the results of the search of the Colusa County portion of the project site, and a 0.5-mile buffer, on April 3, 2023 (NWIC File No.:22-1343). Each information center identified one previously reported cultural resource, P-51-000233 and P-06-000699, which refer to the same resource, the BSOG facility. P-51-000233 also includes Butte Slough Historic Site #1, which consists of an associated trash scatter, flume, intake pipes, and a crossing.

On August 21, 2023, GEI senior archaeologist Denise Jurich, MA, a Registered Professional Archaeologist who meets the Secretary of the Interior's Standards for archaeology, and architectural historian Lena Philliber, BA, conducted a pedestrian survey of the project site. The pedestrian survey was conducted to intensive standards (transects spaced no more than 15 meters apart). As part of the survey, historic era (more than 45 years old) built environment resources were recorded through written notes and photographs. One built environment resource, the BSOG facility, was recorded as part of this survey. The resource was also recorded on the appropriate updated California Department of Parks and Recreation 523 form.

a) Cause a substantial adverse change in the significance of a historical resource pursuant to in California Code of Regulations Section 15064.5?

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

A cultural resource may be eligible for listing in the CRHR if it:

1. is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage.
2. is associated with the lives of persons important in our past.
3. embodies the distinctive characteristics of a type, period, region, or method of construction or represents the work of an important creative individual or possesses high artistic values.
4. or has yielded, or may be likely to yield, information important in prehistory or history.

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

The BSOG facility has been assigned two primary numbers, P 51-000233 and P 06-000699, because it was recorded in both Sutter and Colusa counties, respectively. P-51-000233 includes the outfall gates, part of the Butte Slough Levee, and an additional resource near the BSOG facility called Butte Slough Historic Site #1, which was recorded in 2012 by DWR (DWR 2012). In 2013, AECOM recorded an update to P-51-000233 (AECOM 2013). In 2012, P-06-000699 was assigned to the BSOG facility, and a portion of the Butte Slough Levee that extends into Colusa County, along the Sacramento River. AECOM recorded and evaluated the resource (P-06-000699) in 2013 and recommended it as ineligible for the NRHP/CRHR because of a lack of historical significance (AECOM 2013; OHP 2023). The evaluation also stated the BSOG may be potentially eligible as part of a larger district related to the SRFCP, but such an assessment was beyond the scope of the project. The State Historic Preservation Office concurred with the finding of ineligibility in 2015 (OHP 2023).

Since it has been more than 5 years since the last evaluation, GEI re-visited the BSOG facility for the purposes of this project to assess its current condition and to reassess it for the CRHR. GEI found no major changes to the resource, and it is in generally good condition. The previous evaluation of non-eligibility also appears to remain valid. The BSOG facility does not meet CRHR criteria. The resource on its own has not made a significant contribution to the broad patterns of history within the context of flood management, and thus, does not appear to be eligible under CRHR Criterion 1. Research did not reveal any important individuals to be associated with the resource and, therefore, the BSOG facility

does not appear to meet CRHR Criterion 2. The resource is a standard flood control feature and does not exhibit any unique design or construction methods and does not meet CRHR Criterion 3. Under Criterion 4, the resource is not likely to yield information important in prehistory or history. In addition, the resource has lost integrity over time. In summary, the BSOG facility does not meet CRHR criteria as an individual resource because of a lack of historical significance and integrity. Because the BSOG facility does not meet eligibility requirements for the CRHR, it is not considered a historical resource for the purposes of CEQA. Therefore, there would be **no impact**.

No archaeological resources were identified in the project site during the investigation. However, P-51-000233, the Butte Slough Outfall Gates (Sutter County), has a discontiguous archaeological component. This portion of the resource, as plotted, overlaps with the easternmost staging area by approximately 10 feet. No evidence of this component of the resource was identified within the project site during the pedestrian survey. This may be because only an edge, and thus likely most sparse portion of the site, overlaps with the project site, the surface portions of the site have been removed, or mis-plotted by the information center, for example. P-51-000233 is being recommended as not eligible for listing in the CRHR for built environment resources, but the archaeological component of the resource has not been evaluated. For purposes of the project, this component of P-51-000233 is being considered as eligible for listing in the CRHR.

During project-related, ground-disturbing activities, this historic component of resource P-51-000233 could be substantially impacted. Therefore, this potential impact is considered **significant**.

Mitigation Measure CR-1 will be implemented to address this impact.

> **Mitigation Measure CR-1: Protect the Archaeological Resource P-51-000233 Historic Component through Exclusion Fencing**
>
> To protect any possible damage to this component of P-51-000233, exclusion fencing will be placed 20 feet from the NWIC plotted boundary of the site prior to use of the area as a staging area. No vehicle traffic or placement of materials will occur past the exclusion fencing. This will protect any surface or near-surface portions of the resource that may exist within the Area of Potential Effect (APE).
>
> **Timing:** Prior to and during construction activities.
>
> **Responsibility:** DWR.

Implementation of Mitigation Measures CR-1 will reduce potentially significant construction-related impacts on the P-51-000233 historical component to a **less-than-significant** level by requiring exclusion fencing. Therefore, this impact would be **less than significant** with mitigation incorporated.

Though unlikely, it is possible buried historical or archaeological resources are present on the project site. If encountered during project-related, ground-disturbing activities, these resources could be substantially impacted. The cultural resources inventory and evaluation study prepared for the project

identified one archaeological-historical resource overlapping the project site through record searches. Therefore, this potential impact is considered **significant**.

Mitigation Measures CR-2 and CR-3 will be implemented to address this impact.

Mitigation Measure CR-2: Address Previously Known Historical, Archaeological, and Tribal Cultural Resources through Worker Environmental Awareness Program Training

Cultural resources awareness training, as part of an overall Workers Environmental Awareness Program (WEAP), will be conducted for all construction personnel by a cultural resources specialist who meets the SOI's Professional Qualifications Standards (36 CFR Part 61; 48 Federal Register 44716). The training will be conducted before any stages of physical project implementation and construction. Native American representatives from interested Native American Tribes will be encouraged to participate in the training.

The WEAP training will include information on the potential kinds of pre-contact Native American and historic-era cultural materials that could be encountered, how to identify buried faunal and human remains, and how to identify anthropogenic soils (e.g., midden soils). The WEAP training will also include a summary of the relevant laws concerning cultural resources and human remains, along with a summary of the following protocols to follow if workers encounter cultural resources or human remains.

Timing: Prior to and during construction activities.

Responsibility: DWR.

Mitigation Measure CR-3: Address Previously Known Historical, Archaeological, and Tribal Cultural Resources through Monitoring of Ground-disturbing Activities

Because of the sensitivity for archaeological resources in native soils, project-related, ground-disturbing activities conducted in native soils will be monitored by either a SOI-qualified archaeologist or supervised by a Secretary of the Interior qualified archaeologist or Tribal monitor, if available. Construction activities to be monitored will be restricted to work in native soils and where soils are able to be viewed; for example, installation of pilings that will not expose soils need not be monitored. Monitors will have the ability to temporarily stop work to inspect possible archaeological finds. Daily monitoring logs by all monitors will be kept with information regarding the type of work monitored, location of monitoring, time of monitoring, and whether archaeological/Tribal resources were encountered. All monitoring logs will be submitted to DWR on a weekly or biweekly basis.

Timing: During construction activities.

Responsibility: DWR.

Implementation of Mitigation Measures CR-2 and CR 3 will reduce potentially significant construction-related impacts on an historical or archaeological resource to a **less-than-significant with mitigation**

incorporated by requiring the preparation and implementation of a WEAP training to all project site personnel, and implementing actions to avoid, protect, or conserve resources through construction monitoring in coordination with culturally affiliated Tribes.

During project activities and continuing consultation with Native American Tribes, it is possible that previously undiscovered archaeological resources meeting criteria for inclusion of the CRHR may be identified. Therefore, this potential impact is considered **potentially significant**.

Mitigation Measure CR-4 will be implemented to address this potential impact.

> **Mitigation Measure CR-4: Address Previously Undiscovered Historical, Archaeological, and Tribal Cultural Resources**
>
> If buried or previously unidentified historic properties or archaeological resources are discovered during project construction, all work within a 100-foot-radius of the find will cease. DWR will retain a professional archaeologist meeting the Secretary of the Interior's Professional Standards for Archaeologists to assess the discovery and recommend what, if any, further treatment, or investigation is necessary for the find. Interested Native American Tribes will also be contacted. Any necessary treatment/investigation will be developed in coordination with interested Native American Tribes providing recommendations and with DWR and will be completed before project activities continue in the vicinity of the find.
>
> Timing: During construction activities.
>
> Responsibility: DWR and construction contractor(s).

Implementation of Mitigation Measure CR-4 will reduce the potential impact related to discovery of unknown historical resources to a less-than-significant level because the personnel involved in project activities will have received a cultural sensitivity training, the find will be assessed by an archaeologist, and the treatment or investigation will be conducted in accordance with CCR Section 15064.5. Therefore, this potential impact would be **less than significant with mitigation incorporated**.

b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to California Code of Regulations Section 15064.5?

As used in California PRC Section 21083.2, the term "unique archaeological resource" refers to an archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:

- contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information,
- has a special and particular quality such as being the oldest of its type or the best available example of its type, or

- is directly associated with a scientifically recognized important prehistoric or historic event or person.

No archaeological resources were found on the project site during the pedestrian survey or in the records search. Ground disturbance expected to occur during construction-related activities is limited in extent. The depth of ground disturbance within the project site would vary, with minimal disturbance expected within the equipment staging areas. Smaller, discreet areas would experience disturbance to greater depths (up to 4 feet within dewatered areas) for repairs, but these areas would be very limited in areal extent. Therefore, the likelihood of encountering cultural resources during project construction is low. Nevertheless, the possibility remains that archaeological resources may be discovered during project-related ground-disturbing activities. Therefore, this potential impact is considered **potentially significant**.

Mitigation Measure CR-4 will be implemented to address this potential impact.

Mitigation Measure CR-4: Address Previously Undiscovered Historical Archaeological Resources, and Tribal Cultural Resources.

Refer to Mitigation Measure CR-4 above under Impact a) discussion for full mitigation measure text.

Implementation of Mitigation Measure CR-4 will reduce the potential impact related to discovery of unknown historical resources to a less-than-significant level because the personnel involved in project activities will have received a cultural sensitivity training, the find will be assessed by an archaeologist, and the treatment or investigation will be conducted in accordance with CCR Section 15064.5. Therefore, this potential impact would be **less than significant with mitigation incorporated**.

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

No human remains are known to have been discovered in the project vicinity, and there is no indication from the records searches or pedestrian survey that human remains are present on the project site. Therefore, it is not anticipated that human remains, including those interred outside of dedicated cemeteries, would be discovered during ground-disturbance activities on the project site. However, in the event that human remains, including those interred outside of formal cemeteries and including associated items and materials, are discovered during subsurface activities, the human remains, and associated items and materials could be inadvertently damaged. Therefore, this potential impact is considered **potentially significant**.

Mitigation Measure CR-5 will be implemented to address this potential impact.

Mitigation Measure CR-5: Avoid Potential Effects on Undiscovered Burials.

DWR and its construction contractors will implement the following protocol to reduce or avoid potential impacts related to undiscovered burials. In accordance with the California Health and Safety Code, if human remains are found, all excavation work will be halted in the immediate area and the Colusa and Sutter counties Coroner(s) be notified to determine the nature of the

remains. The county 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 pre-contact Native American (i.e., not modern, and earlier than Euro-American incursion in the area), they must contact the NAHC by telephone within 24 hours of making that determination (California Health and Safety Code, Section 7050.5[c]).

Once notified by the Coroner, the NAHC will identify the person it believes is the Most Likely Descendant (MLD) of the Native American remains. With permission of the legal landowner, the MLD may visit the site and make recommendations regarding the treatment and disposition of the human remains and any associated grave goods. This visit should be conducted with 24 hours of the MLD's notification by the NAHC (PRC Section 5097.98[a]). If a satisfactory agreement for treatment of the remains cannot be reached, any of the parties may request mediation by the NAHC (PRC Section 5097.94[k]). Should mediation fail, the landowner or landowner's representative must reinter the remains and associated items with appropriate dignity on the property in a location not subject to further subsurface disturbance (PRC Section 5097.98[b]).

Timing: During construction activities.

Responsibility: DWR and construction contractor(s).

Implementation of Mitigation Measure CR-5 will reduce the potentially significant impact related to discovery of human remains to a less-than-significant level because the find will be treated or investigated in accordance with State and Federal laws. Therefore, this potential impact would be **less-than-significant with mitigation incorporated**.

3.6. Energy

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

Environmental Setting

Electric power and natural gas in Sutter and Colusa counties are supplied by PG&E. In 2021, the total electricity consumption for Colusa County was approximately 334.89 million kilowatt hours (kWh), and for Sutter County was 692.59 million kWh (CEC 2021). Existing electrical power is provided to the project site to support existing BSOP operations.

Discussion

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

The proposed project would not result in significant environmental impacts due to wasteful, inefficient, or unnecessary consumption of energy resources. The project would involve the use of diesel-fueled vehicles during construction; however, use of these vehicles would be temporary during the approximately 1.5-year construction period. The proposed project consists mainly of modifications to existing infrastructure associated with the BSOG facility; however, as part of the project construction, a new facility control building for facility operations would be developed and require electrical service. Power would be provided by PG&E from an existing PG&E power pole located near the proposed facility control building. The facility control building would require energy only for monitoring equipment operation and building security, a minimal amount of energy, which is consistent with the efficient operation of the BSOG facility. Therefore, the project would not result in a significant long-term increase in energy consumption and this impact would be **less than significant**.

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

The proposed project would comply with the state's Climate Commitment to reduce the reliance on non-renewable energy sources by half by 2030 (CEC 2021). The project would not conflict or obstruct the State's Climate Commitment. Additionally, the project would be consistent with the policies outlined in the Colusa County and Sutter County General Plans. Therefore, the project would not conflict with any local or State standards or renewable energy plans and there would be **no impact**.

3.7. Geology and Soils

Environmental Issue	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact	Beneficial Impact
VII. GEOLOGY AND SOILS. **Would the project:**					
a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:	☐	☐	☒	☐	☐
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? (Refer to California Geological Survey Special Publication 42.)	☐	☐	☐	☒	☐
ii) Strong seismic ground shaking?	☐	☐	☒	☐	☐
iii) Seismic-related ground failure, including liquefaction?	☐	☒	☐	☒	☐
iv) Landslides?	☐	☐	☐	☒	☐
b) Result in substantial soil erosion or the loss of topsoil?	☐	☒	☐	☐	☐
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	☐	☒	☐	☐	☐
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994, as updated), creating substantial direct or indirect risks to life or property?	☐	☐	☐	☒	☐
e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of waste water?	☐	☐	☒	☐	☐
f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☐	☒	☐	☐

Environmental Setting

Regional Geology

The project site is in the northern Sacramento Valley within the northern portion of the Great Valley Geomorphic Province (CGS 2002). The Great Valley is an alluvial basin/trough in the central part of California, that is approximately 50 miles wide (east to west) and 400 miles long (north to south). Uplift and erosion of neighboring geomorphic provinces (i.e., the Cascade Range, Coast Ranges, Klamath Mountains, and Sierra Nevada) have generated the thick accumulation of sediments within the Great Valley (including the Sacramento Valley) since the Jurassic (approximately the last 160 million years). These sediments consist of stacked marine and non-marine sediments that are up to 6 miles thick in the Sacramento Valley (DWR 2014; Graham 1981). The Great Valley is underlain by the Franciscan Assemblage (a Mesozoic metamorphosed terrane of sedimentary and igneous rocks) on the west and the North American Plate (continental lithosphere) on the east. Cenozoic deposits in the Great Valley Geomorphic Province are relatively thin and consist of continentally derived materials deposited during the mid- to late-Cenozoic period (i.e., Oligocene to Recent) (DWR 2014).

Local Geology

The project vicinity is mapped as Holocene natural levee and channel deposits (i.e., Quaternary alluvium: Qa), which consist of gravel, sand, and silt in present-day fluvial channels and flood basins (Saucedo and Wagner 1992). These deposits occur in active stream channels and their natural levees, as well as in adjacent broad alluvial fans (NGMDP 2023).

Land-based soil explorations and in-water soil explorations were conducted by DWR in 2012 and 2013, respectively (DWR 2012, 2014). Based on the DWR explorations, the project site geology consists of approximately 30 to 50 feet of embankment fill (i.e., artificial fill) overlying Qa to at least 100 feet. The artificial fill comprises the embankment crown and toe forming Butte Slough Road and consists predominantly of interbedded, moist to wet, medium stiff to stiff sandy lean clay to lean clay and medium dense clayey sand, with minor amounts of silt. Quaternary stream channel (Qsc) deposits are present between the artificial fill and alluvium near the southern limits of the embankment.

Local Soils

The BSOG facility is located on Butte Slough adjacent to its confluence with the Sacramento River. At this location, the Sacramento River levee is a natural levee with water-side slopes ranging from approximately 2H:1V to 3H:1V (Horizontal to Vertical). The Natural Resources Conservation Service (NRCS) Web Soil Survey documents soils within the project site are dominated by Holillipah loamy sand. These soils occur within floodplains on 0 to 2 percent slopes (NRCS 2023). Additionally, approximately 0.1-acre of the southwestern corner of the project site is on Scribner silt loam, which occur on 0 to 1 percent slopes and occasionally flood. The eastern perimeter of the project site is on Nueva loam, which occur on 0 to 1 percent slopes within floodplains (NRCS 2023). Holillipah loamy sand is described as being somewhat excessively drained and having very slow runoff and moderately rapid permeability. Scribner silt loam and Nueva loam are described as very deep and poorly drained soils (NRCS 2023).

The soils most susceptible to liquefaction are clean, uniformly graded, loose, saturated, fine-grained sands. Soil layers with high potential for liquefaction include unconsolidated sands and fine-grained material. Detailed liquefaction mapping has not been prepared for the project area by the California Geologic Survey (CGS 2022). However, soil conditions encountered during DWR explorations conducted in 2012 and 2013 indicate that the site is underlain by relatively dense silt, sand, and gravel.

Seismicity

The Alquist-Priolo Earthquake Fault Zoning Act (1972) and the Seismic Hazards Mapping Act (1990) direct the State Geologist to delineate regulatory "Zones of Required Investigation" to reduce the threat to public health and safety and to minimize the loss of life and property from earthquake-triggered ground failures. The California Geologic Survey (CGS) produces regulatory maps that delineate Alquist-Priolo Earthquake Fault Zones, Liquefaction Zones, and Landslide Zones. The CGS develops Alquist-Priolo Maps issued by the State Geologist. The project site does not have active faults nor is it located in the above-mentioned zones (DOC 2022). The Willows Fault is inactive and mapped as traversing just south of the project site (DOC 2022). This fault is concealed (it is not visible on the surface) and is associated with a concealed anticlinal fold, just south of Moon Bend. The squared off shape of Moon Bend is, in fact, a consequence of its position on the up-thrown side of Willows Fault, which crosses the Sacramento River twice, creating a square bend. USGS maps a cluster of small, well constrained, undifferentiated Quaternary (less than 1.6 million years ago) fault lines on the south side of Sutter Butte, located approximately 6 to 10 miles from the project site.

The closest active fault identified in the Alquist-Priolo maps is the Cleveland Hills Fault, located approximately 30 miles northeast of the project site. The Cleveland Hills Fault is a north trending, west-dipping normal fault believed to be an extension of the Swain River and Spenceville Lineament Fault Zones (aka Bear Mountain Fault Zone). The Bear River Fault Zone demonstrated eastward plate convergence and subduction in the early Mesozoic. The Cleveland Hills Fault is situated south of Oroville, east of Palermo, and is a subtle west-facing scarp coincident with the 1975 Oroville Earthquake. The Oroville earthquake, measuring a moment magnitude (Mw) of 5.7, created surface rupture (normal-down to the west, maximum vertical displacement of 4-5 centimeters) along the Cleveland Hills Fault.

Discussion

a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:

i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? (Refer to California Geological Survey Special Publication 42.)

Surface fault rupture is most likely to occur on active faults (i.e., faults showing evidence of displacement within the last 11,700 years). The nearest faults to the project site include the Willows Fault and a small cluster of un-named faults on the south side of Sutter Butte. However, these faults are not considered active, and the project site is not located on them, though Willows Fault is approximately

0.15-mile south of the project. The closest active fault identified in the Alquist-Priolo maps is the Cleveland Hills Fault, located approximately 30 miles northeast of the project site. Therefore, the proposed project would have no adverse effects to people or structures within an Alquist-Priolo Earthquake Fault Zone. The project would have **no impact**.

ii) Strong seismic ground shaking?

The CGS designates the project site as an unevaluated area in the most recently published Seismic Hazards Zones Map. As described in a) i) above, the faults located in the project vicinity are not considered active or potentially active. Nonetheless, these faults and others in the region have the potential to subject the project site to ground shaking.

During the proposed project construction activities, ground shaking could expose construction workers to seismic hazards while operating heavy equipment. DWR and its contractors would be required to adhere to all California Division of Occupational Safety and Health requirements for working within active construction sites that would ensure the safety of all construction workers onsite.

The proposed project does not include permanent structures that would house people. However, during O&M activities, DWR staff or others could be located around the project facilities. Provided the nearest active fault is situated 30 miles away, the strength of potential ground shaking that would impact the project facilities and safety of persons operating and or maintaining them would be minimal. The purpose of the proposed project is to improve safety conditions of the BSOG facility for DWR maintenance and operator workers. Given the BSOG facilities are 90 years old, maintenance and repair of this infrastructure is critical to ensure it continues to provide flood control and is safe for workers to operate. Further, the proposed project design would comply with the California Uniform Building Code (UBC) which is based on, but more detailed and stringent than, the Federal UBC. Chapter 18 of the California UBC regulates excavation and geotechnical considerations, and Appendix J of the California UBC addresses grading, excavation, fill, drainage, and erosion control considerations (UpCodes 2023). Therefore, there would be no significant impact to people or structures from seismic-related activity as a result of implementation of the proposed project. This impact would be **less than significant**.

iii) Seismic-related ground failure, including liquefaction?

Liquefaction refers to loose, saturated sand or silt deposits that behave as a liquid and lose their load-supporting capacity when strongly shaken. The lateral movement of soils when this occurs is referred to as lateral spreading. Liquefaction potential depends on the soil type, proximity to active faults, and depth to groundwater. Poorly drained soils consisting of sand, silt, or gravel with similar granular composition are more prone to liquefaction. Based on soil explorations conducted by DWR in 2013 and 2024, as mentioned above, soils within the project site predominately consist of dense silt, sands, and gravel. Based on the density of the soils, the moderate peak ground acceleration calculated for the site, and the proposed foundation design for the structure, there is no potential for liquefaction of the soils beneath the site to have a substantial adverse effect. Furthermore, there are no active faults in the vicinity of the project site, and the project site is not located within a known liquefaction zone as mapped by CGS and the State Geologist. Therefore, there would be **no impact**.

iv) Landslides?

Landslides are the downslope movement of geologic materials. Slope failures in the form of landslides are common during strong seismic shaking in areas of steep hills. The project site is not located within a landslide zone, as mapped by CGS. Based on the project site's relatively flat topography and lack of delineated slope stability problems the potential for landslides to adversely affect the project structures is very low. Therefore, there would be **no impact**.

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

Construction activities would result in short-term soil disturbance and could expose disturbed areas if a storm event occurs during construction. Rainfall of sufficient intensity could dislodge soil particles from the soil surface. If particles are dislodged and the storm is large enough to generate runoff, substantial localized erosion could occur. In addition, soil disturbance could result in substantial loss of topsoil from wind erosion. This impact would be **significant**.

Mitigation Measures GEO-1 and BIO-8 will be implemented to address this impact.

