Sutter Bypass East Levee Project
Initial Study/Proposed Mitigated Negative Declaration

Prepared for:

Department of Water Resources

July 2025

Prepared by:

GEI Consultants

Consulting Engineers and Scientists

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Sutter Bypass East Levee Project Initial Study/Proposed Mitigated Negative Declaration

Prepared for:

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July 10, 2025

Project No. 1905950

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Date: July 10, 2025
To: Responsible and Trustee Agencies and the Public
From: Department of Water Resources
Subject: Notice of Intent to Adopt a Mitigated Negative Declaration for the Sutter Bypass East Levee Project

Enclosed for your review is an Initial Study and proposed Mitigated Negative Declaration (IS/MND) evaluating the potential environmental effects of the proposed Sutter Bypass East Levee Project (project or proposed project), which is located along an approximately 5.2-mile segment of the Sutter Bypass east levee, between Gilsizer Slough and Hughes Road (Levee Miles 7.40 to 12.57). The Department of Water Resources (DWR) as lead agency for the proposed project, has prepared this IS/MND in accordance with the requirements of the California Environmental Quality Act (CEQA) and the State CEQA Guidelines.

The IS/MND identifies potentially significant impacts related to the proposed project. All potentially significant impacts are reduced to less-than-significant levels with implementation of mitigation measures identified in the Initial Study.

The IS/MND is being circulated for public review and comment for a 30-day period beginning on July 10, 2025 and ending on August 9, 2025. The IS/MND may be reviewed online at https://water.ca.gov/News/Public-Notices/2025/Jul-25/IS-MND-Sutter-Bypass-East-Levee or during walk-in business hours at:

California Department of Water Resources
Flood Maintenance and Operations Branch (FMO)
3310 El Camino Avenue
Sacramento, CA 95821

Please send written comments on the IS/MND to:

Ms. Kristin Ford
California Department of Water Resources
Flood Maintenance and Operations Branch (FMO)
3310 El Camino Avenue
Sacramento, CA 95821
Phone (916) 914-0220
Email: kristin.ford@water.ca.gov

If comments are provided via e-mail, please include the project title in the subject line and include the commenter's U.S. Postal Service mailing address in the e-mail. For comments by agencies and organizations, please include the name of a contact person for the agency or organization. All comments received, including names and addresses of commenters, will become part of the official administrative record and may be available to the public. All comments must be received by 5 p.m. on August 9, 2025.

DWR intends to consider adoption of the Mitigated Negative Declaration after review of the final IS/MND and all comments made during the public comment period.

PROPOSED
MITIGATED NEGATIVE DECLARATION

Project	**Sutter Bypass East Levee**
Lead Agency:	**California Department of Water Resources (DWR)**

PROJECT DESCRIPTION

The proposed project consists of improvements to approximately 5.2-miles of the Sutter Bypass East Levee (SBEL) between approximately Gilsizer Slough and Hughes Road (Levee Miles 7.40 to 12.57), as well as adjacent construction staging areas. DWR has authority and responsibility for the operation and maintenance of the SBEL and would provide funding for the project once the CEQA process is complete. SBFCA would oversee the construction activities of the project which includes activities such as planning, design, permitting, monitoring, and reporting. Improvements include construction of a cutoff wall extending approximately 45- to 88-feet below the working platform to address underseepage from water in the Sutter Bypass. The levee would be degraded approximately one-third of its height to accommodate the required platform width for construction of the cutoff wall. Construction of the cutoff wall would use both soil-bentonite (SB) in an open-trench, and Deep-Mix-Method (DMM) using a soil-cement-bentonite (SCB) mixture. The settlement and curing period for the cutoff wall would be approximately 21-days, after which, reconstruction of the levee would occur. Additionally, the project includes reconstruction of both landside and waterside ramps to match pre-project lines and grading where the levee would be rebuilt after cutoff wall installation. Reconstructed ramps would be in the same general vicinity as the existing ramps and would tie to existing access roads. Aggregate surfacing would be placed on levee access ramps.

In addition, penetrations and encroachments identified within the levee prism, within 20 feet of the landside toe, or within 15-feet of the waterside toe would be removed during cutoff wall construction and replaced with new penetrations that meet current levee safety standards to prevent through-seepage. Penetrations have been designed to accommodate a possible future project that would raise the levee. Penetration and encroachment abandonment, removal, or relocation would be in accordance with applicable DWR, California Code of Regulations (CCR) Title 23, Division 1 “Central Valley Flood Protection Board”, and USACE requirements. Encroachments such as security gates and access ramps located within the limits of work and impacted by construction would be removed and replaced. Encroachments such power poles located within the limits of work and impacted by construction would be relocated to a minimum of 20-feet away from the levee toe. Relocations of power poles would be done by the utility owner (i.e., PG&E).

FINDINGS

An Initial Study (IS) has been prepared under the California Environmental Quality Act to assess the project’s potential effects on the physical environment and the significance of those effects. Based on the analysis in the IS and substantial evidence in the record, it has been determined that the proposed project would not have any significant adverse effects on the physical environment

(impacts) after implementation of mitigation measures. This conclusion is supported by the following findings:

1. The proposed project would have no impacts on land use and planning, mineral resources, population and housing, and wildfire.
2. The proposed project would have less-than-significant impacts on aesthetics, agriculture and forestry, energy, hazards and hazardous materials, noise, public services, recreation, and transportation.
3. The proposed project would have significant impacts on air quality, biological resources, cultural resources, geology and soils, greenhouse gas emissions, hydrology and water quality, tribal cultural resources, and utilities and service systems, but mitigation measures are proposed to avoid or reduce these impacts to less-than-significant levels.
4. The proposed project, with mitigation, would not make a cumulatively considerable incremental contribution to any significant cumulative impact.

The following mitigation measures would be incorporated into the project and implemented by Sutter Butte Flood Control Agency (SBFCA) and DWR to avoid, minimize, rectify, reduce, eliminate, or compensate for potentially significant environmental impacts. Implementing the mitigation measures presented in this IS would reduce the potentially significant environmental impacts of the proposed project to less-than-significant levels.

Mitigation Measure AQ-1: Implement Best Management Practices to Reduce Emissions during Construction.

DWR will ensure that SBFCA and construction contractors shall implement the following measures consistent with established Feather River Air Quality Management District (FRAQMD) Construction Phase Mitigation Measures (FRAQMD 2016):

- Develop and submit a fugitive dust control plan to minimize fugitive dust emissions during project construction to FRAQMD for approval.
- 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.
- Suspend all project grading operations when winds exceed 20 miles per hour or when winds carry dust beyond the property line despite implementation of all feasible dust control measures.
- Apply water to control dust as needed to prevent visible emissions violations and offsite dust impacts. Travel time to water sources should be considered and additional trucks used if needed.
- Cover onsite dirt piles or other stockpiled material when not in active use.

- Minimize the free fall distance and fugitive dust emissions associated with all transfer processes involving a free fall of soil or other particulate matter (PM).
- Install wheel washers where project vehicles and/or equipment exit onto paved streets from unpaved roads. Vehicles and/or equipment shall 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.
- Frequently sweep paved streets (water sweeper with reclaimed water recommended; wet broom) if soil material has been carried onto adjacent paved, public thoroughfares from the project site.
- Reduce traffic speeds on all unpaved surfaces to 15 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 possible and prior to final occupancy, through seeding and watering.

Timing: During construction.

Responsibility: DWR and SBFCA and its construction contractors.

Mitigation Measure AQ-2: Develop Equipment Inventory that Reduces Exhaust Emissions and Document Equipment Use and Worker Vehicle Trips during Construction.

DWR will ensure that SBFCA and its construction contractors shall implement the following measures to reduce, track, and calculate construction-related project emissions, consistent with established FRAQMD Construction Phase Mitigation Measures (FRAQMD 2016).

Before construction activities begin, SBFCA and its construction contractors shall compile a comprehensive inventory list (i.e., make, model, engine year, horsepower [hp], emission rates) of all heavy-duty off-road (portable and mobile) equipment (50 hp and greater) that shall be used an aggregate of 40 or more hours during construction and provide the inventory to FRAQMD for approval. To the greatest extent practicable, and for a minimum of 70% of project equipment DPM emissions, off-road diesel construction equipment shall be equipped with the most effective Verified Diesel Emissions Control Strategies (VDECS) available for the engine type. This minimum emissions control requirement would ensure that the mitigation measure meets both NO_X emissions thresholds as well as health risk impacts on off-site sensitive receptors. The best available VDECS for this project would be implementation of Tier 4F engines as certified by CARB and USEPA. The equipment shall be properly maintained in accordance with manufacturers specifications.

Data regarding construction activities shall be collected and reported to FRAQMD on a monthly basis and used to calculate project emissions after construction activities are complete. Data collected during project construction shall include the following items:

- Construction equipment
  - Number of pieces of each equipment type
  - Model year, engine horsepower and tier, and hours of operation for each equipment type
- Haul trucks (heavy-duty trucks)
  - Number of heavy-duty haul truck trips
  - On-road and off-road trip distance for haul truck trips
- Construction workers
- Number of construction workers per day
- Total volume (cubic yards) of cut/fill

Timing: Before and during construction.

Responsibility: DWR and SBFCA and its construction contractors.

Mitigation Measure AQ-3: Calculate Construction Emissions and Contribute to FRAQMD Off-Site Mitigation Program.

DWR shall ensure that SBFCA and its construction contractors implement the following measures for off-site mitigation, as needed. After project approval, SBFCA and its construction contractors shall submit a memorandum of understanding (MOU) to FRAQMD containing the following information:

- source of emissions,
- estimate of emissions,
- amount of off-site mitigation requested to be purchased, and
- date the off-site mitigation fee will be provided to FRAQMD (either as a one-time payment before start of project construction or as a down payment, with the remainder due at the end of the construction season).

Once the MOU is submitted, an off-site mitigation agreement between SBFCA and FRAQMD will be finalized. The off-site mitigation agreement will specify the fees and timing of payment and will be executed by SBFCA and FRAQMD. FRAQMD will calculate the total Voluntary Off-Site Mitigation Program fee by summing up the maximum daily construction emissions of Nox (lb/day) in excess of the significance threshold (i.e., 25 lb/day) after implementation of Mitigation Measures AQ-1 and AQ-2,

and multiplying by the final estimate of construction workdays per year in addition to the 10-percent administrative fee. The fee represents the offset of any remaining NOx emissions above the threshold by funding emissions reduction programs in the SVAB (e.g., replacing old diesel-powered school buses with low-emissions models).

Timing: Before and after construction.

Responsibility: DWR, SBFCA and its construction contractors.

Mitigation Measure BIO-1: Avoid and Minimize Effects to Biological Resources.

DWR will ensure that SBFCA and its construction contractors shall implement the following measures:

- **Conduct a worker environmental awareness program (WEAP) training for all staff that shall be on-site during construction.** A qualified biologist shall provide a WEAP training to any and all staff working on the project site immediately prior to the start of any project-related activities to cover species identification, habitat, life history, and conservation measures for all special-status species with potential to occur within the study area. New field staff shall also be WEAP trained, as they are added to the project, as needed, and the training shall be repeated on a yearly basis, if there is significant halt in construction. Training shall consist of an in-person presentation by a qualified biologist. In addition to the in-person presentation, training may be supplemented with the distribution of approved brochures and other materials that describe protected resources and methods for avoiding effects.

- **Conduct preconstruction surveys prior to the start of construction for all special-status species with potential to occur.** A qualified biologist shall conduct a general preconstruction survey at least 24 hours before the start of ground disturbance to identify potential presence of all special-status species with potential to occur in the project site. While this survey shall focus on giant garter snake, northwestern pond turtle, burrowing owl and other special-status birds, and roosting bats, it would include all special-status wildlife species and other sensitive biological resources. If there is a lapse in ground disturbing activities for two weeks or more, another preconstruction survey shall be conducted.

- **Erect and Maintain High-visibility Fencing during Construction to Protect Sensitive Biological Resource Areas.** Before beginning construction activities, high-visibility fencing shall be erected to protect areas of sensitive biological resources that are located adjacent to construction areas, but can be avoided (*e.g.,* Sutter Bypass and associated riparian oak woodland habitat). The fencing shall restrict encroachment of personnel and equipment into these areas. The fencing may be removed only when the construction within a given area is completed.

- **Stage Vehicles and Equipment in Existing Staging Areas.** Project activities and staging of materials, portable equipment, vehicles, and supplies shall occur in disturbed areas where feasible. SBFCA and its contractors shall ensure that

appropriate best management practices (e.g., spill prevention and containment) are implemented in these areas to avoid contamination of giant garter snake habitat.

- **A biologist shall be present to monitor during all activities during project construction.** A qualified biologist shall be on-site to monitor during all activities occurring within 200 feet of aquatic habitat suitable for giant garter snake or pond turtle.

- **Remove Refuse.** To eliminate sources that could attract wildlife, all trash, including food-related trash items such as wrappers, cans, bottles and food scraps, shall be disposed of in closed containers.

Timing: Before and during construction.

Responsibility: DWR and SBFCA.

Mitigation Measure BIO-2: Minimize Effects to Special-Status Plants.

DWR will ensure that SBFCA and its construction contractors shall implement the following measures:

1. **Special-status Plant Surveys.** A qualified botanist shall perform focused surveys for special-status plants. These surveys shall 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 shall 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 shall 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 three (3) years has elapsed between the completion of the special-status plant surveys and the start of ground disturbance, these surveys should be repeated.

2. **Special-status Plant Avoidance**. If any special-status plant species are found within 100 feet of areas of ground disturbance during the surveys, these plant species shall be avoided to the greatest extent possible and one of the following shall be implemented:

    - **Avoid Special-status Plants that are Present but Can be Avoided.** Any special-status plant species that are identified in or adjacent to the construction areas, but not proposed to be disturbed, shall 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; and/or

- **Develop and Implement a Mitigation Plan for Directly Affected Special-status Plants.** If habitat occupied by special-status plants cannot be avoided during project construction, an appropriate and feasible mitigation plan to compensate for direct loss of special-status plants shall be developed by SBFCA and its contractors and provided to CDFW and/or USFWS for approval. The plan shall detail appropriate compensation measures determined through consultation with CDFW and/or USFWS, methods for implementation, success criteria, monitoring and reporting protocols, and contingency measures to be implemented if the initial mitigation fails. Implementation methods may include salvaging and transplanting individual plants, collecting the seeds of affected plants, and collecting and translocating seed- and rhizome-containing mud. Compensation also may include preserving in perpetuity other known populations of this species in the project vicinity at ratios of or greater than 1 to 1. The plan shall be developed in consultation with and approved by CDFW and/or USFWS before construction activities begin in areas containing special-status plant species. SBFCA and its contractors shall implement the CDFW/USFWS-approved plan.

3. **Restoration of Temporarily Disturbed Areas.** All exposed and/or disturbed areas resulting from project-related activities shall be restored using locally native grass and forb seeds, plugs or a mix of the two. Areas shall be seeded with species appropriate to their topographical and hydrological character. Seeded areas shall be covered with broadcast straw and/or jute netted, where appropriate.

Timing: Before and during construction.

Responsibility: DWR and SBFCA.

Mitigation Measure BIO-3: Minimize Effects on Crotch's Bumblebee.

DWR shall ensure that SBFCA and its contractors implement the measures described below minimize for effects of the project on Crotch's bumblebee prior to vegetation removal.

1. If ground-disturbing activities are scheduled to begin between February 1 and October 31, preconstruction surveys shall be conducted by a CDFW-approved biologist following *CDFW's Survey Considerations for CESA Candidate Bumble Bee Species* (CDFW 2023b), or the most up-to-date CDFW survey protocol. If possible, three Crotch bumble bee surveys shall be conducted at two-to-four-week intervals during the colony active period (April-August).

2. If Crotch bumble bees are detected, any remaining surveys shall focus on nest location. If no nests are found but the species is observed during preconstruction surveys, work crews should be informed of the possibility of Crotch bumble bees or their nests being present onsite. If a Crotch bumble bee is encountered during construction, work shall stop until the individual leaves of its own volition. If an active Crotch bumble bee nest is detected, an appropriate no disturbance buffer zone (including foraging resources and flight corridors essential for supporting the colony)

shall be established around the nest to reduce the risk of disturbance. Nest avoidance buffers may be removed at the completion of the flight season (October 31) and/or once the qualified biologist deems the nesting colony is no longer active.

Timing: Before and during construction.

Responsibility: DWR and SBFCA.

Mitigation Measure BIO-4: Minimize Effects on Giant Garter Snake.

DWR shall ensure that SBFCA and its contractors implement the measures described below to minimize effects of the project on giant garter snake, such that there is no net loss of habitat for the species.

1. **Conduct Initial Earth-movement Activities within Suitable Upland Habitat for Giant Garter Snake between May 1 and October 1.** SBFCA and its contractors shall complete ground-disturbing activities within suitable upland habitat for the giant garter snake between May 1 and October 1. Work in giant garter snake upland habitat may also occur between October 2 and November 1 or between April 1 and April 30, provided maximum daily air temperatures have exceeded approximately 75 degrees Fahrenheit (ºF) for at least 3 consecutive days immediately preceding work and ambient air temperatures exceed approximately 75ºF during work. During these periods, giant garter snakes are more likely to be active in aquatic habitats and less likely to be found in upland habitats.

2. **Inspect Areas Under Vehicles and Heavy Equipment Daily.** SBFCA and its contractors shall inspect under and around all vehicles and heavy equipment for the presence of wildlife and other special-status species before the start of each workday. The awareness training provided by a qualified biologist shall emphasize checking equipment to avoid harming wildlife.

3. **Stop Work if a Giant Garter Snake is Observed in Construction Area and Allow Snakes to Leave the Construction Area on Their Own.** If a giant garter snake is observed in a construction area, SBFCA and its contractors shall stop work and shall notify a qualified biologist immediately. If possible, the snake shall be allowed to leave on its own volition, and the qualified biologist shall remain in the area until the biologist deems that the snake is not harmed. SBFCA and its contractors shall notify CDFW and USFWS by telephone or email within 24 hours of a giant garter snake observation during construction activities. If the snake does not voluntarily leave the construction area, construction activities within approximately 200 feet of the snake shall stop to prevent harm to the snake, and CDFW and USFWS shall be consulted to identify next steps. In that case, SBFCA and its contractors shall implement the measures recommended by CDFW and USFWS before resuming construction activities in the area.

4. **Avoid Using Materials that May Entangle Snakes**. 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 giant garter snake or other wildlife, shall not be used.

5. **Install, Inspect, and Maintain Giant Garter Snake Fencing.** Where site conditions allow, SBFCA and its contractors shall install fencing along the project area boundaries as a way to divert moving snakes away from active construction zones. The project area, including the fencing, shall be inspected by a qualified biologist daily during project activities.

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

   Timing: Before and during construction.

   Responsibility: DWR and SBFCA.

Mitigation Measure BIO-5: Avoid and Minimize Impacts to Northwestern Pond Turtle.

To avoid and minimize effects of project activities on northwestern pond turtle, DWR shall ensure that SBFCA and its contractors implement the measures described below.

1. Ground disturbance (including vegetation removal) in suitable upland habitat within 500 feet of aquatic habitat for northwestern pond turtle shall be minimized, to greatest extent feasible. The target period for vegetation removal in these areas shall be mid-April to mid-May) when potential for turtle strikes and direct impacts are lowest, if practical with combined seasonal limitations on construction (e.g., nesting birds, flood season, etc.).

2. If northwestern pond turtles are observed in a construction area, SBFCA and its contractors shall stop work within approximately 200 feet of the turtle, and a qualified biologist shall be notified immediately. If possible, the turtle shall be allowed to leave the construction area on its own and the qualified biologist shall remain in the area until the biologist deems that the turtle is not harmed. Alternatively, the qualified biologist may attempt to capture and relocate the turtle, unharmed and with prior CDFW (and USFWS, if necessary) approval, to suitable habitat at least 200 feet from the construction area.

3. If a northwestern pond turtle nest is unintentionally uncovered during project activities, work would stop within approximately 200 feet of the nest and CDFW (and USFWS, if necessary) would be contacted immediately. Next steps shall include

fencing off and buffering the nest and/or rescue, rehabilitation, and relocation of affected turtles, as approved by CDFW (and USFWS, if necessary).

Timing: Before and during construction.

Responsibility: DWR and SBFCA.

Mitigation Measure BIO-6: Conduct a Habitat Assessment and Focused Surveys for Burrowing Owls and Avoid Impacts.

To avoid effects of construction activities on burrowing owls, DWR shall ensure that SBFCA and its contractors implement the following mitigation measures.

1. Prior to construction, a qualified biologist shall conduct an assessment of burrowing owl habitat suitability in areas subject to project-related disturbance. The assessment shall evaluate the area subject to direct impact, as well as adjacent areas within up to 500 feet, depending on the potential extent of indirect impact. If suitable burrows or sign of burrowing owl presence are observed, a focused survey for burrowing owls shall be conducted in areas of suitable habitat within the area of potential direct and indirect impact. The survey shall be conducted in accordance with Appendix D of the *Staff Report on Burrowing Owl Mitigation* (CDFW 2012). A letter report documenting the survey methods and results shall be prepared and submitted to CDFW.

2. If the focused surveys described above have been completed and burrowing owl are detected at the project site, SBFCA and its contractors shall coordinate with CDFW prior to project construction to determine acceptable methods for avoiding and minimizing effects on this species, such that there is no direct loss of individuals of this species or project-related nest failure. Acceptable methods for avoiding and minimizing effects on this species would be in accordance with the *Staff Report on Burrowing Owl Mitigation* (CDFG 2012). Measures may include:

    - Implement a no-disturbance buffer (during the breeding season) and develop and, upon CDFW approval, implement a Burrowing Owl Exclusion Plan.

    - Establish a protective buffer around burrows occupied during the breeding season (February 1 through August 31). The buffer shall be maintained until a qualified biologist verifies, through noninvasive means, that either (1) the birds have not begun egg-laying, or (2) juveniles from the occupied burrows are foraging independently and are capable of independent survival. The size of the buffer shall depend on distance from the nest to area of project disturbance, type and intensity of disturbance, presence of visual buffers, and other variables that could affect susceptibility of the owls to disturbance. Monitoring shall be conducted to confirm that project activity is not resulting in detectable adverse impacts on nesting burrowing owls.

Timing: Before and during construction.

Responsibility: DWR and SBFCA.

Mitigation Measure BIO-7a: Conduct Focused Surveys for Nesting Special-status Birds and Avoid Impacts.

To avoid effects of construction activities on nesting special-status birds, DWR shall ensure that SBFCA and its contractors implement the following measures.

1. Vegetation removal shall be conducted between September 2 and January 31, to the extent feasible, to minimize potential loss of active bird nests.

2. If project activities, including site preparation and vegetation removal, cannot be conducted outside of the respective nesting seasons, shall ensure that SBFCA and its contractors shall complete pre-activity surveys for nesting birds. Surveys of the entire project site shall be conducted by a qualified biologist during the nesting season, which is typically February 1 to September 1. Surveys shall be conducted within the entirety of the project site, including a 350-foot buffer. Focused surveys for raptors, particularly Swainson's hawk, shall include a 0.5-mile buffer area (or larger area if required by established survey protocol) surrounding these areas. Where appropriate, pre-activity surveys shall follow established survey protocols or guidelines for focused special-status species. These protocols include the following:

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

    - Tricolored Blackbird Survey Methods (Airola et al. 2024)

    - A Natural History Summary and Survey Protocol for the Western Distinct Population Segment of the Yellow-billed Cuckoo (survey timing only, non-protocol level) (USFWS 2016)

If no established survey protocol exists, the qualified biologist shall complete surveys no more than 48 hours prior to the start of project activities. The nesting bird survey shall be reconducted if there is a lapse in project activities of 7 days or more. If no nesting birds are detected during pre-activity surveys, no additional mitigation measures are required.

Timing: Before construction.

Responsibility: DWR and SBFCA.

Mitigation Measure BIO-7b: If Avoiding Construction-related Effects on Nesting Special-status Birds is Infeasible, Implement Minimization Measures.

DWR will ensure that SBFCA and its construction contractors shall implement the following measures:

If the measures described above in Mitigation Measure BIO-7a have been completed and avoiding effects on nesting special-status birds is infeasible, SBFCA and its contractors

shall coordinate with CDFW to determine acceptable methods for minimizing effects on these species prior to project activity start. SBFCA and its contractors shall ensure that the measures described below are implemented to minimize effects of the project on nesting special-status birds, such that there is no direct loss of individuals of these species or project-related nest failure during project implementation.

1. If any active nests, or behaviors indicating active nests are present, or observed, SBFCA and its contractors shall establish appropriate-sized avoidance buffers around the nest sites, as determined by a qualified biologist in coordination with CDFW to avoid nest failure resulting from project activities. The size and shape of the buffer shall depend on the species, nest location, nest stage, and specific construction activities to be performed while the nest is active. The buffer shall be expanded if the birds are exhibiting agitated behavior, or the buffers may be adjusted (reduced) if a qualified biologist determines it would not be likely to adversely affect the nest. If required, buffers shall be marked in the field by a qualified biologist using temporary fencing, high-visibility flagging, or other means that are equally effective in clearly delineating the buffer.

2. Monitoring shall be conducted by a qualified biologist, either continuously or periodically during work, to confirm that project activity is not resulting in detectable adverse impacts on nesting birds or their young. The qualified biologist shall be empowered to stop construction 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 construction activities are stopped, the qualified biologist shall consult with CDFW to determine appropriate measures that SBFCA and its contractors shall implement to avoid adverse effects.

3. No project activity shall commence within the buffer areas until a qualified biologist has determined that the young have fledged or the nest site is otherwise no longer in use.

   Timing: Before and during construction.

   Responsibility: DWR and SBFCA.

Mitigation Measure BIO-8a: Conduct an Assessment of Suitable Bat Roosting Habitat within the Project Site.

To avoid effects of construction activities on roosting bats, DWR shall ensure that SBFCA and its contractors implement the following measure.

1. **Conduct an Assessment of Suitable Roosting Habitat within the Study Area, with a Focus on where Tree Removal is Unavoidable.** Flag and record locations of trees that either have signs of bat presence (i.e. guano) or have the potential to be suitable roosting habitat for bats within the entire study area. Special focus shall be placed on trees that need to be removed.

   Timing: Before construction.

Responsibility: DWR and SBFCA.

Mitigation Measure BIO-8b: If Avoiding Tree Removal with Suitable Roosting Habitat is Infeasible, Implement Minimization Measures.

If the measures described above have been completed and avoiding effects on suitable roosting habitat is infeasible, DWR shall ensure that SBFCA and its contractors implement the measures described to minimize effects of the project on roosting bats, such that there is no direct loss of individuals of these species or project-related maternity failure.

1. **Avoid Impacts to Roosting Bats.** Potential for impacts on roosting bats shall be minimized by implementing the following seasonal restrictions and tiered removal approach for each potential roost tree to be removed:

   - Conduct removal of suitable roosting habitat trees between August 16 and December 1 or between February 28 and May 1 to avoid the winter hibernation/torpor season and maternity season, when bats are most likely to be impacted by tree removal. Note that this overlaps with nesting bird season, and mitigation measures for nesting birds shall still be adhered to, where necessary.

   - Perform tree removal in the presence of the monitoring bat biologist.

   - Remove all unaffected limbs (those without potential roosting habitat) from the tree and leave remaining trunk and limbs overnight. Fell the remaining trunk and affected limbs the following day. Leave all fallen material on the ground at least one night prior to removal from the project site.

   - Fell the entire tree and leave the fallen material on the ground at least one night prior to removal from the project site.

   - As practical, fell all affected limbs slowly and gently, to minimize the likelihood of crushing bats that may be roosting inside.

   - As practical, the qualified bat biologist shall inspect all potential roost habitat for bats after felling and before removal from the project site.

   - If bats are detected at any point, stop work immediately, leave the tree site and a surrounding 200-foot buffer, and consult with the monitoring bat biologist.

   - If any injured bats are found, the qualified bat biologist shall collect and deliver the bat(s) to a bat rehabilitator permitted by CDFW.

2. **As an Alternative to the Above Tiered Approach, Emergence Surveys may also be Conducted to Confirm Roost Occupancy during the Appropriate Timing.** As an alternative to using the above tiered tree removal approach, occupancy surveys may be conducted within 2 weeks before removal of potential roosting habitat to confirm the trees in question do not support an active roost. Because occupancy

surveys may not be effective in the winter when bats may not be volant, trees that support suitable roosting habitat shall not be removed during the winter hibernation/torpor season (December to February 28).

If occupancy surveys are conducted during the maternity season and evidence of a potential maternity roost is detected, removal of the potential roost tree(s) shall be postponed until after the maternity season ends on August 15. If occupancy surveys indicate that potential roost habitat is unoccupied, trees shall be removed within 2 weeks; if removal does not occur within 2 weeks, occupancy surveys shall be repeated before potential roost trees are removed or the seasonal restrictions and tiered tree removal process described above shall be implemented.

Timing: Before and during construction.

Responsibility: DWR and SBFCA.

Mitigation Measure BIO-9: No Net Loss of Riparian or Sensitive Habitat.

DWR shall ensure that SBFCA and its contractors implement the following mitigation measures.

No net loss of riparian or sensitive habitat would be achieved through impact avoidance, minimization, and/or compensatory mitigation. If riparian and sensitive habitats are able to be fully avoided throughout project implementation, no further action for this measure is needed.

If loss of riparian or sensitive habitat is anticipated, SBFCA and its contractors shall acquire compensatory mitigation for the loss prior to commencement of construction. Mitigation for permanent impacts on sensitive communities shall be provided at a approved mitigation ratio, for example 1:1, from the regulatory permitting agency. Mitigation can be achieved through on-site restoration, in-lieu fee payment or purchase of mitigation credits at a USACE- and/or CDFW-approved mitigation bank. Mitigation, as required in regulatory permits issued through CDFW, USACE, and/or the Central Valley Regional Water Quality Control Board (CVRWQCB), may be applied to satisfy this measure.

Timing: Before and during construction.

Responsibility: DWR and SBFCA.

Mitigation Measure CUL-1: WEAP Training for Cultural and Tribal Resources.

DWR shall ensure that SBFCA and its contractors implement the following mitigation measures.

Cultural resources awareness training, as part of an overall Worker Environmental Awareness Program (WEAP), shall 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 shall be conducted before any stages of physical project implementation and construction. Native American representatives from interested Native American Tribes should be invited to participate in the training as well as to comment and assist in developing the WEAP.

The WEAP training shall 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 should also include a summary of the relevant laws concerning cultural resources and human remains, protocols for respectful behavior towards Native American resources along with a summary of the following protocols and procedures to follow if workers encounter cultural resources or human remains.

Timing: Before construction activities.

Responsibility: DWR and SBFCA and its construction contractors.

Mitigation Measure CUL-2: Avoid Potential Effects on Undiscovered Historical Resources, Tribal Cultural Resources, and Unique Archaeological Resources.

DWR shall ensure that SBFCA and its contractors implement the following mitigation measures.

In the event of an inadvertent discovery of potential archaeological and Tribal cultural resources a stop work order and establishment of a no work zone in the immediate vicinity of the find shall be established. The area of the discovery shall be flagged to delineate the boundary of the sensitive zone. If either an archaeological or Tribal monitor are not present at the time of the discovery, representatives from participating California Native American Tribes shall be notified and a qualified archaeologist, who meets the U.S. Secretary of the Interior's Professional Qualifications Standards for Archaeology, shall visit the discovery site as soon as practicable for identification and evaluation pursuant to CEQA Guidelines Section 15064.5. If the archaeologist determines that the archaeological find is not a "historical" or "unique archaeological" resource and if participating Tribes determine that the find is not a resource of cultural importance, and thus not significant as a potential Tribal cultural resource, construction may resume. If the archaeologist or representative from a participating Native American Tribe determines that the find is significant or potentially significant, the Tribal representative shall work in concert with the archaeologist to determine if the find can be avoided and, if so, shall detail avoidance procedures. If the find cannot be avoided, the archaeologist shall coordinate with the lead agency to facilitate consultation with participating Tribes to develop an Action Plan within 48 hours which shall include provisions to minimize impacts.

The preferred treatment for impacts to archaeological sites, including those identified as Tribal Cultural Resources, is avoidance, as directed under CEQA Guidelines 15126.4(b)(3)(b)(1). Not all archaeological sites that may be encountered may be able to be avoided. A Resource Treatment Plan shall be developed consistent with requirements

in the CEQA Guidelines Section 15126.4(b). If archaeological data recovery is included in the Treatment Plan, the Plan shall include a research design to identify research questions as the focus of data recovery efforts and detail the field and laboratory methods to address the questions. The Treatment Plan shall also include a specific discussion of the methods and level of effort at each site for data recovery excavation, which are an acceptable form of mitigation under Section 15126.4(b)(3)(c) of the CEQA Guidelines. Specific plans for Tribal Cultural Resources shall be prepared in consultation with participating Native American Tribes.

Timing: Before and during construction.

Responsibility: DWR and SBFCA.

Mitigation Measure CUL-3: Avoid Potential Effects on Undiscovered Burials.

To minimize the potential for destruction of or damage to undiscovered burials during project-related earthmoving activities, DWR shall ensure that SBFCA and its construction contractor(s) shall implement the following measures:

- If human remains are found, the California Health and Safety Code requires that excavation be halted in the immediate area and that the County Coroner be notified to determine the nature of the remains. The coroner is required to examine all discoveries of human remains within 48 hours of receiving notice of a discovery on private or state lands (CHSC Section 7050.5[b]). If the coroner determines that the remains are those of a Native American, he or she must contact the NAHC by telephone within 24 hours of making that determination (CHSC Section 7050.5[c]).

- Once notified by the coroner, the NAHC shall identify the person it believes is the Most Likely Descendant (MLD) of the Native American remains. With permission of the legal landowner(s), 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 within 24 hours of the MLD's notification by the NAHC (California Public Resources Code [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 the 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: Before and during construction.

Responsibility: DWR and SBFCA and its construction contractors.

Mitigation Measure GEO-1: Prepare and Implement a Storm Water Pollution Prevention Plan and Associated Best Management Practices.

DWR shall ensure that SBFCA and its contractors implement the following mitigation measures.

SBFCA and its contractors shall prepare a Notice of Intent and implement the appropriate Stormwater Pollution Prevention Plan (SWPPP) to meet the State Water Board's Construction General Permit requirements in Order 2009-0009-DWR (as amended by 2010-0014-DWQ and 2012-0006-DWQ)) to prevent and control pollution and to minimize and control runoff and erosion during construction of the proposed project. The SWPPP shall identify the activities that may cause pollutant discharge (including sediment) during storms or strong wind events and the BMPs that shall be employed to control pollutant discharge. Construction techniques that shall be identified and implemented to reduce the potential for runoff may include minimizing site disturbance, controlling water flow over the construction site, stabilizing bare soil, and ensuring proper site cleanup. In addition, the SWPPP shall include an erosion control plan and BMPs that specify the erosion and sedimentation control measures to be implemented, which may include silt fences, staked straw bales/wattles, silt/sediment basins and traps, geofabric, trench plugs, terraces, water bars, soil stabilizers and re-seeding and mulching to revegetate disturbed areas. The SWPPP shall also include dust control practices to prevent wind erosion, sediment tracking, and dust generation by construction equipment. No construction-related disturbance of surfaces shall occur between October 15 and April 15 without appropriate erosion control measures in place.

The SWPPP shall also include a spill prevention, control, and countermeasure plan, and applicable hazardous materials business plans, and shall identify the types of materials used for equipment operation (including fuel and hydraulic fluids), and measures to prevent and materials available to clean up hazardous material and waste spills. The SWPPP shall also identify emergency procedures for responding to spills.

The BMPs presented in either document shall be clearly identified and maintained in good working condition throughout the construction process. The construction contractor shall retain a copy of the approved SWPPP on the construction site and modify it as necessary to suit specific site conditions through amendments approved by the CVRWQCB, if necessary.

Timing: Before and during construction.

Responsibility: DWR and SBFCA.

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

DWR shall ensure that SBFCA and its contractors implement the following measures before construction begins to avoid and minimize potential damage to utilities, infrastructure, and service disruptions during construction.

- Coordinate with applicable utility and service providers to implement orderly relocation of utilities that need to be removed or relocated.
- Provide notification of any potential interruptions in service to the appropriate agencies and affected landowners.
- Verify through field surveys and Underground Service Alert service the locations of buried utilities in the project site, including natural gas, petroleum, and sewer pipelines. Any buried utility lines shall be clearly marked in the area of construction (e.g., in the field) and on the construction specifications in advance of any earth-moving activities.
- Prepare and implement a response plan that addresses potential accidental damage to a utility line. The plan shall 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 shall include worker education training in response to such situations.
- Stage utility relocations prior to and during construction to minimize interruptions in service.
- Coordinate with PG&E to relocate electrical and natural gas transmission lines and associated infrastructure such as power poles.

Timing: Before and during construction activities.

Responsibility: DWR and SBFCA and its construction contractors.

INITIAL STUDY

Project	**Sutter Bypass East Levee Project**
Lead Agency:	**DWR**

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Acronyms and Abbreviations

Acronym/Abbreviation	Definition
BMPs	Best Management Practices
B.P.	Before Present
Basin Plan	Water Quality Control Plan for the Sacramento River Basin and the San Joaquin River Basin
CAAQS	California ambient air quality standards
CAL FIRE	California Department of Forestry and Fire Protection
CalEEMod	California Emissions Estimator Model
CalEPA	California Environmental Protection Agency
CARB	California Air Resource Board
Caltrans	California Department of Transportation
CCR	Code of Regulations
CDFG	California Department of Fish and Game
CDFW	California Department of Fish and Wildlife
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CVRWQCB	Central Valley Regional Water Quality Control Board
CESA	California Endangered Species Act
CGS	California Geological Survey
CHSC	California Health and Safety Code
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CO	carbon monoxide
CO2	Carbon dioxide
CRHR	California Register of Historical Resources
CRPR	California Rare Plant Rank
CWA	Clean Water Act
CY	cubic yards
dBA	A-weight decibel
DMM	Deep-Mix-Method
DOC	Department of Conservation
DOF	Department of Finance
DMM	Deep-Mix-Method
DPR	Department of Parks and Recreation

Acronym/Abbreviation	Definition
DPS	Distinct Population Segment
DTSC	Department of Toxic Substances Control
DWR	Department of Water Resources
EBC	East Borrow Canal
EDD	Employment Development Department
EFH	Esential Fish Habitat
EIR	Environmental Impact Report
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
ESU	evolutionarily significant unit
FEMA	Federal Emergency Management Agency
FMMP	Farmland Mapping and Monitoring Program
FRAQMD	Feather River Air Quality Management District
FRWL	Feather River West Levee
FTA	Federal Transit Authority
HCP/NCCP	Habitat Conservation Plan/ Natural Communities Conservation Plan
Hwy	Highway
IPaC	Information for Planning and Consultation
IS	Initial Study
L_{max}	maximum A-weighted sound level
Magnuson-Stevens Act	Magnuson-Stevens Fishery Conservation and Management Act
MBTA	Migratory Bird Treaty Act
MLD	Most Likely Decendant
MMRP	Mitigation Monitoring and Reporting Program
MND	Mitigated Negative Declaration
MRZ	Mineral Resource Zone
NAAQS	national ambient air quality standards
NAHC	Native American Heritage Commission
NCCP	National Community Conservation Plan
NEIC	Northeast Information Center
NMFS	National Marine Fisheries Service
No	Number
NO_X	nitrogen oxides
NRHP	National Register of Historic Properties
NWR	National Wildlife Refuge
O^3	Ozone

Acronym/Abbreviation	Definition
O&M	operations and maintenance
OHP	Office of Historic Preservation
PG&E	Pacific Gas and Electric
PM	particulate matter
PM_{10}	PM equal to or less than 10 micrometers in diameter
$PM_{2.5}$	PM equal to or less than 2.5 micrometers in diameter
Porter-Cologne Act	Porter-Cologne Water Quality Control Act
PRC	Public Resources Code
proposed project	Sutter Bypass East Levee Project
ROG	reactive organic gases
RPA	Registered Professional Archaeologist
SMAQMD	Sacramento Metropolitan Air Quality Management District
SB	soil-bentonite
SBEL	Sutter Bypass East Levee
SBFCA	Sutter Butte Flood Control Agency
SCB	Soil-Cement Bentonite
SGMA	Sustainable Groundwater Management Act
SHTAC	Swainson's Hawk Technical Advisory Committee
SRFCP	Sacramento River Flood Control Project
SSC	Species of Special Concern
SVAB	Sacramento Valley Air Basin
SWPPP	Stormwater Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TCR	Tribal Cultural Resource
UBC	Uniform Building Code
USACE	U.S. Army Corps of Engineers
USDA	United States Department of Agriculture
USFWS	U.S. Fish and Wildlife Service
VdB	vibration decibels
WEAP	worker environmental awareness program

Chapter 1. Introduction

The Department of Water Resources (DWR) has prepared this Initial Study (IS) and proposed Mitigated Negative Declaration (MND) in compliance with the California Environmental Quality Act (CEQA) to address the potentially significant and significant environmental impacts of the proposed Sutter Bypass East Levee Project (project, proposed project) in Sutter County, California. DWR is the lead agency under CEQA. DWR has the authority to operate and maintain the SBEL and would provide funding for the project. SBFCA would oversee the construction activities of the project, which includes activities such as planning, design, permitting, monitoring, and reporting.

To satisfy CEQA requirements, this document includes:

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

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

1.1 Purpose of the Initial Study

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

An IS presents environmental analysis and substantial evidence in support of its conclusions regarding the significance of environmental impacts. Substantial evidence includes fact, a reasonable assumption based upon fact, or expert opinion supported by facts An IS is neither intended nor required to include the level of detail 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 projects over which they have discretionary authority, before implementing or approving those projects. The public agency that has the principal responsibility for carrying out or approving a proposed project is the lead agency for CEQA compliance (CEQA Guidelines, Section 15367). DWR has authority to operate and maintain the SBEL and would provide funding for the project. SBFCA would oversee the construction activities of the project, which includes activities such as planning, design, permitting, monitoring, and reporting. DWR is lead agency for this IS/MND under CEQA.

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

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

1.2 Summary of Findings

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

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

- Land Use and Planning
- Mineral Resources
- Population and Housing
- Wildfire

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

- Aesthetics
- Agriculture and Forestry Resources
- Energy
- Hazards and Hazardous Materials
- Noise
- Public Services
- Recreation
- Transportation

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

- Air Quality
- Biological Resources
- Cultural Resources
- Geology and Soils
- Greenhouse Gas Emissions
- Hydrology and Water Quality
- Tribal Cultural Resources
- Utilities and Service Systems

1.3 Document Organization

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

Notice of Intent to Adopt a Proposed Mitigated Negative Declaration for the Sutter Bypass East Levee Project. The Notice of Availability and Intent to Consider Adoption of a Proposed MND for the Sutter Bypass East Levee Project provides notice to responsible and trustee agencies and the public the availability of this IS/MND and of DWR's intent to consider adopting an MND for the proposed project.

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

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

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

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

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

Chapter 2. Project Description

This chapter describes the project background and location, project objectives, description of proposed project, construction equipment and schedule, construction staging, operation and maintenance (O&M), and discretionary actions and approvals that may be required.

2.1 Background

The Sutter Butte Flood Control Agency (SBFCA) is a Joint Powers Authority that was formed in 2007 to manage and reduce flood risk within the Sutter-Butte Basin. The Sutter-Butte Basin includes Sutter and Butte counties and is bound to the east by the Feather River West Levee (FRWL) and to the west by the Wadsworth Canal East Levee and the Sutter Bypass East Levee (SBEL). In 2011, SBFCA implemented the FRWL improvement project to identify and evaluate levee performance issues between SBEL and the Thermalito Afterbay. Since 2011, levee improvements have been completed for the portion of the FRWL between Highway (Hwy) 99 and the Thermalito Afterbay and SBFCA is currently implementing the Tudor Flood Risk Reduction Project to address performance issues along the remaining stretch of the FRWL between SBEL and Hwy 99. The full length of the FRWL along the east side of the Sutter-Butte Basin, from SBEL to the Thermalito Afterbay would be improved after completion of the Tudor Flood Risk Reduction Project.

In 2019, SBFCA began to identify and evaluate levee performance issues along the west side of the basin along the SBEL. As a part of that effort, SBFCA identified an approximate 5.2-mile-long portion of the SBEL requiring repair and entered into an agreement with DWR to fund design and permitting of the proposed project that is evaluated in this IS/MND.

2.2 Project Location

The SBEL is located along the east side of the Sutter Bypass (**Figure 2-1**) from the southern end of the FRWL, at the confluence of the Feather River and Sutter Bypass, extending north along the Sutter Bypass to the Wadsworth Canal, and then east to South Butte Road (approximately 21.6 miles in total length), in unincorporated Sutter County. The proposed project consists of improvements to approximately 5.2-miles of the SBEL between approximately Gilsizer Slough and Hughes Road (Levee Miles 7.40 to 12.57), as well as adjacent construction staging areas, see **Figure 2-2**.

2.3 Project Objectives

The primary objective of the proposed project is to address known performance issues so the SBEL can safely pass the original U.S. Army Corps of Engineers (USACE) 1957 design flow. Additional objectives are to maintain flood protection for surrounding agricultural land use and to design and construct the proposed project in a manner that reduces impacts on resources within the Sutter Bypass and areas adjacent to the land side of the SBEL.

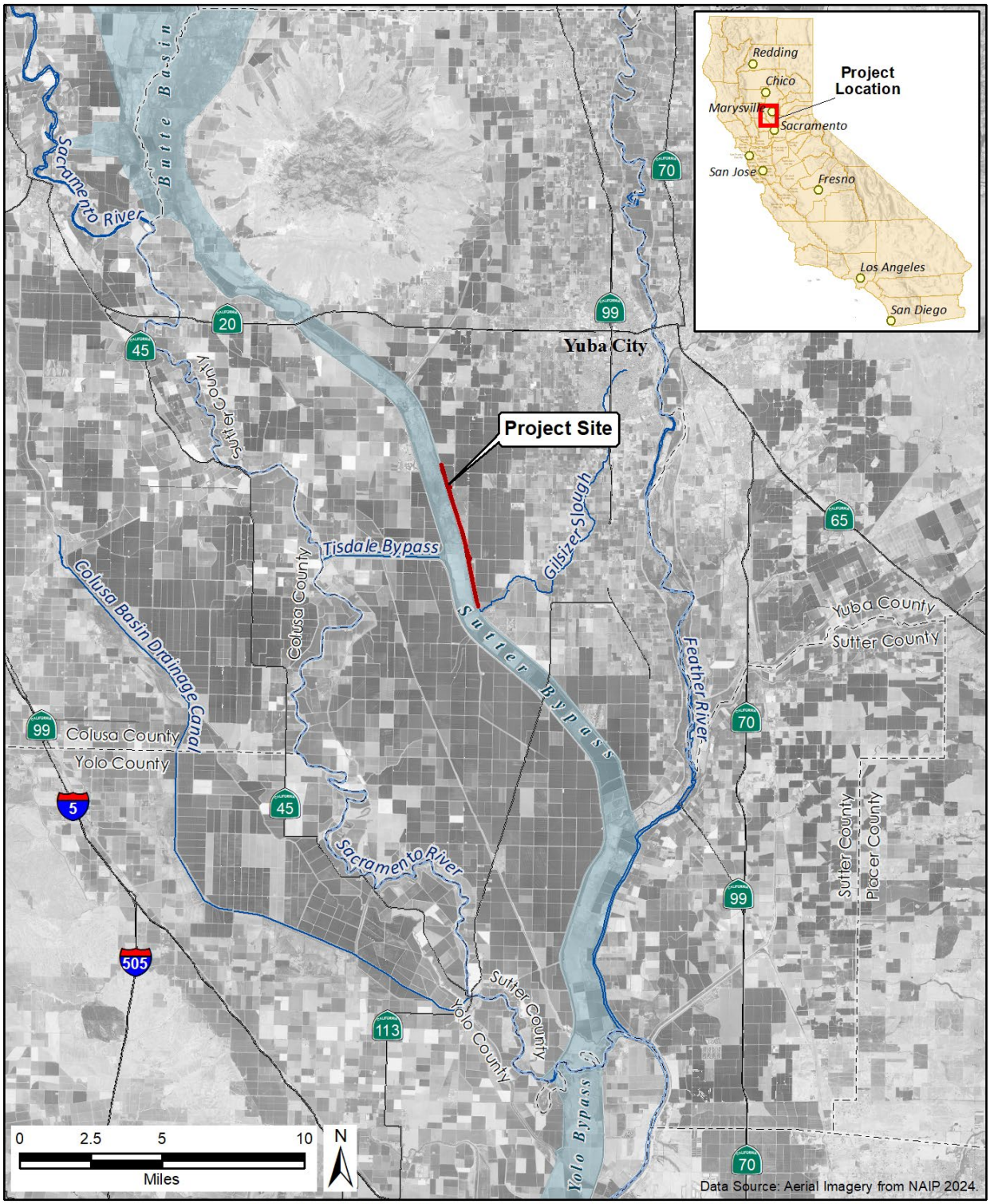

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Figure 2-1. Regional Location

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Figure 2-2. Project Location

2.4 Proposed Project

2.4.1 Cutoff Wall

The existing levee would be cleared and grubbed and then degraded by approximately one-third of its height to provide a working platform for cutoff wall placement. The material from this process would be side cast along the land and water sides of the levee to establish the working surface. Construction of the cutoff wall would range from approximately 45- to 88-feet deep below the working platform to address underseepage from water in the Sutter Bypass seeping through and under the levee foundation for an approximately 5.2-mile segment of SBEL (see **Figure 2-3**). Construction of the cutoff wall segments would be via open-trench soil-bentonite (SB) and Deep-Mix-Method (DMM) soil-cement-bentonite (SCB). The settlement and curing period for the cutoff wall would be approximately 21-days, after which, reconstruction of the levee would occur in such a way as to meet freeboard and geometry criteria.

The SB cutoff wall segments would range from 45-to-60 feet in depth, and the SCB DMM cutoff wall segment would be 88 feet in depth. Additional information detailing open-trench SB methods verse SCB DMM methods is provided below.

In SB open-trench cutoff wall construction, a 3-foot-wide trench is excavated through the center of the levee and filled with bentonite-slurry to keep the trench sidewalls from caving in during excavation. Bentonite-slurry is mixed in ponds, typically located along the landside of the levee, and pumped into the trench. Material excavated from the trench is mixed, adjacent to the trench, with bentonite slurry in appropriate proportions then pushed back into the excavated trench. This process creates a wall, through and under the levee, with reduced permeability.

In SCB DMM cutoff wall construction, an average 28-inch-wide cutoff wall is drilled through the center of the levee, to the required depth, using three mixing augers set side-by-side. As the augers are inserted, cement-bentonite slurry is injected through the auger tips and mixed with the surrounding soil. The augers are then withdrawn and reinserted, following the levee alignment, to create a series of overlapping mixed columns. The resultant columns form a wall that reduces permeability through and under the levee.

After installation of the cutoff wall and required settlement and curing period, reconstruction of the levee would start from the waterside hinge of the working platform with dimensions as follows: a 20-foot-wide crown, and a 3H:1V landside slope (see **Figure 2-3** for a typical cross section of the reconstructed levee). The reconstructed land side embankment would use as much of the excavated material during construction as possible (i.e., reuse levee degrade material that meets levee material requirements). Removed soil may be placed on levee slopes, areas adjacent to levee slopes if possible, or hauled off-site. Aggregate surfacing would be placed along the levee crown, and lastly, disturbed areas would be hydroseeded after levee construction is complete.

Additionally, removal of seven trees located within the landside of the levee footprint would be required to help facilitate construction activities. Removal of trees along the waterside is not anticipated; however, some tree trimming may be required to facilitate construction and equipment access.

2.4.2 Ramps

Existing ramps are located along both the land and waterside slopes of the levee. Reconstruction of waterside ramps would occur to match pre-project lines and grading where the levee would be rebuilt after cutoff wall installation. New ramps would be in the same general vicinity as the existing ramps and would tie to existing access roads. Aggregate surfacing would be placed on levee access ramps.

2.4.3 Penetration and Encroachments

Penetrations and encroachments within the levee prism, within 20 feet of the landside toe, or within 15-feet of the waterside toe were identified during background review and surveys. Penetrations have been designed to accommodate a possible future project that would raise the levee to address freeboard deficiencies. This project would construct new penetrations, and widen the levee at penetration locations, to accommodate a future raise. Penetration and encroachment abandonment, removal, or relocation would be in accordance with applicable DWR, CCR Title 23, Division 1 "Central Valley Flood Protection Board", and USACE requirements.

Penetrations

Fourteen penetration locations have been identified within the 5.2-mile segment of SBEL, including gas, irrigation, and drainage pipe crossings. Pertinent information and planned disposition for each penetration is listed below. The following penetrations are impacted by project work and would be removed:

- Unknown Owner - 36-Inch Abandoned Pipe of unknown material
- Gilsizer County Drainage District Storm Drainage Discharge Pipe Crossing – Two 36-Inch Steel Pipelines

The following penetrations are impacted by the project work and would be removed and replaced:

- Calpine Pipeline Company – Natural Gas Pipe Crossing – Unknown Steel Gas Line
- Unknown Owner – 2.5-Inch Steel Pipe
- U.S. Fish and Wildlife Service (USFWS) – 110 Volt Electrical Wire
- USFWS – 15-Inch Steel Irrigation Pipe Crossing
- California Recourse Production Corporation – Natural Gas Pipe Crossing – Three 4.5-Inch Steel Pipes
- DWR – New Sutter Bypass Pump Station No. 2 – Electrical Conduit Crossing of unknown size and depth
- DWR – Old Sutter Bypass Pump Station No. 2 – 10-Inch Discharge Pipe
- Calpine Pipeline Company - Gas Pipe Crossing – Unknown Size Steel Pipeline

- DWR – Between Old and New Sutter Bypass Pump Station No. 2 – Electrical Conduit Crossing of unknown size and depth
- Planned disposition –These conduits are scheduled to be installed in 2024 to 2025 as part of DWR's Pump Station No. 2 Project.