Mitigation Measure GEO-1: Prepare and Implement a Stormwater Pollution Prevention Plan and BMPs to Reduce Erosion

DWR and its construction contractor(s) will implement the following measures to minimize impacts from erosion and sedimentation:

Construction activities will be subject to SWRCB's General Permit for Discharges of Storm Water Associated with Construction Activity (Order No. 2009-0009-DWQ, NPDES NO. CAS000002) (2009-0009-DWQ) (or to the water quality/erosion control measures included in the Mitigation Measure BIO-3: Prepare and Implement a Water Quality Control Plan) to meet construction-related stormwater permit requirements of the NPDES program. Any permits will be obtained by DWR or its contractor(s) before commencing ground-disturbing construction activity. The General Permit also requires preparing and implementing a SWPPP that identifies BMPs to prevent or minimize the introduction of contaminants into surface waters. Such BMPs could include, but would not be limited to, silt curtains, silt fencing, straw bale barriers, fiber rolls, storm drain inlet protection, hydraulic mulch, and a stabilized construction entrance. The SWPPP will include development of site-specific structural and operational BMPs to prevent and control impacts on runoff quality, measures to be implemented before each storm event, inspection, maintenance of BMPs, and monitoring of runoff quality by visual and/or analytical means.

Timing: Before and during construction activities.

Responsibility: DWR and construction contractor(s).

Mitigation Measure BIO-8: Minimize Impacts of Vegetation Removal

Refer to Mitigation Measure BIO-8 mitigation in Section 3.4 "Biological Resources" for full mitigation measure text.

Implementing Mitigation Measure GEO-1 will require DWR to acquire appropriate regulatory permits, implement erosion reducing BMPs, comply with Colusa and Sutter County Improvement Standards for Grading and Erosion Control (DWR is not subject to local laws or ordinances unless specifically authorized by the Legislature). Following completion of the repair activities, Mitigation Measure BIO-8 will require the implementation of revegetation activities including hydroseeding with a native seed mix and/or planting of native vegetation after construction activities are completed. Implementing Mitigation Measures GEO-1 and BIO-8 would reduce the potential impact related to soil erosion to a less-than-significant level through the implementation of both soil erosion BMPs and post construction revegetation activities. Therefore, this impact would be **less than significant with mitigation incorporated**.

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?

As previously discussed, the project site is not located within a designated zone prone to liquefaction, landslide, or earthquake hazards. Furthermore, there are no active faults in the vicinity of the project site; the nearest active fault is located approximately 30 miles to the northeast. The project is located in a relatively flat area and is therefore not prone to landslides, earthquakes, lateral spreading, or liquefaction.

Land subsidence refers to the lowering of the ground surface due to extraction or lowering of water levels or other stored fluids within the subsurface soil pores, or due to seismic activity that can cause alluvial sediments to compact. Known current and historical instances of land subsidence in California have been recorded by the USGS. The project site is not located in an area of recorded subsidence (USGS 2023) and is therefore not particularly prone to subsidence.

However, construction dewatering within the area isolated by the cofferdam has the potential to destabilize bank sediments, which could result in slumping. Dewatering would be accomplished with engine-driven pumps and either trench sumps, pit sumps, groundwater wells, or a combination. It is anticipated that some localized soil instability or bank destabilization may occur within the shoreline (shown in **Figure 2-3)** of the dewatering areas because of existing bank slope conditions. Localized soil/sediment instability or bank destabilization would result in increased erosion (including especially bank/slope failure), sedimentation, water quality issues, and potential shoreline aquatic/riparian habitat impacts within the project site. These potential impacts would be **significant**.

Mitigation Measure GEO-2 will be implemented to address these impacts.

Mitigation Measure GEO-2: Bank Stabilization Prior to Dewatering

Prior to dewatering activities, denuded bank/slope areas between the cofferdam and Butte Slough/Marty Road (within the Sacramento River inlet area), and within Butte Slough proper, will be included in the dewatering plan. The dewatering plan will require that (as with Mitigation Measure BIO-8) disturbed soil areas (e.g., denuded banks and slopes) are stabilized using appropriate erosion control BMPs before, during, and after the completion of construction activities for all construction phases. Such stabilization will include vegetated fill; it would likely not include rip-rap unless banks are determined to be excessively unstable prior to construction. If hydroseeding is used to cover disturbed areas, native grass/forb/herbaceous plant, sterile rye, or other non-invasive seed mixes will be used. Vegetation, once seeded, will be given sufficient time to root into bank tops and cutbanks. Moreover, DWR will acquire appropriate regulatory permits related to erosion and water quality.

Timing: Before and during construction activities.

Responsibility: DWR and construction contractor(s).

Implementing Mitigation Measure GEO-2 (as with BIO-8) will require DWR to acquire appropriate regulatory permits, implement erosion reducing BMPs, and the contractor will be in compliance with Colusa and Sutter County Improvement Standards for Grading and Erosion Control (DWR is not subject to local laws or ordinances unless specifically authorized by the Legislature). Therefore, this impact would be **less than significant with mitigation incorporated**.

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

Certain soils within the upper 3 feet that are subject to changes in moisture content, such as clay-rich soils, are susceptible to expansion. Expansion is measured by shrink-swell potential, which is the volume change in soil with a gain in moisture. Soils with a moderate to high shrink-swell potential can cause damage to roads, buildings, and infrastructure (NRCS 2023). Based on NRCS Web Soil Survey and the soil explorations conducted by DWR, soils at the project site are not typically considered expansive. Additionally, the site would be backfilled with low expansive materials, where necessary. Therefore, there would be **no impact**.

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

The proposed project would not require the use of septic tanks or alternative wastewater disposal systems. During construction, DWR or its construction contractor may have portable toilet facilities available onsite temporarily for use by construction workers. Once the project-related construction activities are concluded, such portable facilities would be removed, and the wastewater properly handled and disposed in accordance with all applicable laws and regulations. Therefore, the impact from the project would be **less than significant**.

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

A unique geologic feature is a major natural element that stands out in the landscape, such as a large and scenic river, gorge, waterfall, volcanic cinder cone, lava field, or glacier. The Sutter Buttes are a small, circular complex of eroded volcanic lava domes which tower 2,000 feet above the valley floor (USGS 2011). The project site is over 3 miles west of Sutter Buttes and would have no impact on the geologic feature. As previously discussed, the project site is located on alluvium, natural levee, and channel deposits that are Holocene in age. These recent sedimentary deposits are subject to erosion and periodic shifts during high-water events. And, because of their young (Holocene) geologic age, they are unlikely to contain fossil-bearing sediments and thus, paleontological resources. Therefore, this impact would be **less than significant**.

3.8. Greenhouse Gas Emissions

Environmental Issue	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact	Beneficial Impact
VIII. GREENHOUSE GAS EMISSIONS. Would the project:					
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☒	☐	☐
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☐	☒	☐

Environmental Setting

In May 2020, DWR adopted the Greenhouse Gas Emission Reduction Plan (GGERP) Update 2020 (Update 2020) which reviews Greenhouse Gas (GHG) reductions since adopting their initial Greenhouse Gas Reduction Plan in 2012 (2012 Plan) and updates strategies for further reduction consistent with legislative changes, including the GHG emissions reduction targets established in Senate Bill (SB) 32 (2016), SB 100 (2018), Executive Order B-18-12 (2012), Executive Order B-30-15 (2015), and Executive Order B-55-18 (2018). Since the 2012 Plan was adopted, California's wholesale electricity market has also seen a significant increase in renewable resources. To reflect this change and to align with industry practice in emission reporting, Update 2020 incorporates updated emission factors to determine emissions from unspecified market resources.

For Update 2020, DWR lays out the following midterm and long-term GHG emissions reduction goals to guide decision-making beyond 2020:

- Mid-term Goal – By 2030, reduce GHG emissions to at least 60 percent below the 1990 level.
- Long-term Goal — By 2045, supply 100 percent of electricity load with zero-carbon resources and achieve carbon neutrality.

DWR listed several measures that have been or plan to be implemented to meet these goals.

In addition to providing the plan for meeting GHG emissions reduction targets, Update 2020 will also be used for DWR's CEQA analysis of future DWR projects' potential contribution to the cumulative impact of increased GHG concentrations in the atmosphere. A CEQA initial study and negative declaration analyzing the environmental effects of the 2012 Plan was conducted and a negative declaration adopted in 2012. For the purposes of Update 2020, DWR prepared an addendum to the negative declaration pursuant to State CEQA Guidelines Sections 15162(b) and 15164(b).

Later project-specific environmental documents for DWR projects that are covered by this Update 2020 may rely on the analysis and conclusions in Update 2020 for the purposes of cumulative analysis of a project's GHG emissions. As required by State CEQA Guidelines, environmental documents for later projects that rely on Update 2020 will "identify those requirements specified in [Update 2020] 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." (State CEQA Guidelines Section 15183.5(b)(2)). If there is substantial evidence that the effects of a project may be cumulatively significant regardless of the project's compliance with the specified requirements in this Update 2020, DWR will prepare an Environmental Impact Report for such a project (State CEQA Guidelines Section 15183.5(b)(2)).

To show that the current or future project is consistent with this Update 2020 and that the cumulative impact analysis of DWR GHG emissions conducted for this Update 2020 analyzes and addresses the emissions for the proposed project, current and future projects relying on this Update 2020 must complete the following steps:

1. Identify, quantify, and analyze the GHG emissions from the proposed project and alternatives using a method consistent with that described in DWR internal guidance, "Guidance for Quantifying Greenhouse Gas Emissions and Determining the Significance of their Contribution to Global Climate Change for CEQA Purposes," as such guidance document may be revised.
2. Determine that construction emissions levels do not exceed the Extraordinary Construction Project threshold of either 25,000 MT of CO2e (metric tons of carbon dioxide equivalents) for the entire construction phase of the project or 12,500 MT of CO2e in any single year of construction.
3. Incorporate into the design or implementation plan for the project all project-level GHG emissions reduction measures listed in Chapter VI or explain why measures that have not been incorporated do not apply to the project.
4. Determine that the project does not conflict with DWR's ability to implement any of the specific project GHG emissions reduction measures listed in Chapter VI.
5. If implementation of the proposed project would result in additional energy demands on the SWP system of 15 GWh/year or greater, the project must obtain a written confirmation from the DWR SWP Power and Risk Office stating that the Renewable Power Procurement Plan will be updated to accommodate the additional load resulting from the proposed project at such time as the proposed project is ultimately implemented.

An assessment form will assist DWR in evaluating whether a future project's GHG emissions are addressed by the environmental analysis in this Update 2020, and therefore, are entitled to streamlined review (see **Appendix A**). Any project generating GHG emissions that is not eligible to use this Update 2020 for cumulative impacts analyses of later projects would require additional environmental review to analyze the project specific cumulative GHG emissions impacts.

Discussion

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

The methods and models described in Section 3.3, "Air Quality," were also used to quantify GHG emissions. GHG emissions were summed over the duration of all anticipated activity (see **Table 3-5**), including the use of heavy-duty equipment, haul trucks, and worker commute trips. All inputs and assumptions are included in **Appendix A**.

Table 3-5. Unmitigated GHG Emissions from Construction Activities for the Proposed Project

Emissions Category	MT of CO_2e per year
DWR GGERP Construction Thresholds	25,000 total and 12,500 per year
Total Unmitigated Emissions	1,398.7
Exceedance	No
Maximum Annual Construction Emissions (Unmitigated)	673.78
Exceedance	No

CO_{2e}/year=carbon dioxide equivalent per year; MT=metric tons;
Source: GEI Consultants, 2023

The proposed project would directly emit GHGs during construction activities. As shown in **Table 3-5**, total construction emissions of 1,398.7 MT of CO_2e/year would be emitted over approximately 1.5 years, with a maximum annual construction emission equal to 673.78 MT CO_2e/year. DWR's GGERP considers projects that generate 25,000 MT of CO2e over the entire project construction period, or 12,500 MT of CO2e in any single construction year, 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. Using this threshold, the proposed project is not considered an extraordinary construction project.

Based on the analysis provided in the GGERP and the demonstration that the proposed project is consistent with the Inventory and Calculation of Greenhouse Gas Emissions (see **Appendix A**), DWR, as lead agency, has determined the proposed project's incremental contribution to the cumulative impact of increasing atmospheric levels of GHGs would be less than cumulatively considerable and, therefore, **less than significant**.

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

DWR's 2020 Update is in compliance with all applicable plans and policies. This project is in compliance with the 2020 Update and all 15 BMPs suggested in the 2012 Plan.

As noted above, DWR adopted its GGERP, which details DWR's efforts to reduce GHG emissions consistent with EO S-3-05 and AB 32 and consistent with more recent State targets established in SB 32 (2016), SB 100 (2018), EO B-18-12 (2012), EO B-30-15 (2015), and EO B-55-18 (2018). The GGERP estimates historical (back to 1990), current, and future GHG emissions from operations, construction,

maintenance, and business practices (e.g., building-related energy use). The plan specifies aggressive 2035 and 2045 emissions reduction goals and identifies a list of measures to achieve these goals. As described above in checklist item a, the proposed project is found to be consistent with the GGERP. The GGERP was specifically developed with consideration of State legislation including the State's GHG reduction targets. Therefore, this impact would be **less than significant**.

3.9. Hazards and Hazardous Materials

Environmental Issue	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact	Beneficial Impact
IX. HAZARDS AND HAZARDOUS MATERIALS. **Would the project:**					
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☒	☐	☐
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☒	☐	☐	☐
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☐	☒	☐
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?	☐	☐	☐	☒	☐
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?	☐	☐	☐	☒	☐
f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒	☐
g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?	☐	☒	☐	☐	☐

Environmental Setting

The database search included all data sources included in the Cortese List (enumerated in PRC Section 65962.5). These sources include the GeoTracker database, a groundwater information management system that is maintained by the State Water Board; the Hazardous Waste and Substances Site List (i.e., the EnviroStor database), maintained by the California Department of Toxic Substances Control (DTSC); and EPA's Superfund Site database (DTSC 2023a and 2023b, State Water Board 2023a and 2023b, CalEPA 2023, EPA 2023). There were no hazardous materials sites identified within 0.25 mile of the project site location. The project site is also not located in an area identified as likely to contain asbestos by the California Department of Conservation (2000).

No schools are present within 0.25 mile of the project site. The nearest schools to the project site are Meridian Elementary School (approximately 5 miles south of the project site) in Sutter County and the James M. Burchfield Primary School, George T. Egling Middle School, and Colusa High School (approximately 6 miles in the community of Colusa) in Colusa County.

The nearest airports to the project site are the Sutter County Airport, located approximately 20 miles southeast, and the Colusa County Airport, located approximately 7 miles southwest. The project site is not within the safety zones or land use activity review areas for either airport.

The project site does not contain designated emergency evacuation routes and is not within an emergency response planning area. The closest designated evacuation route is SR 20, located approximately 4 miles south of the project site.

The project site is not located in a high severity fire hazard zone (California Department of Forestry and Fire Protection and the project site is currently designated as "Unzoned Local Responsibility Area" [CALFIRE] 2007a, b and 2023). Agricultural (row and tree orchards) and open space (Sacramento River/Butte Sough) are the primary land uses surrounding the project site. The project site consists of a mixture of trees, shrubs, and some grassy areas, with some developed uses (marina and single-family residence).

Discussion

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

Construction of the proposed project would involve the routine transportation and handling of hazardous substances such as diesel fuels, lubricants, asphalt, etc. Handling and transport of these materials could result in the exposure of workers to hazardous materials. However, these materials would be used, stored, and disposed of according to standard protocols for handling of hazardous materials. Due to the potential to create a significant hazard to the public or environment from the transport, use, or disposal of hazardous materials during the construction process, this impact is considered **potentially significant**. The following mitigation measure would be implemented to address this impact.

Mitigation Measure HHM-1: Conduct Hazardous Materials Training and Response.

DWR and its construction contractor will ensure that construction workers are trained on the potential to encounter hazardous materials and proper notification procedures. The training will specify that if stained or odorous soils from an unknown source are encountered: 1) work in the vicinity must cease; 2) a qualified hazardous materials specialist must be consulted; and 3) DWR will also notify the appropriate Federal, State, and/or local agencies. A variety of steps may be taken at the discretion of DWR. Among those steps are the following:

- Avoid the area containing the stained/odorous soils or infrastructure.
- Perform Site Assessments to evaluate the nature, extent, and level of hazard to the public and construction workers if construction needs to occur in the exact location of the soils or infrastructure.
- Clean up the area or coordinate with the owner of the affected parcel to perform cleanup activities.

Should DWR elect to clean up activities on its own, all hazardous substances encountered will be removed and properly disposed of by a licensed contractor in accordance with Federal and State regulations.

Timing: Before and During construction activities.

Responsibility: DWR and construction contractor(s).

Implementation of HMM-1 would reduce potentially significant impacts to less-than-significant levels by requiring the preparation and implementation of a spill prevention control plan; avoiding contamination with stained or odorous soils; requiring a qualified hazardous material specialist if stained or odorous soils are found onsite; and notifying the appropriate Federal, State, and/or local agencies. Therefore, this potential impact would be **less than significant with mitigation incorporated**.

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?

Construction of the proposed project would involve the use of heavy construction equipment, which uses small amounts of hazardous materials such as oils, fuels, and other potentially hazardous substances. There is the potential to have these hazardous materials released into the environment at the project site causing environmental and/or human exposure to these hazards. Therefore, this impact is considered **potentially significant**. The following mitigation measure would be implemented to address this impact.

Mitigation Measure HHM-1: Conduct Hazardous Materials Training and Response.

Refer to Question “a” impacts discussion above for full mitigation measure text.

Implementation of Mitigation Measure HHM-1 would reduce potentially significant impacts to less-than-significant by requiring the preparation and implementation of a spill prevention control plan, avoiding contamination with stained or odorous soils, avoiding contamination with stained or odorous soils, requiring a qualified hazardous material specialist if stained or odorous soils are found onsite, and notifying the appropriate Federal, State, and/or local agencies. Therefore, this potential impact would be **less-than-significant with mitigation incorporated**.

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

The proposed project would not emit any hazardous materials or require handling of acutely hazardous materials. The closest school is the Meridian Elementary School located approximately 5 miles south of the project site in the community of Meridian. Therefore, the project would have **no impact**.

d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?

The project area does not contain any sites included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5. There would be **no impact**.

e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?

The project is not within an airport land use plan or within 2 miles of a public airport since the closest airport to the project site is the Colusa County Airport which is directly 3 miles from the site and 7 roadway miles west of the project site. There would be **no impact**.

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

The Office of Emergency Management (OEM) is responsible for planning, response, and recovery activities associated with natural and man-made emergencies and disasters for Colusa and Sutter counties (Colusa County 2014, Sutter County 2014). OEM coordinates response and recovery activities with county staff, allied agencies, neighboring jurisdictions, and State agencies to ensure the necessary procedures and networks are in place. The proposed project would not impair implementation of or physically interfere with any adopted emergency plan or emergency evacuation plan. There would be **no impact**.

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

The project would not expose people to increased risks from wildland fire as the project is not located within a high severity fire zone. However, heavy equipment used during project construction has the

potential to start a fire on surrounding open space areas near the project site. Vegetation removal activities resulting from the project will help to reduce the potential of wildland fires by providing a clearing, reducing fire fuels, and removing fire sustaining litter. However, use of construction equipment within the open space areas may still increase the risk of wildland fires. Therefore, this potential impact is considered **potentially significant**. Mitigation Measure HHM-2 will be implemented to address this impact.

Mitigation Measure HHM-2: Implement BMPs for Wildland Fire Prevention

DWR and its construction contractors will clear dried vegetation or other materials that could serve as fuel for combustion from construction or building areas. To the extent feasible, the contractor will keep these areas clear of combustible materials to maintain a firebreak. Construction contractors will ensure that any construction equipment that normally includes a spark arrester will be equipped with an arrester in good working order. This includes, but is not limited to, vehicles, heavy equipment, and chainsaws.

Timing: During construction.

Responsibility: DWR and Construction Contractor(s).

Implementation of Mitigation Measure HHM-2 would reduce potentially significant impacts to less-than-significant levels through the implementation of best management practices including vegetation removal and construction equipment maintenance. Therefore, this potential impact would be **less-than-significant with mitigation incorporated**.

3.10. Hydrology and Water Quality

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

Environmental Setting

Surface Water

The project site is within the Sacramento River watershed of the Sacramento Valley. To the west of the project site, the Sacramento River flows through Colusa and Sutter counties before its eventual confluence with the San Joaquin River in the Sacramento-San Joaquin River Delta, which is located many miles south of the project site. The climate surrounding the project site generally consists of hot and dry summers from late spring to early fall, with moderate and wet winters between late fall and early spring. Without significant local water storage reservoirs, most streams and rivers within the watershed dry significantly and lower in stage during summer. Waterways with conveyance to agricultural land or upstream of an urban drainage are generally exceptions to this (PBS&J 2008).

The BSOG facility lies at the southernmost edge of the Butte Creek Watershed, before flowing into the Sacramento River. The Butte Creek Watershed originates in the Butte Meadows and Jonesville Basin region with an approximate elevation of 7,000 feet (SRWP 2022). In the upper portion of this watershed, natural hydrology has been significantly modified with diversion for hydroelectric power generation. In contrast, the lower watershed is primarily managed for irrigation water supply and flood control (SRWP 2022). Lower Butte Creek, which includes the BSOG facility, is a complex system of water diversions, canals, agricultural drains, levees, and flow bypasses.

At the BSOG facility, Butte Creek flows can be directed to the Sacramento River or retained in Butte Slough. Water retained in Butte Slough can accommodate the adjacent irrigation needs and/or be used to meet the flow needs of several Federal and State wildlife refuges via the Sutter Bypass, Sacramento Slough, and Butte Slough areas (SRWP 2022). BSOG generally maintains water levels in Butte Slough between elevation 36 to 42 feet (North American Vertical Datum 1988 [NAVD 88]). This is in contrast to the Sacramento River, which can fluctuate in elevation from 30 to 36 feet NAVD 88 during low flow conditions and rise to elevation 40 to 65 feet NAVD 88 during high flow conditions. During BSOG operations, if the Sacramento River stage is greater than Butte Slough, the flap gates on the Sacramento River side will close automatically due to water pressure, and no water from Butte Slough can pass through the BSOG to the Sacramento River.

The BSOG are important to the entirety of the flood control system by enabling flood and agricultural water runoff regulation. The BSOG facility manages flood flows of up to 3,500 cubic feet per second (cfs) from Butte Slough before entering into the Sacramento River. Water that is not channeled into the Sacramento River is directed to flow into the Sutter Bypass. Several major flood control canals/channels occur within the project vicinity, including the Tisdale Bypass, which is located downstream from the project site on the Sacramento River and connects the Sacramento River to the Sutter Bypass to the east), and Wadsworth Canal, which provides connectivity to the Sutter Bypass from the east.

Ground Water

Regional groundwater generally flows from north to south towards and/or along the path of the Sacramento River. The top of the aquifer begins at approximately 0 to 20 feet below the ground surface, and fluctuates depending on the location, year, and season. Artesian groundwater conditions occur

beneath confining lenses of alluvial clay beginning approximately 60 feet below the ground surface (DWR 2014). Regional groundwater may contain various pollutants from agricultural, industrial, and residential activities and are primarily located in their greatest concentrations above the confining lens strata. These surface water pollutants that could leach into groundwater include among others, agricultural pollutants (fertilizers, pesticides, and herbicides) from the agricultural runoff in Sutter County and near the project site. General urban runoff pollutants such as heavy metals, oils, lubricants, etc. are also of concern (PBS&J 2008). Groundwater recharge occurs naturally throughout the region, especially along major rivers and tributaries including the Sacramento River and Butte Slough. However, groundwater replenishing is offset to an extent by agricultural pumping of groundwater for crop irrigation. These uses fluctuate from year to year based on available surface waters.

The BSOG facility is at the intersection of three groundwater basins within the Sacramento Valley: the Sacramento Valley-Butte Subbasin extending to the north, Sacramento Valley-Sutter Subbasin extending to the south, and Sacramento Valley-Colusa Subbasin extending to the west. In 2014, California passed the Sustainable Groundwater Management Act (SGMA), which requires basins designated as medium or high priority to develop groundwater sustainability agencies (GSAs) and subsequent groundwater sustainability plans (GSPs) to manage groundwater for long-term sustainability (CNRA 2024). The Sacramento Valley-Butte and -Sutter groundwater Subbasins are designated as “Medium Priority” according to the 2020 update on California’s groundwater, while Colusa Subbasin is designated “High Priority” (CNRA 2020). A final GSP for the Butte and Sutter Subbasins was submitted to DWR in 2022. As of the 2016 Interim Update, none of the three groundwater basins in proximity to the project area are critically overdrafted.