The following penetrations are not impacted by project work and therefore would be protected-in-place:

- Pacific Gas and Electric (PG&E) – 6-Inch Steel Natural Gas Pipe Crossing.
- DWR – New Sutter Bypass Pump Station No. 2 – Six Reinforced Concrete Discharge Pipelines – 54-Inch
- Box Culverts

Encroachments

Several encroachments have been identified along the 5.2-mile segment of SBEL. The following encroachments are impacted by project work and would be relocated:

- PG&E – Utility Poles located within the levee easement

The following encroachments are impacted by project work and would remove and replaced:

- DWR – Security Features such as fencing
- DWR – Landside and Waterside Access Ramps
- USFWS National Refuge – Waterside Concrete Staircase and Bridge Crossing Borrow Ditch
- PG&E – Utility Pole on Landside

The following penetrations are not impacted by project work and therefore would be protected-in-place:

- County of Sutter – Hughes Road Crossing and Bridge over Borrow Ditch
- County of Sutter – Rock Revetment on Slope underneath Hughes Road Bridge
- DWR – Rock Revetment on Waterside Toe
- DWR – Bridge at waterside toe
- DWR – Waterside Staff Gage
- DWR – Abandoned Pump Station
- DWR – Ring Levee System around existing Pump Station
- County of Sutter – O'Banion Road Crossing

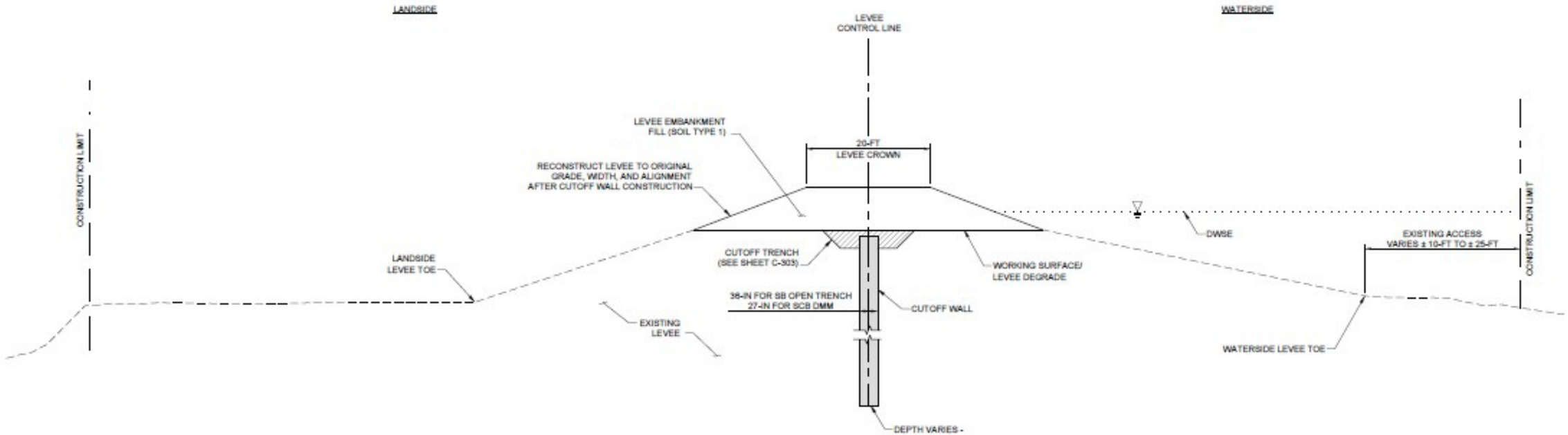

Figure 2-3. Typical Levee and Cutoff Wall Cross Section

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Utility Relocation

Utility abandonment and/or replacement would be facilitated in accordance with applicable DWR, CCR Title 23, Division 1 "Central Valley Flood Protection Board," and USACE requirements. Power poles that fall within the limits of work of the levee embankment and impacted by construction would be relocated to a minimum of 20-feet away from the levee toe. Relocations of power poles would be completed by the utility owner; PG&E.

2.5 Project Implementation

Implementation of the proposed project would consist of construction activities and O&M, including inspection activities. This section describes the characteristics associated with the construction and O&M phases of the proposed project.

2.5.1 Construction Equipment and Schedule

Project construction would take place during two construction seasons beginning in April 2026 and ending in October 2027. No work is anticipated during the flood season (November 1, 2026, through April 15, 2027). It is estimated that typical construction activities could occur between 12 to 14 hours per day (based on daylight hours and the construction phase), six days a week, Monday through Saturday, and between the hours of 6 a.m. and 8 p.m. Work on Sundays may occur and would be limited to equipment maintenance. Work outside of these hours for round-the-clock construction activities would be limited to cutoff wall installation. Crew sizes would vary depending on the construction phase and are estimated to be between 25 to 50. Fill material to reconstruct the levee would be obtained from off-site borrow source(s) up to 20 miles away, and from project excavations. Other materials, such as aggregate base, bentonite for cutoff walls, pipe, concrete products, and materials needed to support construction, would be obtained from off-site commercial vendors and sources. **Table 2-1** below lists the proposed construction activities, their estimated durations, equipment mix, maximum number of workers required, and import and export quantities.

Table 2-1. Construction Activity Overview

Construction Phasing	Anticipated Types of Equipment and Number of Pieces	Phase Duration Year 1	Phase Duration Year 2	No. of Workers Required	Import Quantity	Export Quantity
Mobilization, Clearing, Grubbing, and Stripping	Bulldozer (2), Water Trucks (2), Grader (1)	38	48	50	28,900 CY	
Levee Degrade and Utility Removal	Excavator (2), Bulldozer (4), Compactor (4), Water Truck (2)	119	120	50	8,300 CY	292,100 CY
Cutoff wall Construction	Hydraulic Excavator (4), Bulldozer (2), Extended Boom Pallet Loader (1), Generator (2), Slurry Pump (2), Pickup Trucks (8), Water Truck (1)	201	196	50	166,200 CY	
Levee and Utility Reconstruction	Dozers (4), Grader (2), Tractor (2), Compactor (4), Water Truck (2)	45	45	50	415,200	

Construction Phasing	Anticipated Types of Equipment and Number of Pieces	Phase Duration Year 1	Phase Duration Year 2	No. of Workers Required	Import Quantity	Export Quantity
Levee Resurfacing	Grader (1), Vibratory Roller (2), Water Truck (1)	10	10	25	16,100 CY	
Hydroseeding	Hydroseeding Trucks and Straw blower (1)	14	14	25		
Demobilization and Site Cleanup	Extended Boom Pallet Loader (1), Pickup Truck (6),	24	12	25		

Notes: CY – cubic yard

2.5.2 Construction Access and Staging

The construction contractor would utilize the following three primary access points during construction:

- Hughes Road - Paved two-lane public roadway that provides access to the levee crown and toe access roads (waterside and landside) via existing ramps.
- Schlage Road and Oswald Road – Paved two-lane roadway then National Wildlife Refuge gravel access road leading to the levee that provide access to the levee crown and landside access road via existing ramps. Potential access point but would require special approval by U.S. Fish and Wildlife and other.
- Obanion Road – Paved two-lane roadway leading to Pump Station No. 2 that provides access to the levee crown and toe access roads (waterside and landside) via existing ramps.
- Additional access points to the levee crown are anticipated to be developed during construction (i.e., new temporary ramps).

Haul routes to access the project site from Regional Highways include the following:

- To access the northern portion of the project site – Exit Hwy 99 at Oswald Road, continue along Oswald Road for 5.5 miles, turn on Schlag Road and continue for 0.25 mile, turn onto Hugh Road and continue for 0.45 mile.
- To access the southern portion of the project site – Exit Hwy 99 at Obanion Road, continue along Obanion Road for 5 miles.

Due to the long linear project length, it is anticipated that the contractor would utilize multiple staging areas within the project boundary shown on Figure 2-2. The following locations have been identified as potential construction staging and laydown areas and are included in the project boundary. Coordination would occur as needed with agencies and appropriate property owner(s).

- Approximate 1.6-acre area on the levee landside adjacent to the National Wildlife Refuge access point,
- Approximate 0.35-acre area on the levee landside,
- Open space adjacent to Pump Station No. 2.

2.5.3 Operation and Maintenance

DWR operates and maintains SBEL in accordance with California Water Code Section 8361. Operation and maintenance (O&M) of the SBEL are covered under the existing Environmental Permitting for Operations and Maintenance Project EIR (SCH # 2023080108) that was approved and certified on January 5, 2018. Therefore, O&M will not be included in the analysis of impacts of the proposed project in this IS/MND. Maintenance activities include clearing sediment and vegetation, repairing and guarding against erosion, making appropriate repairs to flood control facilities, and performing necessary maintenance of State facilities (USACE 1955). Many maintenance activities occur annually, but some are performed less frequently as needs arise and funds become available. No new maintenance activities would be required because of the project, and maintenance requirements along the project reach in years immediately following the proposed project are anticipated to be reduced compared to recent years.

2.6 Regulatory Requirements, Permits, and Approvals

As lead agency under CEQA, DWR has the principal responsibility for approving and carrying out the proposed project and for ensuring that CEQA requirements and other applicable regulations are met. **Table 2-2** lists the permits and authorizations anticipated to be required for the project by responsible and trustee agencies.

Table 2-2. Discretionary Permits or Approvals Potentially Required

Agency	Permits and Authorizations Required	Description
U.S. Army Corps of Engineers (USACE)	Clean Water Act, Section 404 Permit	Required for discharge of fill to Waters of the U.S.
USACE	Clean Water Act, Section 408 Permit	Required for construction affecting a Federal levee system
California Department of Fish and Wildlife (CDFW)	Fish and Game Code Section 1602 Lake or Streambed Alteration Agreement; California Endangered Species Act Section 2081; incidental take permit or consistency determination	Required for changes to streambed and bank along level and if there is potential for take of a state-listed species.
U.S Fish and Wildlife Service (USFWS)	Federal Endangered Species Act, Section 7; incidental take permit	Required if Federal approval of the project is necessary
National Marine Fisheries Service (NMFS)	Federal Endangered Species Act, Section 7	Required if Federal approval of the project is necessary
Central Valley Flood Protection Board (CVFPB)	Encroachment Permit	Required under project work within the State Plan of Flood Control
Central Valley Regional Water Quality Control Board (CVRWQCB)	National Pollutant Discharge Elimination System, Construction General Permit (Notice of Intent to Proceed)	Required for projects that disturb more than 1 acre of land; discharge permit for stormwater. A Storm Water Pollution Prevention Plan must be prepared and implemented.
CVRWQCB	Clean Water Act, Section 401 Permit	Required for discharges of any pollutant to surface waters of the U.S.
California Office of Historic Preservation	National Historic Preservation Act Section 106 Consultation	Required for analysis of effects on cultural resources pursuant to Section 106 of the National Historic Preservation Act

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Chapter 3. Environmental Checklist

Project Information

1. Project title:	Sutter Bypass East Levee Project
2. Lead agency name and address:	DWR
3. Contact person and phone number:	Kristin Ford, Environmental Scientist (916) 914-0220
4. Project location:	The SBEL is located along the east side of the Sutter Bypass from the southern end of the FRWL, at the confluence of the Feather River and Sutter Bypass, extending north along the Sutter Bypass to the Wadsworth Canal, and then east to South Butte Road (approximately 21.6 miles in total length), in unincorporated Sutter County. The proposed project consists of improvements to approximately 5.2-miles of the SBEL between approximately Gilsizer Slough and Hughes Road (Levee Miles 7.40 to 12.57), as well as adjacent construction staging areas
5. Project sponsor's name and address:	Same as above.
6. General plan designation:	Open Space
7. Zoning:	AG-80
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.)	The proposed project includes constructing a cutoff wall made of Soil-Bentonite (SB) slurry mixture through an approximately 3-foot-wide open trench at the midline of the proposed levee geometry along an approximately 5.2-mile segment of the SBEL. Additionally, the project includes reconstruction of existing ramps and construction of new ramps. Lastly, the project would address penetration and encroachment abandonment, removal, or relocation in accordance with applicable DWR, CCR Title 23, Division 1 “Central Valley Flood Protection Board”, and USACE requirements.
9. Surrounding land uses and setting: Briefly describe the project's surroundings:	Agriculture
10. Other public agencies whose approval is required (e.g., permits, financing approval, or participation agreement.)	USACE CDFW USFWS NMFS CVFPB CVRWQCB California Office of Historic Preservation

11. Have California Native American tribes traditionally and culturally affiliated with the project area requested consultation pursuant to Public Resources Code section 21080.3.1? If so, has consultation begun? Note: Conducting consultation early in the CEQA process allows tribal governments, lead agencies, and project proponents to discuss the level of environmental review, identify and address potential adverse impacts to tribal cultural resources, and reduce the potential for delay and conflict in the environmental review process. (See Public Resources Code section 21083.3.2.) Information may also be available from the California Native American Heritage Commission's Sacred Lands File per Public Resources Code section 5097.96 and the California Historical Resources Information System administered by the California Office of Historic Preservation. Please also note that Public Resources Code section 21082.3(c) contains provisions specific to confidentiality.	Yes. Consultation is described in more detail in Section 3.5 – Cultural Resources, and Section 3.18 – Tribal Cultural Resources.

Docusign Envelope ID: C9326A86-4B00-4226-99AF-904B973434B3

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

Determination (To be completed by the Lead Agency)

On the basis of this initial evaluation:

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

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

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

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

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

Mitra Emami
Signature

7/8/2025
Date

Mitra Emami
Print Name

Manager
Title

Department of Water Resources
Agency

3.1 Aesthetics

Environmental Issue	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
I. AESTHETICS – Would the project:				
b) Have a substantial adverse effect on a scenic vista?	☐	☐	☒	☐
c) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☐	☒
d) In nonurbanized 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?	☐	☐	☒	☐
e) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☒	☐

3.1.1 Environmental Setting

Existing Visual Resources

The project is located within the flat alluvial plain of the Sacramento Valley, along the Sutter Bypass and between the Sacramento River and Feather River. The Sutter Bypass, Sacramento River, Sutter National Wildlife Refuge, Sutter Bypass Wildlife Area, and Feather River are scenic resources located in the project vicinity and within the project viewshed (Sutter County 2011). The project site is surrounded by the Sutter National Wildlife Refuge north of Tisdale Bypass and by active agricultural production, primarily row and field crops, south of Tisdale Bypass. The Sutter Buttes, an isolated range of volcanic hills, are approximately 7 miles north of the project site.

Trees, shrubs, and native vegetation are present along the Sutter Bypass to the west of the project site, as well as within the Sutter National Wildlife Refuge (NWR) and Sutter Wildlife Area on either side of the project site. As shown on aerial views of the project site, the built environment in the project vicinity consists of scattered rural residences and farm equipment, agricultural storage facilities, small irrigation ditches, farm roads associated with agricultural operations, pump houses, levees, and an electrical substation off Obanion Road. There are no designated county scenic highways and no eligible or officially designated state scenic highways (Caltrans 2015, 2019).

Viewer Sensitivity

Features on or adjacent to the project site that may be considered scenic include the Sutter Bypass and associated riparian vegetation, the NWR and Sutter Wildlife Area and associated water and riparian vegetation, rural agricultural land, the distant Coast Ranges to the west, and

Sutter Butte to the north. The project vicinity is frequently visited by recreationists engaged in bird watching, hiking, bicycling, fishing, waterfowl hunting, wildlife viewing, and photography (USFWS 2024; CDFW 2024). In general, as a viewer group, people engaged in recreational activities have a heightened awareness of their surroundings, are familiar with the scenic resources in the area, and are generally seeking an experience in a natural setting. Given the above considerations, viewer sensitivity is considered high for all groups viewing the project site.

Visual Quality

Views from the surrounding vicinity of the project site consist of the SBEL. The visual character of the SBEL corridor, i.e. project area, is defined by its rural and agricultural setting, with open landscapes dominated by levees, waterways, cultivated fields, and scattered riparian vegetation. Within the project vicinity, the levee itself is a prominent linear feature within this flat terrain, offering expansive views of agricultural lands, irrigation infrastructure, and occasional farm structures. From the levee, the immediate foreground includes maintenance roads, drainage canals, and riparian vegetation along the Sutter Bypass. Adjacent lands predominantly consist of flat, cultivated fields interspersed with irrigation systems and occasional farm buildings. Mid-ground views extend across the Sutter Bypass, with the wide floodplain visible to the west. This area features a mix of open water, marshy habitats, and additional agricultural lands. To the east of the levee, views encompass expansive farmland bordered by rural roadways and utility infrastructure. Background views include the Sutter Buttes to the north and west, which stand out as a prominent natural landmark within the otherwise flat terrain. This distant, dramatic feature enhances the overall scenic quality of the area. However, the SBEL, as a large earthen mound, is inconsistent with the surrounding visual quality.

This area is representative of California's Central Valley agricultural land, including the flat alluvial floodplain and row crops, which contrast with human-made elements, such as levees, roads, irrigation canals, and utility lines. Furthermore, the area is essentially surrounded by open space consisting of the Sutter Bypass, the NWR, and the Sutter Wildlife Area.

3.1.2 Discussion

a), c) Have a substantial adverse effect on a scenic vista or substantially degrade the existing visual character or quality of the site and its surroundings?

The Sutter Buttes are the dominant visual feature in the background of the project site to the north; however, the project's construction activities, including temporary staging areas, equipment, and temporary stockpile areas, would not obstruct or alter views of the Sutter Buttes or other prominent vistas as there are none in the project's immediate vicinity. The project components would be constructed on top of and on either side of the existing levee. Temporary construction activities, such as vegetation removal, material stockpiling, and excavation, would introduce industrial elements to the site but remain confined to the project footprint and are consistent with the area's agricultural and flood-management character. The removal of seven trees on the landside would create localized visual changes; however, the project avoids tree removal on the waterside, where riparian vegetation plays a more significant role in visual quality. Removal of seven trees would not change the visual character of the site as significant vegetation would remain onsite and the trees are located in different areas along the levee. Post-

construction hydroseeding would reduce long-term impacts on the visual environment, as vegetation would be re-established.

There are a cluster of 4 to 6 buildings, which are associated with pumping plant #2 and agricultural production, located at the intersection of the SBEL and Obanion Road approximately 0.02-mile from the project site. These buildings do not include residences . The nearest residences is located approximately one mile from the project site. Therefore, the proposed project would be visible to residents at this location. Additionally, residents located along haul routes would have views of the construction haul trucks and construction equipment during the construction period.

The project would not obstruct scenic vistas or significantly degrade the visual character or quality of the site and its surroundings for the above-mentioned reasons. Temporary visual impacts during construction would be mitigated through standard practices, such as hydroseeding and reuse of levee degrade material. All construction equipment would be removed from the project site post-construction. The long-term visual changes would be compatible with the area's existing rural and flood-management context. Therefore, the project's impact on scenic vistas and visual quality would be **less than significant**.

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

There are no designated or eligible state scenic highways within or near the project site. Therefore, the project would not alter views from or within a scenic highway corridor. The project would have **no impact**.

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

The proposed project is located in a rural and agricultural setting with minimal existing sources of artificial light or glare. Temporary lighting may be required during construction activities, particularly during early morning or late evening hours, to ensure workers' safety. Limited nighttime security lighting could also be required. This lighting would be localized to active work zones or equipment staging areas and shielded or directed downward to minimize light spillover to surrounding areas. Given the limited and temporary nature of construction lighting, no substantial impacts to nighttime views are anticipated. Aggregate surfacing on the levee crown and ramps would have a matte finish, consistent with existing materials, and would not contribute to reflective glare during daylight hours. The project would not introduce substantial new sources of light or glare that would adversely affect day or nighttime views in the area. Any temporary construction lighting would be managed to minimize impacts, and no permanent lighting or reflective surfaces would be added. Therefore, the project's impact related to light and glare would be **less than significant**.

3.2 Agriculture and Forestry Resources

Environmental Issue	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No 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 Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	☐	☐	☐	☒
d) Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒
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?	☐	☐	☐	☒

3.2.1 Environmental Setting

Agricultural and Forestry Resources

Based on a review of the California Important Farmland Finder produced by the California Department of Conservation (DOC) under the Farmland Mapping and Monitoring Program (FMMP), the project site is designated as Other Land (DOC 2022). The Other Land designation is land not included in any other mapping category, and common examples include low density rural developments, brush, timber, wetlands, and riparian areas not suitable for livestock grazing, confined livestock, poultry or aquaculture facilities, strip mines, borrow pits, and water bodies

smaller than forty acres (DOC 2022). The project site is not held under an active Williamson Act contract (DOC 2024a).

The project site is bordered to the east by Farmland of Statewide Importance (DOC 2022). The DOC's Important Farmland classifications recognize the land's suitability for agricultural production by considering physical and chemical characteristics of the soil, such as soil temperature range, depth of the groundwater table, flooding potential, rock fragment content, and rooting depth. The classifications also consider location, growing season, and moisture available to sustain high-yield crops. The DOC defines Farmland of Statewide Importance as "Farmland similar to Prime Farmland but with minor shortcomings, such as greater slopes or less ability to store soil moisture. Land must have been used for irrigated agriculture production at some time during the four years prior to the mapping date" (DOC 2024b).

The lands bordering the project site to the west include the Sutter Bypass, beyond which is the Sutter Butte riparian corridor that meets the definition of forestland in California Public Resource Code (PRC) Section 12220(g). The project site is confined to the levee footprint and adjacent staging areas that contain no forestland resources. The Sutter County General Plan does not identify commercial forestland or timber resources (Sutter County 2011).

3.2.2 Discussion

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

The project site is designated as Other Land under the California Important Farmland Mapper, a classification for areas not suited to agricultural production, as described previously. The project site does not include Prime Farmland, Unique Farmland, or Farmland of Statewide Importance. Therefore, the project would not result in the conversion of any designated farmland to non-agricultural use.

The land to the east of the project site is classified as Farmland of Statewide Importance and is used for irrigated agricultural production. However, the project activities are confined to the levee footprint, adjacent staging areas, and existing local roads and would not encroach upon or impact these farmlands. The proposed construction and operations would not interfere with adjacent agricultural operations or result in the loss of productive farmland. The project would not convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to non-agricultural use; therefore, there would be **no impact**.

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

The project site is not held under a Williamson Act contract. The project site is not zoned for agricultural use and therefore would not conflict with zoning for agricultural use. Therefore, the project would have **no impact**.

c), d) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g)); or result in the loss of forest land or conversion of forest land to non-forest use?

Land immediately to the west of the project site encompasses the Sutter Bypass, beyond which are lands within the Sutter Bypass riparian corridor that meet the definition of forestland under PRC Section 12220(g). The project site is confined to the levee footprint and adjacent staging areas, which do not contain forestland, timberland, or land zoned for Timberland Production. The project would remove seven trees within the landside of the levee footprint, and limited tree trimming may occur on the waterside to facilitate construction access. These activities are confined to the project footprint and do not involve the conversion of forestland to non-forest use or conflict with zoning designations for forest or timberland. Additionally, the Sutter County General Plan does not discuss or identify commercial forestland or timber resources in the county. Given the absence of forestland on the project site and the minimal and localized nature of tree removal, the project would have **no 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?

See Questions (b) and (d) above. The project would not convert any farmland to non-agricultural or forest land to non-forest use. Therefore, there would be **no impact**.

3.3 Air Quality

Environmental Issue	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
III. AIR QUALITY: Where available, the significance criteria established by the applicable air quality management 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?	☐	☐	☒	☐

3.3.1 Environmental Setting

The project site is located in Sutter County, which is part of the Sacramento Valley Air Basin (SVAB). The SVAB includes all of Butte, Colusa, Glenn, Tehama, Shasta, Yolo, Sacramento, Yuba, and Sutter Counties and parts of Placer, El Dorado, and Solano Counties. The SVAB is bounded on the west and north by the Coast Ranges, on the east by the southern portion of the Cascade Range and the northern portion of the Sierra Nevada, and on the south by the San Joaquin Valley Air Basin. Hot, dry summers and mild, rainy winters characterize the climate of the SVAB. Summer high temperatures are typically in the 90s. Winter low temperatures are typically in the 30s, and sometimes below freezing. The regional rainy season occurs mainly from late October to early May, with rainfall amounts that vary substantially from year-to-year and average approximately 20 inches per year. The rainy season is characterized by brief periods of rain interspersed with stagnant and sometimes foggy weather. The prevailing winds are moderate in strength and vary from moist, clean breezes from the south to dry land flows from the north.

The ozone season (May through October) in the SVAB is characterized by stagnant morning air or light winds with San Francisco Bay and Delta breezes in the afternoon from the southwest. The afternoon and evening breezes transport air pollutants to the north and out of the SVAB. However, during about half of the days from July to September, a phenomenon called the "Schultz Eddy" causes the wind pattern to circle back to the south instead of allowing the prevailing wind patterns to move north and flush air pollution out of the SVAB. The eddy normally dissipates around noon when the Delta breeze arrives in the SVAB. The trapped air mass combined with plentiful sunshine create the conditions for photochemical reactions

between reactive organic gases (ROG) and nitrogen oxides (NO_X), which result in ozone (smog) formation.

The U.S Environmental Protection Agency (EPA) and the California Air Resource Board (CARB) have identified six air pollutants as being of nationwide and Statewide concern: ozone, carbon monoxide (CO), nitrogen dioxide, sulfur dioxide, lead, and particulate matter (PM). PM is subdivided into two classes based on particle size: PM equal to or less than 10 micrometers in diameter (PM_{10}) and equal to or less than 2.5 micrometers in diameter ($PM_{2.5}$).

Health-based air quality standards have been established for these pollutants by the EPA at the national level and by CARB at the State level. These standards are referred to as the national ambient air quality standards (NAAQS) and the California ambient air quality standards (CAAQS), respectively. The NAAQS and CAAQS were established to protect the public with a margin of safety from adverse health impacts caused by exposure to air pollution. Both EPA and CARB designate areas of the State as attainment, nonattainment, maintenance, or unclassified for the various pollutant standards according to the Federal Clean Air Act and the California Clean Air Act, respectively. An area is designated nonattainment/transitional to signify that the area is close to attaining the standard for that pollutant. The "unclassified" designation is used in an area that cannot be classified as meeting or not meeting the standards, based on available information. The EPA established NAAQS in 1971 for six air pollution constituents. States have the option to add other pollutants, to require more stringent compliance, or to include different exposure periods. CAAQS and NAAQS. are listed in **Table 3.3-1.**

Table 3.3-1. Federal and California Ambient Air Quality Standards and Attainment Status[1]

Pollutant	Averaging Time	California Standards Concentration	Federal Primary Standards Concentration
Ozone (O3)	8-hour	0.070 ppm (137 micrograms per cubic meter)	0.070 ppm (137 micrograms per cubic meter)[2]
Ozone (O3)	1-hour	0.09 ppm (180 micrograms per cubic meter)	None[3]
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 (PM2.5)	24-hour	None	35 micrograms per cubic meter
Fine Particulate Matter (PM2.5)	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

Pollutant	Averaging Time	California Standards Concentration	Federal Primary Standards Concentration
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 parts per million (for certain areas)
Sulfur Dioxide	3-hour	None	None
Sulfur Dioxide	1-hour	0.25 parts per million (655 micrograms per cubic meter)	0.075 parts per million (196 micrograms per cubic meter)
Sulfates	24-hour	25 micrograms per cubic meter	No Federal Standard
Hydrogen Sulfide	1-hour	0.03 parts per million (42 micrograms per cubic meter)	No Federal Standard
Vinyl Chloride	24-hour	0.01 parts per million (26 micrograms per cubic meter)	No Federal Standard

Notes: ppm = parts per million; PM = particulate matter

[1] Impacts to all resources are reduced to less-than-significant with the incorporation of mitigation measures.

[2] On October 1, 2015, the national 8-hour ozone (O3) primary and secondary standards were lowered from 0.075 to 0.070 ppm.

[3] 1-Hour O3 standard revoked effective June 15, 2005, although some areas have continuing obligations under that standard.

Source: EPA 2024, CARB 2024

The Feather River Air Quality Management District (FRAQMD) is the agency responsible for air quality planning and development of the air quality attainment plans in the study area. The air quality attainment plans establish strategies that are used to achieve compliance with the CAAQS in all areas within FRAQMD jurisdiction (FRAQMD 2010). All projects within FRAQMD's jurisdiction are subject to adopted FRAQMD rules and regulations in effect at the time of construction and operation. Sutter County is classified as nonattainment by State standards for the $PM_{2.5}$ and PM_{10}, and nonattainment-transitional by State standards for ozone. Sutter County is classified as attainment or unclassified for all remaining State standards. Sutter County is designated as nonattainment for Federal standards for ozone and attainment or unclassified for all remaining Federal standards.

3.3.2 Discussion

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

The following analysis addresses whether the proposed project would conflict with or obstruct implementation of the air quality attainment plan and/or applicable portions of the State Implementation Plan, which would lead to increases in the frequency or severity of existing air quality violations. FRAQMD is the agency responsible for air quality planning and development of the air quality plan for all of Sutter County, which encompasses the entire project area. The FRAQMD air quality plans establish the strategies used to achieve compliance with the NAAQS and State Ambient Air Quality Standards in all areas within FRAQMD's jurisdiction. FRAQMD has established recommended thresholds of significance for evaluating project-related air quality effects under CEQA (FRAQMD 2010). These significance thresholds are considered the allowable amount of emissions each project could generate without impeding the region's air quality planning efforts to maintain and attain ambient air quality standards. If these thresholds

are exceeded, the project would be considered to conflict with or obstruct implementation of the applicable air quality plan. The thresholds pertinent to the evaluation of this project are 25 pounds per day multiplied by the project length, not to exceed 4.5 tons per year for ROG and NO_X, and 80 pounds per day for PM_{10}. FRAQMD has not established a threshold of significance for $PM_{2.5}$, therefore, $PM_{2.5}$ results are presented for disclosure purposes only.

Project construction activities 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. No new maintenance or operation activities would be required because of the project, and maintenance requirements along the project reach in years immediately following the proposed project are anticipated to be reduced compared to recent years. Construction-related emissions were modeled using the California Emissions Estimator Model (CalEEMod) Version 2022.1.1.29, see **Appendix A** "Air Quality and GHG Modeling". **Table 3.3-2** provides estimates of unmitigated daily and annual construction-related pollutant emissions, based on maximum anticipated material hauling, equipment usage, and numbers of workdays described in Section 2.5.1 "Construction Equipment and Schedule." As shown in Table 3.3-2, daily emissions of ROG, NO_x, and PM_{10} would exceed FRAQMD thresholds of significance. Therefore, this impact is considered **significant**. The following mitigation measure has been identified to address this impact.

Table 3.3-2. Unmitigated Estimated Construction Emissions

Construction Year	ROG	NO_x	PM_{10}	$PM_{2.5}$
2026	24.3lbs per day, 1.08 tons per year	228 pounds per day, 10.2 tons per year	1,169 pounds per day	176 pounds per day
2027	24.6 pounds per day, 1.17 tons per year	229 pounds per day, 11.0 tons per year	1,146 pounds per day	174 pounds per day
FRAQMD Threshold	25 pounds per day, not to exceed 4.5 tons per year	25 pounds per day, not to exceed 4.5 tons per year	80 pounds per day	-
Exceedance?	*Yes – for pounds per day threshold*	*Yes – for pounds per day threshold*	*Yes*	*NA*

Notes: reactive organic gases = ROG, nitrogen oxide = NOx, particulate matter equal to or less than 10 micrometers in diameter = PM_{10}, particulate matter equal to or less than 2.5 micrometers in diameter = $PM_{2.5}$.

Source: CalEEMod version 2022.1.129, modeled by GEI, 2024.

Mitigation Measure AQ-1: Implement Best Management Practices to Reduce Emissions during Construction.

DWR shall ensure that SBFCA and its construction contractors implement the following measures consistent with established FRAQMD Construction Phase Mitigation Measures (FRAQMD 2016):

- Develop and submit a fugitive dust control plan to minimize fugitive dust emissions during project construction to FRAQMD for approval.
- 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.
- Suspend all project grading operations when winds exceed 20 miles per hour or when winds carry dust beyond the property line despite implementation of all feasible dust control measures.
- Apply water to control dust as needed to prevent visible emissions violations and offsite dust impacts. Travel time to water sources should be considered and additional trucks used if needed.
- Cover onsite dirt piles or other stockpiled material when not in active use.
- Minimize the free fall distance and fugitive dust emissions associated with all transfer processes involving a free fall of soil or other PM.
- Install wheel washers where project vehicles and/or equipment exit onto paved streets from unpaved roads. Vehicles and/or equipment shall 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.
- Frequently sweep paved streets (water sweeper with reclaimed water recommended; wet broom) if soil material has been carried onto adjacent paved, public thoroughfares from the project site.
- Reduce traffic speeds on all unpaved surfaces to 15 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 possible and prior to final occupancy, through seeding and watering.

Timing: During construction

Responsibility: DWR, and SBFCA and its construction contractors.

Mitigation Measure AQ-2: Develop Equipment Inventory that Reduces Exhaust Emissions and Document Equipment Use and Worker Vehicle Trips during Construction.

DWR shall ensure that SBFCA and its construction contractors implement the following measures to reduce, track, and calculate construction-related project emissions, consistent with established FRAQMD Construction Phase Mitigation Measures (FRAQMD 2016).

Before construction activities begin, SBFCA and its construction contractors shall compile a comprehensive inventory list (i.e., make, model, engine year, horsepower [hp], emission rates) of all heavy-duty off-road (portable and mobile) equipment (50 hp and

greater) that shall be used an aggregate of 40 or more hours during construction and provide the inventory to FRAQMD for approval. To the greatest extent practicable, and for a minimum of 70% of project equipment DPM emissions, off-road diesel construction equipment shall be equipped with the most effective Verified Diesel Emissions Control Strategies (VDECS) available for the engine type. This minimum emissions control requirement shall ensure that the mitigation measure meets both NO_X emissions thresholds as well as health risk impacts on off-site sensitive receptors. The best available VDECS for this project would be implementation of Tier 4F engines as certified by CARB and USEPA. The equipment shall be properly maintained in accordance with manufacturers specifications.

Data regarding construction activities shall be collected and reported to FRAQMD on a monthly basis and used to calculate project emissions after construction activities are complete. Data collected during project construction shall include the following items:

- Construction equipment
  - Number of pieces of each equipment type
  - Model year, engine horsepower and tier, and hours of operation for each equipment type
- Haul trucks (heavy-duty trucks)
  - Number of heavy-duty haul truck trips
  - On-road and off-road trip distance for haul truck trips
- Construction workers
  - Number of construction workers per day
- Total volume (cubic yards) of cut/fill

Timing: Before and during construction.

Responsibility: DWR and SBFCA and its construction contractors.

Mitigation Measure AQ-3: Calculate Construction Emissions and Contribute to FRAQMD Off-Site Mitigation Program.

DWR shall ensure that SBFCA and its construction contractors implement the following measures for off-site mitigation, as needed. After project approval, SBFCA and its construction contractors shall submit a memorandum of understanding (MOU) to FRAQMD containing the following information:

- source of emissions,
- estimate of emissions,

- amount of off-site mitigation requested to be purchased, and
- date the off-site mitigation fee will be provided to FRAQMD (either as a one-time payment before start of project construction or as a down payment, with the remainder due at the end of the construction season).

Once the MOU is submitted, an off-site mitigation agreement between SBFCA and FRAQMD will be finalized. The off-site mitigation agreement will specify the fees and timing of payment and will be executed by SBFCA and FRAQMD. FRAQMD will calculate the total Voluntary Off-Site Mitigation Program fee by summing up the maximum daily construction emissions of Nox (lb/day) in excess of the significance threshold (i.e., 25 lb/day) after implementation of Mitigation Measures AQ-1 and AQ-2, and multiplying by the final estimate of construction workdays per year in addition to the 10-percent administrative fee. The fee represents the offset of any remaining NOx emissions above the threshold by funding emissions reduction programs in the SVAB (e.g., replacing old diesel-powered school buses with low-emissions models).

Timing: Before and after construction.

Responsibility: DWR and SBFCA and its construction contractors.

Implementing Mitigation Measures AQ-1 through AQ-3 would reduce construction-related emissions by implementing control measures during construction and using equipment that reduces emissions to the extent possible. **Table 3.3-3** provides estimates of mitigated daily and annual construction-related pollutant emissions. Emission reductions are not fully estimated with implementation of Mitigation Measure AQ-1 and AQ-2 because there is uncertainty to what extent these measures can be implemented. However, implementation of these measures related to PM_{10} reduction are expected to significantly reduce PM_{10} emissions. Additionally, PM emissions are considered local emissions, which means they significantly decrease in concentration with distance from the source. PM concentrations generally decrease to background levels with a distance of 500 to 600 feet (EPA 2014). With the closest sensitive receptor being one mile east from the project site, the PM concentration would be imperceptible to sensitive receptors, and would be below the FRAQMD threshold of significance. Implementing Mitigation Measures AQ-1 and AQ-2 would reduce ROG emissions below FRAQMD thresholds. Implementing Mitigation Measure AQ-3 would compensate for remaining NOx emissions that would exceed FRAQMD thresholds after implementing Mitigation Measures AQ-1 and AQ-2. Therefore, this impact would be **less than significant with mitigation incorporated**.

Table 3.3-3. Mitigated Estimated Construction Emissions

Construction Year	ROG	NO_x	PM_{10}	$PM_{2.5}$
2026	6.59 pounds per day, 0.30 tons per year	60.2 pounds per day, 2.82 tons per year	318	54.1
2027	6.82 pounds per day, 0.33 tons per year	60.5 pounds per day, 2.99 tons per year	312	53.6
FRAQMD Threshold	25 pounds per day, not to exceed 4.5 tons per year	25 pounds per day, not to exceed 4.5 tons per year	80 pounds per day	-
Exceedance?	*No*	*Yes – for pounds per day threshold*	*Yes*	*NA*

Notes: reactive organic gases = ROG, nitrogen oxide = NOx, particulate matter equal to or less than 10 micrometers in diameter = PM_{10}, particulate matter equal to or less than 2.5 micrometers in diameter = $PM_{2.5}$.

Source: CalEEMod version 2022.1.129, modeled by GEI, 2024.

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 (including releasing emissions which exceed quantitative thresholds for ozone precursors)?

The cumulative analysis focuses on whether a specific project would result in a cumulatively considerable incremental contribution in pollutant emissions to an existing significant cumulative impact. By its very nature, air pollution is largely a cumulative impact. The nonattainment status of regional pollutants is a result of past and present development with the SVAB, and this regional impact is cumulative rather than being attributable to any one source. A project's emissions may be individually limited, but cumulatively considerable when taken in combination with past, present, and probable future development projects. For cumulative impacts, any project that would individually have a significant air quality impact over a significance threshold for ROG, NO_X, or PM_{10} would be considered cumulatively significant as well. As discussed under Question b), above, the proposed project would generate temporary and short-term construction-related emissions of ROG, NO_x, and PM_{10} that exceed FRAQMD threshold of significance and would not increase emissions from O&M of the proposed project. Therefore, this impact would be potentially significant. The following mitigation measures have been identified to address this impact.

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

Please refer to Mitigation Measure 3.4-1a in Impact 3.4-1 above for full text of this mitigation measure.

Mitigation Measure AQ-2: Reduce Construction-related Exhaust Emissions, Document Equipment Use and Worker Vehicle Trips, and Calculate Project Construction Emissions.

Please refer to Mitigation Measure 3.4-1b in Impact 3.4-1 above for full text of this mitigation measure.

Mitigation Measure AQ-3: Contribute to FRAQMD Off-Site Mitigation Program.

Please refer to Mitigation Measure 3.4-c1 in Impact 3.4-1 above for full text of this mitigation measure.

Implementing Mitigation Measures AQ-1 through AQ-3, the potentially significant impact associated with a cumulatively considerable net increase in criteria air pollutants would be reduced because emissions of ROG, and NOx would be reduced to below the FRAQMD significance threshold. PM_{10} could be reduced to below FRAQMD significance threshold, however, PM emissions are considered local emissions, which means they significantly decrease in concentration with distance from the source. Therefore, with the closest sensitive receptor

being one mile east from the project site, the PM concentration would be imperceptible, and well below FRAQMD threshold of significance. Therefore, this impact would be **less than significant with mitigation incorporated**.

c) Expose sensitive receptors to substantial pollutant concentrations?

Some members of the population are especially sensitive to emissions of air pollutants and should be given special consideration in the evaluation of the project's air quality impacts. These people include children, older adults, any person with pre-existing respiratory or cardiovascular illness, and athletes and others who engage in frequent exercise. Sensitive receptors include residences, schools, playgrounds, childcare centers, athletic facilities, long-term health care facilities, rehabilitation centers, convalescent centers, and retirement homes. The nearest sensitive receptor, a residence, is located approximately one mile east from the project site. Because of the distance (i.e., more than 1,000 feet) to the nearest residence, the PM concentration would be imperceptible, and well below FRAQMD threshold of significance. Therefore, the potential to expose sensitive receptors to substantial pollutant concentrations would be **less than significant.**

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

Construction of the proposed project is not anticipated to expose nearby off-site receptors to objectionable odors. FRAQMD lists common facilities that are known producers of odor. All facilities listed include highly odorous operations such as wastewater treatment plants, active landfills, and rendering plants. The project would not include these types of facilities and operations.

Sources that may emit odors during construction activities include exhaust from diesel construction equipment and heavy-duty trucks, which could be considered offensive to some individuals. Odors from these sources would be localized and generally confined to the immediate area surrounding the project site. The closest sensitive receptor to the project site is located approximately one mile east from the project site, which would allow an opportunity for odor emissions to disperse and dilute with ambient air. Because of the diffusive properties of diesel exhaust, sensitive receptors would not be significantly affected by diesel exhaust odors associated with project construction. After construction of the proposed project, all construction-related odors would cease. Operation of the proposed project would not add any new odor sources; therefore, the project would have no operational impacts due to odors. In addition, the agricultural areas surrounding the project site are likely to experience odors due to smoke from controlled burns and wildfires, the application of agricultural chemicals, exhaust from agricultural equipment, and dust from maintenance and cultivating activities. Therefore, the proposed project is not likely to be an odor source of concern based on FRAQMD guidance. FRAQMD states that screening of potential odor impacts should be conducted for the following two situations: 1) projects that would locate receptors near an existing odor source; and, 2) projects would located a source of odor near receptors (FRAQMD 2010). This impact would be **less than significant**.

3.4 Biological Resources

	Environmental Issue	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No 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 Game 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 Game 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?	☐	☐	☐	☒

Information on biological resources relevant to the proposed project is based on previous site visits, review of aerial photographs, and review of previous documents, including a Biological Resources Assessment (ECORP 2024), that address biological resources in the project vicinity. ECORP Consulting conducted a reconnaissance survey of the site on December 10, 2021, and a follow-up site visit on April 3, 2024, to map and assess biological resources. In addition to these surveys, observations gathered by GEI biologists in 2023 and 2024 while conducting biological monitoring for a separate project that overlaps with the SBEL project area inform the analyses in this section. Queries of several online biological data sources including the CDFW California Natural Diversity Database (CNDDB) (CDFW 2024a), the USFWS Information for Planning and Consultation (IPaC) tool (USFWS 2024a), the USFWS Critical Habitat Mapper (USFWS 2024b), the USFWS National Wetlands Inventory Wetlands Mapper (USFWS 2024c), the California Native Plant Society (CNPS) Inventory of Rare and Endangered Vascular Plants of California (CNPS 2024a), National Endangered Species Act (ESA) Critical Habitat Mapper (National Marine Fisheries Service [NMFS] 2024a), and the Essential Fish Habitat (EFH) Mapper (NMFS 2024b) also inform the analyses. Additionally, review of several citizen science

databases including eBird (eBird 2024), Bumble Bee Watch (Xerces 2024b), and iNaturalist (iNaturalist 2024), helps to inform recent species occurrence data. Lastly, review of specific individual plant and wildlife species documentation, as cited below, informs the analyses.

3.4.1 Environmental Setting

The approximately 139-acre project site (including staging areas) is centered on the existing Sutter Bypass levee system. The topography within the project site is mostly flat with the only slopes being those created by levees and dirt mounds in the staging areas. The elevation of the project site ranges from approximately 30 feet to 40 feet above mean sea level. An approximately 603-acre study area was identified for biological resources to include the entirety of the project site and a 350-foot-wide buffer around the project limits, to account for special-status species and other sensitive biological resources that may be in the project vicinity that could be affected by the proposed project.

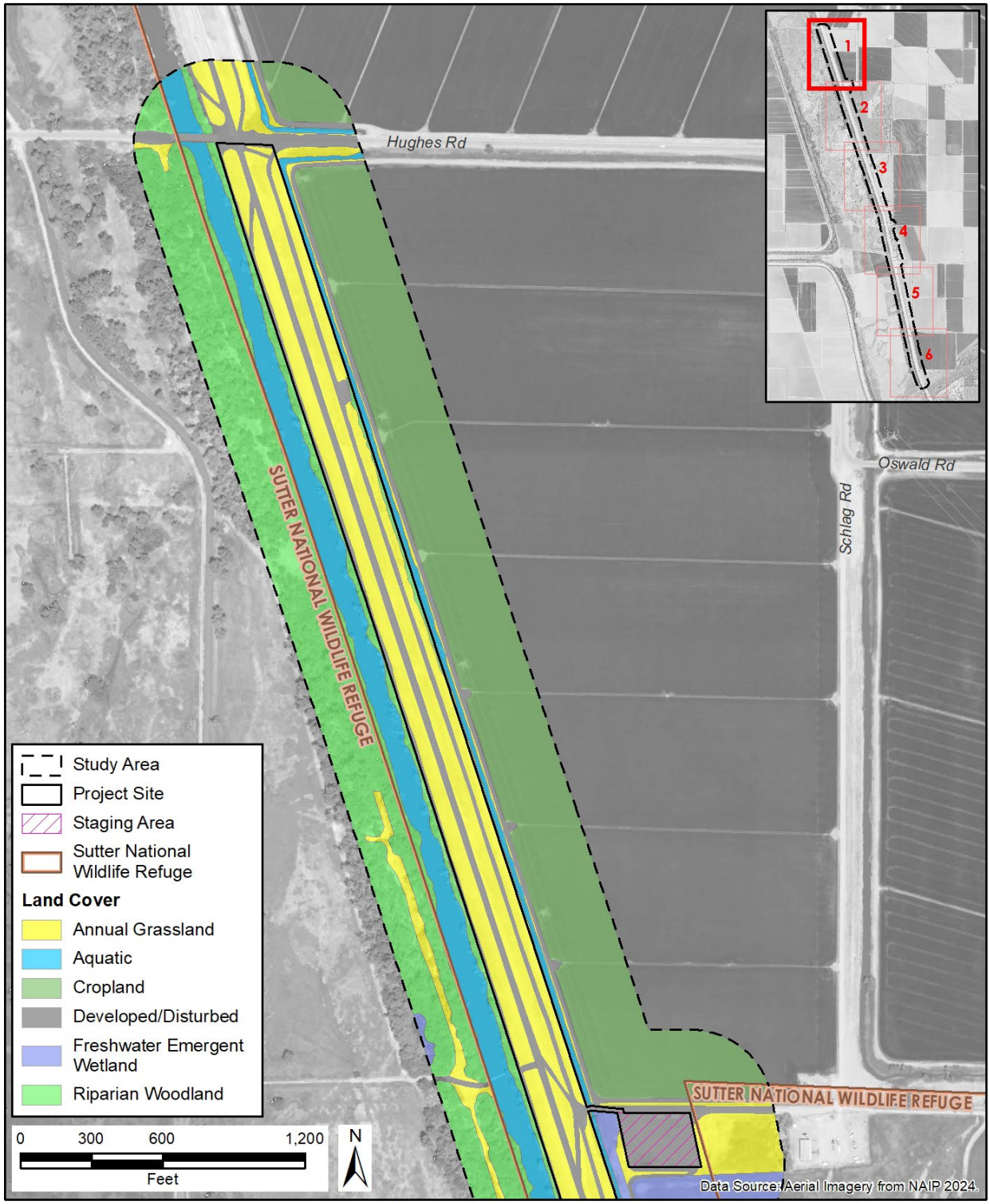
The SBEL is located along the east side of the Sutter Bypass from the southern end of the FRWL, at the confluence of the Feather River and Sutter Bypass (Figure 2-1). The northern half of the project site is immediately adjacent to the NWR, which mainly borders the project area on the west side, but occasionally on the east side as well. The NWR is only within the greater study area and does not overlap with the project boundary. The project site includes the levee crown and slopes and runs adjacent along the Sutter Bypass for the entirety of the project length, as well as immediately adjacent staging areas.

Habitat and Land Cover Types

Habitat characterizations use the nomenclature of vegetation types generally following the California Wildlife Habitat Relationships System (CDFW 2024b).

The majority of the study area and project boundary includes annual grassland, which is present on the landside levee slopes and toes of the project site, as well as adjacent fields. The project boundary also includes developed/disturbed areas, which include components of the levee itself (*e.g.,* levee crown road and toe road). The Sutter Bypass is outside of the project site but within the 350-foot-wide buffer of the study area. The project site and adjacent annual grasslands, agricultural fields, riparian habitat, and aquatic features, including the Sutter Bypass, are shown on **Figures 3-1a through f** with habitat and land cover types present in the study area.

Project construction would occur primarily on the landside of the levee, although a portion of the waterside slope would also be degraded (which would occur above the ordinary high-water mark and outside of the wetted area of the Sutter Bypass); therefore, no in-water work would occur. There are agricultural and irrigation ditches that run parallel along the east side of the levee and many that run out towards the east to bordering agricultural fields. The majority of agricultural fields bordering the study area consist of rice or fallow fields. There are portions of emergent wetland, primarily on the east side of agricultural canals outside of the project site but within the study area, but there is also a smaller portion present immediately adjacent to the west side of the levee just north of the DWR Pump Station Number (No.) 2, within the project boundary. Riparian habitat borders both sides of the Sutter Bypass, as well as along some of the canals on the east side of the levee, primarily north of the DWR Pump Station No. 2.