All three basins in proximity to the project area are within the Sacramento River Hydrologic Region (CNRA 2020). In general, groundwater levels in the Sacramento River Hydrologic Region are declining, with upwards of 77 percent of monitoring wells having a declining trend from the years of 1998 to 2018; however, 1.5 percent of wells showed an increasing trend of varying levels (CNRA 2020). In terms of groundwater quality standards, water quality objectives for the Sacramento River Basin (of which both sides of the BSOG are confluent) include the following outlined in the Water Quality Control Plan for the California Regional Water Quality Control Board, Central Valley Region (CRWQCB CVR 2016):

- Bacteria: over a 7-day period, coliform organisms should be maintained under 2.2/100 milliliters (ml).
- Chemical constituents: groundwaters should not contain concentrations of chemical constituents over the thresholds set in the provisions of Title 22 of the California Code of Regulations.
- Radioactivity: groundwaters should not contain concentrations of radionuclides above the threshold of maximum contaminant levels set in Table 4 of Section 64443 of Title 22 of the California Code of Regulations.
- Tastes and odors: groundwaters should not contain taste- or odor-producing substances in concentrations causing a nuisance or hindering the use of groundwater.

- Toxicity: groundwater should be maintained free of toxic substances in concentrations that can negatively impact human, plant, animal, or aquatic life physiologies. This objective applies regardless of whether toxicity is caused by one single substance or the effect of the interaction of two or more substances.

Discussion

The proposed project would repair and rehabilitate the existing BSOG facility but would not alter its function. The surface water and groundwater flow regime at the project site would not be changed by the proposed project, and therefore, there would be no operational hydrology or water quality impacts. As this discussion instead focuses on temporary impacts to hydrology and water quality that may arise during project construction.

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

Construction of project components would result in temporary and short-term disturbance of soil. Exposed soil could be exposed to rainfall during storm events. Rainfall of sufficient intensity on these disturbed areas could result in storm water runoff conveying sediment to into Butte Slough and the Sacramento River, resulting in degradation of water quality.

Construction activities and operation of construction equipment would involve the use of contaminants and hazardous materials such as fuels, lubricants, hydraulic fluids, and coolants. Use and onsite storage of these hazardous materials could result in contamination of surface or groundwater through accidental release or unsafe storage and handling practices. The release of these hazardous materials directly affects groundwater quality or the water quality in Butte Slough and the Sacramento River.

Dewatering activities also have potential to degrade water quality. Sheet pile driving used for creation of cofferdams has potential to cause an increase in surface water turbidity through the stirring of sediment on both sides of the BSOG facility in Butte Slough and possibly the Sacramento River. It's anticipated that some localized soil instability or bank destabilization may occur within the shoreline (shown in **Figure 2-3)** of the dewatering areas because of existing bank slope conditions.

Discharge of dewatering effluent during construction has the potential to alter turbidity levels at the discharge sites, likely Butte Slough, or the Sacramento River, because water pumped from the dewatering area could have higher levels of turbidity or could increase turbidity at the discharge site due erosion resulting from the velocity of water being discharged. Changes in turbidity levels would depend on where and how dewatering effluent is discharged.

Temporary water quality impacts during construction, including impacts associated with the exposure of disturbed areas to storm events, dewatering effluent, and accidental releases of hazardous materials would be considered **significant**. Mitigation Measures BIO-3 and HWQ-1 will be implemented to address this impact. In addition, the project will comply with measures included in other required project certifications/permits (i.e. CWA 401 certification, General Order for surface water discharge, NMFS Biological Opinion, etc.), further protecting water quality of surface waters adjacent to the project area.

Mitigation Measure BIO-3: Prepare and Implement a Water Quality Control Plan

Refer to Section 3.4 "Biological Resources," for the full mitigation measure text.

Mitigation Measure HWQ-1: Obtain Coverage and Comply with Requirements of the General Order for Limited Threat Discharges to Surface Water.

Construction and operations involving dewatering would be subject to Central Valley RWQCB's Waste Discharge Requirement (WDR) R5-2016-0076-01 requirements for managing wastewater produced during dewatering activities. To obtain coverage under this General Order, which also serves as the NPDES Permit, the Discharger must submit a complete Notice of Intent and provide samples for analysis to determine the quality of the discharge (using tiers) and assign appropriate controls that would apply to the permit. DWR or its contractor(s) will submit a separate Notice of Intent under the General Order for applicable construction and/or operation activities.

Timing: Before and during construction activities.

Responsibility: DWR and construction contractor(s).

Implementing Mitigation Measures BIO-3 and HWQ-1 would require DWR to acquire appropriate regulatory permits, prepare and implement a water quality control plan, and comply with permits issued by the Central Valley RWQCB. Therefore, this impact would be **less-than-significant with mitigation incorporated**.

b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?

The project would require installation of wells to temporarily dewatering the construction area that is isolated in Butte Slough. Since the top of the aquifer begins at approximately 0 to 20 feet below the ground surface, it is possible that pumping water from Butte Slough could include shallow groundwater from the aquifer if it is interconnected with the hydrology of Buttle Slough. Following measures implemented through the required water quality control plan (see Mitigation Measure BIO-3) and any other required measures from other required certifications/permits (i.e. CWA 401 certification, General Order for surface water discharge, NMFS Biological Opinion), any groundwater removed from the isolated construction area would be discharged immediately back into Butte Slough or the Sacramento River near the dewatering area. If water does not pass required water quality standards, water would be pre-treated according to the water quality control plan and other requirements prior to discharge. Withdrawal of groundwater, if it occurs, would be limited to active dewatering activities, and the water table is expected to return to normal elevations after construction dewatering ends because surface water would continue percolating into the groundwater aquifer. Therefore, this impact would be **less than significant**.

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;

ii) Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;

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

iv) Impede or redirect flood flows?

The primary objective of the project is to complete necessary repairs to the BSOG facility, an existing flood control facility. While implementation of the cofferdam and associated dewatering activities would temporarily affect the existing water flow pattern during construction, in-water work would occur outside the flood season or during low flow periods summer periods (to minimize the amount of redirected flow) and water flows would be bypassed around the dewatered area and downstream. Upon completion of the construction period, flows would be returned to normal operation. totality upon replacement/improvement of existing infrastructure for the facility following project completion, no impervious surfaces would be added over the existing infrastructure. The project would therefore have no short- or long-term operational impact on existing drainage patterns of the site. These impacts would be **less than significant**.

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

The project site is a flood control facility, and therefore the proposed project's completion would benefit the flood hazard area. All components of the project that would or could become inundated following a flood pulse from upstream would be designed with the focus of not releasing pollutants or contaminants into either the Sacramento River or Butte Slough. The project site is not in a tsunami or seiche risk zone. The project would have **no impact** on the risk of pollutants due to project inundation following flood, tsunami, or seiche.

e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

The proposed project would only temporarily move a small amount of groundwater within its existing basin for dewatering activities and would not affect the existing connectivity of the Sacramento River or Butte Slough with the local water table. Surface runoff from the project site would continue to flow overland in the same manner as under current conditions and infiltrate into the soil or flow into Sacramento River/Butte Slough and percolate into the underlying groundwater aquifer. Further, the proposed project would not construct any additional impervious surfaces that could decrease groundwater recharge. Therefore, the proposed project would not substantially decrease groundwater

supplies, interfere substantially with groundwater recharge, or impede sustainable management of the groundwater basin in the region. This impact would be **less than significant**.

3.11. Land Use and Planning

Environmental Issue	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact	Beneficial Impact
XI. LAND USE AND PLANNING. Would the project:					
a) Physically divide an established community?	☐	☐	☐	☒	☐
b) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☐	☒	☐

Environmental Setting

The project site is surrounded by agricultural and open space land uses. The Colusa County side of the project is classified as "Commercial-Special" and zoned Exclusive Agricultural (Colusa County 2023). The Sutter County side of the project site is classified as "Open Space" and designated Agricultural-40 (AG-40), which means a minimum of 40 acres of project area is required to obtain the designation (Sutter County 2023).

Sutter County participates in and is a part of the Sacramento Area County of Governments (SACOG) while Colusa County is a part of the Tri-county Area Planning Council. Both county's populations have increased between the latest census counts in 2010 to 2020 (U.S. Census Bureau 2020). The California Department of Finance projected 2050 growth for Sutter and Colusa counties at 176 and 35 percent, respectively (De Novo 2011).

The project is located approximately 4.1 miles southeast of the town of Colusa in Sutter and Colusa counties. The project site is unincorporated, primarily rural, and sparsely populated.

Discussion

a) Physically divide an established community?

The proposed project is not within or nearby an established community, and therefore, the project would not divide an established community. New project elements, including the control building, would be built in DWR's project right-of-way and easement areas and no zoning changes or parcel splits would occur. There would be **no impact**.

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

The proposed project consists of modifications to existing structures and construction of a new control building to maintain controls and electrical equipment to operate the BSOG facility. All improvements would occur within DWR's project right-of-way or existing easements areas. Therefore, the existing land use would not change. There would be **no impact**.

3.12. Mineral Resources

Environmental Issue	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact	Beneficial Impact
XII. MINERAL RESOURCES. Would the project:					
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the State?	☐	☐	☐	☒	☐
b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	☐	☐	☐	☒	☐

Environmental Setting

Project site lands in Colusa County are not located within a Surface Mining and Reclamation Act of 1975 (SMARA) study area (DOC 2022). Project site lands in Sutter County are located within a SMARA study area for Concrete Aggregate in the Greater Sacramento Area Production-Consumption, and thus, classified as Mineral Resource Zones (MRZs) of varying degrees. The project site within Sutter County is classified as MRZ-1, indicating little likelihood exists for the presence of significant concrete aggregate resources (M. O'Neil and F. Gius 2018).

The USGS' Mineral Resources Data System does not identify the project location or area as having a history of mineral extraction (USGS 2023). Sutter and Colusa counties do not identify any locally important mineral resources within the vicinity of the project site, as determined by examining the counties' General Plans (Sutter County 2011, Colusa County 2012). Surface mining includes the following (Sutter County 2023):

- Borrow pitting for road or levee construction
- Prospecting and exploratory activities
- Dredging and quarrying
- Stream bed skimming
- Stockpiling of mined mineral

It is unlikely the proposed project's construction activities would require a SMARA permit, as the above-mentioned activities do not apply to the proposed project.

Discussion

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

The proposed project consists of improvement of existing outfall headwall, replacement of existing inlet catwalk and slide gate, and construction of new facility control structure. The project site is a previously disturbed area and the project involves improving existing infrastructure and construction a small control building for operations. Much of the project site is not located within a SMARA study area; however, the portion within Sutter County is categorized as MRZ-1, which are described as areas where no significant mineral deposits are present or where it is judged that little likelihood exists for their presence. As a result, implementation of the proposed project would not result in the loss of availability of known mineral resources. Therefore, there would be **no impact**.

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

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

3.13. Noise

Environmental Issue	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact	Beneficial Impact
XIII. NOISE. **Would the project:**					
a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or in other applicable standards of other agencies?	☐	☒	☐	☐	☐
b) Generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☒	☐	☐
c) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒	☐

Environmental Setting

The following section describes potential noise and vibration impacts to humans and sensitive receptor locations. Potential vibration or underwater sound pressure impacts to sensitive biological resources are described above in **Section 3.4** "**Biological Resources.**"

The project site is located in an undeveloped area of Sutter and Colusa counties. While agricultural and open space uses are the primary land uses surrounding the project site, a private marina and a single rural residence are located adjacent to the project site (see **Figure 3-1**). The nearest sensitive receptor to the project site is located in Sutter County. This single-family residence is located approximately 75 to 100 feet from the staging area boundary (and southern boundary access point to staging area) and 170 to 200 feet from the dewatering/construction area. Within Colusa County, the nearest sensitive receptor (single-family residence) is located 400 feet, northwest of the project site.

Colusa County Noise Regulatory Setting

The Colusa County General Plan Noise Element contains no goals, objectives, or policies that directly address construction noise. Performance standards within the Noise Element are intended to ensure land use compatibility with respect to land use decision making and are not intended to apply to

temporary construction activities which, while noisy, would not represent a long-term land use noise conflict.

Section 13.8 of the Colusa County Code specifically addresses noise from construction activities as a special provision. This section allows construction activities between the hours of 7:00 a.m. and 7:00 p.m. on Mondays through Fridays and between the hours of 8:00 a.m. and 8:00 p.m. on Saturdays and Sundays provided that the noise level at any point outside of the property plane of the project does not exceed 86 decibels. The provisions of this section do not apply to impact tools, such as pile drivers, provided that such equipment has intake and exhaust mufflers recommended by the manufacturer.

Sutter County Noise Regulatory Setting

The Sutter County Code does not address noise and contains no provisions to restrict construction noise or time limits. The Sutter County General Plan Noise Element contains two policies that address construction noise and vibration, respectively.

- Policy N.1.6 restricts discretionary project construction within 1,000 feet of noise-sensitive land uses to between 7:00 a.m. and 6:00 p.m. on weekdays, between 8:00 a.m. and 5:00 p.m. on Saturdays. Construction is prohibited on Sundays and holidays without a variance.
- Policy N.1.7 provides vibration standards which are addressed in response to CEQA Checklist item b) with regard to exposure of persons to groundborne vibration.

Construction Vibration

Vibration is an oscillatory motion through a solid medium in which the motion's amplitude can be described in terms of displacement, velocity, or acceleration. The peak particle velocity (PPV) is most frequently used to describe vibration impacts on buildings and is defined as the maximum instantaneous positive or negative peak of the vibration wave typically expressed in units of inches per second (in/sec). Low-level vibrations frequently cause nuisance secondary vibration, such as a slight rattling of windows, doors, or stacked dishes. The rattling sound can give rise to exaggerated vibration complaints, even though there is very little risk of actual structural damage. In high noise environments, which are more prevalent where groundborne vibration approaches perceptible levels, this rattling phenomenon may also be produced by loud airborne environmental noise causing induced vibration in exterior doors and windows. In suburban environments, such as the project site, sources of groundborne vibration include construction activities and heavy trucks and buses. Typically, groundborne vibration generated by human-made activities attenuates rapidly with distance from the source of the vibration.

Construction activities can cause vibration that varies in intensity depending on several factors. The use of pile driving, and vibratory compaction equipment typically generates the highest construction related groundborne vibration levels. The two primary concerns with construction-induced vibration, the potential to damage a structure and the potential to interfere with the enjoyment of life, are evaluated against different vibration limits. Human perception to vibration varies with the individual and is a function of physical setting and the type of vibration. Persons exposed to elevated ambient vibration levels such as people in an urban environment may tolerate a higher vibration level. Structural damage can be classified as cosmetic only, such as minor cracking of building elements, or may threaten the

integrity of the building. Construction-induced vibration that can be detrimental to a building is very rare and has only been observed in instances where the structure is in a high state of disrepair and the construction activity (e.g., impact pile driving) occurs immediately adjacent to the structure. **Table 3-6** identifies the human reactions and effects on buildings that can be caused by various continuous vibration levels.

Table 3-6. Approximate Reaction of People and Damage to Buildings from Construction Vibration Levels

Velocity Level, PPV (in/sec)	Human Reaction	Effect on Structures
0.01	Barely perceptible	No effect
0.04	Distinctly perceptible	Vibration unlikely to cause damage of any type to any structure

Source: California Department of Transportation, 2013

The Colusa and Sutter counties planning documents reference vibration guidance based on Caltrans and Federal Transit Administration (FTA) guidance. Vibration thresholds based on these standards is provided below in **Table 3-7** to assess the significance of groundborne vibration impacts. For adverse human reaction, the analysis applies the "strongly perceptible" threshold of 0.1 in/sec PPV for transient sources (Caltrans, 2013). A threshold of 0.3 in/sec PPV is used for all buildings. The FTA provides an equation that may be used to estimate vibration at different distances based on a reference PPV of 25 feet for various construction equipment. Using the FTA equation, the distances at which vibration-generating construction equipment would be lower than the annoyance or damage thresholds were calculated and compared to potential distances to receiving buildings.

Table 3-7. Vibration Thresholds

Sources	Maximum Peak Particle Velocity (PPV), (in/sec)
Adverse human reaction (human annoyance)	0.1
Buildings and Structures	0.3

Source: California Department of Transportation, 2013

Discussion

a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or in other applicable standards of other agencies?

The proposed project would generate noise from construction activities, but once construction ceases, the project would not result in any new substantial stationary noise sources or other operational noise. The project would generate minor noise from use of the facility control building, which would be supported by a power generator. However, this would be consistent with currently operational noise generated at the site. Consequently, the impact assessment below solely addresses construction noise.

Construction noise impacts typically occur when construction activities take place during noise-sensitive times of the day (e.g., early morning, evening, or nighttime hours), when construction activities occur immediately adjacent to noise sensitive land uses, or when construction durations last over extended

periods of time. The project would temporarily generate construction noise from operation of construction equipment at the project site and from transport of construction workers, construction materials, and equipment to and from the project site. While most construction noise would be limited to daytime hours (Monday through Friday between 7 a.m. and 7 p.m.), the project's initial dewatering activities would require the operation of water pumps and a generator unit (dewatering equipment) up to 24 hours per day. Additionally, depending on surface water flow conditions, continuous or 24-hour operation of the dewatering equipment may be required during the project's entire dewatering phase (May to September).

The closest sensitive receptor to the project site is a residence located approximately 75 to 100 feet from the staging area boundary (and southern boundary access point to staging area) and 170 to 200 feet from the dewatering/construction area. While Sutter County does not have quantitative thresholds to restrict construction noise, construction-related noise is restricted to daytime (between 7:00 a.m. and 6:00 p.m. on weekdays) hours and operation of the dewatering equipment (pumps and generator) would require a noise variance as described in Policy N.1.6 of the Sutter County General Plan Noise Element. Colusa County includes similar construction noise policies. Therefore, construction-related noise impacts at the site are considered to be **significant impacts**.

Hauling of construction-related fill, aggregate, debris and waste material, and other construction materials (e.g., fencing) would generate noise from trucks traveling past residences along Marty Road, Butte Slough Road, Mawson Road, and North Meridian Road (see **Figure 2-8**). However, noise resulting from haul trips would be short-term and limited to the construction periods identified in **Table 2-1** and are therefore considered to be **less than significant**.

While construction noise would be short-term and intermittent, compliance with Sutter County construction noise variance and implementation of noise reducing BMPs provided under Mitigation Measure NOI-1, would minimize construction-related noise impacts to sensitive receptors.

Mitigation Measure NOI-1 - Implement Noise-reducing Construction Practices

DWR and its construction contractors will implement the follow noise reducing measures during the project's dewatering activities near noise-sensitive receptors that could be subject to substantial construction noise in excess of applicable standards or substantially greater than existing conditions.

- Equipment will be operated, stored, and/or maintained as far away as practical from sensitive noise receptors.
- Construction scheduling and phasing will be designed so that impact equipment (e.g., pile drivers, pneumatic hammers) are used during daytime hours only.
- Housing of stationary equipment (e.g., generators) incorporating sound-attenuating enclosures if equipment would operate within a clear line-of-sight of offsite sensitive receptors. Sound attenuating enclosures will meet the following applicable criteria:
    - be installed as close as possible to the boundary of the construction site within the direct line of sight path of the nearby sensitive receptor(s);

- will consist of durable, flexible composite material featuring a noise barrier layer bound to sound-absorptive material on one side; and

- will consist of rugged, impervious, material with a surface weight of at least one pound per square foot, such that a minimum of 10 dBA reduction is achieved on the receiving side of the sound barrier.

- Construction equipment will be properly maintained per manufacturer specifications and fitted with the practicable noise suppression devices (e.g., mufflers, silencers, wraps). All impact tools will be shrouded or shielded, and all intake and exhaust ports on power equipment will be muffled or shielded. Construction equipment will be inspected before first use and at least once during construction for compliance with these noise reduction measures.

- Equipment that is quieter than standard equipment will be used in the vicinity of sensitive noise receptors when practical. For example, electrically powered equipment will be used instead of internal combustion equipment where use of such equipment is a readily available substitute that accomplishes program tasks in the same manner as internal combustion equipment.

- Construction equipment operating in the vicinity of sensitive noise receptors will not be left idling for extended periods between construction activities.

Timing: Before and during construction activities.

Responsibility: DWR and construction contractor(s).

Implementing Mitigation Measure NOI-1 would reduce significant impacts to less-than-significant levels by requiring noise reduction measures such as equipment noise housing and/or noise-reducing barricade(s)/facade(s), limiting equipment idling, and keeping equipment staging away from sensitive receptors when feasible. Therefore, this impact would be **less-than-significant with mitigation incorporated**.

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

Groundborne vibration from construction activities that involve "impact tools," especially pile driving, can produce significant vibration. Vibratory pile drivers (which are not considered an impact tool) also can produce significant vibration. Four piles would be used to support the new inlet catwalk, and the cofferdams used for dewatering of the site would also require the installation of sheet piles by a vibratory pile driver, if feasible and by impact pile drivers if needed.

Pile driving can result in peak particle velocity (PPV) of up to 1.5 inches/second (in/sec) at a distance of 25 feet (FTA, 2006), but typically average about 0.644 in/sec at that distance. Caltrans also uses the 0.65 in/sec as a reference vibration level estimate for both impact and vibratory pile driver operations at a distance of 25 feet. Assuming the use of an impact pile driver for project construction activities, structures, or sensitive land uses (residential) are located approximately 150 (outlet side) to over 200

feet (inlet side) from the vibration source. Using guidance from the Caltrans Transportation and Construction Vibration Guidance Manual (2020 update) buildings and sensitive receptors would be exposed to a vibration level of approximately 0.1 in/sec PPV to 0.089. These vibration levels are considered below the vibration thresholds resulting in adverse building damage (0.3, see **Table 3-7**) and with the potential to result in a temporary event nearing an adverse human reaction (0.1, see **Table 3-7**). Because the rubber tires and suspension systems of trucks provide vibration isolation, it is unusual for trucks to cause ground-borne vibration problems. With the short-term nature of the pile driving event (estimated 1 day on the Sacramento River side) and the low vibration levels anticipated for the project, this impact would be **less than significant**.

c) For a project located within-the vicinity of a private airstrip or-an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

The proposed project site is not within an airport land use plan or within 2 miles of a public airport since the closest airport to the project site is the Colusa County Airport which is directly 3 miles from the site and 7 roadway miles west of the project site. Given the distance from the airport, the project would have **no impact** from aircraft source noise.

3.14. Population and Housing

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

Environmental Setting

Sutter County participates in and is a part of SACOG while Colusa County is a part of the Tri-county Area Planning Council. Both county's populations have increased between the latest census counts in 2010 to 2020 (U.S. Census Bureau 2020). The California Department of Finance projected 2050 growth for Sutter and Colusa counties at 176% and 35%, respectively (De Novo 2011).

The project is located approximately 4.1 miles southeast of the town of Colusa in Sutter and Colusa counties. The project site is unincorporated, primarily rural, and sparsely populated.

Discussion

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

The proposed project is not inducing a direct or indirect substantial growth in the area where the project is proposed because no housing or commercial development is planned as part of the project There are no known plans to develop or build a new housing development or new businesses in the area directly adjacent to the project site. Implementation of the work would not have an effect on current and/or planned population grown patterns in either county since the proposed project (repairs to BSOG) is not increasing the infrastructure for new homes, businesses, or utilities. O&M of the BSOG would be conducted by existing employees and would not generate additional population growth or the need for additional housing in the region. Therefore, the proposed project would have **no impact** on population growth in the area, either directly or indirectly.

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

The project site is within existing right of way or easement areas and would not displace, divide, or disrupt an existing housing or established communities. Therefore, the proposed project would have **no impact** on displacing existing housing or people.