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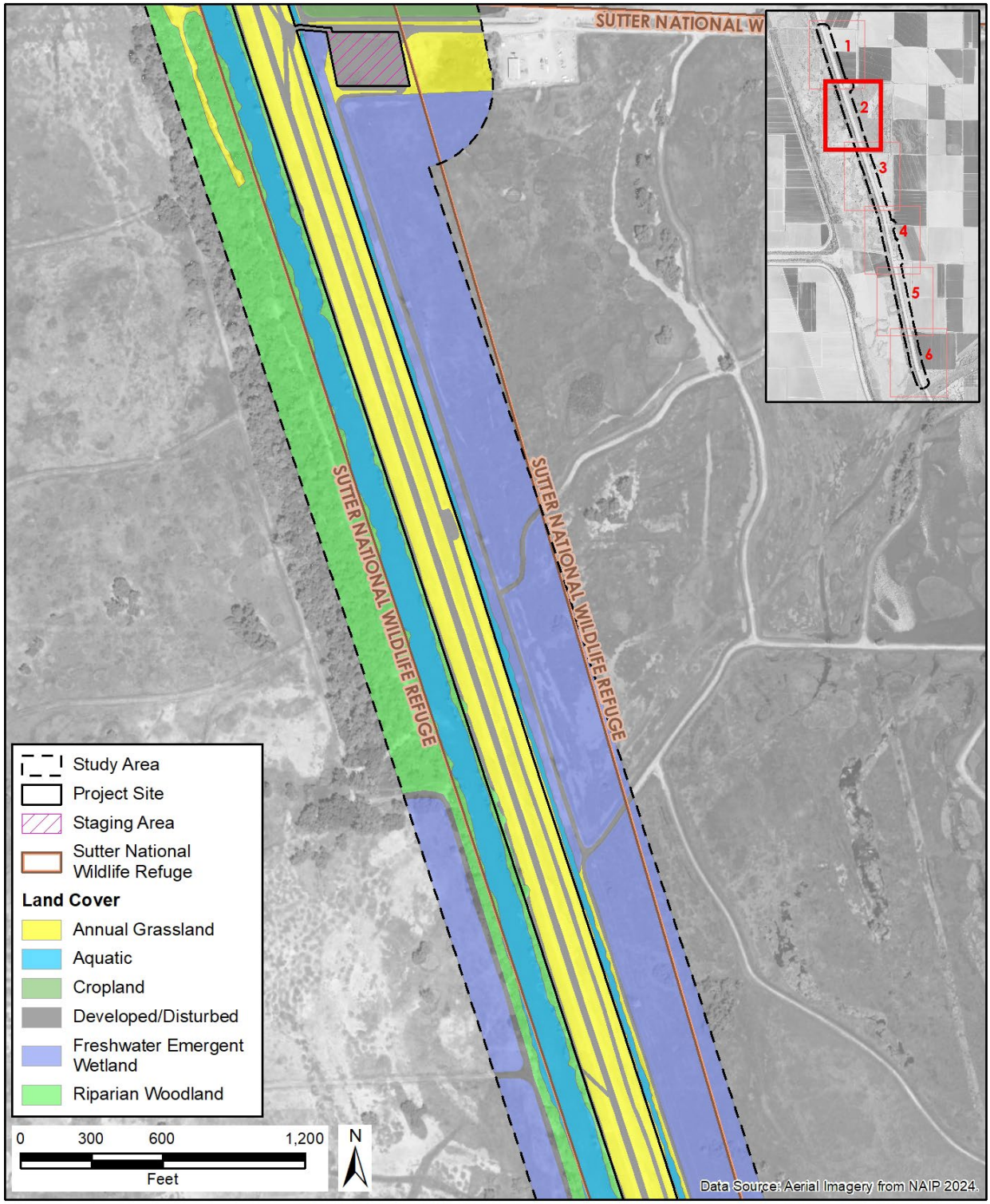
23Jun2025 RS

Source: GEI Consultants, Inc., in 2025

Figure 3-1a. Habitat and Landcover Map



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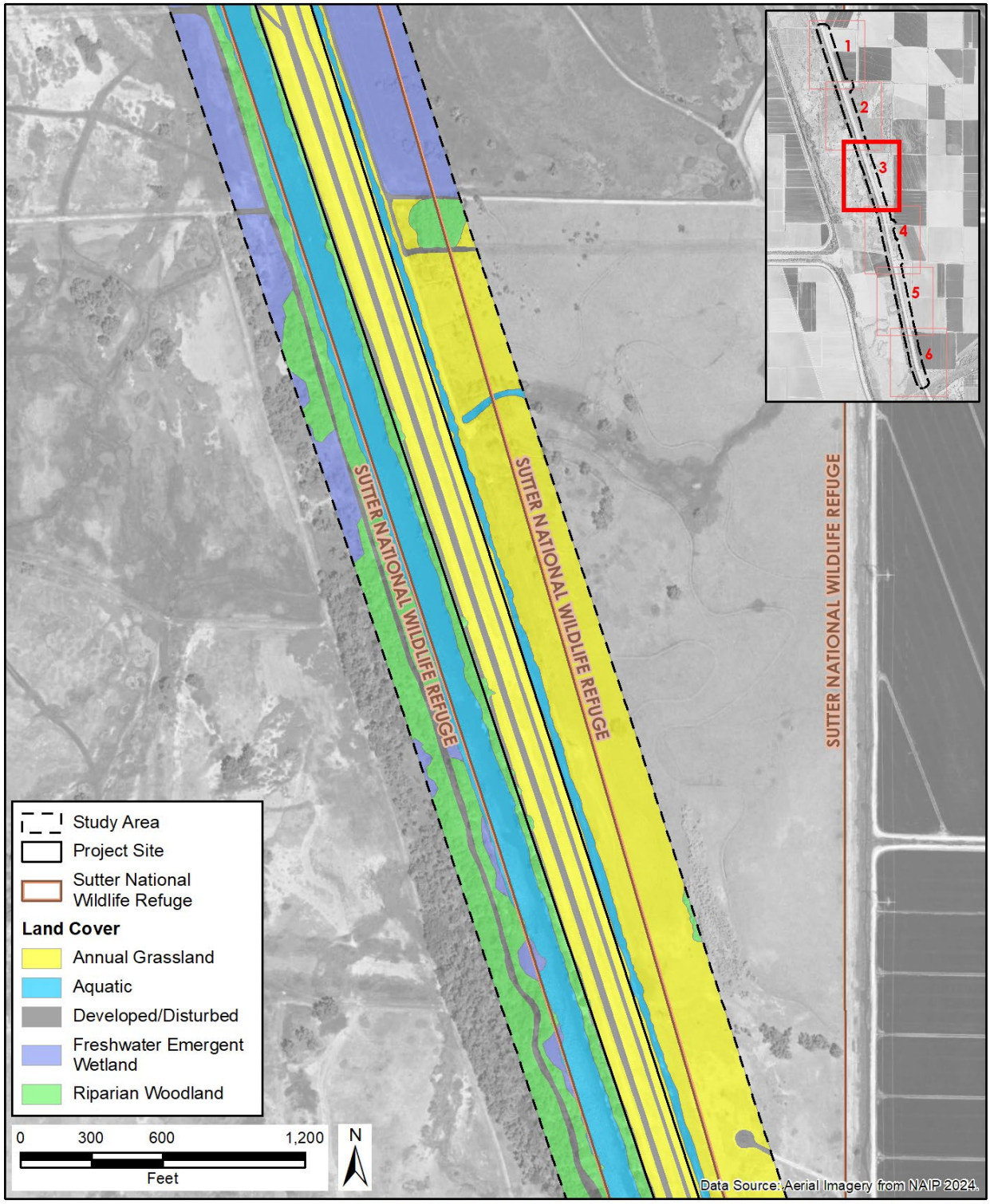
23Jun2025 RS

Source: GEI Consultants, Inc., in 2025

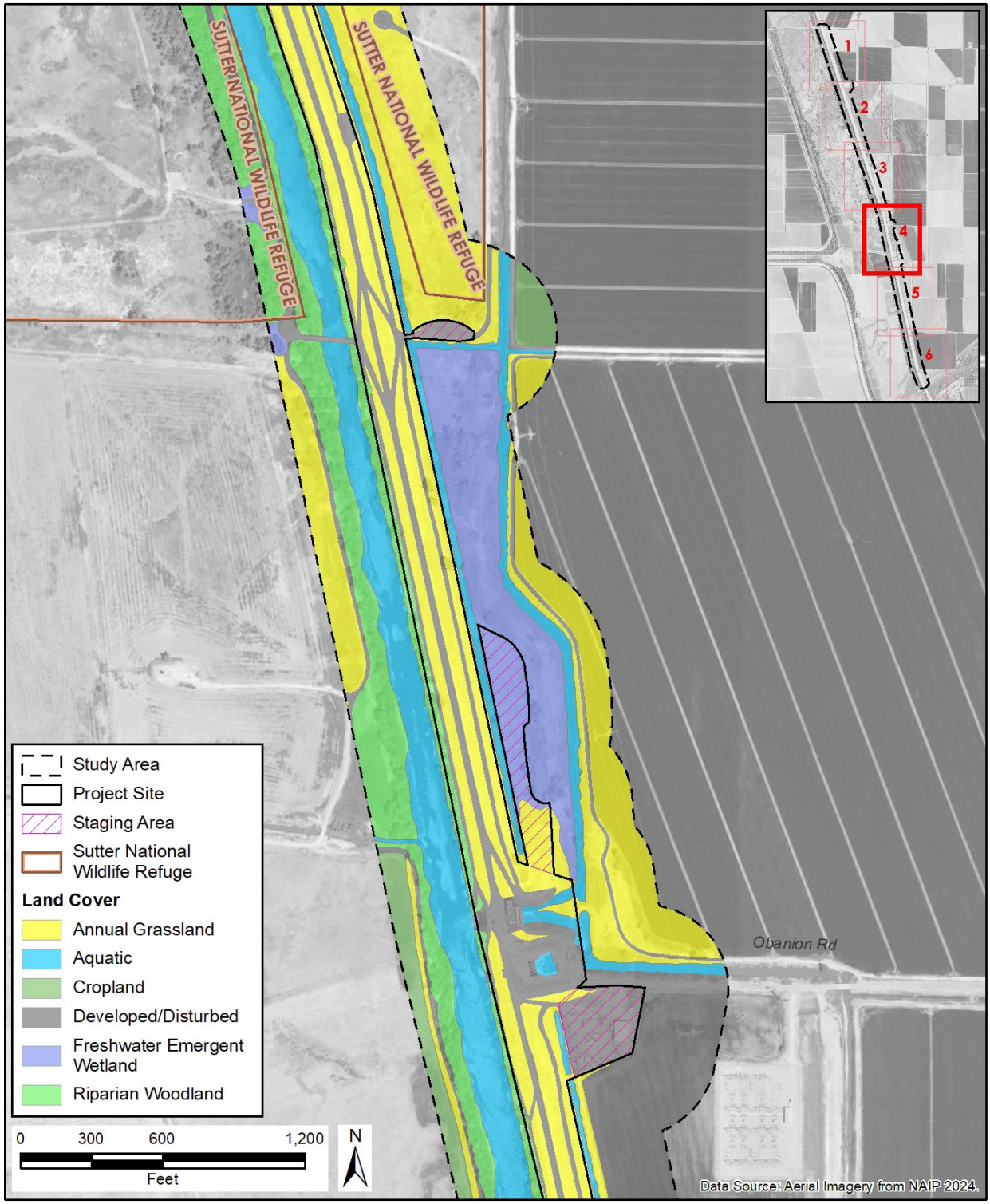
Figure 3-1b. Habitat and Landcover Map



Z:\Projects\1905950_DWR_FloodMgmtServices_TO_22_21_SutterBypassEastLevee\G003_1905950_2221_Habitat_20250623.mxd
23Jun2025 RS

Source: GEI Consultants, Inc., in 2025

Figure 3-1c. Habitat and Landcover Map



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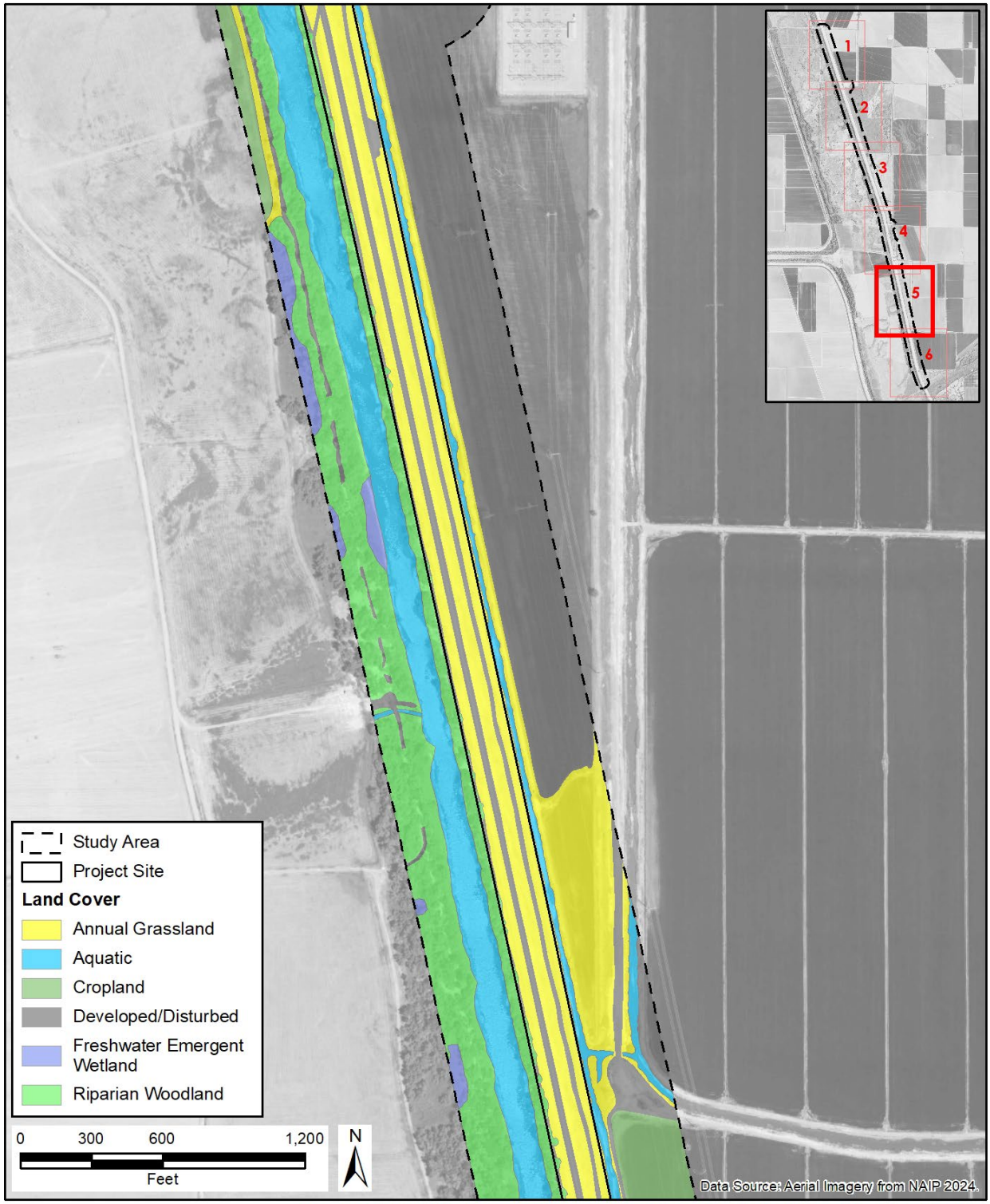
23Jun2025 RS

Source: GEI Consultants, Inc., in 2025

Figure 3-1d. Habitat and Landcover Map



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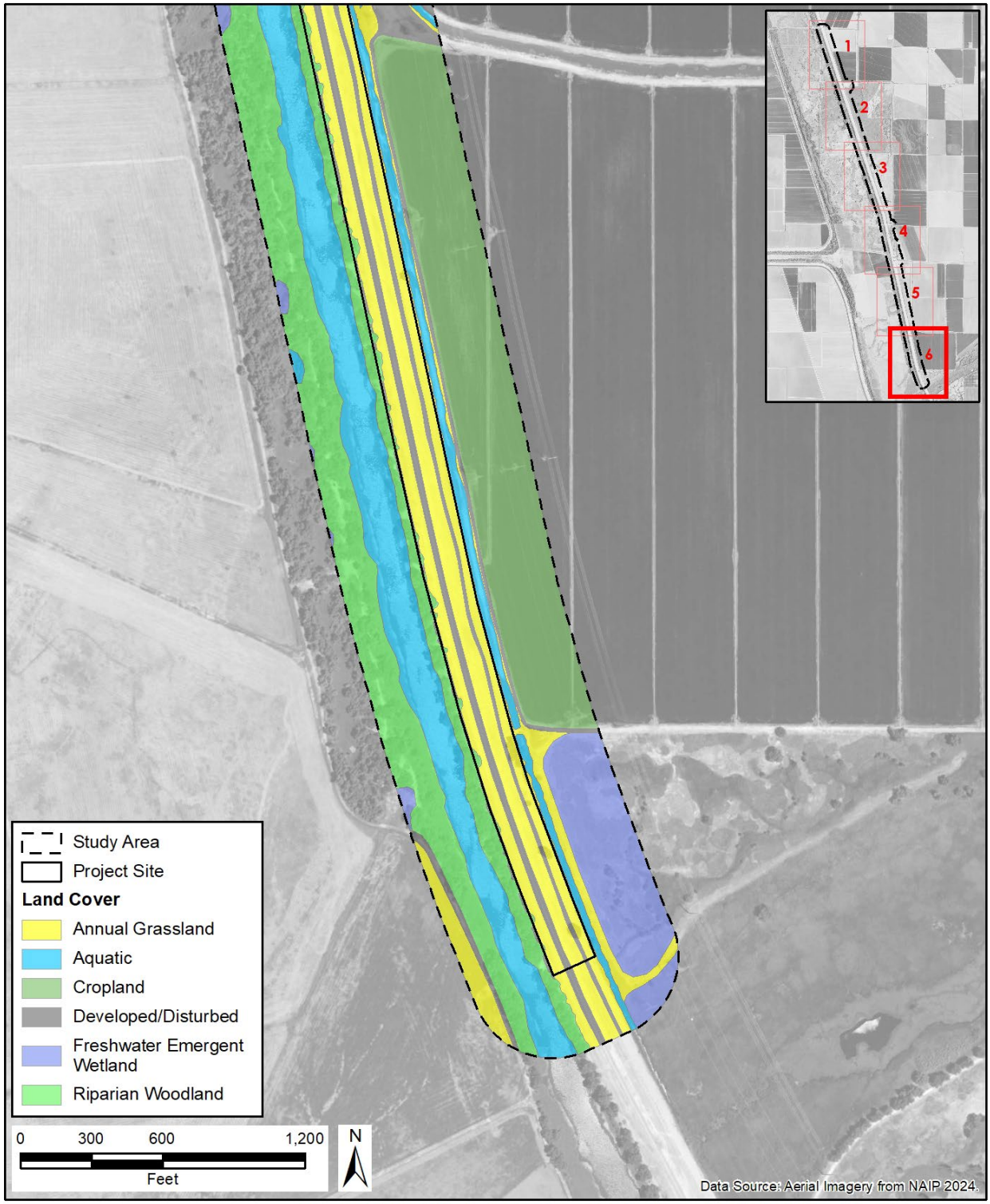
23Jun2025 RS

Source: GEI Consultants, Inc., in 2025

Figure 3-1e. Habitat and Landcover Map



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23Jun2025 RS

Source: GEI Consultants, Inc., in 2025

Figure 3-1f. Habitat and Landcover Map

The Sutter Bypass typically has emergent aquatic vegetation within it, such as water hyacinth (*Eichhornia crassipes*) and floating primrose (*Ludwigia peploides*). A detention basin is located within the project site to the east of the levee. The project site is adjacent to annual grasslands, agricultural fields, riparian habitat, and aquatic features, including the Sutter Bypass.

Annual Grassland

Annual grassland makes up approximately 174 acres of habitat within the study area, with approximately 94 of those acres occurring within the project site and less than 1 acre occurring within the staging areas. The habitat is consistent throughout the levee slopes, berms, and adjacent to the toe roads within the study area. Common species observed include wild oats (*Avena* spp.*),* ripgut brome (*Bromus diandrus*), and rye grass (*Festuca perennis*). Some common forbs that are typical throughout this habitat include wild radish (*Raphanus sativa*), milk thistle (*Silybum marinum*), yellow starthistle (*Centaurea solstitialis*), black mustard (*Brassica nigra*), and stands of Russian thistle (*Salsola* sp.*).*

Aquatic

Aquatic features in the study area include the Sutter Bypass (located along the waterside or west side of the project levee), several agricultural and irrigation ditches (located along the east side of the project levee), the east borrow canal (EBC) (located on the east side of the project levee), freshwater marshes, and a detention basin (located on the east side of the project levee). These aquatic resources total approximately 98 acres of the study area, with only approximately 0.5 acre occurring within the project site and approximately 2.5 acres occurring within the southernmost staging area. Aquatic resources present in the project site include the detention basin and portions of agricultural and irrigation ditches. All water sources typically have some amount of vegetation cover, including floating species, such as water hyacinth and floating primrose. The detention basin was actively being worked on by a separate project as of 2024.

The EBC consists of open water slough habitat and patches of emergent vegetation including narrow-leaved cattail (*Typha angustifolia*), water primrose, water hyacinth, and dotted smartweed (*Persicaria punctata*). Hydrophytic vegetation was present along the banks of the slough and in areas of sediment accumulation that provides a substrate suitable for plant establishment and growth.

Cropland

Approximately 56 acres of the study area is mapped as cropland. There is no cropland mapped within the project site. This cropland is predominantly active or fallow rice fields. The fields are seasonally flooded throughout the year.

Developed/Disturbed

The developed/disturbed portion of the study area includes the levee crown and access roads on either side of the levee, in addition to the northern and central staging areas. This makes up approximately 87 acres of the study area, with approximately 36 of those acres occurring within the project site and four (4) acres occurring within the staging areas. The levee crown and staging areas are compacted gravel, and the access roads are highly compacted dirt. Disturbed areas may contain scattered ruderal vegetation but are mostly void of vegetation.

Fresh Emergent Wetland

Portions within the east and west sides of the study area support seasonal wetlands that are inundated intermittently throughout the year. Approximately 70 acres of the study area is mapped as fresh emergent/forested wetland; however, less than 0.001 acre occurs within the project site and approximately two (2) acres occurs in the southernmost staging area. These wetlands are usually categorized to include vegetation such as cattails, rush species (*Juncus* ssp.), and tufted hairgrass (*Deschampsia cespitosa*).

Riparian Woodland

Approximately 120 acres of riparian woodland habitat occurs in the study area, with only approximately four (4) of those acres occurring within the project site and none within the staging areas. This habitat type is primarily made up of Fremont cottonwood (*Populus fremontii*) woodland that occurs on either side of the Sutter Bypass but is more prevalent on the western side. This riparian area is relatively narrow and consists of mature trees with varying densities of understory cover. Fremont cottonwood is codominant in the tree canopy with box elder (*Acer negundo*), valley oak (*Quercus lobata*), and willow (*Salix* spp.), with a variable herbaceous understory. The understory is composed of California wild grape (*Vitis californica*), Himalayan blackberry (*Rubus armenacis)*, California rose (*Rosa californica*), common fig (*Ficus carica*), and poison oak (*Toxicodendron diversilobum)*. As these shrubs were patchy and intermittent, riparian scrub habitat was not observed in sufficient quantities to be categorized separately from the riparian woodland along the levee slopes within the study area.

Wildlife

Grassland habitats in the study area support a moderate diversity of species, which can include semi-aquatic and terrestrial wildlife. A variety of birds may use several habitats in the study area for nesting and/or foraging. Species that are likely to forage and nest in the study area include Swainson's hawk (*Buteo swainsoni*), red-tailed hawk (*Buteo jamaicensis*), great-horned owl (*Bubo virginianus*), white-tailed kite (*Elanus leucurus*), American kestrel (*Falco sparverius*), American robin (*Turdus migratorius*), northern mockingbird (*Mimus polyglottos*), tricolored blackbird (*Agelaius tricolor*), and California scrub-jay (*Aphelocoma californica*). Bird species with potential to forage but not nest in the study area include golden eagle (*Aquila chrysaetos),* bank swallow (*Riparia riparia*), and others.

Several species of common amphibians, reptiles, and small- and medium-sized mammals are also likely to occur in the study area. Common amphibian and reptile species that may occur in the study area include western fence lizard (*Sceloperus occidentalis*), gopher snake (*Pituophis catenifer*), common garter snake (*Thamnophis sirtalis*), bullfrog (*Lithobates catesbeianus*), and red-eared slider (*Trachemys scripta elegans*). Common mammals anticipated to occur in the study area include Botta's pocket gopher (*Thomomys bottae*), jackrabbit (*Lepus californicus*), California ground squirrel (*Spermophilus beecheyii*), opossum (*Didelphis virginiana*), and raccoon (*Procyon lotor*).

The Sutter Bypass, agricultural canals and ditches, detention basin, and inundated rice fields within the study area all provide habitat for aquatic and semi-aquatic species. Fish species may be present in all aquatic habitats except the agricultural fields. However, the Sutter Bypass is

separated from the project site by the existing levee and no in-water work would occur within any of the above-mentioned aquatic habitats.

Sensitive Biological Resources

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

Special-status Species

Plants and animals addressed as special-status species in this analysis include taxa (distinct taxonomic categories or groups) that fall into any of the following categories:

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

The CRPR system includes six rarity and endangerment ranks for categorizing plant species of concern. All plants with a CRPR are considered "special plants" by CDFW. The term "special plants" is a broad term used by CDFW to refer to all plant taxa inventoried in the CNDDB, regardless of their legal or protection status. Plants ranked as CRPR 1 or 2 may qualify as endangered, rare, or threatened species within the definition presented in Section 15380 of State CEQA Guidelines. CDFW recommends that potential impacts to CRPR 1 and 2 plant species be evaluated in CEQA documents. In general, CRPR 3 and 4 plants do not meet the definition of endangered, rare, or threatened pursuant to State CEQA Guidelines Section 15380; however, these species may be evaluated by the lead agency on a case-by-case basis. This section analyzes CRPR 1 and 2 plants.

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

An initial list of special-status species that could potentially occur in or adjacent to the project site, given suitable habitat conditions are present, was developed through review of CNDDB (CDFW 2024a) and CNPS Rare Plant Inventory (CNPS 2024a) records from the project vicinity and a list generated by the USFWS IPaC tool (USFWS 2024a). These database results are shown in **Appendix B**. The CNDDB and CNPS inventory queries included the U.S. Geological Survey *Gilsizer Slough* 7.5-minute quadrangle, within which the project site is located, and the

surrounding eight quadrangles (*Sutter, Sutter Buttes, Tisdale Weir, Kirkville, Sutter Causeway, Nicolaus, Olivehurst,* and *Yuba City*). However, not all species tracked in the CNDDB and CNPS inventory meet the definition of special-status species described above.

Special-status Plants, Fish, and Wildlife

Nine (9) special-status plant species, 30 special-status wildlife species, and seven (7) special-status fish species were evaluated for their potential to occur in the study area. **Appendix C** summarizes, for each of these species, the regulatory status, habitat associations, and potential to occur in the study area. Most of these species were determined to have no-to-little potential to occur because of an absence of suitable habitat or because the study area is outside the known distribution or range of the species.

Two (2) plant species and 23 wildlife species, and seven (7) special-status fish species were determined to have some potential to occur in the study area. All fish species are associated with the aquatic habitat in the Sutter Bypass, which would be avoided by project activities. Therefore, while these fish species have the potential to occur in the study area, their suitable habitat is outside of the project construction footprint.

Special-status species with some potential to occur within the study area are listed below:

Plants

- Sanford's arrowhead (*Sagittaria sanfordii*; CRPR 1B.2)
- Wooly rose-mallow (*Hibiscus lasiocarpos* var. *occidentalis*; CRPR 1B.2).

Wildlife

- Crotch's bumblebee *(Bombus crotchii;* state candidate)
- Valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*; federally threatened)
- Northwestern pond turtle (*Actinemys marmorata*; federally proposed threatened; state species of special concern [SSC])
- Giant garter snake (federally threatened; state threatened)
- Tricolored blackbird (state threatened; state SSC)
- Greater sandhill crane (*Antigone canadensis tabida*; federally threatened; state fully protected)
- Golden eagle (state federally protected)
- Burrowing owl (state candidate; state SSC)
- Swainsons hawk (state threatened)
- Mountain plover (*Charadrius montanus*; state SSC)
- Northern harrier (*Circus cyaneus*; state SSC)

- Western yellow-billed cuckoo (*Coccyzus americanus occidentalis*; federally threatened; state endangered)
- White-tailed kite (state fully protected)
- Bald eagle (*Haliaeetus leucocephalus*; state endangered; state fully protected
- Yellow-breasted chat (*Icteria virens*; state SSC)
- Least bittern (*Ixobrychus exilis*; state SSC)
- Loggerhead shrike (*Ixobrychus exilis*; state SSC)
- California black rail (*Laterallus jamaicensis coturniculus*; state threatened; state fully protected)
- Song sparrow (Modesto population) (*Melospiza melodia*; state SSC)
- Bank swallow (state threatened)
- Yellow warbler (*Setophaga petechia*; state SSC)
- Pallid bat (*Antrozous pallidus*; state SSC)
- Western red bat (*Lasiurus frantzii*; state SSC)

Fish

- Green sturgeon – southern distinct population segment (DPS) (*Acipenser medirostris*; federally threatened; state species of special concern
- White sturgeon (*transmontanus*; state candidate, state species of special concern)
- Sacramento splittail (*Pogonichthys macrolepidotus*; state SSC)
- Steelhead – Central Valley DPS (*Oncorhynchus mykiss irideus*; federally threatened; state SSC)
- Chinook salmon – Central Valley spring-run evolutionary significant unit (ESU) (*Oncorhynchus tshawytscha*; federally threatened; state threatened)
- Chinook salmon – Central Valley fall/late fall-run ESU (*Oncorhynchus tshawytscha*; state SSC)
- Chinook salmon – Sacramento River winter-run ESU (*Oncorhynchus tshawytscha*; federally endangered; state endangered)

Plants

Woolly rose-mallow and Sanford's arrowhead are the only special-status plants that were determined to have the potential to occur in the study area. Both species occur in or near aquatic habitats, and the Sutter Bypass and agricultural canals and ditches adjacent to the project site provide potentially suitable habitat for them. While there would be no work occurring within aquatic habitat, the edges of the water sources could still be within project limits.

Invertebrates

Crotch's bumblebee and valley elderberry longhorn beetle are the two special-status invertebrates with potential to occur in the study area. Suitable foraging habitat in nectar plants and grassland is also present throughout the study area, providing foraging opportunities for Crotch's bumblebee.

Although previous surveys did not detect any elderberry shrubs in the study area, shrubs could be present in the western portion of the study area where riparian habitat is present; however, this habitat would not be disturbed by project activities. Therefore, valley elderberry longhorn beetle will not be discussed further in this document.

Fish

A number of special-status fish species are known to occur or have the potential to occur within the Sutter Bypass and adjacent canals. However, there would be no in-water work occurring in any aquatic habitats and fish cannot access the project construction area. Therefore, fish would not be discussed further in this document.

Reptiles

Potentially suitable aquatic habitat for northwestern pond turtle includes the Sutter Bypass immediately to the west of the project site, as well as agricultural ditches, canals, and the detention basin east of the project site. Potential nesting habitat for pond turtle is very limited because of the predominance of agriculture in the area, but there is some potential for pond turtles to nest in upland habitats associated with the canals and Sutter Bypass.

These aquatic habitats, in addition to adjacent rice fields, are also suitable for giant garter snake, and adjacent grassland habitat may provide suitable upland cover and refuge for this species. Because no project-related work would occur in any aquatic habitat for giant garter snake or western pond turtle, this issue will not be discussed further. However, disturbance to the associated upland grassland habitat would occur as a result of project implementation and this will be analyzed further.

Birds

Several special-status birds are known to occur or were determined to have some potential to occur in or adjacent to the study area, where potentially suitable foraging and/or nesting habitat is present. The riparian habitat and scattered trees lining the waterside slope of the Sutter Bypass provide potential nest sites for Swainson's hawk, bald eagle, loggerhead shrike, yellow-breasted chat, song sparrow, yellow warbler, white-tailed kite, and western yellow billed cuckoo. Burrowing owl and northern harrier could forage and nest in grassland habitat and along the margins of agricultural fields and levee toes. The Sutter Bypass, agricultural canals and ditches, and wetted areas in and adjacent to the project site, provides marginal quality foraging and nesting habitat for tricolored blackbird, California black rail, and least bittern. Lastly, golden eagle, greater sandhill crane, mountain plover, and bank swallow have been seen foraging and roosting in the study area, but there is no suitable nesting habitat present.

Mammals

Four (4) mammal species have some potential to occur in the study area. While there are no known occurrences within 10 miles of the study area for any of these four species, occurrence data for mammals is typically low, and therefore lack of occurrences does not represent the potential to occur.

Potential suitable roosting habitat for western red bat and pallid bat may occur within trees and snags that are present within and adjacent to the study area. Roosting bats, if present, have the potential to be disturbed by adjacent construction activities.

Sensitive Habitats

Sensitive habitats include those that are of special concern to resource agencies or are afforded specific consideration through CEQA, Section 1602 of the California Fish and Game Code, Section 404 of the CWA, and the Porter-Cologne Act. Sensitive natural habitats may be of special concern for a variety of reasons, including their locally or regionally declining status, or because they provide important habitat to common and special-status species.

Critical Habitat

Critical habitat is a geographic area containing features determined by USFWS or National Marine Fisheries Service (NMFS) to be essential to the conservation of a species listed as threatened or endangered under the ESA. The Sutter Bypass is designated critical habitat for several Federally threatened or endangered fish species, including Chinook salmon (Central Valley spring-run ESU), steelhead (California Central Valley DPS), and North American green sturgeon (southern DPS). However, there would be no in-water work occurring within the Sutter Bypass itself, and there is no USFWS-designated critical habitat for any special-status plant or wildlife species in the remainder of the project vicinity.

Essential Fish Habitat

EFH for Pacific salmon, and more specifically for Chinook salmon, is designated under the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act). The Magnuson-Stevens Act requires that all Federal agencies consult with NMFS regarding actions or proposed actions permitted, funded, or undertaken that may adversely affect EFH. EFH is defined as “waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity.” The Sutter Bypass is considered EFH for Chinook salmon; however, there would be no in-water work occurring within the Sutter Bypass itself, and therefore no impacts to EFH would occur.

Other Habitats Protected under Federal and State Regulations

Under Section 404 of the Federal CWA, USACE regulates discharge of dredged or fill material into aquatic features that qualify as waters of the United States; wetlands that support hydrophytic vegetation, hydric soil types, and wetland hydrology may also qualify for USACE jurisdiction under Section 404 of the CWA. Under Section 401 of the CWA, the CVRWQCB regulates discharge of dredged or fill material into waters of the United States to ensure such activities do not violate State or Federal water quality standards. The CVRWQCB also regulates waters of the State, in compliance with the Porter-Cologne Act. In addition, all 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 is subject to the regulatory approval of CDFW pursuant to Section 1602 of the California Fish and Game Code.

Several aquatic resources occur in the project site, study area, and the vicinity. These include the Sutter Bypass, agricultural and drainage ditches, and other fringing or isolated wetlands. A delineation of aquatic resources has been conducted of the project site, but not for the study area, and as a result, the precise location, extent, and jurisdictionality of all aquatic resources has not been determined. However, several features in the study area are likely to be considered Waters of the U.S. and/or State. In addition, riparian areas are regulated by CDFW as well as the channels and banks of any creeks or other linear features.

Sensitive Natural Communities

CDFW maintains a list of terrestrial natural communities that are native to California – the *California Natural Community List* (CDFW 2023a). Within that list, CDFW identifies and ranks natural communities of special concern considered to be highly imperiled. Three (3) sensitive natural communities were identified as having potential to occur within the study area based on the literature review only. These included Coastal and Valley Freshwater Marsh, Great Valley Mixed Riparian Forest, and Great Valley Cottonwood Riparian Forest. The *Populus fremontii – Fraxinus velutina – Salix gooddingii* Alliance and *Quercus lobata* Riparian Forest and Woodland Alliance found within the study area are considered sensitive natural communities.

3.4.2 Discussion

Analysis Methodology

This analysis addresses biological resource impacts that could result from project construction activities, as well as project-related changes in the study area. Potential to adversely affect special-status species and their habitats and other habitats considered sensitive by Federal, State, or local agencies is evaluated, in addition to the potential to substantially reduce the habitat or population of any fish or wildlife species or to eliminate a plant or animal community. This analysis considers temporary and permanent habitat loss and disturbance and potential for direct injury or death of individuals or a result of adverse effects on habitat quality. Impact conclusions consider the habitat quality, impact extent, impact duration, and impact intensity (e.g., level of harm, injury/loss, or degradation suffered by the resource). Information on activities and habitat conditions that could adversely affect special-status species is based on scientific publications, agency documents, and other relevant sources.

Levee improvements (i.e., cutoff wall), excavation and reconstruction of the existing levee, removal of trees, as well as use of staging areas and haul routes would result in both permanent and temporary disturbance of vegetation and land cover. The only anticipated permanent loss of habitat would be that resulting from tree removal. Some ground-disturbing activities associated with project implementation (e.g., movement and staging of equipment and materials) would result in temporary impacts to vegetation and land cover. The project would temporarily affect some land cover types, because these would be expected to revert to a similar land cover upon completion of construction.

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

Special-status Plants and Wildlife

There is potential for both temporary and permanent impacts to a variety of special-status plant and wildlife species. Loss of individuals of special-status species or degradation of their habitats would be considered **potentially significant**. While there are species-specific mitigation measures outlined below for most of the species that have the potential to occur in the project site and vicinity, Mitigation Measure BIO-1 would avoid and minimize impacts to all special-status species and sensitive biological resources with some potential to occur within the study area.

Mitigation Measure BIO-1: Avoid and Minimize Effects to Biological Resources.

DWR will ensure that SBFCA and its construction contractors shall implement the following measures:

1. **Conduct a worker environmental awareness program (WEAP) training for all staff that shall be on-site during construction.** A qualified biologist shall provide a WEAP training to any and all staff working on the project site immediately prior to the start of any project-related activities to cover species identification, habitat, life history, and conservation measures for all special-status species with potential to occur within the study area. New field staff shall also be WEAP trained, as they are added to the project, and the training shall be repeated on a yearly basis, as needed. Training may consist of an in-person presentation by a qualified biologist. In addition to the in-person presentation, training may be supplemented with the distribution of approved brochures and other materials that describe protected resources and methods for avoiding effects.

2. **Conduct preconstruction surveys prior to the start of construction for all special-status species with potential to occur.** A qualified biologist shall conduct a general preconstruction survey at least 24 hours before the start of ground disturbance to identify potential presence of all special-status species with potential to occur in the project site. While this survey shall focus on giant garter snake, northwestern pond turtle, burrowing owl and other special-status birds, and roosting bats, it would include all special-status wildlife species and other sensitive biological resources. If there is a lapse in ground disturbing activities for two weeks or more, another preconstruction survey shall be conducted.

3. **Erect and Maintain High-visibility Fencing during Construction to Protect Sensitive Biological Resource Areas.** Before beginning construction activities, high-visibility fencing shall be erected to protect areas of sensitive biological resources that are located adjacent to construction areas, but can be avoided (*e.g.,* Sutter Bypass and associated riparian oak woodland habitat). The fencing shall restrict encroachment of

personnel and equipment into these areas. The fencing may be removed only when the construction within a given area is completed.

4. **Stage Vehicles and Equipment in Existing Staging Areas.** Project activities and staging of materials, portable equipment, vehicles, and supplies shall occur in disturbed areas where feasible. SBFCA and its contractors shall ensure that appropriate best management practices (e.g., spill prevention and containment) are implemented in these areas to avoid contamination of giant garter snake habitat.

5. **A biologist shall be present to monitor during all activities during project construction.** A qualified biologist shall be on-site to monitor during all activities occurring within 200 feet of aquatic habitat suitable for giant garter snake or pond turtle. They shall also be present for any other biological needs that may occur on the project site during construction activities.

6. **Remove Refuse.** To eliminate sources that could attract wildlife, all trash, including food-related trash items such as wrappers, cans, bottles and food scraps, shall be disposed of in closed containers.

Timing: Before and during construction.

Responsibility: DWR and SBFCA.

Implementing Mitigation Measure BIO-1 would reduce the potentially significant impacts to all special-status plants, wildlife, and associated habitat to a **less than significant with mitigation incorporated** because the project would implement broad measures to avoid and minimize impacts to all special-status species and sensitive biological resources.

Special-status Plants

Special-status plants determined to have potential to occur in the study area include woolly rose-mallow and Sanford's arrowhead. These two species are associated with aquatic habitat; however, woolly rose-mallow is also found on levees bordering waterways. These species may be found along the shores and shallow edges of the Sutter Bypass, or in other areas supporting wetland vegetation such as ditches or wetlands.

Although project components have been designed to avoid habitats potentially supporting special-status plants to the greatest extent possible, some project activities have the potential to impact special-status plant habitats and individuals. Project activities in or adjacent to the riparian areas along the Sutter Bypass and/or areas supporting wetland vegetation (e.g., upland habitat and agricultural canals and ditches) may impact special-status plants, should they be present. During construction, individuals may be impacted by compaction, trampling, removal, or degradation of habitat. Indirect effects could include post-construction encroachment of invasive species. Although adverse effects on special-status plants and their habitat would be avoided to the greatest extent possible, implementation of project-related activities may result in direct and/or indirect effects on these species should they be present in areas proposed for disturbance.

Loss of special-status plant individuals or degradation of special-status plant habitat would be considered a **potentially significant impact**. The following mitigation measures have been identified to address this impact.

Mitigation Measure: Implement Mitigation Measure BIO-1: Avoid and Minimize Effects to Biological Resources.

Refer to Mitigation Measure BIO-1 above for the full description of this measure.

Timing: Before and during construction.

Responsibility: DWR and SBFCA.

Mitigation Measure BIO-2: Minimize Effects to Special-Status Plants.

DWR will ensure that SBFCA and its construction contractors shall implement the following measures:

1. **Special-status Plant Surveys.** A qualified botanist shall be retained to perform focused surveys for special-status plants. These surveys shall 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 shall 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 shall 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 three (3) years has elapsed between the completion of the special-status plant surveys and the start of ground disturbance, these surveys should be repeated. If no special-status plant species are observed, then, no further mitigation is necessary.

2. **Special-status Plant Avoidance**. If any special-status plant species are found within 100 feet of areas of ground disturbance during the surveys, these plant species shall be avoided to the greatest extent possible and one of the following shall be implemented:

    - **Avoid Special-status Plants that are Present but Can be Avoided.** Any special-status plant species that are identified in or adjacent to the construction areas, but not proposed to be disturbed, shall 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; and/or

    - **Develop and Implement a Mitigation Plan for Directly Affected Special-status Plants.** If habitat occupied by special-status plants cannot be avoided during project construction, an appropriate and feasible mitigation plan to

compensate for direct loss of special-status plants shall be developed by SBFCA and its contractors and provided to CDFW and/or USFWS for approval. The plan shall detail appropriate compensation measures determined through consultation with CDFW and/or USFWS, methods for implementation, success criteria, monitoring and reporting protocols, and contingency measures to be implemented if the initial mitigation fails. Implementation methods may include salvaging and transplanting individual plants, collecting the seeds of affected plants, and collecting and translocating seed- and rhizome-containing mud. Compensation also may include preserving in perpetuity other known populations of this species in the project vicinity at ratios of or greater than 1 to 1. The plan shall be developed in consultation with and approved by CDFW and/or USFWS before construction activities begin in areas containing special-status plant species. SBFCA and its contractors shall implement the CDFW/USFWS-approved plan.

3. **Restoration of Temporarily Disturbed Areas.** All exposed and/or disturbed areas resulting from project-related activities shall be restored using locally native grass and forb seeds, plugs or a mix of the two. Areas shall be seeded with species appropriate to their topographical and hydrological character. Seeded areas shall be covered with broadcast straw and/or jute netted, where appropriate.

Timing: Before and during construction.

Responsibility: DWR and SBFCA.

Implementing Mitigation Measures BIO-1 and BIO-2 would reduce the potentially significant impacts associated with loss of special-status plants or degradation of habitat to a **less than significant with mitigation incorporated** through avoidance, minimization and compensatory mitigation, should it be necessary. The measures would minimize effects on special-status plants by requiring preconstruction surveys and fully mitigate for unavoidable effects should they be found. In addition, measures would minimize adverse effects on special-status plants due to project-induced erosion and encroachment of invasive plants by requiring temporarily disturbed areas to be revegetated with native species.

Special-status Wildlife

Crotch's Bumblebee

With suitable foraging and nesting habitat present, there is potential for Crotch's bumblebee to nest in grassland on the project area. Vegetation clearing and ground disturbance of this habitat could kill or injure nesting bumblebees, if the species is present underground within the construction limits. The risk of harm, harassment, injury, or mortality to individuals of this federal candidate species during construction activities is a **potentially significant impact**. The following mitigation measures have been identified to address this impact.

Mitigation Measure: Implement Mitigation Measure BIO-1: Avoid and Minimize Effects to Biological Resources.

Refer to Mitigation Measure BIO-1 above for the full description of this measure.

Timing: Before and during construction.

Responsibility: DWR and SBFCA.

Mitigation Measure BIO-3: Minimize Effects on Crotch's Bumblebee.

DWR shall ensure that SBFCA and its contractors implement the measures described below minimize for effects of the project on Crotch's bumblebee prior to vegetation removal.

1. If ground-disturbing activities are scheduled to begin between February 1 and October 31, preconstruction surveys shall be conducted by a CDFW-approved biologist following *CDFW's Survey Considerations for CESA Candidate Bumble Bee Species* (CDFW 2023b), or the most up-to-date CDFW survey protocol. If possible, three Crotch bumble bee surveys shall be conducted at two-to-four-week intervals during the colony active period (April-August).

2. If Crotch bumble bees are detected, any remaining surveys shall focus on nest location. If no nests are found but the species is observed during preconstruction surveys, work crews should be informed of the possibility of Crotch bumble bees or their nests being present onsite. If a Crotch bumble bee is encountered during construction, work shall stop until the individual leaves of its own volition. If an active Crotch bumble bee nest is detected, an appropriate no disturbance buffer zone (including foraging resources and flight corridors essential for supporting the colony) shall be established around the nest to reduce the risk of disturbance. Nest avoidance buffers may be removed at the completion of the flight season (October 31) and/or once the qualified biologist deems the nesting colony is no longer active.

Timing: Before and during construction.

Responsibility: DWR and SBFCA.

Implementing Mitigation Measures BIO-1 and BIO-3 would reduce the potentially significant impacts to Crotch's bumblebee to a **less than significant with mitigation incorporated** because the project would avoid and minimize impacts on Crotch's bumblebee and its habitat.

Giant Garter Snake

With suitable upland and aquatic habitat present, there is a potential for this species to occur in the study area. No project activities would occur within suitable aquatic habitat (*i.e.,* Sutter Bypass and canals) for giant garter snake. However, construction activities and use of haul routes could kill, injure, or displace giant garter snakes, if the snakes are present in adjacent upland habitat or crossing the roads during construction. The risk of harm, harassment, injury, and mortality to individuals of this federally and State-listed species during construction activities is a **potentially significant** impact. The following mitigation measures have been identified to address this impact.

Mitigation Measure: Implement Mitigation Measure BIO-1: Avoid and Minimize Effects to Biological Resources.

Refer to Mitigation Measure BIO-1 above for the full description of this measure.

Timing: Before and during construction.

Responsibility: DWR and SBFCA.

Mitigation Measure BIO-4: Minimize Effects on Giant Garter Snake.

DWR shall ensure that SBFCA and its contractors implement the measures described below to minimize effects of the project on giant garter snake, such that there is no net loss of habitat for the species.

1. **Conduct Initial Earth-movement Activities within Suitable Upland Habitat for Giant Garter Snake between May 1 and October 1.** SBFCA and its contractors shall complete ground-disturbing activities within suitable upland habitat for the giant garter snake between May 1 and October 1. Work in giant garter snake upland habitat may also occur between October 2 and November 1 or between April 1 and April 30, provided maximum daily air temperatures have exceeded approximately 75ºF for at least 3 consecutive days immediately preceding work and ambient air temperatures exceed approximately 75ºF during work. During these periods, giant garter snakes are more likely to be active in aquatic habitats and less likely to be found in upland habitats.

2. **Inspect Areas Under Vehicles and Heavy Equipment Daily.** SBFCA and its contractors trained in awareness of giant garter snake and/or the qualified biologist shall inspect under and around all vehicles and heavy equipment for the presence of wildlife and other special-status species before the start of each workday. The awareness training provided by a qualified biologist shall emphasize checking equipment to avoid harming wildlife.

3. **Stop Work if a Giant Garter Snake is Observed in Construction Area and Allow Snakes to Leave the Construction Area on Their Own.** If a giant garter snake is observed in a construction area, SBFCA and its contractors shall stop work and shall notify a qualified biologist immediately. If possible, the snake shall be allowed to leave on its own volition, and the qualified biologist shall remain in the area until the biologist deems that the snake is not harmed. SBFCA and its contractors shall notify CDFW and USFWS by telephone or email within 24 hours of a giant garter snake observation during construction activities. If the snake does not voluntarily leave the construction area, construction activities within approximately 200 feet of the snake shall stop to prevent harm to the snake, and CDFW and USFWS shall be consulted to identify next steps. In that case, SBFCA and its contractors shall implement the measures recommended by CDFW and USFWS before resuming construction activities in the area.

4. **Avoid Using Materials that May Entangle Snakes**. 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 giant garter snake or other wildlife, shall not be used.

5. **Install, Inspect, and Maintain Giant Garter Snake Fencing.** Where site conditions allow, SBFCA and its contractors shall install fencing along the project site boundaries as a way to divert moving snakes away from active construction zones. The project site, including the fencing, shall be inspected by a qualified biologist daily during project activities.

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

Timing: Before, during, and after construction.

Responsibility: DWR and SBFCA.

Implementing Mitigation Measures BIO-1 and BIO-4 would reduce the potentially significant impacts to giant garter snake to a **less than significant with mitigation incorporated** because the project would avoid and minimize impacts on giant garter snake and its habitat.

Northwestern Pond Turtle

Sutter Bypass, the detention basin, agricultural canals and ditches, and grassland adjacent to the project site provide suitable aquatic and upland habitat for pond turtles and individuals could be disturbed and temporarily displaced from occupied habitat by construction activities. Ground-disturbance and haul routes could result in direct injury or mortality of turtles if those areas are used for basking, hibernating, or nesting. Because individuals could be killed, injured, or displaced during construction activities, this is considered a **potentially significant** impact. The following mitigation measures have been identified to address this impact.

Mitigation Measure: Implement Mitigation Measure BIO-1: Avoid and Minimize Effects to Biological Resources.

Refer to Mitigation Measure BIO-1 above for the full description of this measure.

Timing: Before and during construction.

Responsibility: DWR and SBFCA.

Mitigation Measure BIO-5: Avoid and Minimize Impacts to Northwestern Pond Turtle.

To avoid and minimize effects of project activities on northwestern pond turtle, DWR shall ensure that SBFCA and its contractors implement the measures described below.

1. Ground disturbance (including vegetation removal) in suitable upland habitat within 500 feet of aquatic habitat for northwestern pond turtle shall be minimized, to greatest extent feasible. The target period for vegetation removal in these areas shall be mid-April to mid-May) when potential for turtle strikes and direct impacts are lowest, if practical with combined seasonal limitations on construction (e.g., nesting birds, flood season, etc.).

2. If northwestern pond turtles are observed in a construction area, SBFCA and its contractors shall stop work within approximately 200 feet of the turtle, and a qualified biologist shall be notified immediately. If possible, the turtle shall be allowed to leave the construction area on its own and the qualified biologist shall remain in the area until the biologist deems that the turtle is not harmed. Alternatively, the qualified biologist may attempt to capture and relocate the turtle, unharmed and with prior CDFW (and USFWS, if necessary) approval, to suitable habitat at least 200 feet from the construction area.

3. If a northwestern pond turtle nest is unintentionally uncovered during project activities, work would stop within approximately 200 feet of the nest and CDFW (and USFWS, if necessary) would be contacted immediately. Next steps shall include fencing off and buffering the nest and/or rescue, rehabilitation, and relocation of affected turtles, as approved by CDFW (and USFWS, if necessary).

Timing: Before and during construction.

Responsibility: DWR and SBFCA.

Implementing Mitigation Measures BIO-1 and BIO-5 would reduce the potentially significant impact associated with adverse impacts to northwestern pond turtle to a **less than significant with mitigation incorporated** because the project would avoid and minimize disturbance to pond turtles and their habitat.

Burrowing Owl

Grasslands, dry agricultural fields and canal margins in and adjacent to the project site provide potentially suitable habitat for burrowing owls. Construction activities that require earth-movement within areas of potentially suitable burrowing owl habitat could result in loss of occupied burrows. This could cause injury or mortality of burrowing owls, if they are present within the burrows when earth-moving occurs. If disturbance levels are high enough, owls could be displaced from active burrows, potentially resulting in abandonment of active nests and loss of eggs or young. Because of the potential for destruction and/or disturbance of occupied burrows, if present in the project site during construction remediation activities, this would be a

potentially significant impact. The following mitigation measures have been identified to address this impact.

Mitigation Measure: Implement Mitigation Measure BIO-1: Minimize Effects to Biological Resources.

Refer to Mitigation Measure BIO-1 above for the full description of this measure.

Timing: Before and during construction.

Responsibility: DWR and SBFCA.

Mitigation Measure BIO-6: Conduct a Habitat Assessment and Focused Surveys for Burrowing Owls and Avoid Impacts.

To avoid effects of construction activities on burrowing owls, DWR shall ensure that SBFCA and its contractors implement the following mitigation measures.

1. Prior to construction, a qualified biologist shall conduct an assessment of burrowing owl habitat suitability in areas subject to project-related disturbance. The assessment shall evaluate the area subject to direct impact, as well as adjacent areas within up to 500 feet, depending on the potential extent of indirect impact. If suitable burrows or sign of burrowing owl presence are observed, a focused survey for burrowing owls shall be conducted in areas of suitable habitat within the area of potential direct and indirect impact. The survey shall be conducted in accordance with Appendix D of the *Staff Report on Burrowing Owl Mitigation* (CDFW 2012). A letter report documenting the survey methods and results shall be prepared and submitted to CDFW.

2. If the focused surveys described above have been completed and burrowing owl are detected at the project site, SBFCA and its contractors shall coordinate with CDFW prior to project construction to determine acceptable methods for avoiding and minimizing effects on this species, such that there is no direct loss of individuals of this species or project-related nest failure. Acceptable methods for avoiding and minimizing effects on this species would be in accordance with the *Staff Report on Burrowing Owl Mitigation* (CDFG 2012). Measures may include:

    - Implement a no-disturbance buffer (during the breeding season) and develop and, upon CDFW approval, implement a Burrowing Owl Exclusion Plan.

    - Establish a protective buffer around burrows occupied during the breeding season (February 1 through August 31). The buffer shall be maintained until a qualified biologist verifies, through noninvasive means, that either (1) the birds have not begun egg-laying, or (2) juveniles from the occupied burrows are foraging independently and are capable of independent survival. The size of the buffer shall depend on distance from the nest to area of project disturbance, type and intensity of disturbance, presence of visual buffers, and other variables that could affect susceptibility of the owls to disturbance. Monitoring shall be conducted to

confirm that project activity is not resulting in detectable adverse impacts on nesting burrowing owls.

Timing: Before and during construction.

Responsibility: DWR and SBFCA.

Implementing Mitigation Measures BIO-1 and BIO-6 would reduce the potentially significant impact associated with adverse impacts to burrowing owl to **less than significant with mitigation incorporated** because the project would avoid and minimize disturbance adjacent to occupied burrows, such that there is no net loss of individuals of this species or project-related nest failure.

Other Special-status Birds

The study area provides suitable foraging habitat and select nesting habitat for fourteen (14) additional special-status bird species—Swainson's hawk, bald eagle, white-tailed kite, northern harrier, yellow-breasted chat, yellow warbler, western yellow-billed cuckoo, tricolored blackbird, least bittern, California black rail, and Modesto song sparrow. The study area provides foraging but not nesting habitat for four (4) bird species – golden eagle, greater sandhill crane, mountain plover, and bank swallow.

Construction activities would likely include noise and visual disturbances temporarily during the nesting season that could disturb birds nesting nearby, potentially resulting in nest failure. Disturbance of nesting pairs of sufficient magnitude could result in nest abandonment, a reduction in the level of care provided by adults (e.g., duration of brooding, frequency of feeding), or premature fledging of young. Although the likelihood is low, active nests could occur, in the case of northern harrier, in grassland subject to ground disturbance, potentially resulting in direct destruction of an active nest and loss of the eggs or young.

Additionally, construction activities could result in the destruction of active ground nests of common bird species, which would violate the Migratory Bird Treaty Act (MBTA) and California Fish and Game Code. The list of protected migratory birds includes many common species not otherwise protected under Federal, State, regional, or local laws. Loss of active nests of such species during project implementation would not substantially reduce their abundance or cause any species to drop below self-sustaining levels and would not constitute a significant impact under CEQA. Regardless, DWR and SBFCA would conduct pre-construction surveys and implement appropriate avoidance measures included in its standard construction general conditions to ensure there is no direct loss of active nests of common nesting birds protected by MBTA or California Fish and Game Code. These impacts are considered **potentially significant**. The following mitigation measures have been identified to address impacts related to nest failure.