3.15. Public Services

Environmental Issue	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact	Beneficial Impact
XV. PUBLIC SERVICES. Would the project:					
a) Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:					
Fire protection?	☐	☐	☐	☒	☐
Police protection?	☐	☐	☐	☒	☐
Schools?	☐	☐	☐	☒	☐
Parks?	☐	☐	☐	☒	☐
Other public facilities?	☐	☐	☐	☒	☐

Environmental Setting

Fire protection and emergency services at the Sutter County portion of the project site are provided by the Meridian Fire Protection District. Fire protection in the Colusa County portion of the project site is provided by five rural fire districts (Arbuckle, College City, Bear Valley, Indian, Sacramento River), the City of Colusa Fire Department, one joint powers authority, the California Department of Forestry (CDF), and the U.S. Forest Service.

Law enforcement (or police) services at the project site are provided by the Sutter and Colusa counties' Sheriff's Departments, and California Department of Highway Patrol. Emergency Services at the project site are provided by the police and fire protection organizations listed above. Large-scale emergency services are handled by the counties Sheriff's Departments in cooperation with the inland region of California Emergency Management Agency (Cal EMA).

The closest schools to the project site are Meridian Elementary School (approximately 5 miles south of the project site) in Sutter County and the James M. Burchfield Primary School, George T. Egling Middle School, and Colusa High School (approximately 6 miles in the community of Colusa) in Colusa County.

The closest parks to the project are located in Meridian (approximately 4 miles south of the project site) and the city of Colusa (approximately 4 miles northwest of the project site).

Discussion

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

The proposed project would not result in the need for new or altered government facilities as it would not increase the demand for public services. While the project does require the construction of a new facilities control building, the building would be monitored by off-site maintenance yard personnel. Therefore, the proposed project would not create new or more intense land uses or result in a permanent population increase that would increase the demand for public services, including schools, parks, law enforcement, fire protection, or emergency response services. There would be **no impact**.

3.16. Recreation

Environmental Issue	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact	Beneficial Impact
XVI. RECREATION. **Would the project:**					
a) Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☐	☒	☐
b) Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?	☐	☐	☐	☒	☐
c) Substantially affect recreational uses at or near the project site or in the region?	☐	☐	☒	☐	☐

Environmental Setting

This section discusses the existing recreation setting of the project vicinity, analyzes potential project impacts related to recreation resources, and identifies mitigation measures to reduce potentially significant impacts to a less-than-significant level, if necessary. Potential visual or aesthetic impacts to recreational users are described above in **Section 3.1** "**Aesthetics**."

Sutter and Colusa counties contain local, State, and Federally managed recreation facilities including wildlife areas, parks, and boating facilities (Sutter County 2011, Colusa County 2012). Benefits provided by these facilities include wildlife viewing, hunting, hiking, and fishing. The project site is located adjacent to the Sacramento River and Butte Slough. This area of the river and the cove adjacent to BSOG provides fishing opportunities and is used heavily during the spring and fall.

Boat ramps in the vicinity of the project site provide access to the Sacramento River for aquatic recreation including boating, swimming, and fishing. Ward's Landing, a privately-owned boat landing, is located immediately adjacent to the project site to the south and west (see **Figure 3-1**). Facilities at Ward's Landing include boat ramps, docks, a bait shop, and trailer parking. Several additional boating landing facilities are located along the Sacramento River. These include Colusa Landing, another privately-owned facility, located approximately 4.3 miles upstream from the project site on the Sacramento River. Amenities at Colusa Landing include a recreational vehicle park, truck and boat trailer parking, docks, and boat ramps. Tisdale Boat Launching Facility is located approximately 13.5 miles southeast of the project site on the Sacramento River near the Tisdale Weir.

There are no land side parks or open spaces adjacent to the project site. However, several parks and open spaces exist in the vicinity. Colusa-Sacramento State Recreation Area is located approximately 5.5 miles west of the project site and includes hiking trails, bicycling trails, an auto tour with an observation deck, wildlife viewing opportunities, hunting, and photography. The Colusa Levee Scenic Park is located adjacent to the Colusa-Sacramento State Recreation Area and includes 2.19 acres of green spaces, paved walking trail, picnic tables, and barbeque pits built upon the Sacramento levee.

Sutter County has developed two main bikeways within the county, both of which are located within the Sutter urban area and extend east to Yuba City (Sutter County 2023). Colusa County has not yet developed a bicycle master plan and thus does not have any designated bikeways identified within their General Plan or County website. There are no bikeways within the vicinity of project site.

Discussion

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

The proposed project involves repairing existing flood control structures. The proposed project would not increase the use of existing neighborhood, regional parks, or other recreational facilities. Therefore, there would be **no impact**.

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

The proposed project involves repairing existing flood control structures. The proposed project does not include recreational facilities or require the construction or expansion of recreational facilities. There would be **no impact**.

c) Substantially affect recreational uses at or near the project site or in the region?

There would be no impacts related to project O&M activities. During the construction period, in particular during dewatering activities, access to the project site from the Sacramento River, including privately owned Ward's Landing, would be limited or temporarily inaccessible to boaters or other waterborne recreation. As stated above, numerous other boat launches on the Sacramento River are available in the vicinity, including Colusa Landing (4.3 miles away from the project site), the Colusa-Sacramento River State Recreation Area (5.5 miles away), Grimes Boat Landing (9 miles away) and the Tisdale Boat Launch (13 miles away) and would be accessed during specific construction activities such as dewatering which would limit or temporarily preclude use of the Ward's Landing boat launching facilities. As a temporary access condition and with similar boating facilities located nearby along the Sacramento River, this construction-related impact would be **less than significant**.

3.17. Transportation

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

Environmental Setting

The proposed project includes repairing and replacing the BSOG facility located at the confluence of Butte Slough and the Sacramento River, approximately 5 miles downstream from the town of Colusa on the left bank of the Sacramento River in Sutter and Colusa counties. The local and regional transportation systems are identified in **Figure 3-3**.

There are two major highways that would be used for transporting materials and equipment to the project site, Interstate 5 (I-5) and California State Route 20 (SR 20). I-5 is a major north-south route providing four lanes traveling through Colusa County and the City of Williams, then intersecting with SR 20, approximately 11.4 miles west of the project site. Based on the most recent data reported on the Caltrans *Traffic Census Program* internet website (California Department of Transportation 2024), the average daily traffic (ADT) volume on I-5 is 31,500 vehicles per day south of SR 20, and 29,500 vehicles per day north of SR 20.

SR 20 is a two-lane rural highway with 12-foot lanes and paved shoulder that vary from 2 to 6 feet depending on the location. SR 20 crosses the Sacramento River southeast of Colusa, approximately 3.5 miles south of the project site and continues east. It is busiest through the City of Colusa, where volumes can reach 25,000 vehicles per day (Colusa County 2019). South of the project site, the ADT

volume is 8,200 vehicles per day at the Colusa County/Sutter County line, and 8,100 vehicles per day on the east side of the Sutter Bypass.

Both I-5 and SR 20 are primary transportation corridors mainly serving small communities and agricultural uses in the vicinity of the project site.

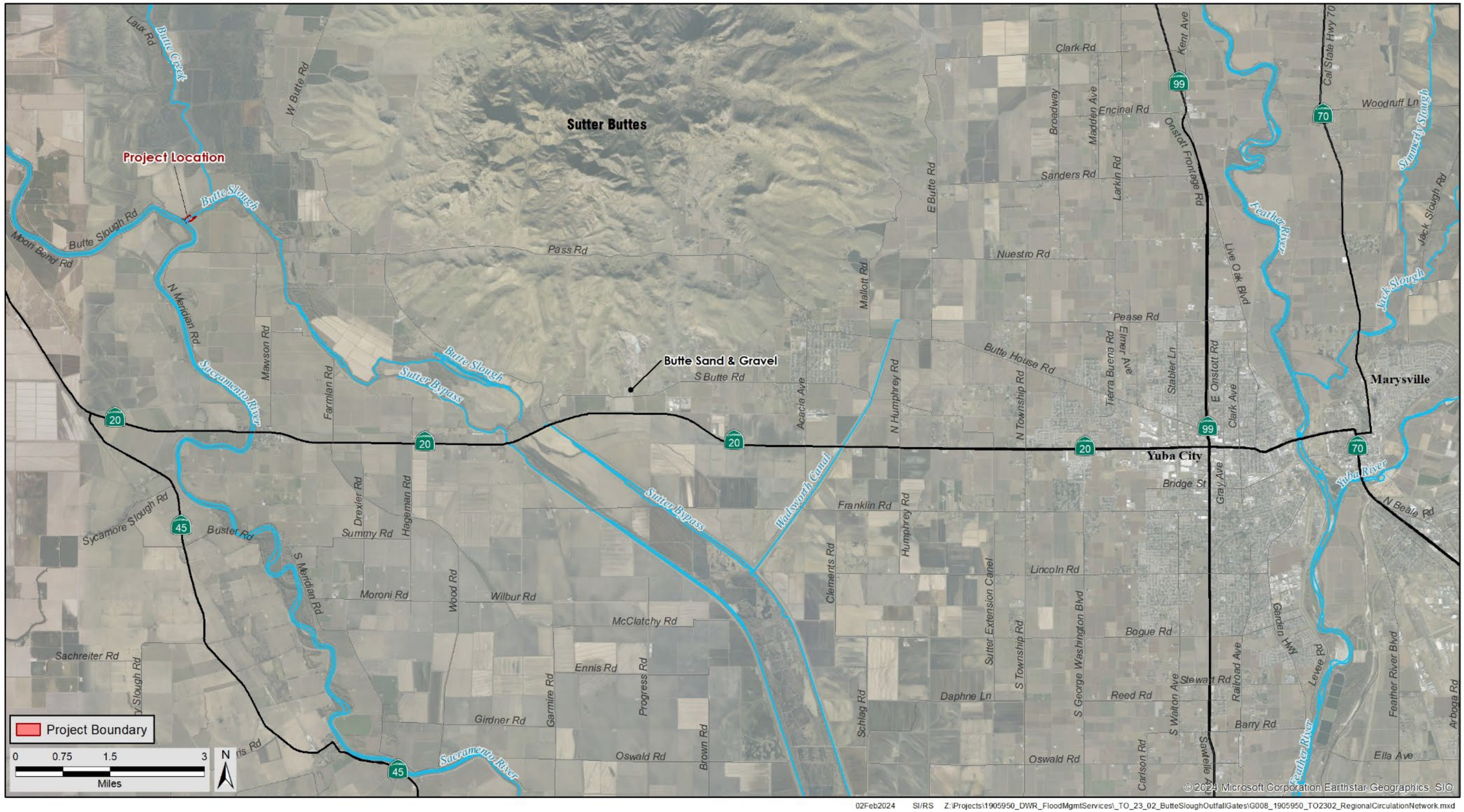
Regional roads impacted include River Road, Bridge Street, and Meridian Road. Local roadways impacted by project construction travel includes Marty Road and Butte Slough Road. The project site is straddled by a road is Marty Road on the Sutter County side and Butte Slough Road on the Colusa County side. This road is used primarily by local residents by vehicles including cars, trucks, trucks with boat trailers and farm equipment.

Quantitative measurements of traffic volumes on roadways listed above are not available. However, due to the rural nature of the site, as well as on-site visual observations, traffic volumes on these roadways are relatively low.

The Colusa County Transit Agency provides public transportation in Colusa County through a general public paratransit service. The bus system operates a Dial-A-Ride basis with fixed time routes to Arbuckle, Colusa, Grimes, Maxwell, Princeton, Sites, Stonyford, and Williams (Colusa County 2019). In Sutter County, the Yuba-Sutter Transit provides local routes to Yuba City, Marysville, Linda, and Olivehurst (PBS&J 2010). There are no transit stops in the vicinity of the project site.

There are limited pedestrian and bicycle facilities in Colusa and Sutter counties, and none exist within the vicinity of the proposed project site.

Figure 3-3. Proposed Project Truck Haul Routes



Discussion

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

Implementation of the proposed project would not require any road closures or detours. There would be a temporary increase in heavy truck traffic on the local and regional roadways discussed. However, this increase in heavy truck traffic would not conflict with any plans, ordinance, or policies addressing the circulation system. Furthermore, there are no transit stops or pedestrian and bicycle facilities in the vicinity of the project site and thus would not be impacted by the proposed project's activities. For these reasons, these short-term, temporary increases in heavy truck traffic would be **less than significant.**

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

Senate Bill 743, which was signed into law in 2013, updated section 15064.3 of the State CEQA Guidelines to change how lead agencies evaluate transportation impacts. Since July 1, 2020, agencies analyzing the transportation impacts of new projects must use vehicle miles traveled (VMT) as a transportation impact metric. State CEQA Guidelines Section 15064.3(b)(3) states that "a qualitative analysis of construction traffic may be appropriate." Since the purpose of Senate Bill 743 was focused on reducing long-term VMT to help achieve the State's GHG reduction targets, this type of VMT analysis is not focused on evaluating temporary construction-related trips. Even though one particular project may generate a large number of construction trips, the number of construction generated VMT for an individual project is temporary when compared to the total annual operational VMT in a jurisdiction generated by residential, commercial, industrial, and office uses.

The project would generate a temporary increase in VMT during the construction period from mobilization and demobilization of construction equipment, hauling construction materials, and worker vehicle trips to and from the project area each day of construction. Daily worker commutes and occasional material delivery trips would generate the most vehicle trips. Up to in 55 worker commute trips per day are anticipated for the proposed project over the approximately 1.5-year construction period. Access to the project site includes use of highways, regional roads, and local roads. Construction personnel would likely come from the local workforce in the Sacramento Valley and greater Sacramento region. Supplier markets are distant from the project site and the choice of construction contractors by DWR would depend on several factors, including availability when the work is scheduled. As a result, opportunities to substantially lessen VMT during the construction period are limited.

VMT generated by construction activities would not persist after project construction is complete. Caltrans, in its guidance for implementing SB 743, states that "vehicle trips used for construction purposes would be temporary, and any generated VMT would generally be minor and limited to construction equipment and personnel and would not result in long-term trip generation" (Caltrans 2020). As such, VMT associated with project construction would be temporary and not contribute to a substantial change in long-term VMT. Therefore, project construction would be consistent with State CEQA Guidelines section 15064.3(b), and impacts would be **less than significant**.

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

There would no road closures or detours as a result of the proposed project. Additionally, the proposed project does not include road construction. Therefore, there would be **no impact**.

d) Result in inadequate emergency access?

The proposed project would temporarily increase vehicles to the local roadway and circulation system. However, no lane or road closures would be required. All project-related activities would occur onsite within the proposed project boundary and would not interfere with emergency response access. There would be **no impact**.

3.18. Tribal Cultural Resources

Environmental Issue	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact	Beneficial Impact
XVIII. TRIBAL CULTURAL RESOURCES. **Would the project** cause a substantial adverse change in the significance of a tribal cultural resource, defined in PRC Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:					
a) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in PRC Section 5020.1(k), or	☐	☒	☐	☐	☐
b) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of PRC Section 5024.1. In applying the criteria set forth in subdivision (c) of PRC Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	☐	☒	☐	☐	☐

Environmental Setting

Refer to the "Ethnographic Setting" in **Section 3.5**, "**Cultural Resources**."

Discussion

Although no California Native American Tribes had previously contacted DWR to request consultation on projects under Assembly Bill 52 (PRC Section 21080.3.1), and under DWR's and the Natural Resources consultation policies, on behalf of DWR and the proposed project, GEI contacted the Native American Heritage Commission (NAHC) to request a search of their Sacred Lands Files (SLF) to identify recorded areas of interest to Native Americans, and to request a contact list of Native Americans who may have information about resources within the project site or APE, or interest in the proposed project. GEI received a response dated March 20, 2023, that provided a contact list for potentially interested Native American Tribes and stated the results of the SLF search were negative, with no recorded sacred lands or Tribal Cultural Resources identified in or near the APE.

To comply with CEQA regulations, specifically Assembly Bill (AB) 52, DWR sent letters to Tribes on October 24, 2023, that have previously requested consultation on DWR projects. DWR also sent letters to the remainder of the Tribes, who may have information or an interest in the proposed project, from the contact list provided by the NAHC. No responses have been received to date.

a) Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in PRC Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in PRC Section 5020.1(k)?

b) Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in PRC Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is a resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of PRC Section 5024.1.

Tribal Cultural Resources are either (1) sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American Tribe that is either in or eligible for inclusion in the CRHR or a local historic register; or (2) a resource that the lead agency, at its discretion and supported by substantial evidence, chooses to treat as a Tribal Cultural Resource. In addition, a cultural landscape may also qualify as a Tribal Cultural Resource if it meets the criteria to be eligible for inclusion in the CRHR and is geographically defined in terms of the size and scope of the landscape. Other historical resources (as described in California PRC 21084.1), unique archaeological resources (as defined in California PRC 21083.2[g]), and non-unique archaeological resources (as described in California PRC 21083.2[h]) may also be a Tribal Cultural Resource, if they meet CRHR eligibility criteria.

No archaeological or Tribal Cultural Resources were identified in the project area during the investigation. However, during project activities and continuing consultation with Native American Tribes, it is possible that previously undiscovered archaeological resources meeting criteria for inclusion of the CRHR may be identified; therefore, this potential impact is considered **significant.** Mitigation Measures CR-2, CR-3, CR-4, and CR-5 will be implemented to address this impact.

Mitigation Measure CR-2: Address Previously Known Historical, Archaeological, and Tribal Cultural Resources through Worker Environmental Awareness Program Training.

Refer to Mitigation Measure CR-2 in Section 3.5 “Cultural Resources” for full mitigation measure text.

Mitigation Measure CR-3: Address Previously Known Historical, Archaeological, and Tribal Cultural Resources through Monitoring of Ground-disturbing Activities.

Refer to Mitigation Measure CR-3 in Section 3.5 “Cultural Resources” for full mitigation measure text.

Mitigation Measure CR-4: Address Previously Undiscovered Historical, Archaeological, and Tribal Cultural Resources.

If buried or previously unidentified historic properties or archaeological resources are discovered during project construction, all work within a 100-foot-radius of the find will cease. DWR will retain a professional archaeologist meeting the Secretary of the Interior’s Professional Standards for Archaeologists to assess the discovery and recommend what, if any, further treatment, or investigation is necessary for the find. Interested Native American Tribes will also be contacted and consulted with if interested. Any necessary treatment/investigation will be developed in coordination with interested Native American Tribes providing recommendations and with DWR and will be completed before project activities continue in the vicinity of the find.

Timing: During construction activities.

Responsibility: DWR and construction contractor(s).

Mitigation Measure CR-5: Avoid Potential Effects on Undiscovered Burials.

DWR and its construction contractors will implement the following protocol to reduce or avoid potential impacts related to undiscovered burials. In accordance with the California Health and Safety Code, if human remains are found, all excavation work will be halted in the immediate area and the Colusa and Sutter counties Coroner(s) be notified to determine the nature of the remains. The county 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 pre-contact Native American (i.e., not modern and earlier than Euro-American incursion in the area), they must contact the NAHC by telephone within 24 hours of making that determination (California Health and Safety Code, Section 7050.5[c]).

Once notified by the Coroner, the NAHC will identify the person it believes is the Most Likely Descendant (MLD) of the Native American remains. With permission of the legal landowner, the MLD may visit the site and make recommendations regarding the treatment and disposition of the human remains and any associated grave goods. This visit should be conducted with 24 hours of the MLD’s notification by the NAHC (PRC Section 5097.98[a]). If a satisfactory agreement for treatment of the remains cannot be reached, any of the parties may request mediation by the NAHC (PRC Section 5097.94[k]). Should mediation fail, the landowner or landowner’s representative must reinter the remains and associated items with appropriate dignity on the property in a location not subject to further subsurface disturbance (PRC Section 5097.98[b]).

Timing: During construction activities.

Responsibility: DWR and construction contractors.

Implementation of Mitigation Measures CR-2, CR-3, CR-4, and CR-5 would reduce potentially significant impacts to less-than-significant levels through compliance with CCR Section 15064.5 (resource identification and treatment measures) and in accordance with State and Federal laws regarding previously undiscovered burials or cultural resources. Therefore, this impact would be **less-than-significant with mitigation incorporated**.

3.19. Utilities and Service Systems

Environmental Issue	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact	Beneficial Impact
XIX. UTILITIES AND SERVICE SYSTEMS. Would the project:					
a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	☐	☒	☐	☐	☐
b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years?	☐	☐	☐	☒	☐
c) Result in a determination by the wastewater treatment provider that serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☐	☒	☐
d) Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	☐	☐	☒	☐	☐
e) Comply with Federal, State, and local management and reduction statutes and regulations related to solid waste?	☐	☐	☐	☒	☐

Environmental Setting

The BSOG is located approximately 4 miles southeast of the town of Colusa, in rural Colusa and Sutter counties. Pacific Gas and Electric (PG&E) is the primary electrical utility provider for Sutter and Colusa counties. There are no major utility corridors within the project site. There is one 110-volt utility line, with two power poles in the project footprint, running parallel to Butte Slough/Marty Rd. on the Butte Slough side of the project.

A facility control building and electrical equipment necessary for facility operation would be constructed for the proposed project. Power for the controls would be routed from the existing PG&E pole near the control building and a new PG&E meter would be installed on the control building.

Post-construction O&M activities would not cause any potential utilities and service systems impacts.

Residents of unincorporated areas of rural Sutter and Colusa counties are typically served by privately owned groundwater wells for their water supplies and privately owned septic systems for wastewater management (West Yost Associates 2014). The nearest landfill to the project site is Recology Ostrom Rd. Landfill at 5900 Ostrom Rd Wheatland, CA 95962, located approximately 30 miles southeast of the project site. The Ostrom Rd Landfill serves municipal and commercial customers in Yuba, Sutter, Butte, Nevada, and Colusa counties (Recology 2023). There are two closer locations owned by Recology; however, these are transfer station facilities that only accept specific recyclable items.

Discussion

a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?

The proposed project consists of construction activities to rehabilitate existing flood control structures. The construction activities may require a limited of water during construction activities for dust and suppression purposes. However, this nominal use would not require new water facilities or expansion of existing facilities. The proposed project does not include new urban uses (e.g. residential, commercial land, or industrial) that would directly increase the demand for expanded water, wastewater treatment or storm drainage, electrical power, natural gas, or telecommunication facilities. Implementation of the proposed project would not require significant amounts of new electrical power or natural gas and would not require the use of telecommunication facilities. The facility control building and existing slide gates are powered by electricity. The facility control building's electrical components would be improved as part of the project but would not require substantially more power usage. As stated above in Chapter 3.10, "Hydrology and Water Quality", the proposed project would not substantially alter the local drainage pattern of the project site. As such, the proposed Project would not require the construction or expansion of new storm water drainage facilities. Therefore, there would be no construction of utility infrastructure associated with the proposed project.

As previously discussed, there is one 110-volt utility line with two power poles in the project footprint which may require relocation for mobilization of construction materials and equipment to the project site. If necessary, this would cause a short-term, temporary disruption of services. Although short-term and temporary, this impact is still considered to be **potentially significant** as it could affect multiple agencies and especially landowners.

To address this temporary impact, DWR will implement Mitigation Measure UTL-1 which would require coordination with utility providers to ensure orderly relocation of utilities if needed and provide

notification of any potential interruptions of services to the appropriate agencies and affected landowners, among other measures described below.

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

DWR and its construction contractors will implement the measures listed below before construction begins to avoid and minimize potential damage to utilities, infrastructure, and service disruptions during construction.

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

The construction contractor will follow standard procedures for further identifying underground utilities in the project area to confirm the site conditions. If underground utilities are identified by the utility providers, the contractor will coordinate any necessary BMPs that will need to be implemented. Based on current site data and available information, no effects to public utilities are anticipated during construction.

Timing: Before and during construction activities.

Responsibility: DWR and construction contractor(s).

Implementing Mitigation Measure UTL-1 would reduce the potential impact to a less-than-significant level through the implementation of utility coordination and response measures. Therefore, this impact would be **less-than-significant with mitigation incorporated**.

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

The proposed project consists of rehabilitation of existing flood control structures. No permanent water supply would be required to serve the project. There would be **no impact**.

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

The proposed project would only generate wastewater associated with the temporary use of portable toilets. During project implementation, DWR and its construction contractors may have portable toilet facilities available onsite temporarily for use by construction workers. Given the small construction workforce of a maximum of 15 to 20 workers onsite daily for the construction period, this amount of waste would be minimal. Once construction is concluded, such portable facilities would be removed, and the wastewater properly handled and disposed in accordance with all applicable laws and regulations. Therefore, the proposed project does not require a wastewater treatment provider to serve the project. There would be **no impact**.

d) Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?