Mitigation Measure: Implement Mitigation Measure BIO-1: Avoid and Minimize Effects to Biological Resources.

Refer to Mitigation Measure BIO-1 above for the full description of this measure.

Timing: Before and during construction.

Responsibility: DWR and SBFCA.

Mitigation Measure BIO-7a: Conduct Focused Surveys for Nesting Special-status Birds and MBTA-Protected Birds and Avoid Impacts.

To avoid effects of construction activities on nesting special-status birds, DWR shall ensure that SBFCA and its contractors implement the following measures.

1. Vegetation removal shall be conducted between September 2 and January 31, to the extent feasible, to minimize potential loss of active bird nests.

   If project activities, including site preparation and vegetation removal, cannot be conducted outside of the respective nesting seasons, SBFCA and its contractors shall complete pre-activity surveys for nesting birds. Surveys of the entire project site shall be conducted by a qualified biologist during the nesting season, which is typically February 1 to September 1. Surveys shall be conducted within the entirety of the project site, including a 350-foot buffer. Focused surveys for raptors, particularly Swainson's hawk, shall include a 0.5-mile buffer area (or larger area if required by established survey protocol) surrounding these areas. Where appropriate, pre-activity surveys shall follow established survey protocols or guidelines for focused special-status species. These protocols include the following:

   - Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley (SHTAC 2000)
   - Tricolored Blackbird Survey Methods (Airola et al. 2024)
   - A Natural History Summary and Survey Protocol for the Western Distinct Population Segment of the Yellow-billed Cuckoo (survey timing only, non-protocol level) (USFWS 2016)

If no established survey protocol exists, the qualified biologist shall complete surveys no more than 48 hours prior to the start of project activities. The nesting bird survey shall be reconducted if there is a lapse in project activities of 7 days or more. If no nesting birds are detected during pre-activity surveys, no additional mitigation measures are required.

Timing: Before construction.

Responsibility: DWR and SBFCA.

Mitigation Measure BIO-7b: If Avoiding Construction-related Effects on Nesting Special-status Birds is Infeasible, Implement Minimization Measures.

DWR will ensure that SBFCA and its construction contractors shall implement the following measures:

If the measures described above in Mitigation Measure BIO-7a have been completed and avoiding effects on nesting special-status birds is infeasible, SBFCA and its contractors

shall coordinate with CDFW to determine acceptable methods for minimizing effects on these species prior to project activity start. SBFCA and its contractors shall ensure that the measures described below are implemented to minimize effects of the project on nesting special-status birds, such that there is no direct loss of individuals of these species or project-related nest failure during project implementation.

1. If any active nests, or behaviors indicating active nests are present, or observed, SBFCA and its contractors shall establish appropriate-sized avoidance buffers around the nest sites, as determined by a qualified biologist in coordination with CDFW to avoid nest failure resulting from project activities. The size and shape of the buffer shall depend on the species, nest location, nest stage, and specific construction activities to be performed while the nest is active. The buffer shall be expanded if the birds are exhibiting agitated behavior, or the buffers may be adjusted (reduced) if a qualified biologist determines it would not be likely to adversely affect the nest. If required, buffers shall be marked in the field by a qualified biologist using temporary fencing, high-visibility flagging, or other means that are equally effective in clearly delineating the buffer.

2. Monitoring shall be conducted by a qualified biologist, either continuously or periodically during work, to confirm that project activity is not resulting in detectable adverse impacts on nesting birds or their young. The qualified biologist shall be empowered to stop construction 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 construction activities are stopped, the qualified biologist shall consult with CDFW to determine appropriate measures that SBFCA and its contractors shall implement to avoid adverse effects.

3. No project activity shall commence within the buffer areas until a qualified biologist has determined that the young have fledged or the nest site is otherwise no longer in use.

Timing: Before and during construction.

Responsibility: DWR and SBFCA.

Implementing Mitigation Measures BIO-1, BIO-7a, and BIO-7b would reduce the potentially significant impact associated with adverse impacts to nesting special-status birds to a **less than significant with mitigation incorporated** because the project would avoid and minimize impacts to active nests, such that there is no direct loss of individuals of these species or project-related nest failure.

Roosting Bats

There is potentially suitable roosting habitat for bats within the study area, and because the project includes tree removal, there is the potential to impact roosting bats and bat habitat. This would be a **potentially significant** impact. The following mitigation measures have been identified to address this impact.

Mitigation Measure: Implement Mitigation Measure BIO-1: Avoid and Minimize Effects to Biological Resources.

Refer to Mitigation Measure BIO-1 above for the full description of this measure.

Timing: Before and during construction.

Responsibility: DWR and SBFCA.

Mitigation Measure BIO-8a: Conduct an Assessment of Suitable Roosting Habitat within the Project Site.

To avoid effects of construction activities on roosting bats, DWR shall ensure that SBFCA and its contractors implement the following measure.

1. **Conduct an Assessment of Suitable Roosting Habitat within the project site where tree removal is unavoidable.** Flag and record locations of trees that either have signs of bat presence (i.e. guano) or have the potential to be suitable roosting habitat for bats.

Timing: Before construction.

Responsibility: DWR and SBFCA.

Mitigation Measure BIO-8b: If Avoiding Tree Removal with Suitable Roosting Habitat is Infeasible, Implement Minimization Measures.

If the measures described above have been completed and avoiding effects on suitable roosting habitat is infeasible, DWR shall ensure that SBFCA and its contractors implement the measures described to minimize effects of the project on roosting bats, such that there is no direct loss of individuals of these species or project-related maternity failure.

1. **Avoid Impacts to Roosting Bats.** Potential for impacts on roosting bats shall be minimized by implementing the following seasonal restrictions and tiered removal approach for each potential roost tree to be removed:

- Conduct removal of suitable roosting habitat trees between August 16 and December 1 or between February 28 and May 1 to avoid the winter hibernation/torpor season and maternity season, when bats are most likely to be impacted by tree removal. Note that this overlaps with nesting bird season, and mitigation measures for nesting birds shall still be adhered to, where necessary.
- Perform tree removal in the presence of the monitoring bat biologist.
- Remove all unaffected limbs (those without potential roosting habitat) from the tree and leave remaining trunk and limbs overnight. Fell the remaining trunk and

affected limbs the following day. Leave all fallen material on the ground at least one night prior to removal from the project site.

- Fell the entire tree and leave the fallen material on the ground at least one night prior to removal from the project site.
- As practical, fell all affected limbs slowly and gently, to minimize the likelihood of crushing bats that may be roosting inside.
- As practical, the qualified bat biologist shall inspect all potential roost habitat for bats after felling and before removal from the project site.
- If bats are detected at any point, stop work immediately, leave the tree site and a surrounding 200-foot buffer, and consult with the monitoring bat biologist.
- If any injured bats are found, the qualified bat biologist shall collect and deliver the bat(s) to a bat rehabilitator permitted by CDFW.

As an Alternative to the Above Tiered Approach, Emergence Surveys may also be Conducted to Confirm Roost Occupancy during the Appropriate Timing. As an alternative to using the above tiered tree removal approach, occupancy surveys may be conducted within 2 weeks before removal of potential roosting habitat to confirm the trees in question do not support an active roost. Because occupancy surveys may not be effective in the winter when bats may not be volant, trees that support suitable roosting habitat shall not be removed during the winter hibernation/torpor season (December to February 28).

If occupancy surveys are conducted during the maternity season and evidence of a potential maternity roost is detected, removal of the potential roost tree(s) shall be postponed until after the maternity season ends on August 15. If occupancy surveys indicate that potential roost habitat is unoccupied, trees shall be removed within 2 weeks; if removal does not occur within 2 weeks, occupancy surveys shall be repeated before potential roost trees are removed or the seasonal restrictions and tiered tree removal process described above shall be implemented.

Timing: Before and during construction.

Responsibility: DWR and SBFCA.

Implementing Mitigation Measures BIO-1, BIO-8a, and BIO-8b would reduce the potentially significant impact associated with adverse impacts to roosting bats to less than significant with mitigation because the project would avoid and minimize impacts to roosting bats, such that there is no direct loss of individuals of these species or project-related bat maternity failure.

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

Riparian areas in the study area are considered sensitive natural communities and are regulated by CDFW. In addition, the project site may have presence of oak species (*Quercus* ssp.), willow species, and other habitat designated as sensitive. Loss of riparian cover, including removal of trees and shrubs, may occur as a result of project activities. Specifically, vegetation removal would be required on the landside levee slopes to accommodate the excavation and cutoff wall. Riparian trees would be preserved to the greatest extent feasible, but some loss of riparian area is anticipated due to tree trimming. Additionally, construction of the levee improvements would require removal of up to seven (7) trees located on the landside of the levee. These trees are not considered riparian habitat. Canopy cover would need to be estimated in the field, in order to assess impacts, however, tree removal and trimming from the proposed project is expected to not substantially impact canopy cover. While the loss of canopy cover is expected to be minimal, the loss or degradation of riparian communities would be considered a **potentially significant** impact. The following mitigation measures have been identified to address this impact.

Mitigation Measure: Implement Mitigation Measure BIO-1: Avoid and Minimize Effects to Biological Resources.

Refer to Mitigation Measure BIO-1 above for the full description of this measure.

Timing: Before and during construction.

Responsibility: DWR and SBFCA.

Mitigation Measure BIO-9: No Net Loss of Riparian or Sensitive Habitat.

DWR shall ensure that SBFCA and its contractors implement the following mitigation measures.

No net loss of riparian or sensitive habitat would be achieved through impact avoidance, minimization, and/or compensatory mitigation. If riparian and sensitive habitats are able to be fully avoided throughout project implementation, no further action for this measure is needed.

If loss of riparian or sensitive habitat is anticipated, SBFCA and its contractors shall acquire compensatory mitigation for the loss prior to commencement of construction. Mitigation for permanent impacts on sensitive communities shall be provided at a minimum 1:1 ratio. Mitigation can be achieved through on-site restoration, in-lieu fee payment or purchase of mitigation credits at a USACE- and/or CDFW-approved mitigation bank. Mitigation, as required in regulatory permits issued through CDFW, USACE, and/or the CVRWQCB, may be applied to satisfy this measure.

Implementing Mitigation Measures BIO-1 and BIO-9 would reduce the potentially significant impact associated with loss of sensitive communities to a **less-than-significant with mitigation incorporated** because the project would achieve no net loss of sensitive communities through compensatory mitigation, if needed.

c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to,

marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

There are several aquatic habitats adjacent to the project site that are expected to qualify as jurisdictional waters. However, no work would occur within any aquatic habitat; therefore, **no impact** would occur to jurisdictional waters.

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

A wildlife corridor is generally a topographical or landscape feature or movement area that connects two areas of habitat that otherwise would be entirely fragmented or isolated from one another. Sutter Bypass and the agricultural canals and ditches adjacent to the project site may facilitate local movement of aquatic species, but no project work would occur in these aquatic habitats. Additional areas that would be affected by construction in the project are not known to contain native wildlife nursery sites, such as colonial bird rookeries or bat maternity colonies. Database reviews and field surveys conducted by ECORP and GEI, intermittently from 2021 through 2024, have not indicated the presence of colonial bird rookeries or bat maternity colonies in the project site. Additionally, the riparian habitat along the Sutter Bypass, which is the main corridor for terrestrial species, would not be impacted by this project. Therefore, there would be **no impact** on migratory corridors and movement of terrestrial or aquatic animals, or 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?

It is anticipated that at least seven (7) trees would be removed from the landside of the project site, and several more may be trimmed to allow for construction activities. This portion of the project site is in Sutter County and is, therefore, under the umbrella of the Sutter County 2030 General Plan (Sutter County 2011).

The County's General Plan (Chapter 9) identifies requirements related to tree removal for projects requiring discretionary approval by Sutter County; however, the proposed project is not subject to approval by the County (Sutter County 2011). Therefore, the proposed project would not conflict with local policies or ordinances and there would be no impact.

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 activities would not conflict with any provisions of an adopted Habitat Conservation Plan (HCP), Natural Community Conservation Plan (NCCP), or other approved local, regional, or State HCP Because the study area is not within boundaries of any HCP/NCCPS. Therefore, no conflict and **no impact** would occur.

3.5 Cultural Resources

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

3.5.1 Environmental Setting

Information on cultural resources presented in this section is based on the *Cultural Resources Inventory and Evaluation Report for the Sutter Bypass East Levee Repair Project, Sutter County, CA* (ECORP Consulting, Inc. 2024), with other references as necessary. In this section, cultural resources are defined as buildings, sites, structures, or objects, each of which may have historic, architectural, archaeological, cultural, or scientific importance. The State CEQA Guidelines Section 15064.5(a)(1) defines a "historical resource" as any resource listed in or determined to be eligible for listing in the California Register of Historical Resources (CRHR).

California Register of Historical Resources

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

State CEQA Guidelines also require consideration of unique archaeological resources (CCR Section 15064.5). As used in California PRC Section 21083.2, the term "unique archaeological

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

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

In addition, State CEQA Guidelines require consideration of Tribal Cultural Resources (TCRs), which are either: (1) sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American Tribe that is either on or eligible for inclusion in the CRHR or a local historic register; or, (2) resources the lead agency (in this case, DWR), at its discretion and supported by substantial evidence, chooses to treat as a TCR. Additionally, a cultural landscape may also qualify as a TCR if it meets the criteria to be eligible for inclusion in the CRHR and is geographically defined in terms of the size and scope of the landscape. Other historical resources, unique archaeological resources, and non-unique archaeological resources addressed in this section could also be TCRs if they conform to the criteria to be eligible for inclusion in the CRHR. See Section 3.18 "Tribal Cultural Resources," for further details.

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

California Public Resources Code Section 5097

PRC Section 5097.9

PRC Section 5097.9 states that no public agency or private party using public property or operating on public property, under a public license, grant, lease, or contract will in any manner interfere with the free expression or exercise of Native American religion a provided in the United States or California constitutions. It further states that no such agency or party will cause irreparable damage to any Native American sanctified cemetery, place of worship, religious or ceremonial site, or sacred shrine located on public property.

PRC Section 5097.99

PRC Section 5097.99 states that no person will obtain or possess any Native American artifacts or human remains which are taken from a Native American grave or cairn except as otherwise provided by law; doing so constitutes a felony punishable by imprisonment as is removal of Native American artifacts or human remains with an intent to sell or dissect or with malice or wantonness.

PRC Section 5097.993 (Native American Historic Resource Protection Act)

PRC Section 5097.993, the Native American Historic Resource Protection Act, states that a person who unlawfully and maliciously excavates upon, removes, destroys, injures, or defaces a Native American historic, cultural, or sacred site that is listed or may be eligible for listing in the CRHR is guilty of a misdemeanor if the act was committed with specific intent to vandalize, efface, destroy, steal, convert, possess, collect, or sell.

California Health and Safety Code Section 7050.5

Section 7050.5 of the California Health and Safety Code prohibits the disinterment, disturbance, or removal of human remains from any location other than a dedicated cemetery. PRC Section 5097.98 (also referenced in State CEQA Guidelines Sectio 15064.59[e]) identifies steps to follow in the event of the accidental discovery or recognition of any human remains in any location other than a dedicated cemetery. These steps include but are not limited to requiring that if human remains are discovered in any place other than a dedicated cemetery no further disturbance or excavation of the site or nearby area reasonably suspected to contain remains will occur until the county coroner has examined the remains.

California Native American Graves Protection and Repatriation Act-AB 978 and associated bills

In 2001, the State Legislature passed AB-978, the California Native American Graves Protection and Repatriation Act of 2001, requiring all state agencies and museums that receive state funding and that have possession or control over collections of human remains or cultural items to provide a process for the identification and repatriation of these items to the appropriate Tribes. The bill also created a Repatriation Oversight Commission with oversight authority. The intent of the legislation was to cover gaps in the federal Native American Graves Protection and Repatriation Act specific to the State of California.

On September 25, 2020, AB-275 was signed into law, which amended the California Native American Graves Protection and Repatriation Act and became effective on January 1, 2021. In AB-275, the State Legislature added additional Native American Heritage Commission (NAHC) responsibilities, including maintaining a list of California Indian Tribes and their state aboriginal territories, adopting mediation procedures, and publishing notices of completion of preliminary inventories and summaries on the Commission website.

California Native American Graves Protection and Repatriation Act is in the California Health and Safety Code, Division 7 ("Dead Bodies"), Part 2 (Disinterment and removal"), Chapter 5 – California Native American Graves Protection and Repatriation Act (Sections 8010 – 8030 as added in 2001 and amended in 2018, 2020, and 2021).

Pre-Contact Setting

Human occupation of California likely began about 10,000 years Before Present (BP). The archaeological record that between 10,000 and 8,00 BP the economy was hunting focused with archaeological assemblages characterized by containing numerous projectile points and butchered large animal bones. Bones of smaller animals are also found, as well as plant processing tools, but these tend to be much smaller portions of assemblages dating to this period.

Around 8,000 BP there was a shift in focus from hunting to more emphasis on plant resources. The number of plant processing tools increases in the archaeological record. Projectile points are still found but are fewer in number than the previous period. Extensive and deep middens at sites dating to this period indicates an increase in the size of groups and the stability of settlements.

Another shift in the archaeological record occurs at roughly 5,000 BP. During this time there is a shift in archaeological assemblages that appear to have a specialized adaptation to particular environments. Plant processing tools expand in type. Flaked stone tools become more refined and specialized; bone tools become more common. Also, it is likely that that people speaking differing languages settled in California. Bow and arrow technology entered the archaeological record about 2,000 BP.

Looking more specifically at the project area than California, very early groups appear to have subsided on big game and minimally processed foods. Recent research indicates that people of this time may have been more sedentary, relied more on processed foods, and traded more than previously thought, though groups were still likely consisted of small groups and traveled frequently.

The next period is known as the Archaic Period and itself consists of three divisions broadly following climate changes. The Lower Archaic Period is characterized by wide-spread floodplain and alluvial fan deposition. Assemblages of this time contain crescents, wide-stemmed points, marine shell beads, and obsidian originating in eastern Nevada as well as the North Coast Ranges. The following Middle Archaic Period is characterized by a drier climate. Archaeologically there are two settlement/subsistence patterns; the Foothills Tradition and the Valley Tradition. The Valley Tradition is characterized by use of locally sourced flaked stone and groundstone cobbles. The end of the Archaic Period, the Upper Archaic Period, is characterized by a change to wetter and cooler climate conditions and a greater cultural diversity from prior periods. Specialized tools such as bone tools, ceremonial blades, polished and groundstone plummets, Olivella shell beads, Haliotis shell ornaments, and numerous groundstone implements.

The final period before European Contact, the Emergent Period, is most known for the introduction of bow and arrow technology, the emergence of social stratification, and expanded trade networks. Projectile points are small (arrow-sized), rimmed display mortars, flanged steatite pipes, flanged pestles, and chevron-designed bird-bone tubes are found in archaeological assemblages dating to this time. Large mammals and seed resources seem to have made up an important part of the food economy.

Historic Setting

Regional Flood History

A year after the establishment of Sutter County and Yuba City in 1850, the region experienced a major flood that destroyed most of the buildings in Yuba City. Residents hoped that the city's location next to a natural levee formed by silt deposits (related to Gilsizer Slough) would protect them from flooding. However, the slough often overflowed, and flooding events became more frequent due to hydraulic mining activities to the east that caused sediment deposits to accumulate in the Yuba and Feather riverbeds. Hydraulic mining was outlawed by the end of the

1880s, but flooding continued (ECORP Consulting, Inc. 2024:25). To address flooding concerns, locals typically constructed informal levees during the late 19th and early 20th centuries. These informal levees often failed due to improper materials and inconsistent heights used for levee construction. A federal flood control plan did not occur until Congress passed the Flood Control Act of 1917.

Flood Control Acts

The 1917 Federal Flood Control Act required USACE to work with State government and local levee districts to provide $5.6 million to construct flood control facilities on the Sacramento River (O'Neill 2006:125). The Act of 1917 authorized the beginning of the Sacramento River Flood Control Project (SRFCP) in 1918. It also marked the first expansive flood control efforts on the Sacramento River. The SRFCP consists of a system of levees, bypasses (including the Sutter Bypass), and weirs that work together to control flooding throughout the region.

The 1936 Flood Control Act established the Federal government's responsibility for flood control and solidified USACE's authority (O'Neil 2006:165–166). This act was modified again in 1941 to authorize Federal expenditures for completion of flood control projects, including purchasing land, easements, and rights-of-way. By 1944, the SRFCP was nearly 90 percent complete and an estimated 980 miles of levees were constructed (Kelley 1989:309). By 1955, there were numerous miles of project levees along the Sacramento River that required upgrades to meet Federal standards (Kelley 1989:309).

Sutter Bypass and Associated Levees

The Sutter Bypass levees were constructed in 1924 and 1925 as part of the SRFCP. They are designed to alleviate flooding by diverting water from the Sacramento River (via the Tisdale Weir) through the Sutter Bypass. The Sutter Bypass not only provides flood protection, it also created thousands of acres of farmable land by draining swampy areas. The USACE expanded the associated levees between 1943 and 1950 due to excessive flooding. Levee expansion included raising and widening the levee crown to 20 feet (ECORP Consulting, Inc. 2024:29).

Methods of Analysis

In October 2024, ECORP Consulting, Inc (ECORP) conducted a cultural resources investigation of the proposed project area. The investigation consisted of literature review, a records search conducted through the Northeast Information Center (NEIC) of the California Historical Resources Information System, Native American and historical society consultations, and a field survey. GEI reviewed the existing documentation to prepare this cultural section.

Records Search, Desktop Review, Archival Research

ECORP requested a records search of project are at NEIC on August 16, 2024 in order to determine if what if any previous cultural resources have been previously reported within the project area and how much of the project area has been previously surveyed.

The NEIC search referenced documents included base maps indicating previously reported resources and investigations, reports from previous investigations, Department of Parks and

Recreation (DPR) site records, and California Historic Landmarks documentation. The records search included the following sources:

- Built Environmental Resource Directory (Office of Historic Preservation [OHP] 2020);
- Historic Property Data File for Sutter County (OHP 2012);
- National Register Information System (NPS 2022);
- California Points of Historical Interest (OHP 1992 and updates);
- Directory of Properties in the Historical Resource Inventory;
- California Department of Transportation (Caltrans) Local Bridge Survey (Caltrans 2019);
- Caltrans State Bridge Survey (Caltrans 2018);
- Historic Spots in California (Kyle 2002).

In addition, ECORP also reviewed available ethnographic maps and information regarding Native American villages or ethnographic sites, various historical U.S. Geological Survey maps, aerial photographs, and a local historical registry. ECORP also reviewed newspaper articles, secondary resources, and searched online repositories for documents relating to the Sutter Bypass. ECORP also searched the *Online Archive of California's* collections of archives and libraries for historical information relating to the project area.

Other Interested Party Correspondence

ECORP sent letters to the Sutter County Museum on August 15, 2024, to obtain information the museum might have regarding events, people or resources in the project area. There was no additional outreach and no response from the museum has been received to date.

Built Environment Resources

ECORP's 2024 study identified three built environment resources in the project area: the SBEL (P-51-147/CA-SUT-147H), Sutter Bypass Collecting Canals (P-51-330), and the Sutter Bypass Water Diversion System District. All three resources have been previously recorded, and the collecting canals and the water diversion system district have been previously evaluated. ECORP revisited the resources for this project and found the resources all appear to be in good condition. The resources were reassessed for the purpose of this project. A fourth resource, the Sutter Bypass Pumping Plant No. 2, had been identified in the project area through a previous survey, but the 2024 ECORP field survey confirmed it has since been mostly demolished. The remaining structure on site is of recent construction (c 1980s) and was modified in 2010 and thus is not eligible for the CRHR (ECORP 2024: 49).

Pedestrian Survey

ECORP had previously surveyed the bulk of the project area in November 2021 for the Tudor Small Communities Grant Levee Remediation Project. Not all of the project area was included, however, and therefore additional surveys covering those portions of the project area that had not been surveyed were conducted. These areas consisted of the staging areas for the project; those

areas were surveyed on September 25, 2024. In addition, areas of the previous survey area were spot-checked to provide sufficient coverage. During the pedestrian survey, 15-meter transects were used to provide intensive-level coverage. The survey crew examined the ground surface for evidence of archaeological material or features especially where indications of subsurface evidence would be evident such as rodent activity, erosion, or vegetation disturbance.

Findings

The records search and pedestrian survey did not identify any previously or newly identified archaeological resources. Three built environment resources were identified in the project area: the SBEL, the Sutter Bypass Collecting Canals, and the Sutter Bypass Water Diversion System District.

The SBEL was recommended as ineligible for the CRHR as an individual resource, however, it is eligible as a component of the Sutter Bypass Water Diversion System District because it forms the eastern boundary of the Sutter Bypass and is an integral component of the Bypass's ability to retain and manage flood waters (ECORP 2024: 49). For this reason, it is also considered a historical resource for the purposes of CEQA.

The Sutter Bypass Collecting Canals were previously evaluated as ineligible for the NRHP/CRHR) in 2015. ECORP revisited the resource as a part of this project and found the previous finding of ineligibility remains valid. The canals are not considered historical resources.

The Sutter Bypass Water Division District was previously evaluated as eligible for the NRHP/CRHR under Criteria A/1 and C/3 for its association with early flood management in California and recreational, agricultural, and flood control development of the region. The State Historic Preservation Officer concurred with the finding in 2001. ECORP revisited the resource and found the previous evaluation of eligibility remains valid (ECORP 2024: 52). The resource is considered a historical resource for the purposes of CEQA.

3.5.2 Discussion

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

Two historical resources (SBEL and Sutter Bypass Water Division District) are located in the project area. Proposed project activities include levee degradation, resurfacing, and some reconstruction as well as constructing a cutoff wall. These activities would directly impact the resources, however, upon completion of the project, the two resources would retain their overall look and feel as well as their ability to convey their historical significance related to retaining and managing flood waters. Therefore, the impact would be less-than-significant. Though very unlikely, the possibility remains, however, that a resource meeting a CRHR significance criterion for a historical resource or Tribal Cultural Resource may be discovered during project-related ground-disturbing activities. If this were to occur, then it would be a **potentially significant** impact.

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

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

No archaeological resources meeting criteria to be considered historical resources were identified during the records search or pedestrian survey conducted for the current investigation. Further, no Tribal Cultural Resources or Unique Archaeological Resources were identified during the cultural resources investigation. Though very unlikely, the possibility remains, however, that a resource meeting a CRHR significance criterion for a archaeological resource may be discovered during project-related ground-disturbing activities. If this were to occur, then it would be a **potentially significant** impact.

The following mitigation measure has been identified to address this potential impact to historical and archeological resources.

Mitigation Measure CUL-1: WEAP Training for Cultural and Tribal Resources.

DWR shall ensure that SBFCA and its contractors implement the following mitigation measures.

Cultural resources awareness training, as part of an overall WEAP, shall 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 shall be conducted before any stages of physical project implementation and construction. Native American representatives from interested Native American Tribes should be invited to participate in the training as well as to comment and assist in developing the WEAP.