Implementation of the proposed project would result in nominal solid waste, limited to trash and other construction-related materials. Post construction O&M activities would not regularly generate solid waste. This impact would be **less than significant**.

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

All solid waste activities would comply with Federal, State, and local statutes. There would be **no impact**.

3.20. Wildfire

Environmental Issue	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact	Beneficial Impact
XX. WILDFIRE. If located in or near State responsibility areas or lands classified as very high fire hazard severity zones, **would the project:**					
a) Substantially impair an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒	☐
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?	☐	☐	☐	☒	☐
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?	☐	☐	☐	☒	☐
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?	☐	☐	☐	☒	☐

Environmental Setting

The project site is located at the confluence of Butte Slough and the Sacramento River, approximately 5 miles downstream from the town of Colusa on the left bank of the Sacramento River in Sutter and Colusa counties. The BSOG structure is located on both sides of the Sacramento River levee, within both Butte Slough and the Sacramento River, in Sutter and Colusa counties. This unincorporated area of Sutter and Colusa counties is not located within a State Fire Hazard Severity Zone (CalFIRE 2023). The project site is mapped in both Sutter and Colusa counties as Unzoned Local Responsibility Area (CalFIRE 2007a, b).

The Sutter County Fire Department-County Service Area F and Colusa Fire Department jointly protect and respond to wildfire hazards in the vicinity of the project site.

Discussion

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

As discussed in **Section 3.9**, "**Hazards and Hazardous Materials**", implementation of the proposed project would not substantially impair an adopted emergency response plan or evacuation plan. Construction activities, including any construction-generated truck traffic, would not interfere with emergency response access to the project site. **No impact** would occur.

b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?

The project site and vicinity are not located within a State Responsibility Area very high fire hazard severity zone. Due to the project site's proximity to two large surface waterbodies, the Sacramento River and Butte Slough, and lack of significant slopes, which contribute to more severe wildfire conditions, it is unlikely that a wildfire would occur within the project site. The purpose of the proposed project is repair of flood management structures. Operation of these flood control structures, slide gates, catwalk for access, and facility control center are not uses that would typically exacerbate wildfire conditions with an area. Further, operation of the proposed facilities would not require permanent workers or occupants within the project area, who would be exposed to pollutant concentrations from a wildfire. Therefore, there would be **no impact**.

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?

The proposed project involves rehabilitation of existing flood control structures. Implementation of the proposed project would not require the installation or maintenance of roads, fuel breaks, emergency water sources, power lines, or other utilities that may exacerbate wildfire risk. Furthermore, implementation of the proposed project would not change ongoing O&M activities. As such, implementation of the proposed project would not exacerbate wildfire risk and **no impact** would occur.

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?

The purpose of the proposed project is to improve flood protection infrastructure, which would ensure more resilient flood protection for the project area. Furthermore, due to the relatively flat topography, the project site is not prone to landslides as discussed further in **Section 3.7**, "**Geology and Soils**." Further, as discussed in **Section 3.10**, "**Hydrology and Water Quality**," the proposed project would not result in increased drainage or runoff that could contribute to flooding impacts. In the event of an unexpected wildfire, the flat topographic characteristic of the project site would not put people or structures at risk to post-fire landslide, slope instability, or flooding. There would be **no impact**.

3.21. Mandatory Findings of Significance

Environmental Issue	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact	Beneficial Impact
XXI. MANDATORY FINDINGS OF SIGNIFICANCE. **Would the project:**					
a) Have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of an endangered, rare, or threatened species, or eliminate important examples of the major periods of California history or prehistory?	☐	☒	☐	☐	☐
b) Have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	☐	☒	☐	☐	☐
c) Have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☐	☐	☒	☐

Discussion

a) Would 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 an endangered, rare, or threatened species, or eliminate important examples of the major periods of California history or prehistory?

The analysis conducted in this IS concludes that implementing the project would not have a significant impact on the environment. As evaluated in **Section 3.4**, "**Biological Resources**," impacts on biological resources would be less than significant or less than significant with mitigation incorporated. The project would not 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; or reduce the number or restrict the range of an endangered, rare, or threatened species. As discussed in **Section 3.5**, "**Cultural Resources**," the project would not eliminate important examples of the major periods of California history or prehistory. This impact would be **less than significant with mitigation incorporated.**

b) Would 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.)

As discussed in this IS, the project would result in less-than-significant impacts with mitigation incorporated, less-than-significant impacts, or no impacts on aesthetics, agriculture and forestry resources, air quality, biological resources, cultural resources, energy, geology and soils, GHG emissions, hazards and hazardous materials, hydrology and water quality, land use and planning, mineral resources, noise, population and housing, public services, recreation, transportation, tribal cultural resources, utilities and service systems, and wildfire.

The temporary nature of the project's construction impacts (up to approximately 150 days), and the long-term improvements to site access to support maintenance and levee patrol activities at the project site would result in no impacts, less-than-significant impacts, or less-than-significant impacts with mitigation incorporated on the physical environment. No other past, present, or probable future projects would overlap with the project at the project site, with the exception of the existing levee, which has been in place for approximately 100 years. The proposed project would augment the existing levee project at this site by facilitating improved levee protection and maintenance, thereby reducing the potential for flooding, which could potentially result in numerous significant impacts to environmental resources, such as land use, population and housing, public services, agriculture, air quality, GHG emissions, noise, transportation, utilities and service systems, geology and soils, hazardous materials, and water quality. Potential impacts to these resources would depend on the specific location, magnitude, and duration of any flooding, and the high potential for significant post-flood, construction-related impacts.

The project's relatively minor impacts would result from the short construction schedule and the project's specific location between an existing levee and orchard, which confines project-related impacts to a relatively small area without significant environmental resources. With implementation of mitigation presented in this IS, none of the project's impacts make cumulatively considerable, incremental contributions to significant cumulative impacts. Therefore, all cumulative impacts would be **less than significant with mitigation incorporated.**

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

The proposed project would result in less-than-significant impacts and would not cause substantial adverse effects on human beings, either directly or indirectly, as discussed in this IS. This impact would be **less than significant**.

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5. Report Preparers

California Department of Water Resources

Scott Deal .....Environmental Permitting Lead

Kristin Ford .....Environmental Review and Coordination

Scott Kranhold .....Environmental Review

Leslie Earl-Gould .....Environmental Review and Climate Action Plan

Philip Meyer ..... Environmental Review and Climate Action Plan

Eric McGrath .....Project Manager

GEI Consultants, Inc.

Ray Weiss .....Project Manager

Ryan Jolley .....Document Review

Phil Dunn .....CEQA Compliance Advisor

Christine Russo .....Environmental Planner

Becky Dorff .....Environmental Planner

Anne Kin g .....Senior Biologist

Melinda Mohamed .....Biologist and Environmental Planner

Mark Ashenfelter .....Senior Fisheries Biologist

Denise Jurich, RPA .....Senior Archaeologist

Jesse Martinez, RPA .....Senior Archaeologist

Amy Wolpert, RPA .....Archaeologist

Madeline Bowen .....Senior Architectural Historian

Kyle Brudvik .....Geoarchaeologist/Paleontologist

Ryan Snyder .....Geographic Information Systems Analyst

Val Yap .....Graphics

Marguerite Myers .....Document Production

Appendix A. Air Quality Emission Results

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	BSOG v2
Construction Start Date	9/1/2024
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	3.40
Precipitation (days)	1.20
Location	39.19492144603433, -121.93634003557563
County	Sutter
City	Unincorporated
Air District	Feather River AQMD
Air Basin	Sacramento Valley
TAZ	229
EDFZ	4
Electric Utility	Pacific Gas & Electric Company
Gas Utility	Pacific Gas & Electric
App Version	2022.1.1.24

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 Industrial	1.00	User Defined Unit	6.35	0.00	0.00	0.00	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

Sector	#	Measure Title
Construction	C-2*	Limit Heavy-Duty Diesel Vehicle Idling
Construction	C-10-A	Water Exposed Surfaces
Construction	C-10-C	Water Unpaved Construction Roads
Construction	C-11	Limit Vehicle Speeds on Unpaved Roads
Construction	C-12	Sweep Paved Roads

* Qualitative or supporting measure. Emission reductions not included in the mitigated emissions results.

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	8.77	7.37	45.4	54.6	0.20	1.61	0.21	1.82	1.48	0.05	1.53	—	21,567	21,567	0.87	0.21	1.01	21,652
Mit.	8.77	7.37	45.4	54.6	0.20	1.61	0.21	1.82	1.48	0.05	1.53	—	21,567	21,567	0.87	0.21	1.01	21,652
% Reduced	—	—	—	—	—	—	1%	< 0.5%	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	8.76	7.36	45.5	54.3	0.20	1.61	0.23	1.82	1.48	0.05	1.53	—	21,547	21,547	0.87	0.21	0.03	21,631
Mit.	8.76	7.36	45.5	54.3	0.20	1.61	0.23	1.82	1.48	0.05	1.53	—	21,547	21,547	0.87	0.21	0.03	21,631
% Reduced	—	—	—	—	—	—	< 0.5%	< 0.5%	—	—	—	—	—	—	—	—	—	—
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	4.70	3.95	24.4	29.1	0.11	0.87	0.11	0.98	0.80	0.03	0.83	—	11,421	11,421	0.46	0.11	0.21	11,465
Mit.	4.70	3.95	24.4	29.1	0.11	0.87	0.11	0.98	0.80	0.03	0.83	—	11,421	11,421	0.46	0.11	0.21	11,465
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.86	0.72	4.45	5.31	0.02	0.16	0.02	0.18	0.15	< 0.005	0.15	—	1,891	1,891	0.08	0.02	0.03	1,898
Mit.	0.86	0.72	4.45	5.31	0.02	0.16	0.02	0.18	0.15	< 0.005	0.15	—	1,891	1,891	0.08	0.02	0.03	1,898
% Reduced	—	—	—	—	—	—	< 0.5%	< 0.5%	—	< 0.5%	< 0.5%	—	—	—	—	—	—	—

2.2. Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	8.77	7.37	45.4	54.6	0.20	1.61	0.21	1.82	1.48	0.05	1.53	—	21,567	21,567	0.87	0.21	1.01	21,652
2027	0.31	0.26	1.24	1.98	0.01	0.04	0.08	0.12	0.04	0.02	0.06	—	752	752	0.03	0.01	0.26	755
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	3.26	2.75	16.5	18.4	0.07	0.58	0.12	0.70	0.54	0.03	0.56	—	8,110	8,110	0.33	0.07	0.01	8,139
2026	8.76	7.36	45.5	54.3	0.20	1.61	0.23	1.82	1.48	0.05	1.53	—	21,547	21,547	0.87	0.21	0.03	21,631
2027	3.49	2.93	16.3	21.5	0.08	0.58	0.08	0.65	0.53	0.02	0.55	—	8,693	8,693	0.35	0.07	0.01	8,723
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	0.47	0.39	2.36	2.64	0.01	0.08	0.02	0.10	0.08	< 0.005	0.08	—	1,162	1,162	0.05	0.01	0.03	1,166
2026	4.70	3.95	24.4	29.1	0.11	0.87	0.11	0.98	0.80	0.03	0.83	—	11,421	11,421	0.46	0.11	0.21	11,465
2027	0.30	0.25	1.37	1.85	0.01	0.05	0.02	0.07	0.04	< 0.005	0.05	—	745	745	0.03	0.01	0.03	748
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	0.09	0.07	0.43	0.48	< 0.005	0.02	< 0.005	0.02	0.01	< 0.005	0.01	—	192	192	0.01	< 0.005	< 0.005	193
2026	0.86	0.72	4.45	5.31	0.02	0.16	0.02	0.18	0.15	< 0.005	0.15	—	1,891	1,891	0.08	0.02	0.03	1,898
2027	0.05	0.05	0.25	0.34	< 0.005	0.01	< 0.005	0.01	0.01	< 0.005	0.01	—	123	123	< 0.005	< 0.005	< 0.005	124

2.3. Construction Emissions by Year, Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	8.77	7.37	45.4	54.6	0.20	1.61	0.21	1.82	1.48	0.05	1.53	—	21,567	21,567	0.87	0.21	1.01	21,652
2027	0.31	0.26	1.24	1.98	0.01	0.04	0.08	0.12	0.04	0.02	0.06	—	752	752	0.03	0.01	0.26	755
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	3.26	2.75	16.5	18.4	0.07	0.58	0.12	0.70	0.54	0.03	0.56	—	8,110	8,110	0.33	0.07	0.01	8,139
2026	8.76	7.36	45.5	54.3	0.20	1.61	0.23	1.82	1.48	0.05	1.53	—	21,547	21,547	0.87	0.21	0.03	21,631
2027	3.49	2.93	16.3	21.5	0.08	0.58	0.08	0.65	0.53	0.02	0.55	—	8,693	8,693	0.35	0.07	0.01	8,723
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	0.47	0.39	2.36	2.64	0.01	0.08	0.02	0.10	0.08	< 0.005	0.08	—	1,162	1,162	0.05	0.01	0.03	1,166
2026	4.70	3.95	24.4	29.1	0.11	0.87	0.11	0.98	0.80	0.03	0.83	—	11,421	11,421	0.46	0.11	0.21	11,465
2027	0.30	0.25	1.37	1.85	0.01	0.05	0.02	0.07	0.04	< 0.005	0.05	—	745	745	0.03	0.01	0.03	748
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	0.09	0.07	0.43	0.48	< 0.005	0.02	< 0.005	0.02	0.01	< 0.005	0.01	—	192	192	0.01	< 0.005	< 0.005	193
2026	0.86	0.72	4.45	5.31	0.02	0.16	0.02	0.18	0.15	< 0.005	0.15	—	1,891	1,891	0.08	0.02	0.03	1,898
2027	0.05	0.05	0.25	0.34	< 0.005	0.01	< 0.005	0.01	0.01	< 0.005	0.01	—	123	123	< 0.005	< 0.005	< 0.005	124

3. Construction Emissions Details

3.1. Mobilization and Prefabrication (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipmen	3.98	3.34	20.0	23.9	0.09	0.70	—	0.70	0.64	—	0.64	—	9,992	9,992	0.41	0.08	—	10,026
Dust From Material Movemen	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipmen	3.98	3.34	20.0	23.9	0.09	0.70	—	0.70	0.64	—	0.64	—	9,992	9,992	0.41	0.08	—	10,026
Dust From Material Movemen	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipmen	0.62	0.52	3.13	3.74	0.01	0.11	—	0.11	0.10	—	0.10	—	1,560	1,560	0.06	0.01	—	1,566
Dust From Material Movemen	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipmen	0.11	0.10	0.57	0.68	< 0.005	0.02	—	0.02	0.02	—	0.02	—	258	258	0.01	< 0.005	—	259
Dust From Material Movemen	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.04	0.03	0.54	0.00	0.00	0.08	0.08	0.00	0.02	0.02	—	86.9	86.9	< 0.005	< 0.005	0.29	88.2
Vendor	< 0.005	< 0.005	0.08	0.01	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	—	87.0	87.0	< 0.005	0.01	0.24	91.2
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.04	0.41	0.00	0.00	0.08	0.08	0.00	0.02	0.02	—	76.8	76.8	< 0.005	< 0.005	0.01	77.9
Vendor	< 0.005	< 0.005	0.08	0.01	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	—	87.0	87.0	< 0.005	0.01	0.01	91.0
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.06	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	12.3	12.3	< 0.005	< 0.005	0.02	12.5
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	13.6	13.6	< 0.005	< 0.005	0.02	14.2
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.04	2.04	< 0.005	< 0.005	< 0.005	2.07
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	2.25	2.25	< 0.005	< 0.005	< 0.005	2.35
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.2. Mobilization and Prefabrication (2026) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipmen	3.98	3.34	20.0	23.9	0.09	0.70	—	0.70	0.64	—	0.64	—	9,992	9,992	0.41	0.08	—	10,026
Dust From Material Movemen	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipmen	3.98	3.34	20.0	23.9	0.09	0.70	—	0.70	0.64	—	0.64	—	9,992	9,992	0.41	0.08	—	10,026
Dust From Material Movemen	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipmen	0.62	0.52	3.13	3.74	0.01	0.11	—	0.11	0.10	—	0.10	—	1,560	1,560	0.06	0.01	—	1,566
Dust From Material Movemen	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Off-Road Equipmen	0.11	0.10	0.57	0.68	< 0.005	0.02	—	0.02	0.02	—	0.02	—	258	258	0.01	< 0.005	—	259
Dust From Material Movemen	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.04	0.03	0.54	0.00	0.00	0.08	0.08	0.00	0.02	0.02	—	86.9	86.9	< 0.005	< 0.005	0.29	88.2
Vendor	< 0.005	< 0.005	0.08	0.01	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	—	87.0	87.0	< 0.005	0.01	0.24	91.2
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.04	0.41	0.00	0.00	0.08	0.08	0.00	0.02	0.02	—	76.8	76.8	< 0.005	< 0.005	0.01	77.9
Vendor	< 0.005	< 0.005	0.08	0.01	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	—	87.0	87.0	< 0.005	0.01	0.01	91.0
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.06	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	12.3	12.3	< 0.005	< 0.005	0.02	12.5
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	13.6	13.6	< 0.005	< 0.005	0.02	14.2
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.04	2.04	< 0.005	< 0.005	< 0.005	2.07
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	2.25	2.25	< 0.005	< 0.005	< 0.005	2.35
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.3. Staging, laydown, prefabrication, install cofferdams, dewatering, demolition (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipmen	4.69	3.94	25.1	29.5	0.10	0.90	—	0.90	0.83	—	0.83	—	11,207	11,207	0.45	0.09	—	11,246
Dust From Material Movemen	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipmen	4.69	3.94	25.1	29.5	0.10	0.90	—	0.90	0.83	—	0.83	—	11,207	11,207	0.45	0.09	—	11,246
Dust From Material Movemen	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipmen	2.16	1.81	11.6	13.6	0.05	0.42	—	0.42	0.38	—	0.38	—	5,158	5,158	0.21	0.04	—	5,176
Dust From Material Movemen	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipmen	4.69	3.94	25.1	29.5	0.10	0.90	—	0.90	0.83	—	0.83	—	11,207	11,207	0.45	0.09	—	11,246
Dust From Material Movemen	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipmen	4.69	3.94	25.1	29.5	0.10	0.90	—	0.90	0.83	—	0.83	—	11,207	11,207	0.45	0.09	—	11,246
Off-Road Equipmen	0.39	0.33	2.11	2.48	0.01	0.08	—	0.08	0.07	—	0.07	—	854	854	0.03	0.01	—	857
Dust From Material Movemen	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.04	0.03	0.54	0.00	0.00	0.08	0.08	0.00	0.02	0.02	—	86.9	86.9	< 0.005	< 0.005	0.29	88.2
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	0.14	0.04	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	—	108	108	< 0.005	0.02	0.19	113
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.04	0.41	0.00	0.00	0.08	0.08	0.00	0.02	0.02	—	76.8	76.8	< 0.005	< 0.005	0.01	77.9

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipmen	4.69	3.94	25.1	29.5	0.10	0.90	—	0.90	0.83	—	0.83	—	11,207	11,207	0.45	0.09	—	11,246
Dust From Material Movemen	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipmen	4.69	3.94	25.1	29.5	0.10	0.90	—	0.90	0.83	—	0.83	—	11,207	11,207	0.45	0.09	—	11,246
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	0.15	0.04	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	—	108	108	< 0.005	0.02	< 0.005	113
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.01	0.19	0.00	0.00	0.04	0.04	0.00	0.01	0.01	—	36.4	36.4	< 0.005	< 0.005	0.06	36.9
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	0.07	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	49.6	49.6	< 0.005	0.01	0.04	51.9
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	6.02	6.02	< 0.005	< 0.005	0.01	6.12
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	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	8.21	8.21	< 0.005	< 0.005	0.01	8.60

3.4. Staging, laydown, prefabrication, install cofferdams, dewatering, demolition (2026) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipmen	4.69	3.94	25.1	29.5	0.10	0.90	—	0.90	0.83	—	0.83	—	11,207	11,207	0.45	0.09	—	11,246
Dust From Material Movemen	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipmen	4.69	3.94	25.1	29.5	0.10	0.90	—	0.90	0.83	—	0.83	—	11,207	11,207	0.45	0.09	—	11,246
Dust From Material Movemen	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipmen	2.16	1.81	11.6	13.6	0.05	0.42	—	0.42	0.38	—	0.38	—	5,158	5,158	0.21	0.04	—	5,176
Dust From Material Movemen	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Off-Road Equipmen	0.39	0.33	2.11	2.48	0.01	0.08	—	0.08	0.07	—	0.07	—	854	854	0.03	0.01	—	857
Dust From Material Movemen	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.04	0.03	0.54	0.00	0.00	0.08	0.08	0.00	0.02	0.02	—	86.9	86.9	< 0.005	< 0.005	0.29	88.2
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	0.14	0.04	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	—	108	108	< 0.005	0.02	0.19	113
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.04	0.41	0.00	0.00	0.08	0.08	0.00	0.02	0.02	—	76.8	76.8	< 0.005	< 0.005	0.01	77.9
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	0.15	0.04	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	—	108	108	< 0.005	0.02	< 0.005	113
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.01	0.19	0.00	0.00	0.04	0.04	0.00	0.01	0.01	—	36.4	36.4	< 0.005	< 0.005	0.06	36.9
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	0.07	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	49.6	49.6	< 0.005	0.01	0.04	51.9
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	6.02	6.02	< 0.005	< 0.005	0.01	6.12
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	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	8.21	8.21	< 0.005	< 0.005	0.01	8.60

3.5. Preconstruction Environmental Surveys and Training (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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipmen	3.19	2.68	16.4	17.8	0.07	0.58	—	0.58	0.54	—	0.54	—	7,992	7,992	0.32	0.06	—	8,020
Dust From Material Movemen	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipmen	0.46	0.38	2.35	2.54	0.01	0.08	—	0.08	0.08	—	0.08	—	1,145	1,145	0.05	0.01	—	1,149
Dust From Material Movemen	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipmen	0.08	0.07	0.43	0.46	< 0.005	0.02	—	0.02	0.01	—	0.01	—	190	190	0.01	< 0.005	—	190
Dust From Material Movemen	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.06	0.66	0.00	0.00	0.12	0.12	0.00	0.03	0.03	—	118	118	0.01	< 0.005	0.01	119
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.10	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	17.4	17.4	< 0.005	< 0.005	0.03	17.6
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.87	2.87	< 0.005	< 0.005	< 0.005	2.92
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.6. Preconstruction Environmental Surveys and Training (2025) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipmen	3.19	2.68	16.4	17.8	0.07	0.58	—	0.58	0.54	—	0.54	—	7,992	7,992	0.32	0.06	—	8,020
Dust From Material Movemen	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipmen	0.46	0.38	2.35	2.54	0.01	0.08	—	0.08	0.08	—	0.08	—	1,145	1,145	0.05	0.01	—	1,149
Dust From Material Movemen	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipmen	0.08	0.07	0.43	0.46	< 0.005	0.02	—	0.02	0.01	—	0.01	—	190	190	0.01	< 0.005	—	190
Dust From Material Movemen	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.06	0.66	0.00	0.00	0.12	0.12	0.00	0.03	0.03	—	118	118	0.01	< 0.005	0.01	119
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.10	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	17.4	17.4	< 0.005	< 0.005	0.03	17.6
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.87	2.87	< 0.005	< 0.005	< 0.005	2.92
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.7. Preconstruction Environmental Surveys and Training (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipmen	3.16	2.66	15.3	17.8	0.07	0.54	—	0.54	0.50	—	0.50	—	8,001	8,001	0.32	0.06	—	8,028
Dust From Material Movemen	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipmen	0.28	0.24	1.36	1.59	0.01	0.05	—	0.05	0.04	—	0.04	—	714	714	0.03	0.01	—	716
Dust From Material Movemen	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipmen	0.05	0.04	0.25	0.29	< 0.005	0.01	—	0.01	0.01	—	0.01	—	118	118	< 0.005	< 0.005	—	119
Dust From Material Movemen	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.06	0.06	0.61	0.00	0.00	0.12	0.12	0.00	0.03	0.03	—	115	115	< 0.005	< 0.005	0.01	117
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	< 0.005	0.06	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	10.6	10.6	< 0.005	< 0.005	0.02	10.7
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.75	1.75	< 0.005	< 0.005	< 0.005	1.78
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.8. Preconstruction Environmental Surveys and Training (2026) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipmen	3.16	2.66	15.3	17.8	0.07	0.54	—	0.54	0.50	—	0.50	—	8,001	8,001	0.32	0.06	—	8,028
Dust From Material Movemen	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipmen	0.28	0.24	1.36	1.59	0.01	0.05	—	0.05	0.04	—	0.04	—	714	714	0.03	0.01	—	716
Dust From Material Movemen	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipmen	0.05	0.04	0.25	0.29	< 0.005	0.01	—	0.01	0.01	—	0.01	—	118	118	< 0.005	< 0.005	—	119
Dust From Material Movemen	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.06	0.06	0.61	0.00	0.00	0.12	0.12	0.00	0.03	0.03	—	115	115	< 0.005	< 0.005	0.01	117
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	< 0.005	0.06	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	10.6	10.6	< 0.005	< 0.005	0.02	10.7
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.75	1.75	< 0.005	< 0.005	< 0.005	1.78
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.9. Construction/Installation (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipmen	4.66	3.91	24.8	28.9	0.10	0.90	—	0.90	0.83	—	0.83	—	11,111	11,111	0.45	0.09	—	11,149
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipmen	0.69	0.58	3.67	4.28	0.02	0.13	—	0.13	0.12	—	0.12	—	1,644	1,644	0.07	0.01	—	1,649
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipmen	0.13	0.11	0.67	0.78	< 0.005	0.02	—	0.02	0.02	—	0.02	—	272	272	0.01	< 0.005	—	273
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.04	0.03	0.54	0.00	0.00	0.08	0.08	0.00	0.02	0.02	—	86.9	86.9	< 0.005	< 0.005	0.29	88.2
Vendor	< 0.005	< 0.005	0.08	0.01	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	—	87.0	87.0	< 0.005	0.01	0.24	91.2
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	< 0.005	0.06	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	11.7	11.7	< 0.005	< 0.005	0.02	11.9
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	12.9	12.9	< 0.005	< 0.005	0.02	13.5
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.94	1.94	< 0.005	< 0.005	< 0.005	1.97
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	2.13	2.13	< 0.005	< 0.005	< 0.005	2.23
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.10. Construction/Installation (2026) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipmen	4.66	3.91	24.8	28.9	0.10	0.90	—	0.90	0.83	—	0.83	—	11,111	11,111	0.45	0.09	—	11,149
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipmen	0.69	0.58	3.67	4.28	0.02	0.13	—	0.13	0.12	—	0.12	—	1,644	1,644	0.07	0.01	—	1,649
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipmen	0.13	0.11	0.67	0.78	< 0.005	0.02	—	0.02	0.02	—	0.02	—	272	272	0.01	< 0.005	—	273
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.04	0.03	0.54	0.00	0.00	0.08	0.08	0.00	0.02	0.02	—	86.9	86.9	< 0.005	< 0.005	0.29	88.2
Vendor	< 0.005	< 0.005	0.08	0.01	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	—	87.0	87.0	< 0.005	0.01	0.24	91.2
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	< 0.005	0.06	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	11.7	11.7	< 0.005	< 0.005	0.02	11.9
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	12.9	12.9	< 0.005	< 0.005	0.02	13.5
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.94	1.94	< 0.005	< 0.005	< 0.005	1.97
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	2.13	2.13	< 0.005	< 0.005	< 0.005	2.23
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.11. Construction Wrap-up (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipmen	3.45	2.90	17.1	21.1	0.08	0.61	—	0.61	0.56	—	0.56	—	8,627	8,627	0.35	0.07	—	8,657
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipmen	0.49	0.41	2.41	2.98	0.01	0.09	—	0.09	0.08	—	0.08	—	1,216	1,216	0.05	0.01	—	1,220
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipmen	0.09	0.07	0.44	0.54	< 0.005	0.02	—	0.02	0.01	—	0.01	—	201	201	0.01	< 0.005	—	202
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.03	0.37	0.00	0.00	0.07	0.07	0.00	0.02	0.02	—	69.1	69.1	< 0.005	< 0.005	0.01	70.1
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	< 0.005	< 0.005	0.05	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	10.0	10.0	< 0.005	< 0.005	0.02	10.2
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.66	1.66	< 0.005	< 0.005	< 0.005	1.68
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.12. Construction Wrap-up (2026) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipmen	3.45	2.90	17.1	21.1	0.08	0.61	—	0.61	0.56	—	0.56	—	8,627	8,627	0.35	0.07	—	8,657
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipmen	0.49	0.41	2.41	2.98	0.01	0.09	—	0.09	0.08	—	0.08	—	1,216	1,216	0.05	0.01	—	1,220
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipmen	0.09	0.07	0.44	0.54	< 0.005	0.02	—	0.02	0.01	—	0.01	—	201	201	0.01	< 0.005	—	202
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.03	0.37	0.00	0.00	0.07	0.07	0.00	0.02	0.02	—	69.1	69.1	< 0.005	< 0.005	0.01	70.1
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	< 0.005	< 0.005	0.05	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	10.0	10.0	< 0.005	< 0.005	0.02	10.2
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.66	1.66	< 0.005	< 0.005	< 0.005	1.68
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.13. Construction Wrap-up (2027) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipmen	3.45	2.90	16.3	21.2	0.08	0.58	—	0.58	0.53	—	0.53	—	8,625	8,625	0.35	0.07	—	8,654
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipmen	0.24	0.20	1.15	1.49	0.01	0.04	—	0.04	0.04	—	0.04	—	608	608	0.02	< 0.005	—	610
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipmen	0.04	0.04	0.21	0.27	< 0.005	0.01	—	0.01	0.01	—	0.01	—	101	101	< 0.005	< 0.005	—	101
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.03	0.34	0.00	0.00	0.07	0.07	0.00	0.02	0.02	—	67.8	67.8	< 0.005	< 0.005	0.01	68.8
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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	4.91	4.91	< 0.005	< 0.005	0.01	4.99
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.81	0.81	< 0.005	< 0.005	< 0.005	0.83
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.14. Construction Wrap-up (2027) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipmen	3.45	2.90	16.3	21.2	0.08	0.58	—	0.58	0.53	—	0.53	—	8,625	8,625	0.35	0.07	—	8,654
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipmen	0.24	0.20	1.15	1.49	0.01	0.04	—	0.04	0.04	—	0.04	—	608	608	0.02	< 0.005	—	610
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipmen	0.04	0.04	0.21	0.27	< 0.005	0.01	—	0.01	0.01	—	0.01	—	101	101	< 0.005	< 0.005	—	101
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.03	0.34	0.00	0.00	0.07	0.07	0.00	0.02	0.02	—	67.8	67.8	< 0.005	< 0.005	0.01	68.8
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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	4.91	4.91	< 0.005	< 0.005	0.01	4.99
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.81	0.81	< 0.005	< 0.005	< 0.005	0.83
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.15. Construction Closeout (2027) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipmen	0.26	0.22	1.22	1.49	0.01	0.04	—	0.04	0.04	—	0.04	—	667	667	0.03	0.01	—	669
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipmen	0.26	0.22	1.22	1.49	0.01	0.04	—	0.04	0.04	—	0.04	—	667	667	0.03	0.01	—	669
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipmen	0.05	0.04	0.22	0.26	< 0.005	0.01	—	0.01	0.01	—	0.01	—	119	119	< 0.005	< 0.005	—	119
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipmen	0.01	0.01	0.04	0.05	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	19.7	19.7	< 0.005	< 0.005	—	19.7
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.03	0.50	0.00	0.00	0.08	0.08	0.00	0.02	0.02	—	85.2	85.2	< 0.005	< 0.005	0.26	86.4
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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.03	0.38	0.00	0.00	0.08	0.08	0.00	0.02	0.02	—	75.3	75.3	< 0.005	< 0.005	0.01	76.4
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.07	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	13.8	13.8	< 0.005	< 0.005	0.02	14.0
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.28	2.28	< 0.005	< 0.005	< 0.005	2.32
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.16. Construction Closeout (2027) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipmen	0.26	0.22	1.22	1.49	0.01	0.04	—	0.04	0.04	—	0.04	—	667	667	0.03	0.01	—	669
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipmen	0.26	0.22	1.22	1.49	0.01	0.04	—	0.04	0.04	—	0.04	—	667	667	0.03	0.01	—	669
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipmen	0.05	0.04	0.22	0.26	< 0.005	0.01	—	0.01	0.01	—	0.01	—	119	119	< 0.005	< 0.005	—	119
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipmen	0.01	0.01	0.04	0.05	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	19.7	19.7	< 0.005	< 0.005	—	19.7
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.03	0.50	0.00	0.00	0.08	0.08	0.00	0.02	0.02	—	85.2	85.2	< 0.005	< 0.005	0.26	86.4
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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.03	0.38	0.00	0.00	0.08	0.08	0.00	0.02	0.02	—	75.3	75.3	< 0.005	< 0.005	0.01	76.4
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.07	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	13.8	13.8	< 0.005	< 0.005	0.02	14.0
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.28	2.28	< 0.005	< 0.005	< 0.005	2.32
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.17. Testing/Finalization (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipmen	4.26	3.58	21.4	24.5	0.09	0.78	—	0.78	0.71	—	0.71	—	10,099	10,099	0.41	0.08	—	10,133
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipmen	0.12	0.10	0.59	0.67	< 0.005	0.02	—	0.02	0.02	—	0.02	—	277	277	0.01	< 0.005	—	278
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipmen	0.02	0.02	0.11	0.12	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	45.8	45.8	< 0.005	< 0.005	—	46.0
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.02	0.49	0.00	0.00	0.07	0.07	0.00	0.02	0.02	—	78.2	78.2	< 0.005	< 0.005	0.26	79.4
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.95	1.95	< 0.005	< 0.005	< 0.005	1.98
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.32	0.32	< 0.005	< 0.005	< 0.005	0.33
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.18. Testing/Finalization (2026) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipmen	4.26	3.58	21.4	24.5	0.09	0.78	—	0.78	0.71	—	0.71	—	10,099	10,099	0.41	0.08	—	10,133
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipmen	0.12	0.10	0.59	0.67	< 0.005	0.02	—	0.02	0.02	—	0.02	—	277	277	0.01	< 0.005	—	278
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipmen	0.02	0.02	0.11	0.12	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	45.8	45.8	< 0.005	< 0.005	—	46.0
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.02	0.49	0.00	0.00	0.07	0.07	0.00	0.02	0.02	—	78.2	78.2	< 0.005	< 0.005	0.26	79.4
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.95	1.95	< 0.005	< 0.005	< 0.005	1.98
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.32	0.32	< 0.005	< 0.005	< 0.005	0.33
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.19. Water-up Site (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipmen	4.55	3.82	23.7	27.2	0.10	0.87	—	0.87	0.80	—	0.80	—	10,767	10,767	0.44	0.09	—	10,804
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipmen	0.15	0.13	0.78	0.89	< 0.005	0.03	—	0.03	0.03	—	0.03	—	354	354	0.01	< 0.005	—	355
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipmen	0.03	0.02	0.14	0.16	< 0.005	0.01	—	0.01	< 0.005	—	< 0.005	—	58.6	58.6	< 0.005	< 0.005	—	58.8
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.03	0.37	0.00	0.00	0.07	0.07	0.00	0.02	0.02	—	69.1	69.1	< 0.005	< 0.005	0.01	70.1
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.34	2.34	< 0.005	< 0.005	< 0.005	2.37
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.39	0.39	< 0.005	< 0.005	< 0.005	0.39
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.20. Water-up Site (2026) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipmen	4.55	3.82	23.7	27.2	0.10	0.87	—	0.87	0.80	—	0.80	—	10,767	10,767	0.44	0.09	—	10,804
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipmen	0.15	0.13	0.78	0.89	< 0.005	0.03	—	0.03	0.03	—	0.03	—	354	354	0.01	< 0.005	—	355
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipmen	0.03	0.02	0.14	0.16	< 0.005	0.01	—	0.01	< 0.005	—	< 0.005	—	58.6	58.6	< 0.005	< 0.005	—	58.8
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.03	0.37	0.00	0.00	0.07	0.07	0.00	0.02	0.02	—	69.1	69.1	< 0.005	< 0.005	0.01	70.1
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.34	2.34	< 0.005	< 0.005	< 0.005	2.37
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.39	0.39	< 0.005	< 0.005	< 0.005	0.39
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.21. Remove Cofferdam (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipmen	4.66	3.91	24.8	28.9	0.10	0.90	—	0.90	0.83	—	0.83	—	11,111	11,111	0.45	0.09	—	11,149
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipmen	0.14	0.12	0.75	0.87	< 0.005	0.03	—	0.03	0.02	—	0.02	—	335	335	0.01	< 0.005	—	336
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipmen	0.03	0.02	0.14	0.16	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	55.4	55.4	< 0.005	< 0.005	—	55.6
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.03	0.37	0.00	0.00	0.07	0.07	0.00	0.02	0.02	—	69.1	69.1	< 0.005	< 0.005	0.01	70.1
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.14	2.14	< 0.005	< 0.005	< 0.005	2.18
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.35	0.35	< 0.005	< 0.005	< 0.005	0.36
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.22. Remove Cofferdam (2026) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipmen	4.66	3.91	24.8	28.9	0.10	0.90	—	0.90	0.83	—	0.83	—	11,111	11,111	0.45	0.09	—	11,149
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipmen	0.14	0.12	0.75	0.87	< 0.005	0.03	—	0.03	0.02	—	0.02	—	335	335	0.01	< 0.005	—	336
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipmen	0.03	0.02	0.14	0.16	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	55.4	55.4	< 0.005	< 0.005	—	55.6
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.03	0.37	0.00	0.00	0.07	0.07	0.00	0.02	0.02	—	69.1	69.1	< 0.005	< 0.005	0.01	70.1
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.14	2.14	< 0.005	< 0.005	< 0.005	2.18
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.35	0.35	< 0.005	< 0.005	< 0.005	0.36
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

4. Operations Emissions Details

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.4. Soil Carbon Accumulation By Vegetation Type - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.5. Above and Belowground Carbon Accumulation by Land Use Type - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.6. Avoided and Sequestered Emissions by Species - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequest	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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
Mobilization and Prefabrication	Site Preparation	3/1/2026	5/6/2026	6.00	57.0	—
Staging, laydown, prefabrication, install cofferdams, dewatering, demolition	Site Preparation	1/1/2026	7/15/2026	6.00	168	—
Preconstruction Environmental Surveys and Training	Site Preparation	11/1/2025	2/7/2026	6.00	85.0	—
Construction/Installation	Building Construction	7/16/2026	9/16/2026	6.00	54.0	—
Construction Wrap-up	Building Construction	11/2/2026	1/30/2027	6.00	78.0	—
Construction Closeout	Building Construction	2/1/2027	4/16/2027	6.00	65.0	—
Testing/Finalization	Building Construction	9/17/2026	9/28/2026	6.00	10.0	—
Water-up Site	Building Construction	10/3/2026	10/16/2026	6.00	12.0	—
Remove Cofferdam	Building Construction	10/17/2026	10/29/2026	6.00	11.0	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Mobilization and Prefabrication	Off-Highway Trucks	Diesel	Average	6.00	8.00	376	0.38
Mobilization and Prefabrication	Off-Highway Trucks	Diesel	Average	1.00	8.00	376	0.38
Mobilization and Prefabrication	Other Material Handling Equipment	Diesel	Average	1.00	4.00	93.0	0.40
Mobilization and Prefabrication	Cranes	Diesel	Average	1.00	1.00	367	0.29

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Mobilization and Prefabrication	Off-Highway Trucks	Diesel	Average	1.00	1.00	376	0.38
Mobilization and Prefabrication	Excavators	Diesel	Average	1.00	4.00	36.0	0.38
Mobilization and Prefabrication	Skid Steer Loaders	Diesel	Average	1.00	4.00	71.0	0.37
Staging, laydown, prefabrication, install cofferdams, dewatering, demolition	Off-Highway Trucks	Diesel	Average	6.00	8.00	376	0.38
Staging, laydown, prefabrication, install cofferdams, dewatering, demolition	Off-Highway Trucks	Diesel	Average	1.00	8.00	376	0.38
Staging, laydown, prefabrication, install cofferdams, dewatering, demolition	Other Material Handling Equipment	Diesel	Average	1.00	4.00	93.0	0.40
Staging, laydown, prefabrication, install cofferdams, dewatering, demolition	Cranes	Diesel	Average	1.00	4.00	367	0.29
Staging, laydown, prefabrication, install cofferdams, dewatering, demolition	Off-Highway Trucks	Diesel	Average	1.00	1.00	376	0.38
Staging, laydown, prefabrication, install cofferdams, dewatering, demolition	Excavators	Diesel	Average	1.00	2.00	36.0	0.38
Staging, laydown, prefabrication, install cofferdams, dewatering, demolition	Skid Steer Loaders	Diesel	Average	1.00	8.00	71.0	0.37
Staging, laydown, prefabrication, install cofferdams, dewatering, demolition	Rubber Tired Loaders	Diesel	Average	1.00	4.00	150	0.36

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Staging, laydown, prefabrication, install cofferdams, dewatering, demolition	Bore/Drill Rigs	Diesel	Average	1.00	2.00	83.0	0.50
Staging, laydown, prefabrication, install cofferdams, dewatering, demolition	Generator Sets	Diesel	Average	1.00	24.0	14.0	0.74
Staging, laydown, prefabrication, install cofferdams, dewatering, demolition	Other General Industrial Equipment	Diesel	Average	1.00	1.00	250	0.34
Preconstruction Environmental Surveys and Training	Off-Highway Trucks	Diesel	Average	6.00	8.00	376	0.38
Construction/Installation	Off-Highway Trucks	Diesel	Average	6.00	8.00	376	0.38
Construction/Installation	Off-Highway Trucks	Diesel	Average	1.00	8.00	376	0.38
Construction/Installation	Other Material Handling Equipment	Diesel	Average	1.00	4.00	93.0	0.40
Construction/Installation	Cranes	Diesel	Average	1.00	4.00	367	0.29
Construction/Installation	Off-Highway Trucks	Diesel	Average	1.00	1.00	376	0.38
Construction/Installation	Excavators	Diesel	Average	1.00	2.00	36.0	0.38
Construction/Installation	Skid Steer Loaders	Diesel	Average	1.00	8.00	71.0	0.37
Construction/Installation	Rubber Tired Loaders	Diesel	Average	1.00	4.00	150	0.36
Construction/Installation	Generator Sets	Diesel	Average	1.00	24.0	14.0	0.74
Construction/Installation	Other General Industrial Equipment	Diesel	Average	1.00	1.00	250	0.34
Construction Wrap-up	Off-Highway Trucks	Diesel	Average	6.00	8.00	376	0.38
Construction Wrap-up	Other Material Handling Equipment	Diesel	Average	1.00	4.00	93.0	0.40
Construction Wrap-up	Off-Highway Trucks	Diesel	Average	1.00	1.00	376	0.38
Construction Wrap-up	Excavators	Diesel	Average	1.00	2.00	36.0	0.38
Construction Wrap-up	Rubber Tired Loaders	Diesel	Average	1.00	4.00	150	0.36
Construction Closeout	Off-Highway Trucks	Diesel	Average	1.00	4.00	376	0.38
Testing/Finalization	Off-Highway Trucks	Diesel	Average	6.00	8.00	376	0.38

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Testing/Finalization	Off-Highway Trucks	Diesel	Average	1.00	8.00	376	0.38
Testing/Finalization	Off-Highway Trucks	Diesel	Average	1.00	1.00	376	0.38
Testing/Finalization	Excavators	Diesel	Average	1.00	2.00	36.0	0.38
Testing/Finalization	Rubber Tired Loaders	Diesel	Average	1.00	4.00	150	0.36
Testing/Finalization	Generator Sets	Diesel	Average	1.00	24.0	14.0	0.74
Water-up Site	Off-Highway Trucks	Diesel	Average	6.00	8.00	376	0.38
Water-up Site	Off-Highway Trucks	Diesel	Average	1.00	8.00	376	0.38
Water-up Site	Other Material Handling Equipment	Diesel	Average	1.00	4.00	93.0	0.40
Water-up Site	Cranes	Diesel	Average	1.00	4.00	367	0.29
Water-up Site	Off-Highway Trucks	Diesel	Average	1.00	1.00	376	0.38
Water-up Site	Excavators	Diesel	Average	1.00	2.00	36.0	0.38
Water-up Site	Rubber Tired Loaders	Diesel	Average	1.00	4.00	150	0.36
Water-up Site	Generator Sets	Diesel	Average	1.00	24.0	14.0	0.74
Remove Cofferdam	Off-Highway Trucks	Diesel	Average	6.00	8.00	376	0.38
Remove Cofferdam	Off-Highway Trucks	Diesel	Average	1.00	8.00	376	0.38
Remove Cofferdam	Other Material Handling Equipment	Diesel	Average	1.00	4.00	93.0	0.40
Remove Cofferdam	Cranes	Diesel	Average	1.00	4.00	367	0.29
Remove Cofferdam	Off-Highway Trucks	Diesel	Average	1.00	1.00	376	0.38
Remove Cofferdam	Excavators	Diesel	Average	1.00	2.00	36.0	0.38
Remove Cofferdam	Skid Steer Loaders	Diesel	Average	1.00	8.00	71.0	0.37
Remove Cofferdam	Rubber Tired Loaders	Diesel	Average	1.00	4.00	150	0.36
Remove Cofferdam	Generator Sets	Diesel	Average	1.00	24.0	14.0	0.74
Remove Cofferdam	Other General Industrial Equipment	Diesel	Average	1.00	1.00	250	0.34

5.2.2. Mitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Mobilization and Prefabrication	Off-Highway Trucks	Diesel	Average	6.00	8.00	376	0.38
Mobilization and Prefabrication	Off-Highway Trucks	Diesel	Average	1.00	8.00	376	0.38
Mobilization and Prefabrication	Other Material Handling Equipment	Diesel	Average	1.00	4.00	93.0	0.40
Mobilization and Prefabrication	Cranes	Diesel	Average	1.00	1.00	367	0.29
Mobilization and Prefabrication	Off-Highway Trucks	Diesel	Average	1.00	1.00	376	0.38
Mobilization and Prefabrication	Excavators	Diesel	Average	1.00	4.00	36.0	0.38
Mobilization and Prefabrication	Skid Steer Loaders	Diesel	Average	1.00	4.00	71.0	0.37
Staging, laydown, prefabrication, install cofferdams, dewatering, demolition	Off-Highway Trucks	Diesel	Average	6.00	8.00	376	0.38
Staging, laydown, prefabrication, install cofferdams, dewatering, demolition	Off-Highway Trucks	Diesel	Average	1.00	8.00	376	0.38
Staging, laydown, prefabrication, install cofferdams, dewatering, demolition	Other Material Handling Equipment	Diesel	Average	1.00	4.00	93.0	0.40
Staging, laydown, prefabrication, install cofferdams, dewatering, demolition	Cranes	Diesel	Average	1.00	4.00	367	0.29
Staging, laydown, prefabrication, install cofferdams, dewatering, demolition	Off-Highway Trucks	Diesel	Average	1.00	1.00	376	0.38
Staging, laydown, prefabrication, install cofferdams, dewatering, demolition	Excavators	Diesel	Average	1.00	2.00	36.0	0.38
Staging, laydown, prefabrication, install cofferdams, dewatering, demolition	Skid Steer Loaders	Diesel	Average	1.00	8.00	71.0	0.37
Staging, laydown, prefabrication, install cofferdams, dewatering, demolition	Rubber Tired Loaders	Diesel	Average	1.00	4.00	150	0.36
Staging, laydown, prefabrication, install cofferdams, dewatering, demolition	Bore/Drill Rigs	Diesel	Average	1.00	2.00	83.0	0.50
Staging, laydown, prefabrication, install cofferdams, dewatering, demolition	Generator Sets	Diesel	Average	1.00	24.0	14.0	0.74
Staging, laydown, prefabrication, install cofferdams, dewatering, demolition	Other General Industrial Equipment	Diesel	Average	1.00	1.00	250	0.34
Preconstruction Environmental Surveys and Training	Off-Highway Trucks	Diesel	Average	6.00	8.00	376	0.38

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Construction/Installation	Off-Highway Trucks	Diesel	Average	6.00	8.00	376	0.38
Construction/Installation	Off-Highway Trucks	Diesel	Average	1.00	8.00	376	0.38
Construction/Installation	Other Material Handling Equipment	Diesel	Average	1.00	4.00	93.0	0.40
Construction/Installation	Cranes	Diesel	Average	1.00	4.00	367	0.29
Construction/Installation	Off-Highway Trucks	Diesel	Average	1.00	1.00	376	0.38
Construction/Installation	Excavators	Diesel	Average	1.00	2.00	36.0	0.38
Construction/Installation	Skid Steer Loaders	Diesel	Average	1.00	8.00	71.0	0.37
Construction/Installation	Rubber Tired Loaders	Diesel	Average	1.00	4.00	150	0.36
Construction/Installation	Generator Sets	Diesel	Average	1.00	24.0	14.0	0.74
Construction/Installation	Other General Industrial Equipment	Diesel	Average	1.00	1.00	250	0.34
Construction Wrap-up	Off-Highway Trucks	Diesel	Average	6.00	8.00	376	0.38
Construction Wrap-up	Other Material Handling Equipment	Diesel	Average	1.00	4.00	93.0	0.40
Construction Wrap-up	Off-Highway Trucks	Diesel	Average	1.00	1.00	376	0.38
Construction Wrap-up	Excavators	Diesel	Average	1.00	2.00	36.0	0.38
Construction Wrap-up	Rubber Tired Loaders	Diesel	Average	1.00	4.00	150	0.36
Construction Closeout	Off-Highway Trucks	Diesel	Average	1.00	4.00	376	0.38
Testing/Finalization	Off-Highway Trucks	Diesel	Average	6.00	8.00	376	0.38
Testing/Finalization	Off-Highway Trucks	Diesel	Average	1.00	8.00	376	0.38
Testing/Finalization	Off-Highway Trucks	Diesel	Average	1.00	1.00	376	0.38
Testing/Finalization	Excavators	Diesel	Average	1.00	2.00	36.0	0.38
Testing/Finalization	Rubber Tired Loaders	Diesel	Average	1.00	4.00	150	0.36
Testing/Finalization	Generator Sets	Diesel	Average	1.00	24.0	14.0	0.74
Water-up Site	Off-Highway Trucks	Diesel	Average	6.00	8.00	376	0.38
Water-up Site	Off-Highway Trucks	Diesel	Average	1.00	8.00	376	0.38
Water-up Site	Other Material Handling Equipment	Diesel	Average	1.00	4.00	93.0	0.40
Water-up Site	Cranes	Diesel	Average	1.00	4.00	367	0.29
Water-up Site	Off-Highway Trucks	Diesel	Average	1.00	1.00	376	0.38
Water-up Site	Excavators	Diesel	Average	1.00	2.00	36.0	0.38
Water-up Site	Rubber Tired Loaders	Diesel	Average	1.00	4.00	150	0.36

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Water-up Site	Generator Sets	Diesel	Average	1.00	24.0	14.0	0.74
Remove Cofferdam	Off-Highway Trucks	Diesel	Average	6.00	8.00	376	0.38
Remove Cofferdam	Off-Highway Trucks	Diesel	Average	1.00	8.00	376	0.38
Remove Cofferdam	Other Material Handling Equipment	Diesel	Average	1.00	4.00	93.0	0.40
Remove Cofferdam	Cranes	Diesel	Average	1.00	4.00	367	0.29
Remove Cofferdam	Off-Highway Trucks	Diesel	Average	1.00	1.00	376	0.38
Remove Cofferdam	Excavators	Diesel	Average	1.00	2.00	36.0	0.38
Remove Cofferdam	Skid Steer Loaders	Diesel	Average	1.00	8.00	71.0	0.37
Remove Cofferdam	Rubber Tired Loaders	Diesel	Average	1.00	4.00	150	0.36
Remove Cofferdam	Generator Sets	Diesel	Average	1.00	24.0	14.0	0.74
Remove Cofferdam	Other General Industrial Equipment	Diesel	Average	1.00	1.00	250	0.34

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Mobilization and Prefabrication	—	—	—	—
Mobilization and Prefabrication	Worker	10.0	11.1	LDA,LDT1,LDT2
Mobilization and Prefabrication	Vendor	0.50	60.0	HHDT,MHDT
Mobilization and Prefabrication	Hauling	0.00	11.0	HHDT
Mobilization and Prefabrication	Onsite truck	—	—	HHDT
Staging, laydown, prefabrication, install cofferdams, dewatering, demolition	—	—	—	—
Staging, laydown, prefabrication, install cofferdams, dewatering, demolition	Worker	10.0	11.1	LDA,LDT1,LDT2
Staging, laydown, prefabrication, install cofferdams, dewatering, demolition	Vendor	—	6.78	HHDT,MHDT
Staging, laydown, prefabrication, install cofferdams, dewatering, demolition	Hauling	2.86	11.0	HHDT
Staging, laydown, prefabrication, install cofferdams, dewatering, demolition	Onsite truck	—	—	HHDT
Construction/Installation	—	—	—	—
Construction/Installation	Worker	10.0	11.1	LDA,LDT1,LDT2
Construction/Installation	Vendor	0.50	60.0	HHDT,MHDT
Construction/Installation	Hauling	0.00	11.0	HHDT
Construction/Installation	Onsite truck	—	—	HHDT
Construction Wrap-up	—	—	—	—
Construction Wrap-up	Worker	9.00	11.1	LDA,LDT1,LDT2
Construction Wrap-up	Vendor	0.00	6.78	HHDT,MHDT
Construction Wrap-up	Hauling	0.00	11.0	HHDT
Construction Wrap-up	Onsite truck	—	—	HHDT
Construction Closeout	—	—	—	—
Construction Closeout	Worker	10.0	11.1	LDA,LDT1,LDT2
Construction Closeout	Vendor	0.00	6.78	HHDT,MHDT
Construction Closeout	Hauling	0.00	11.0	HHDT
Construction Closeout	Onsite truck	—	—	HHDT
Testing/Finalization	—	—	—	—
Testing/Finalization	Worker	9.00	11.1	LDA,LDT1,LDT2
Testing/Finalization	Vendor	0.00	6.78	HHDT,MHDT

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Testing/Finalization	Hauling	0.00	20.0	HHDT
Testing/Finalization	Onsite truck	—	—	HHDT
Water-up Site	—	—	—	—
Water-up Site	Worker	9.00	11.1	LDA,LDT1,LDT2
Water-up Site	Vendor	0.00	6.78	HHDT,MHDT
Water-up Site	Hauling	0.00	20.0	HHDT
Water-up Site	Onsite truck	—	—	HHDT
Remove Cofferdam	—	—	—	—
Remove Cofferdam	Worker	9.00	11.1	LDA,LDT1,LDT2
Remove Cofferdam	Vendor	0.00	6.78	HHDT,MHDT
Remove Cofferdam	Hauling	0.00	20.0	HHDT
Remove Cofferdam	Onsite truck	—	—	HHDT
Preconstruction Environmental Surveys and Training	—	—	—	—
Preconstruction Environmental Surveys and Training	Worker	15.0	11.1	LDA,LDT1,LDT2
Preconstruction Environmental Surveys and Training	Vendor	—	6.78	HHDT,MHDT
Preconstruction Environmental Surveys and Training	Hauling	0.00	20.0	HHDT
Preconstruction Environmental Surveys and Training	Onsite truck	—	—	HHDT

5.3.2. Mitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Mobilization and Prefabrication	—	—	—	—
Mobilization and Prefabrication	Worker	10.0	11.1	LDA,LDT1,LDT2
Mobilization and Prefabrication	Vendor	0.50	60.0	HHDT,MHDT
Mobilization and Prefabrication	Hauling	0.00	11.0	HHDT
Mobilization and Prefabrication	Onsite truck	—	—	HHDT
Staging, laydown, prefabrication, install cofferdams, dewatering, demolition	—	—	—	—
Staging, laydown, prefabrication, install cofferdams, dewatering, demolition	Worker	10.0	11.1	LDA,LDT1,LDT2
Staging, laydown, prefabrication, install cofferdams, dewatering, demolition	Vendor	—	6.78	HHDT,MHDT
Staging, laydown, prefabrication, install cofferdams, dewatering, demolition	Hauling	2.86	11.0	HHDT
Staging, laydown, prefabrication, install cofferdams, dewatering, demolition	Onsite truck	—	—	HHDT
Construction/Installation	—	—	—	—
Construction/Installation	Worker	10.0	11.1	LDA,LDT1,LDT2
Construction/Installation	Vendor	0.50	60.0	HHDT,MHDT
Construction/Installation	Hauling	0.00	11.0	HHDT
Construction/Installation	Onsite truck	—	—	HHDT
Construction Wrap-up	—	—	—	—
Construction Wrap-up	Worker	9.00	11.1	LDA,LDT1,LDT2
Construction Wrap-up	Vendor	0.00	6.78	HHDT,MHDT
Construction Wrap-up	Hauling	0.00	11.0	HHDT
Construction Wrap-up	Onsite truck	—	—	HHDT
Construction Closeout	—	—	—	—
Construction Closeout	Worker	10.0	11.1	LDA,LDT1,LDT2
Construction Closeout	Vendor	0.00	6.78	HHDT,MHDT
Construction Closeout	Hauling	0.00	11.0	HHDT
Construction Closeout	Onsite truck	—	—	HHDT
Testing/Finalization	—	—	—	—

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Testing/Finalization	Worker	9.00	11.1	LDA,LDT1,LDT2
Testing/Finalization	Vendor	0.00	6.78	HHDT,MHDT
Testing/Finalization	Hauling	0.00	20.0	HHDT
Testing/Finalization	Onsite truck	—	—	HHDT
Water-up Site	—	—	—	—
Water-up Site	Worker	9.00	11.1	LDA,LDT1,LDT2
Water-up Site	Vendor	0.00	6.78	HHDT,MHDT
Water-up Site	Hauling	0.00	20.0	HHDT
Water-up Site	Onsite truck	—	—	HHDT
Remove Cofferdam	—	—	—	—
Remove Cofferdam	Worker	9.00	11.1	LDA,LDT1,LDT2
Remove Cofferdam	Vendor	0.00	6.78	HHDT,MHDT
Remove Cofferdam	Hauling	0.00	20.0	HHDT
Remove Cofferdam	Onsite truck	—	—	HHDT
Preconstruction Environmental Surveys and Training	—	—	—	—
Preconstruction Environmental Surveys and Training	Worker	15.0	11.1	LDA,LDT1,LDT2
Preconstruction Environmental Surveys and Training	Vendor	—	6.78	HHDT,MHDT
Preconstruction Environmental Surveys and Training	Hauling	0.00	20.0	HHDT
Preconstruction Environmental Surveys and Training	Onsite truck	—	—	HHDT

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)
Mobilization and Prefabrication	0.00	0.00	0.00	0.00	—
Staging, laydown, prefabrication, install cofferdams, dewatering, demolition	3,840	0.00	0.00	0.00	—
Preconstruction Environmental Surveys and Training	0.00	0.00	0.00	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 Industrial	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
2026	0.00	204	0.03	< 0.005
2027	0.00	204	0.03	< 0.005

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

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

5.18.2.2. Mitigated

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	27.8	annual days of extreme heat
Extreme Precipitation	2.45	annual days with precipitation above 20 mm
Sea Level Rise	—	meters of inundation depth
Wildfire	7.43	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	4	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	4	1	1	4
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	55.4
AQ-PM	21.7
AQ-DPM	12.5
Drinking Water	18.7
Lead Risk Housing	85.8
Pesticides	91.7
Toxic Releases	6.26
Traffic	1.80
Effect Indicators	—
CleanUp Sites	61.4
Groundwater	54.5
Haz Waste Facilities/Generators	35.6
Impaired Water Bodies	77.3
Solid Waste	60.1
Sensitive Population	—
Asthma	43.8
Cardio-vascular	89.9
Low Birth Weights	2.30
Socioeconomic Factor Indicators	—
Education	71.8
Housing	14.7
Linguistic	42.8
Poverty	61.9
Unemployment	25.2

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	39.25317593
Employed	54.83125882
Median HI	31.37431028
Education	—
Bachelor's or higher	38.5730784
High school enrollment	100
Preschool enrollment	24.62466316
Transportation	—
Auto Access	40.33106634
Active commuting	22.3662261
Social	—
2-parent households	25.8052098
Voting	81.7400231
Neighborhood	—
Alcohol availability	24.39368664
Park access	52.47016553
Retail density	6.300526113
Supermarket access	77.89041447
Tree canopy	89.72154498
Housing	—
Homeownership	41.79391762
Housing habitability	60.14371872
Low-inc homeowner severe housing cost burden	88.4383421
Low-inc renter severe housing cost burden	49.99358399
Uncrowded housing	45.96432696
Health Outcomes	—
Insured adults	24.49634287
Arthritis	0.0
Asthma ER Admissions	39.8

Indicator	Result for Project Census Tract
High Blood Pressure	0.0
Cancer (excluding skin)	0.0
Asthma	0.0
Coronary Heart Disease	0.0
Chronic Obstructive Pulmonary Disease	0.0
Diagnosed Diabetes	0.0
Life Expectancy at Birth	12.0
Cognitively Disabled	66.4
Physically Disabled	43.7
Heart Attack ER Admissions	5.7
Mental Health Not Good	0.0
Chronic Kidney Disease	0.0
Obesity	0.0
Pedestrian Injuries	19.6
Physical Health Not Good	0.0
Stroke	0.0
Health Risk Behaviors	—
Binge Drinking	0.0
Current Smoker	0.0
No Leisure Time for Physical Activity	0.0
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	0.0
Children	43.1
Elderly	54.5
English Speaking	28.7
Foreign-born	41.6
Outdoor Workers	4.5
Climate Change Adaptive Capacity	—
Impervious Surface Cover	59.7
Traffic Density	0.9
Traffic Access	0.0
Other Indices	—

Indicator	Result for Project Census Tract
Hardship	65.6
Other Decision Support	—
2016 Voting	73.4

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	48.0
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)	Yes
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 information provided by client.
Construction: Construction Phases	Schedule provided by DWR.
Construction: Off-Road Equipment	Construction equipment provided by DWR.
Construction: Trips and VMT	Haul trip length is estimated based on quarry location. Hauling trips are estimated based on information provided by the DWR.
Construction: Dust From Material Movement	hauling quantities calculated based on assumptions provided by DWR.

Appendix B. Biological Resources

Table B1. Fish Species Present Within the Sacramento River and Butte Slough/Butte Creek Watersheds.

Common Name	Scientific Name	Legal Status
Native Species		
green sturgeon – southern DPS	*Acipenser medirostris*	FT
Sacramento perch	*Archoplites interruptus*	SSC
Sacramento sucker	*Catostomus occidentalis occidentalis*	-
prickly sculpin	*Cottus asper*	SSC
riffle sculpin	*Cottus gulosus*	SSC
Pacific lamprey	*Entosphenus tridentatus*	SSC
inland threespine stickleback	*Gasterosteus aculeatus microcephalus*	-
Sacramento tule perch	*Hysterocarpus traskii traskii*	-
river lamprey	*Lampetra ayersi*	SSC
western brook lamprey	*Lampetra richardsoni*	SSC
steelhead-Central Valley DPS	*Oncorhynchus mykiss*	FE
Chinook-Central Valley fall/late fall-run ESU	*Oncorhynchus tshawytscha*	SSC
Chinook-Central Valley spring-run ESU	*Oncorhynchus tshawytscha*	FE, SE
Chinook-Sacramento River winter-run ESU	*Oncorhynchus tshawytscha*	FE, SE
Sacramento blackfish	*Orthodon microlepidotus*	-
Sacramento splittail	*Pogonichthys macrolepidotus*	SSC
Sacramento pikeminnow	*Ptychocheilus grandis*	-
Sacramento speckled dace	*Rhinichthys osculus*	-
Non-native Species		
American shad	*Alosa sapidissima*	-
white catfish	*Ameiurus catus*	-
black bullhead	*Ameiurus melas*	-
brown bullhead	*Ameiurus nebulosus*	-
Goldfish	*Carassius auratus*	-
common carp	*Cyprinus carpio*	-
threadfin shad	*Dorosoma petenense*	-
western mosquitofish	*Gambusia affinis*	-
channel catfish	*Ictalurus punctatus*	-
green sunfish	*Lepomis cyanellus*	-
Warmouth	*Lepomis gulosus*	-
Bluegill	*Lepomis macrochirus*	-
redear sunfish	*Lepomis microlophus*	-
smallmouth bass	*Micropterus dolomieu*	-
spotted bass	*Micropterus punctulatus*	-
largemouth bass	*Micropterus salmoides*	-
golden shiner	*Notemigonus crysoleucas*	-
bigscale logperch	*Percina macrolepida*	-
white crappie	*Pomoxis annularis*	-
black crappie	*Pomoxis nigromaculatus*	-

Legal Status:

FE: Federal Endangered

FT: Federal Threatened

SE: State Endangered

SSC: California Species of Special Concern

Other Species' Distinction:

DPS: Distinct Population Segment; a vertebrate population or group of populations that is discrete from other populations of the species and significant in relation to the entire species (NOAA 2022).

ESU: Evolutionary Significant Unit; a Pacific salmon population or group of populations that is substantially reproductively isolated from other conspecific populations and that represents an important component of the evolutionary legacy of the species (NOAA 2022).

Sources: UC Davis 2014, CDFW 2023c

Table B2. Special-status Plants with Documented Occurrences within the Meridian and Eight Surrounding 7.5-minute Quadrangles.

Scientific Name	Common Name	CRPR/ Legal Status	Habitat	Potential to Occur within Project Area
Amsinckia lunaris	bent-flowered fiddleneck	1B.2	Blooms March-June. Cismontane woodland, coastal bluff scrub, valley, and foothill grassland; 10 to 1640 feet.	**Low Potential.** Suitable habitat may be present; however, all known occurrences of this species in Northern California are associated with the Coast Range except for one record in the Sutter Buttes and all are associated with hilly terrain rather than the valley floor (CDFW 2024; CCH2 2024).
Astragalus tener var. ferrisiae	Ferris' milk-vetch	1B.1	Blooms Apr-May. Meadows and seeps (vernally mesic), valley and foothill grassland (subalkaline flats); 5 to 245 feet.	**No Potential.** Suitable habitat not present.
Atriplex cordulata var. cordulata	heartscale	1B.2	Blooms Apr-Oct. Chenopod scrub, meadows and seeps, valley, and foothill grassland (sandy); occurs in sometimes saline or sometimes alkaline soils; 0 to 1835 feet.	**Moderate Potential.** Suitable habitat and sandy soils present in the project area and several known occurrences in the region (CDFW 2024).
Atriplex depressa	brittlescale	1B.2	Blooms Apr-Oct. Chenopod scrub, meadows and seeps, playas, valley and foothill grassland, vernal pools; alkaline, clay soils; 5 to 1050 feet	**Low Potential.** Suitable habitat (alkaline or clay) not present.
Atriplex minuscula	lesser saltscale	1B.1	Blooms May-Oct. Chenopod scrub, playas, valley, and foothill grassland; alkaline, sandy; 50 to 655 feet.	**Low Potential.** Suitable habitat (alkaline) not present.
Atriplex persistens	vernal pool smallscale	1B.2	Blooms Jun-Oct. Vernal pools (alkaline); 35 to 375 feet.	**No Potential.** Suitable habitat not present.
Atriplex subtilis	subtle orache	1B.2	Blooms (Apr)Jun-Sep (Oct). Valley and foothill grassland; alkaline; 130 to 330 feet.	**No Potential**. The project area is below this species elevation range.
Brasenia schreberi	watershield	2B.3	Blooms Jun-Sep. Marshes and swamps (freshwater); 0 to 7220 feet	**Low Potential.** Although suitable habitat is present along shallow edges of Butte Slough that support emergent/floating vegetation, all occurrences of this species in the Sacramento Valley north of Sacramento area are likely extirpated (CDFW 2024).

Scientific Name	Common Name	CRPR/ Legal Status	Habitat	Potential to Occur within Project Area
Castilleja rubicundula var. rubicundula	pink creamsacs	1B.2	Blooms Apr-Jun. Chaparral (openings), cismontane woodland, meadows and seeps, valley, and foothill grassland; serpentinite; 65 to 2985 feet.	**No Potential.** Suitable habitat (serpentinite) is not present and the project area is slightly below species' elevation range.
Centromadia parryi ssp. parryi	pappose tarplant	1B.2	Blooms May-Nov. Chaparral, coastal prairie, marshes, and swamps (coastal salt), meadows and seeps, valley, and foothill grassland (vernally mesic); alkaline (often); 0 to 1380 feet.	**Low Potential.** Suitable habitat (alkaline, vernally mesic) not present.
Centromadia parryi ssp. rudis	Parry's rough tarplant	4.2	Blooms May-Oct. Valley and foothill grassland, vernal pools; alkaline, roadsides (sometimes), seeps, vernally mesic; 0 to 330 feet.	**Low Potential.** Suitable habitat (alkaline, vernally mesic) not present. The nearest location-specific observation is in the town of Colusa from the year 1922. All other nearby documented occurrences are from the year 1946 at the most recent (CDFW 2024).
Chloropyron palmatum	palmate-bracted bird's-beak	1B.1, FE, SCE	Blooms May-Oct. Chenopod scrub, valley, and foothill grassland; alkaline; 15 to 510 feet.	**No Potential.** Suitable habitat (alkaline) not present.
Cryptantha rostellata	red-stemmed cryptantha	4.2	Blooms Apr-Jun. Cismontane woodland, valley, and foothill grassland; gravelly (often), openings, roadsides (often), volcanic; 130 to 2625 feet.	**No Potential**. The project area is below the species' elevation range.
Cuscuta obtusiflora var. glandulosa	Peruvian dodder	2B.2	Blooms Jul-Oct. Marshes and swamps (freshwater); 50 to 920 feet.	**Low Potential.** Suitable habitat is present along shallow edges of Butte Slough that support emergent/floating vegetation; however, only known occurrence north of Sacramento is over 80 years old (CDFW 2024; CCH2 2024).
Extriplex joaquinana	San Joaquin spearscale	1B.2	Blooms Apr-Oct. Chenopod scrub, meadows and seeps, playas, valley, and foothill grassland; alkaline; 5 to 2740 feet.	**No Potential.** Suitable habitat (alkaline) not present.
Fritillaria agrestis	stinkbells	4.2	Blooms Mar-Jun. Chaparral, cismontane woodland, pinyon and juniper woodland, valley, and foothill grassland; clay, serpentinite (sometimes); 35 to 5100 feet.	**No Potential.** Suitable soils (clay) not present.

Scientific Name	Common Name	CRPR/ Legal Status	Habitat	Potential to Occur within Project Area
Hemizonia congesta ssp. calyculata	Mendocino tarplant	4.3	Blooms Jul-Nov. Cismontane woodland, valley, and foothill grassland; serpentinite (sometimes); 740 to 4595 feet.	**No Potential**. The project area is below the species' elevation range.
Hesperevax caulescens	hogwallow starfish	4.2	Blooms Mar-Jun. Valley and foothill grassland (mesic clay), vernal pools (shallow); alkaline (sometimes); 0 to 1655 feet.	**No Potential.** Suitable habitat not present.
Heteranthera dubia	water star-grass	2B.2	Blooms Jul-Oct. Marshes and swamps (alkaline, still, slow-moving water); requires a pH of 7 or higher, usually in slightly eutrophic waters; alkaline; 100 to 4905 feet.	**No Potential**. The project area is below the species' elevation range.
Hibiscus lasiocarpos var. occidentalis	woolly rose-mallow	1B.2	Blooms Jun-Sep. Marshes and swamps (freshwater); often in riprap on sides of levees; 0 to 395 feet.	**Present.** This species has been documented in the project area by DWR (2014). Suitable habitat is present along edges of slough and river, including levee banks.
Lasthenia ferrisiae	Ferris' goldfields	4.2	Blooms Feb-May. Vernal pools (alkaline, clay); 65 to 2295 feet.	**No Potential.** Suitable habitat not present.
Lasthenia glabrata ssp. coulteri	Coulter's goldfields	1B.1	Blooms Feb-Jun. Marshes and swamps (coastal salt), playas, vernal pools; 5 to 4005 feet.	**No Potential.** Suitable habitat not present.
Lathyrus delnorticus	Del Norte pea	4.3	Blooms Jun-Jul. Lower montane coniferous forest, North Coast coniferous forest; serpentinite (often); 100 to 4755 feet.	**No Potential**. Suitable habitat not present and the project area is below the species' elevation range.
Layia septentrionalis	Colusa layia	1B.2	Blooms Apr-May. Chaparral, cismontane woodland, valley, and foothill grassland; sandy, serpentinite; 330 to 3595 feet.	**No Potential**. The project area is below the species' elevation range.
Lupinus constancei	Lassics Lupine	1B.1, FE, SE	Blooms July. Lower montane coniferous forest and serpentine barrens; 1685-1740 m.	**No Potential.** Suitable habitat not present and species is a strict endemic. Only known from one locality in the Trinity National Forest over 100 miles from the project area.

Scientific Name	Common Name	CRPR/ Legal Status	Habitat	Potential to Occur within Project Area
Navarretia leucocephala ssp. bakeri	Baker's navarretia	1B.1	Blooms Apr-Jul. Cismontane woodland, lower montane coniferous forest, meadows and seeps, valley and foothill grassland, vernal pools; Mesic; 15-5710 feet.	**Low Potential.** Suitable habitat not present; grassland present, but no mesic habitat.
Puccinellia simplex	California alkali grass	1B.2	Blooms Mar-May. Chenopod scrub, meadows and seeps, valley and foothill grassland, vernal pools; sinks; alkaline, flats, lake margins, vernally mesic; 5 to 3050 feet.	**Low Potential.** Suitable habitat (alkaline) not present. Several regional occurrences (CDFW 2024).
Trichocoronis wrightii var. wrightii	Wright's trichocoronis	2B.1	Blooms May-Sep. Marshes and swamps, meadows and seeps, riparian forest, vernal pools; alkaline; 15 to 1425 feet.	**Low Potential.** Suitable habitat (alkaline) not present. Occurrences in region are over 70 years old (CDFW 2024).
Wolffia brasiliensis	Brazilian watermeal	2B.3	Blooms Apr-Dec. Marshes and swamps (shallow freshwater); 65 to 330 feet.	**Low Potential.** Although suitable habitat is present along shallow edges of Butte Slough, the project area is slightly below the species' elevation range.

Legal Status

CRPR: California Rare Plant Rank

FE: Federal Endangered

SCE: State Candidate Endangered

CRPR Rankings:

1B: Rare throughout their range with the majority of them endemic to California; plants meet the definitions of the California Endangered Species Act of the California Fish and Game Code and are eligible for state listing.

2B: Except for being common beyond the boundaries of California, 2B plants would have been ranked 1B; plants meet the definitions of the California Endangered Species Act of the California Fish and Game Code and are eligible for state listing.

3: Plants lack the necessary information to assign them to one of the other ranks or to reject them; nearly all of the plants are taxonomically problematic; many of the plants meet the definitions of the California Endangered Species Act of the California Fish and Game Code and are eligible for state listing.

4: of limited distribution or infrequent throughout a broader area in California, and their status should be monitored regularly; some of the plants meet the definitions of the California Endangered Species Act of the California Fish and Game Code and are eligible for state listing.

CRPR Threat Rankings:

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

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

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

Sources: CNPS 2023; CDFW 2023c; CDFW 2024; CCH2 2024

Table B3. Special-status Wildlife with Documented Occurrences within the Meridian and Eight Surrounding 7.5-minute Quadrangles

Scientific Name	Common Name	Legal Status	Habitat	Potential to Occur within the Project Area
Invertebrates				
Bombus crotchii	crotch bumble bee	SCE	Occurs in coastal California east to the Sierra-Cascade crest and south into Mexico. Food plant genera include Antirrhinum, Phacelia, Clarkia, Dendromecon, Eschscholzia, and Eriogonum.	**Unlikely.** This species may travel through the project area en route to preferred plant species, but flowering plants are sparse within the project area and unlikely to attract significant numbers of this species.
Branchinecta conservatio	conservancy fairy shrimp	FE	Endemic to California vernal pools, almost entirely in the Central Valley, with the exception of one population along the central coast in Ventura County. Majority of sites inhabited by this species are large and turbid pools which remain inundated much longer than typical vernal pools (USFWS 2012).	**No Potential.** The project area lacks the vernal or other wetland pools required by this species.
Branchinecta lynchi	vernal pool fairy shrimp	FT	Occurs in valley & foothill grassland, vernal pools, and wetlands. Endemic to the grasslands of the Central Valley, Central Coast mountains, and South Coast mountains, in rain-filled pools.	**No Potential.** The project area lacks the vernal or other wetland pools required by this species.
Danaus plexippus	monarch butterfly	FC	Overwinters along the coast from Mendocino County south into Baja California in wind-protected groves of gum (Eucalyptus spp.), Monterey pine (Pinus radiata), or Monterey cypress (Hesperocyparis macrocarpa) with nectar and water sources nearby (IELP 2012). Breeding and larval feeding occurs exclusively on milkweed (Asclepias spp.; USFWS 2020). Adults require diverse blooming nectar resources throughout their migration routes and breeding grounds (USFWS 2020).	**Unlikely.** This species may travel through the project area in route to preferred nectar species, but flowering plants are sparse within the project area and unlikely to attract significant numbers of this species. There are no documented occurrences of monarch or milkweed within an approximate 1-mile radius of the project area. Additionally, although nectar sources are often found along riparian corridors, low-lying riparian vegetation near the project area that would support nectar resources is often managed for O&M purposes via mowing or other means of management that would likely deter monarch activity.
Desmocerus californicus dimorphus	valley elderberry longhorn beetle	FT	Occurs in riparian scrub, only in the Central Valley of California, in association with blue elderberry (Sambucus mexicana). Prefers to lay eggs in elderberries with stems 2-8 inches in diameter; some preference shown for "stressed" elderberries (Holyoak and Koch-Munz 2008).	**No Potential.** An elderberry shrub is near the project site but is more than 200 feet north from the nearest mapped project activity (observation well “DO-OW-2”). There are no other elderberry shrubs within or near the project area that would support the species.

Scientific Name	Common Name	Legal Status	Habitat	Potential to Occur within the Project Area
Lepidurus packardi	vernal pool tadpole shrimp	FE	Occurs in valley & foothill grassland, vernal pools, and wetlands. Inhabits vernal pools and swales in the Sacramento Valley containing clear to highly turbid water. Pools commonly found in grass-bottomed swales of unplowed grasslands. Some pools are mud-bottomed and highly turbid.	**No Potential.** The project area lacks the vernal or wetland pools required by this species.
Amphibians				
Ambystoma californiense pop. 1	California tiger salamander-central California DPS	FT; ST	Occurs in cismontane woodland, meadows and seeps, riparian woodland, valley and foothill grassland, vernal pools, and wetlands. Lives in vacant or mammal-occupied burrows throughout most of the year; in grassland, savanna, or open woodland habitats. Needs underground refuges, especially ground squirrel burrows, and vernal pools or other seasonal water sources for breeding.	**No Potential.** The project area lacks the vernal or other wetland pools required by this species for breeding and rearing. In addition, no small mammal burrows that may be used by this species for underground refuge were observed during the July 2023 site visit.
Rana boylii pop. 3	foothill yellow-legged frog-north Sierra DPS	ST	Occurs in aquatic habitat, riparian forest, riparian scrub, riparian woodland, and in Sacramento/San Joaquin flowing waters. Uses partly shaded shallow streams and riffles with a rocky substrate in a variety of habitats. Needs at least some cobble-sized substrate for egg-laying and at least 15 weeks to attain metamorphosis.	**No Potential.** Project area does not provide suitable habitat. While this species is documented in the Butte Creek watershed, the Butte Slough confluence with Butte Creek is infrequent and the slough does not contain the flowing or cool water for most of the year required by this species. The nearest documented occurrence of this species is over 8 miles northeast of the project area.
Reptiles				

Scientific Name	Common Name	Legal Status	Habitat	Potential to Occur within the Project Area
Thamnophis gigas	giant gartersnake	FT; ST	Marsh and swamp, riparian scrub, and wetlands. Prefers freshwater marsh and low gradient streams. Aquatic habitat is required for summer foraging, while adjacent bank basking areas with emergent vegetation and upland refugia are required for extended periods of inactivity (USFWS 2017). Has adapted to drainage canals and irrigation ditches. This is the most aquatic of the gartersnakes in California.	**Low Potential.** The project site and surrounding area lacks adequate and suitable habitat and there are no CNDDB species occurrences within 1 mile of the project. Bankside habitat within and immediately adjacent to the aquatic habitat within the project area is not conducive to basking/inactive periods with no visible rodent holes/other depressions and frequent disturbance of low-lying vegetation for O&M purposes. While the species may access the site from Butte Creek, water quality within the slough is extremely variable, reaching high temperatures during the summer and being largely stagnant with algal mats on the surface of the water. Water velocity and bankside habitat are not conducive to this species' general habitat requirements (lacking slow moving waters or emergent vegetation typically used) on the Sacramento River side of the project (USFWS 2017).
Emys marmorata	western pond turtle	FCT; SSC	Ranges throughout California except for Inyo and Mono counties. Generally, occurs in various water bodies including permanent and ephemeral systems either natural or artificial. Upland habitat that is at least moderately undisturbed is required for nesting and overwintering, in soils that are loose enough for excavation (Thomson et al. 2016).	**Moderate Potential.** While there are no documented occurrences within 5 miles of the project area, the project area provides suitable habitat for the species and is within its range. Numerous aquatic habitat locations near the project area provide migration corridors for the species. Floating components of the BSOG facility (debris boom) provide basking locations for adult turtles. Nesting and upland use of the project area is unlikely due small amount of friable soils and uneven terrain. There is a relatively small narrow strip of grassland adjacent to the project site to the south, however it is immediately adjacent to an orchard that does not provide suitable upland habitat. In addition, the small grassland area is subject to frequent disturbance for fire suppression and general O&M purposes and is therefore unsuitable for the species' use.

Scientific Name	Common Name	Legal Status	Habitat	Potential to Occur within the Project Area
Birds				
Agelaius tricolor	tricolored blackbird	ST; SSC	Nests colonially in freshwater marsh, marshes and swamps, wetlands, riparian scrub, thistle, blackberry, and grain fields Requires open water, protected nesting substrate, and foraging area with insect prey within a few miles of the colony. Following breeding season, large flocks of the species congregate in the Sacramento Valley from August to fall (USFWS 2019). Foraging blackbirds prefer agricultural areas such as rice fields, pasturelands, and dairy grain stores for insect foraging (USFWS 2019).	**Moderate Potential.** Moderately suitable nesting habitat exists in the project area. There are multiple documented and recent occurrences of this species within 5 miles of the project area.
Ammodramus savannarum	grasshopper sparrow	SSC	Nests in a variety of grassland habitats throughout much of the Central Valley, Coast Range Mountains, and the Inland Empire region. Prefers short to middle-height, moderately open grasslands with scattered shrubs. Avoids areas with high shrub cover (Shuford and Gardali 2008).	**No Potential.** The project area is too densely vegetated for this species to nest in or frequent.
Antigone canadensis tabida	greater sandhill crane	ST; CFP	Marshes and swamps, meadow and seeps, wetlands. Nests in wetland habitats in northeastern California; winters in the Central Valley. Prefers grain fields within 4 miles of a shallow body of water used as a communal roost site; irrigated pasture used as loafing sites.	**Unlikely.** While this species may roost or forage near the project area, the project area does not provide suitable foraging or roosting habitat.
Anser albifrons elgasi	tule greater white-fronted goose	SSC	Does not nest in California. Present in California as a migrant and winter resident (mainly September through April), primarily in the northern Sacramento Valley and Sacramento-San Joaquin River Delta. Generally found in marshes dominated by cattails (Typha spp.) and bulrush (Schoenoplectus spp.) (Shuford and Gardali 2008).	**Unlikely.** While this species may occasionally roost or forage at or near the project area, the project area does not provide suitable foraging or roosting habitat.
Aquila chrysaetos	golden eagle	BGEPA; CFP	Uncommon resident in hills and mountains throughout California, and an uncommon migrant and winter resident in the Central Valley. Prefers rolling foothills and mountain terrain, wide arid plateaus deeply cut by streams and canyons, open mountain slopes, cliffs, and rock outcrops. (Polite et al. 1990)	**Unlikely.** While this species may occasionally fly over the project area, the project area does not provide suitable nest sites or quality foraging habitat. There are no documented occurrences of this species within 5 miles of the project area.

Scientific Name	Common Name	Legal Status	Habitat	Potential to Occur within the Project Area
Asio flammeus	short-eared owl	SSC	Found in open, treeless areas with elevated sites for perches, and dense vegetation for roosting and nesting. Associated with perennial grasslands, prairies, dunes, meadows, irrigated lands, and saline and fresh emergent wetlands. Breeds primarily in San Francisco Bay Delta, northeastern and northwestern California, eastern Sierra Nevada , and San Joaquin Valley and adjacent Coast Range valleys (Shuford and Gardali 2008). Winters in the Central Valley, western Sierra Nevada foothills and along the coastline.	**Unlikely.** Wintering individuals occur occasionally in the region and could forage in nearby agricultural lands, but the project area is too heavily wooded/vegetated for this species and is not within the nesting range. There are no documented occurrences of this species within 5 miles of the project area.
Athene cunicularia	burrowing owl	SSC	Resident in much of the state in open, dry grasslands and various desert habitats. Requires open areas with mammal burrows; especially those of California ground squirrel (Otospermophilus beecheyi) Inhabits rolling hills, grasslands, fallow fields, sparsely vegetated desert scrub, vacant lots and other open human disturbed lands such as airports and golf courses. (CWHR Program Staff 1999).	**Unlikely.** Could occur in adjacent agricultural fields, but the project area is heavily wooded/vegetated and does not provide the typical open habitat for this species. There are no documented occurrences of this species within 5 miles of the project area. No small mammal burrows were observed in the project area on the July 2023 site visit.
Aythya americana	redhead	SSC	Nests in freshwater emergent wetlands where dense stands of cattails (Typha spp.) and bulrushes (Schoenoplectus spp.) are interspersed with areas of deep, open water. Also observed nesting in somewhat alkaline marshes and potholes (Shuford and Gardali 2008).	**Unlikely.** This species may swim in Butte Slough or roost occasionally within the project area; however, the project area does not contain the wetland or marsh habitat required for nesting.
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.	**High Potential.** Suitable roosting and nesting habitat exists in the project area and adjacent agricultural fields provides potentially suitable foraging habitat. There are multiple CNDDB occurrences within 5 miles of the project area.

Scientific Name	Common Name	Legal Status	Habitat	Potential to Occur within the Project Area
Chaetura vauxi	Vaux's swift	SSC	Nests in cavities in a variety of trees and less frequently in artificial structures such as smokestacks. Shows an affinity for old-growth coast redwood (Sequoia sempervirens) and Douglas fir (Pseudotsuga menziesii) forests with nest sites in large hollow trees and snags, especially tall, burnt-out stubs (Shuford and Gardali 2008).	**Unlikely.** While this species migrates through the region, the project area is outside the breeding and wintering ranges.
Charadrius montanus	mountain plover	SSC	Does not nest in California. Present in the state November through March in open grasslands and plowed fields with no or very short vegetation. Found in flocks mostly on the west side of the Central Valley from Colusa County south to Kern County, Carrizo Plain, Antelope Valley, Imperial Valley, and western Riverside County (Shuford and Gardali 2008).	**Unlikely.** The project area does not provide the open or grassy fields this species prefers for roosting/foraging and the project area is not within its nesting range. Could occur in adjacent agricultural fields if conditions are suitable. There are no documented occurrences of this species within 5 miles of the project area.
Chilidonias niger	black tern	SSC	Nests locally in dwindling numbers in the Sacramento and San Joaquin Valleys. Nests in fresh emergent wetlands, marshes near shallow lakes, ponds, moist grasslands, and flooded rice fields (CWHR Program Staff 2008).	**Unlikely.** This species is declining near the project area (CWHR Program Staff 2008) and the project area does not provide suitable nesting or roosting habitat for this species. Individuals may nest in roost in adjacent rice fields.
Circus hudsonius	northern harrier	SSC	Nests on the ground in patches of dense, tall vegetation in undisturbed areas. Breeds and forages in a variety of open habitats such as marshes, wet meadows, weedy borders of lakes, rivers and streams, grasslands, pastures, croplands, sagebrush flats, and desert sinks (Shuford and Gardali 2008).	**Unlikely.** May forage in adjacent agricultural fields, but the project area does not provide suitable ground cover for nesting or foraging.
Coccyzus americanus occidentalis	western yellow-billed cuckoo	FT; SE	Occurs in riparian forest, along the broad, lower flood-bottoms of larger river systems. Nests in riparian jungles of willow, often mixed with cottonwoods, with lower story of blackberry, nettles, or wild grape.	**Moderate Potential.** Project area provides poor-quality habitat, but Sacramento River breeding distribution begins immediately upstream of Colusa (Dettling et al. 2014); therefore, migrant and dispersing individuals could occur in the project area.

Scientific Name	Common Name	Legal Status	Habitat	Potential to Occur within the Project Area
Elanus leucurus	white-tailed kite	CFP	Fairly common resident of the Central Valley, coast, and Coast Range Mountains. Nests in oak savanna, oak and willow riparian, and other open areas with scattered trees near foraging habitat. Forages in open grasslands, meadows, farmlands, and emergent wetlands. (CWHR Program Staff 2005).	**Moderate Potential.** The project area provides suitable nest sites and adjacent grassland and agricultural fields provide foraging habitat for this species. There is one occurrence of this species approximately 4 miles northwest of the project area, and multiple others just beyond the 5-mile radius in the Colusa National Wildlife Refuge (iNaturalist 2023).
Haliaeetus leucocephalus	bald eagle	SE; CFP	Occurs in lower montane coniferous forest, old growth forest, ocean shore, lake margins, and rivers for both nesting and wintering. Most nests within 1 mile of water. Nests in large, old-growth, or dominant live tree with open branches, especially ponderosa pine. Roosts communally in winter.	**Moderate Potential.** This species has been documented within 5 miles of the project area (iNaturalist 2023) and suitable nesting and foraging habitat exists within the project area as well as along Butte Creek and the Sacramento River.
Icteria virens	yellow-breasted chat	SSC	Nests in early-successional riparian habitats with a well-developed shrub layer and an open canopy. Restricted to narrow borders of streams, creeks, sloughs, and rivers. Often nest in dense thickets of blackberry (Rubus spp.) and willow (Salix spp.) (Shuford and Gardali 2008).	**Moderate Potential.** The project area is within range of the species and provides marginal habitat for this species for both nesting and foraging and there is ample habitat nearby along Butte Creek.
Lanius ludovicianus	loggerhead shrike	SSC	Shrublands and open woodlands with a fair amount of grass cover and areas of bare ground. Requires tall shrubs or trees, fences, or power lines for hunting perches and territorial advertisement. Also requires open areas of short grasses, forbs, or bare ground for hunting, large shrubs or trees for nest placement, and thorny vegetation or barbed wire fences for impaling prey. (Shuford and Gardali 2008).	**Moderate Potential.** The project area provides marginally suitable nesting habitat and adjacent grassland and agricultural fields are suitable foraging habitat. There are no documented occurrences of this species within 5 miles of the project area.
Laterallus jamaicensis coturniculus	California black rail	ST; CFP	Occurs in brackish marsh, freshwater marsh, marshes and swamp, salt marsh, and wetlands. Inhabits freshwater marshes, wet meadows and shallow margins of saltwater marshes bordering larger bays. Needs water depths of about 1 inch that do not fluctuate during the year and dense vegetation for nesting habitat.	**No Potential.** The project area does not provide the marsh, swamp, or wetland habitat required by this species for both nesting and foraging.

Scientific Name	Common Name	Legal Status	Habitat	Potential to Occur within the Project Area
Melospiza melodia	song sparrow (Modesto population)	SSC	Often found in emergent freshwater marshes dominated by bulrushes (Scirpus spp.), cattails (Typha spp.), and willow (Salix spp.). Also nests in riparian forests of valley oak (Quercus lobata) with a sufficient understory of blackberry (Rubus spp.), along vegetated irrigation canals and levees, and in recently planted valley oak restoration sites. Found throughout the Sacramento Valley, from the delta north to Chico (Shuford and Gardali 2008).	**High Potential.** The project area provides ample nesting and foraging habitat for this species and is within its range. This species has been documented often at the Colusa Wildlife Refuge just over 5 miles to the west of the project area (iNaturalist 2023).
Riparia riparia	bank swallow	ST	Occurs primarily along river systems and in coastal areas. Colonial nester in vertical banks or bluffs, typically adjacent to water, devoid of vegetation, and with fine-textured/sandy soils to dig nesting hole.	**Moderate Potential.** There is ample nesting habitat and many documented occurrences of this species within the Sacramento River corridor within 5 miles of the project area, however nesting is unlikely on the Butte Slough side of the project area. Migrant individuals or those from nesting colonies if present nearby could forage over the project area.
Mammals				
Antrozous pallidus	pallid bat	SSC	Ranges across nearly all of California except for high elevation portions. Generally found in a wide variety of habitats but with some preference for drier areas. Day roosts are in caves, crevices, mines, and occasionally in hollow trees and buildings (Harris et al 1990).	**Unlikely.** The project area is heavily vegetated and surrounded by riparian systems, which is not preferred habitat for this species. There are no documented occurrences of this species within 5 miles of the project area.
Bassaricus astutus	ring-tailed cat	CFP	A highly cryptic species. Occurs in various riparian habitats, and in brush stands of most forest and shrub habitats, at low to middle elevations. Suitable habitat consists of a mixture of forest and shrubland in close association with rocky areas or riparian habitats. Usually not found more than 0.6 mile from permanent water. Nests and shelters in rock recesses, hollow trees, logs, snags, rock cavities, abandoned burrows, or woodrat nests (CWHR Program Staff 2008).	**Moderate Potential.** The project area provides marginally suitable habitat for this species, although frequent human disturbance may dissuade this species from inhabiting the project area. There is a documented occurrence of this species within 5 miles of the project area (iNaturalist 2023).

Scientific Name	Common Name	Legal Status	Habitat	Potential to Occur within the Project Area
Eumops perotis californicus	western mastiff bat	SSC	Ranges throughout all of Southern California, the central coast, and the Sierra Nevada Mountains. Generally occurs in open, arid, or semi-arid habitats. Roosts in rock crevices and buildings. (Ahlborn and White 1990).	**Unlikely.** The project area is outside the typical range of the species. There are no documented occurrences of this species within 5 miles of the project area.
Lasiurus blossevillii	western red bat	SSC	Ranges across the Central Valley. Occurs in most habitats except desert and alpine areas. Roosts in trees, sometimes shrubs, and typically at the margins of riparian habitats (Alley et al 1990).	**Low Potential.** While the project area does contain riparian habitat preferred by this species, there is high human disturbance and only a small patch of suitable habitat that would be unsuitable for multiple individuals of the species. Individuals may occasionally day-roost within the project area.

Legal Status:
FE: Federal Endangered
FT: Federal Threatened
FCT: Federal Candidate for listing as Threatened
BGEPA: Bald and Golden Eagle Protection Act
SE: State Endangered
SCE: State Candidate for Endangered
ST: State Threatened
SCT: State Candidate for Threatened
CFP: California Fully Protected Species
SSC: California Species of Special Concern
Sources: CDFW 2023c; iNaturalist 2023