The WEAP training shall 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 should also include a summary of the relevant laws concerning cultural resources and human remains, protocols for respectful behavior towards Native American resources along with a summary of the following protocols and procedures to follow if workers encounter cultural resources or human remains.

Timing: Before construction activities

Responsibility: DWR, and SBFCA and construction contractor(s)

Mitigation Measure CUL-2: Avoid Potential Effects on Undiscovered Historical Resources, Tribal Cultural Resources, and Unique Archaeological Resources.

DWR shall ensure that SBFCA and its contractors implement the following mitigation measures.

In the event of an inadvertent discovery of potential archaeological and Tribal cultural resources a stop work order and establishment of a no work zone in the immediate vicinity of the find shall be established. The area of the discovery shall be flagged to delineate the boundary of the sensitive zone. If either an archaeological or Tribal monitor are not present at the time of the discovery, representatives from participating California Native American Tribes shall be notified and a qualified archaeologist, who meets the U.S. Secretary of the Interior's Professional Qualifications Standards for Archaeology, shall visit the discovery site as soon as practicable for identification and evaluation pursuant to CEQA Guidelines Section 15064.5. If the archaeologist determines that the archaeological find is not a "historical" or "unique archaeological" resource and if participating Tribes determine that the find is not a resource of cultural importance, and thus not significant as a potential Tribal cultural resource, construction may resume. If the archaeologist or representative from a participating Native American Tribe determines that the find is significant or potentially significant, the Tribal representative shall work in concert with the archaeologist to determine if the find can be avoided and, if so, shall detail avoidance procedures. If the find cannot be avoided, the archaeologist shall coordinate with the lead agency to facilitate consultation with participating Tribes to develop an Action Plan within 48 hours which shall include provisions to minimize impacts.

The preferred treatment for impacts to archaeological sites, including those identified as Tribal Cultural Resources, is avoidance, as directed under CEQA Guidelines 15126.4(b)(3)(b)(1). Not all archaeological sites that may be encountered may be able to be avoided. A Resource Treatment Plan shall be developed consistent with requirements in the CEQA Guidelines Section 15126.4(b). If archaeological data recovery is included in the Treatment Plan, the Plan shall include a research design to identify research questions as the focus of data recovery efforts and detail the field and laboratory methods to address the questions. The Treatment Plan shall also include a specific discussion of the methods and level of effort at each site for data recovery excavation, which are an acceptable form of mitigation under Section 15126.4(b)(3)(c) of the CEQA Guidelines. Specific plans for Tribal Cultural Resources shall be prepared in consultation with participating Native American Tribes.

Timing: Before and during construction.

Responsibility: DWR and SBFCA and its construction contractors.

Implementing Mitigation Measure CUL-1 and CUL-2 would reduce potentially significant impacts on any previously undiscovered historical resources, or unique archaeological resources to **less-than-significant with mitigation incorporated** because the resources would be identified then avoided and preserved in place or assessed and treated in accordance with appropriate professional standards.

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

No human remains have been discovered in the project area and it is not anticipated that human remains, including those interred outside of dedicated cemeteries, would be discovered during ground disturbance activities due to the proposed project. There is no specific indication that the project location has been used for human burial purposes in the recent or distant past. 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 would be **potentially significant**. The following mitigation measure has been identified to address this impact.

Mitigation Measure CUL-3: Avoid Potential Effects on Undiscovered Burials.

To minimize the potential for destruction of or damage to undiscovered burials during project-related earthmoving activities, DWR shall ensure that SBFCA and its construction contractor(s) shall implement the following measures:

- If human remains are found, the California Health and Safety Code requires that excavation be halted in the immediate area and that the County Coroner be notified to determine the nature of the remains. The coroner is required to examine all discoveries of human remains within 48 hours of receiving notice of a discovery on private or state lands (CHSC Section 7050.5[b]). If the coroner determines that the remains are those of a Native American, he or she must contact the NAHC by telephone within 24 hours of making that determination (CHSC Section 7050.5[c]).

- Once notified by the coroner, the NAHC shall identify the person it believes is the Most Likely Descendant (MLD) of the Native American remains. With permission of the legal landowner(s), 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 within 24 hours of the MLD's notification by the NAHC (California Public Resources Code [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 the 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: Before and during construction.

Responsibility: DWR and SBFCA and its construction contractors.

Implementing Mitigation Measure CUL-3 would reduce potentially significant impacts related to potential disturbance of human remains to a **less-than-significant level with mitigation incorporated** because in the event that human remains were discovered, all appropriate steps required by the CHSC and California PRC sections identified above would be implemented.

3.6 Energy

Environmental Issue	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No 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?	☐	☐	☐	☒

3.6.1 Environmental Setting

PG&E provides electricity and natural gas to Sutter County (Sutter County 2011). Electricity provided from PG&E is generated and transmitted to Sutter County by a large network of power plants and transmission lines located throughout California. Most of the electrical service in the Sutter County is carried through above-ground lines. In 2022, energy consumption in Sutter County was approximately 661 million kilowatt hours (kWh) (California Energy Commission [CEC] 2022).

3.6.2 Discussion

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

The project would involve the use of gas- and diesel-fueled vehicles and equipment during construction activities and from import of materials to and from the project site. Construction activities would occur over two construction seasons beginning in April 2026 and ending in October 2027. The project's use of energy resources during construction would be non-recoverable but temporary and would not include unnecessary, inefficient, or wasteful energy use. Project construction would temporarily increase fuel consumption; however, it is anticipated that fuel would only be used to the extent it is needed to complete construction activities and would not be consumed in a wasteful manner during construction. Additionally, the selected construction contractor(s) would use the best available engineering techniques, construction practices, and equipment operating procedures.

The proposed project would not require new consumption of energy resources during operations. No additional vehicle trips would be generated for operations and maintenance, because maintenance trips for the SBEL already occur under existing conditions. Further, O&M of the project site would be the same or less than under current conditions. Therefore, the project's energy consumption for construction and operations would not be considered wasteful, inefficient, or unnecessary, and this impact would be **less than significant**.

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

Sutter County has not adopted a local plan for renewable energy or energy efficiency; however, California's Climate Commitment is to achieve carbon neutrality as soon as possible, and no later than 2045, and ensures an 85 percent of emission reduction as part of the goal (State of California 2022). The project does not include the long-term use of electrical services. Therefore, the project would not conflict or obstruct California's Climate Commitment. The project would not conflict with any 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 with Mitigation Incorporated	Less Than Significant Impact	No 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 Division of Mines and Geological 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), creating substantial direct or indirect risks to life or property?	☐	☐	☒	☐
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	☐	☐	☐	☒
f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature	☐	☐	☐	☒

3.7.1 Environmental Setting

The project site is located in the Sacramento Valley portion of the Great Valley Geomorphic Province and the Chico Quadrangle and consists of Holocene age alluvium basin deposits (Saucedo and Wagner 1992). These alluvial deposits consist of reworked fan and stream materials that were deposited by streams prior to the construction of the existing flood control systems. The youngest (Holocene) geomorphic features in the project site and vicinity are low floodplains. These major drainage ways were originally confined within broad natural levees sloping away from the rivers and streams. The project site is also located approximately 7 miles

south of the Sutter Buttes, which was once an isolated Pliocene-era volcano and is now a small mountain range and California State Park.

Sutter County has experienced relatively low seismic activity in the past (Sutter County 2011) and the project site is not in the vicinity of any Alquist-Priolo Earthquake Fault Zones (California Geological Survey [CGS] 2021). There is an unnamed, inactive pre-quaternary fault that intersects the project area, and the nearest known active fault to the project site is an unnamed quaternary fault, located approximately 4 miles north of the project site at the Sutter Buttes (CGS 2024).

The soils at the project site consist primarily of Oswald Clay, 0 to 2 percent slopes and Subaco clay, 0 to 2 percent slopes (U.S. National Resource Conservation Service 2024). Both of these clay soils are poorly drained with low permeability and typically used for agricultural purposes (U.S. Department of Agriculture [USDA] 1983, 1996). Due to their potential to shrink and swell in the presence of water, they can be considered expansive soils.

3.7.2 Discussion

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

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

Because the project site is not located within an Alquist-Priolo Earthquake Fault Zone and there are no known active faults within or adjacent to the project site, fault ground rupture is unlikely. Therefore, **no impact** would occur.

ii) Strong seismic ground shaking?

The Sacramento Valley has historically experienced low levels of seismic activity. Known active faults that pose a hazard for strong seismic ground-shaking are located along the margin between the western Sacramento Valley and the eastern Coast Ranges, and within the Coast Ranges itself. Additionally, there is an active fault approximately 4 miles north of the project site, but it is significantly smaller than the above described faults. Therefore, the risk of strong seismic ground shaking at the project site is low.

The project includes constructing a cutoff wall, replacing ramps, and utility relocation as necessary. Project designs would comply with the California Uniform Building Code (UBC), which is based on the Federal UBC but is more detailed and stringent. Chapter 16 of the California UBC regulates structural design, Chapter 18 regulates the excavation and construction of foundations, retaining walls, and embedded posts and poles, and Appendix J addresses grading considerations. UBC Appendix Chapter A33 regulates grading activities, including drainage and erosion control, and construction on unstable soils. All project facilities would be designed in accordance with UBC requirements. The proposed project would not expose people

or structures to increased effects from strong seismic ground shaking and there would be **no impact**.

iii) Seismic-related ground failure, including liquefaction?

Soil liquefaction occurs when ground shaking from an earthquake causes a sediment layer saturated with groundwater to lose strength and take on the characteristics of a fluid, thus becoming similar to quicksand. Factors determining the liquefaction potential are soil type, the level and duration of seismic ground motions, and the depth to groundwater. Liquefaction is most likely to occur in low-lying areas where the substrate consists of poorly consolidated to unconsolidated water-saturated sediments or similar deposits of artificial fill.

Known active faults are located approximately four miles north of the project site at the Sutter Buttes (CGS 2024).The native soils on the project site are primarily clay and generally have a low liquefaction potential. Further, the project would strengthen the levee by constructing a cutoff wall that would prevent water from seeping under the levee and increase the stability of the levee under flood conditions. Therefore, the project would not increase the risk of liquefaction exposure in or adjacent to the project site and there would **no impact**.

iv) Landslides?

The project site is located in an area surrounded by flat topography and all proposed constriction elements would comply with California UBC. Therefore, there would be **no impact**.

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

Project-related earth-moving activities associated with construction of the cutoff wall, replacement of ramps, and grading would result in the temporary and short-term disturbance of soil. Rainfall of sufficient intensity could dislodge soil particles from the soil surface. Once particles are dislodged and the storm is large enough to generate runoff, localized erosion could occur. In addition, soil disturbance during summer could result in loss of topsoil. Therefore, this impact would be **potentially significant**. The following mitigation measure has been identified to address this impact.

Mitigation Measure GEO-1: Prepare and Implement a Storm Water Pollution Prevention Plan and Associated Best Management Practices.

DWR shall ensure that SBFCA and its contractors implement the following mitigation measures

SBFCA and its contractors shall prepare a Notice of Intent and implement the appropriate Stormwater Pollution Prevention Plan (SWPPP) to meet the State Water Board's Construction General Permit requirements in Order 2009-0009-DWR (as amended by 2010-0014-DWQ and 2012-0006-DWQ)) to prevent and control pollution and to minimize and control runoff and erosion during construction of the proposed project. The SWPPP shall identify the activities that may cause pollutant discharge (including sediment) during storms or strong wind events and the BMPs that shall be employed to control pollutant discharge. Construction techniques that shall be identified and

implemented to reduce the potential for runoff may include minimizing site disturbance, controlling water flow over the construction site, stabilizing bare soil, and ensuring proper site cleanup. In addition, the SWPPP shall include an erosion control plan and BMPs that specify the erosion and sedimentation control measures to be implemented, which may include silt fences, staked straw bales/wattles, silt/sediment basins and traps, geofabric, trench plugs, terraces, water bars, soil stabilizers and re-seeding and mulching to revegetate disturbed areas. The SWPPP shall also include dust control practices to prevent wind erosion, sediment tracking, and dust generation by construction equipment. No construction-related disturbance of surfaces shall occur between October 15 and April 15 without appropriate erosion control measures in place.

The SWPPP shall also include a spill prevention, control, and countermeasure plan, and applicable hazardous materials business plans, and shall identify the types of materials used for equipment operation (including fuel and hydraulic fluids), and measures to prevent and materials available to clean up hazardous material and waste spills. The SWPPP shall also identify emergency procedures for responding to spills.

The BMPs presented in either document shall be clearly identified and maintained in good working condition throughout the construction process. The construction contractor shall retain a copy of the approved SWPPP on the construction site and modify it as necessary to suit specific site conditions through amendments approved by the CVRWQCB, if necessary.

Timing: Before and during construction.

Responsibility: DWR and SBFCA.

Implementing Mitigation Measure GEO-1 would reduce the potentially significant impact from construction-related erosion to **less than significant with mitigation** because a SWPPP would be prepared and implemented consistent with the Construction General Permit requirements that would prevent and control runoff and erosion and minimize degradation of surface water quality.

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?

Construction activities include excavation of the top of the levee to install a cutoff wall and provide additional flood protection and levee stability. The proposed project is located in an area that is generally flat and on soils with little to no current risk of lateral spreading, subsidence, liquefaction, or collapse. The project is designed to strengthen the levee and meet geotechnical engineering design standards that would meet or exceed applicable design standards for stability, seismic ground-shaking, liquefaction, and subsidence, and impacts would be **less than significant**.

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

Construction of the project improvements would be located in an area with expansive soils. However, the geotechnical design requirements for the levee improvements would address the potential for these soils to affect the levee structure. Additionally, the proposed project would meet USACE levee engineering standards, and, therefore, the proposed project would meet or exceed applicable design standards for stability, including shrink-swell potential and impacts would be **less than significant**.

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

The proposed project does not require septic tanks or alternative wastewater disposal facilities. Portable toilets would be used onsite for construction workers. The project would have **no impact**.

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

Surficial deposits at the project site consist of Holocene Alluvium basin deposits. By definition, to be considered a unique paleontological resource, a fossil must be more than 11,700 years old. Holocene deposits are more recent and contain only the remains of extant, modern taxa (if any resources are present), which are not considered "unique" paleontological resources. Therefore, the Holocene deposits in the area are considered to be of low paleontological sensitivity. Further, construction of the project would not require excavation of soil that was not already used in construction of the existing levee and would, therefore, not encounter unique paleontological resources and the project would have **no impact**.

3.8 Greenhouse Gas Emissions

Environmental Issue	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No 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?	☐	☐	☒	☐

3.8.1 Environmental Setting

GHGs are present in the atmosphere naturally, released by natural sources, and formed from secondary reactions taking place in the atmosphere. GHG emissions associated with human activities are highly likely responsible for intensifying the greenhouse effect and have led to a trend of unnatural warming of the earth's atmosphere and oceans, with corresponding effects on global circulation patterns and climate.

DWR has established a Climate Action Phase (CAP), Phase 1 "Greenhouse Gas Reduction Plan (GGERP)," that addresses GHG emissions reduction targets established in Senate Bill 1020 (2022) and Senate Bill 1203 (2022). Over the past 10 or more years, California's wholesale electricity market has seen a significant increase in renewable resources (DWR 2023). DWR commits to supply 100 percent of electricity load with zero-carbon resources and achieve carbon neutrality by 2035 as required by Senate Bill 1203. The CAP includes measures to help meet the GHG reduction goal, such as, increase efficiency of SWP pumps and generators through replacement and refurbishment, implement construction BMP and comply with regulations, purchase carbon offsets, and more.

In 2010, Sutter County adopted a CAP which established policies that incorporate environmental responsibility into its daily management of residential, commercial, and industrial growth, education, energy and water use, air quality, transportation, waste reduction, economic development, and open space and natural habitats (Sutter County 2010).

3.8.2 Discussion

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

Because DWR is the Lead Agency for the proposed project, the GGERP is used as the threshold of significance. Pursuant to State CEQA Guidelines Sections 15064(h)(3) and 15183(b), lead agencies may rely on plans for the reduction of GHGs in evaluating a project's GHG emission; a project's incremental contribution to a cumulative GHG emissions effect may be determined not to be cumulatively considerable if it complies with the requirements of a previously adopted plan

or mitigation program, including a GHG reduction plan or climate action plan, under specified circumstances. As noted by the Natural Resources Agency in the Final Statement of Reasons for the changes to the State CEQA Guidelines, including the changes that added Section 15183.5 on GHG reduction programs, "the addition of GHG emissions reduction plans and regulations for the reduction of GHG emissions reflects the view of both the Office of Planning and Research and the Resources Agency that the effects of GHG emissions resulting from individual projects are best addressed and mitigated at a programmatic level" and the "Legislature has created several tiering and streamlining methods, reflected in various provisions of the existing State CEQA Guidelines, that can reduce duplication in the analysis of GHG emissions." Consequently, if a project is consistent with a local climate action plan that was created to meet that area's fair share reductions towards the State's targets, then the project would be consistent with statewide GHG reduction goals and would not result in a significant GHG impact.

Therefore, the project would demonstrate consistency with the GGERP if it abides by the following five steps outlined in the GGERP:

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 metric tons CO2e for the entire construction phase of the project or 12,500 metric tons 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.

Project construction activities would temporarily generate GHG emissions from exhaust associated with on-site equipment operation, material hauling, and worker vehicle trips. No new maintenance activities would be required because of the project, and maintenance requirements along the project reach in years immediately following the proposed project are anticipated to be reduced compared to recent years. Construction-related GHG emissions were modeled using CalEEMod Version 2022.1.1.29. Table 3.8-1 provides estimates of metric tons of CO2e per year.

Table 3.8-1. Estimated Construction-related GHG Emissions

Construction Year	2026	2027
Carbon Dioxide Equivalent Emissions (metric tons)	2,398	2,590
Significance Threshold	12,500	12,500
Exceedance?	No	No

Source: CalEEMod version 2022.1.129, modeled by GEI, 2024.

These estimated construction-related project emissions would not exceed the threshold of 12,500 metric tons of CO2e in either year.

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 B to the GGERP), 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**.

DWR would further reduce the proposed project's incremental contribution to the cumulative impact of increasing atmospheric levels of GHGs by implementing DWR's project-level GHG emissions-reduction BMPs. Implementing these BMPs reduces GHG emissions from construction projects by minimizing construction equipment fuel usage, reducing fuel consumption for transportation of construction materials, and reducing the amount of landfill material.

DWR's Pre-construction and Final Design BMPs are designed to ensure individual projects are evaluated and their unique characteristics taken into consideration when determining if specific equipment, procedures, or material requirements are feasible and efficacious for reducing project-related GHG emissions. DWR will insure that SBFCA and its contractors will incorporate the following Pre-construction and Final Design BMPs are anticipated to be implemented for the proposed project:

- **GHG 1.** Evaluate project characteristics, including location, project workflow, site conditions, and equipment performance requirements, to determine whether specifications of the use of equipment with repowered engines, electric drive trains, or other high-efficiency technologies are appropriate and feasible for the project or specific elements of the project.
- **GHG 2.** Evaluate the feasibility and efficacy of performing on-site material hauling with trucks equipped with on-road engines.
- **GHG 3.** Ensure that all feasible avenues have been explored for providing an electrical service drop to the construction site for temporary construction power. When generators must be used, use alternative fuels, such as propane or solar, to power generators to the maximum extent feasible.
- **GHG 6.** Limit deliveries of materials and equipment to the site to off-peak traffic congestion hours.

Construction BMPs apply to all construction and maintenance projects that DWR completes or for which DWR issues contracts. All projects are expected to implement all Construction BMPs

unless a variance is granted by the Division of Engineering Chief, Division of Operation and Maintenance Chief, or Division of Flood Management Chief (as applicable), and the variance is approved by the DWR CEQA Climate Change Committee. Variances are granted when specific project conditions or characteristics make implementation of a Construction BMP infeasible and where omitting the BMP will not be detrimental to the project's consistency with the GGERP. DWR Construction BMPs that would be implemented by the proposed project include the following:

- **GHG 7.** Minimize idling time by requiring that equipment be shut down after five minutes when not in use (as required by California Code of Regulations, Title 13, Section 2485, the State's airborne toxics control measure). Provide clear signage that posts this requirement for workers at the entrances to the site and provide a plan for the enforcement of this requirement.
- **GHG 8.** Maintain all construction equipment in proper working condition and perform all preventative maintenance. Required maintenance includes compliance with all manufacturer's recommendations, proper upkeep and replacement of filters and mufflers, and maintenance of all engine and emissions systems in proper operating condition. Maintenance schedules shall be detailed in an air quality control plan prior to commencement of construction.
- **GHG 9.** Implement a tire inflation program on the job site to ensure that equipment tires are correctly inflated. Check tire inflation when equipment arrives on-site and every two weeks for equipment that remains on-site. Check vehicles used for hauling materials off-site weekly for correct tire inflation. Procedures for the tire inflation program shall be documented in an air quality management plan prior to commencement of construction.
- **GHG 10.** Develop a project-specific ride share program to encourage carpools, shuttle vans, transit passes, and/or secure bicycle parking for construction worker commutes.
- **GHG 11.** Reduce electricity use in temporary construction offices by using high-efficiency lighting and requiring that heating and cooling units be Energy Star compliant. Require that all contractors develop and implement procedures for turning off computers, lights, air conditioners, heaters, and other equipment each day at close of business.
- **GHG 12.** For deliveries to project sites where the haul distance exceeds 100 miles and a heavy-duty class 7 or class 8 semi-truck or 53-foot or longer box-type trailer is used for hauling, a SmartWay certified truck will be used to the maximum extent feasible.
- **GHG 14.** Develop a project-specific construction debris recycling and diversion program to achieve a documented 50-percent diversion of construction waste.
- **GHG 15.** Evaluate the feasibility of restricting all material hauling on public roadways to off-peak traffic congestion hours. During construction scheduling and execution, minimize, to the extent possible, uses of public roadways that would increase traffic congestion.

The proposed project would result in a **less-than-significant** impact on GHG emissions without implementing the GHG BMPs identified above. With implementation of the GHG BMPs identified above, the proposed project's less-than-significant impact with respect to GHG emissions would be further reduced.

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

Both DWR and Sutter County have adopted CAPs, which include the implementation of environmental responsibility into daily management of various land use types and projects and are consistent with GHG emission reductions as outlined in Executive Order S-3-05 and Assembly Bill 32. The proposed project would not conflict with either CAP as it would implement GHG reduction measures during construction and would not generate long-term emissions. The CARB 2022 Scoping Plan identifies measures that would indirectly address GHG emissions from construction activities, including the phasing in of cleaner technology for diesel engine fleets (including construction equipment) and the development of a Low Carbon Fuel Standard. Policies formulated under the mandate of EO B- 30-15 that apply to construction-related activities, either directly or indirectly, are assumed to be implemented Statewide and would affect the proposed project (CARB 2022). The proposed project's construction emissions would comply with any mandate or standards set forth by the 2022 Scoping Plan.

Although implementing the proposed project would cause temporary construction-related GHG emissions, the intent, purpose, and function of this project align with the goals of the 2022 Scoping Plan related to protecting against the detrimental effects of climate change (i.e., increased frequency and magnitude of flood events). The Draft 2024 Climate Adaptation Strategy is the most current plan adopted to address the effects of climate change. Although it is not a GHG reduction plan, it provides guidance on how to respond to detrimental climate change effects that would result in additional GHG emissions. Climate-driven events, such as flooding, lead to damage or destroy homes and other infrastructure which would result in future GHG-intensive activities, such as cleaning up after the flood, rebuilding houses, and reinstalling infrastructure. Accordingly, the 2024 Climate Adaptation Strategy, and action item is to reduce flood risk in California by helping regions prepare for new flood patterns. One success metric for this is achieving and maintain 200-year level of protection, including the resiliency requirements identified in the Urban Levee Design Criteria. A second success metric is implementing system-wide flood risk reduction projects. The proposed project is consistent with this recommendation and a primary project objective is to achieve greater climate resiliency. (CNRA 2024) Therefore, this impact would be **less than significant.**

3.9 Hazards and Hazardous Materials

Environmental Issue	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No 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 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?	☐	☐	☒	☐

3.9.1 Environmental Setting

The database search for this analysis included all data sources included in the Cortese List (listed 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 2025a and 2025b, State Water Resources Control Board [SWRCB] 2025a and 2025b, EPA 2025). There are no hazardous sites within the project vicinity. There are no airports within the project vicinity. The nearest airport is Sutter County Airport, located approximately 8.4miles from the project site. Yuba County airport is located approximately 9.5 miles from the project site. The nearest school is Barry Elementary School, operated by the Yuba City Unified School District and located approximately 5.8 miles from the project site. The project site is not located

in a moderate, high, or very high severity fire zone in a State or Local Responsibility Area (CALFIRE 2022).

3.9.2 Discussion

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

The project would be implemented in unincorporated Sutter County. Project-related activities would include the use and storage of small amounts of hazardous substances necessary for the operation of construction equipment, such as fuels, lubricants, and oils. These materials would be located in staging areas and would not come within 100 feet of the Sutter Bypass. Transport of materials on project area roadways is heavily regulated at the local, State, and Federal level. For example, regulations governing hazardous materials transport are included in CCR Title 22, the California Vehicle Code (CCR Title 13), and the State Fire Marshal Regulations (CCR Title 19). Transport of hazardous materials can only be conducted under a registration issued by the DTSC or CalEPA for tracking of hazardous waste transporters and for treatment, storage, and disposal facilities that handle hazardous materials. Construction contractors would be required to use, store, and transport hazardous materials in compliance with Federal, State, and local regulations during project construction. The proposed project would not involve long-term transportation of hazardous materials. However, due to the use of hazardous materials during project construction, it is possible that accidents may still occur due to human error or equipment failure. Additional mitigation measures are needed to address these instances and prevent public exposure to hazards. Therefore, this impact would be **less than significant with mitigation**.

Mitigation Measure: Implement Mitigation Measure GEO-1 (Prepare and Implement a Storm Water Pollution Prevention Plan or a Storm Water Management Plan and Associated Best Management Practices).

Refer to Mitigation Measure GEO-1 in Section 3.7 “Geology and Soils” for the full description of this measure.

Timing: Before and during construction.

Responsibility: DWR and SBFCA and its construction contractors.

Implementing Mitigation Measure GEO-1 would reduce the potentially significant impact from construction-related hazard exposure to **less than significant with mitigation** because a SWPPP would be prepared and implemented consistent with the Construction General Permit requirements that would prevent and control runoff and contaminant exposure.

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

There are no existing or proposed schools within 0.25 miles of the project site and there would be **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 site is not included in any database or list of hazardous materials, as described above in the environmental setting, and, therefore, 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 or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?

There are no existing or proposed airports within 2 miles of the project site and there would be **no impact**.

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

The project would be constructed in a rural portion of unincorporated Sutter County. There would not be a significant increase in the number of users at the site which could impair emergency response or evacuation. The proposed project would require hauling of materials to and from the project site, as well as construction worker commutes. Slow-moving trucks entering and exiting the site could pose a temporary hazard to vehicles on roads immediately adjacent to the project site. However, the project is located in an undeveloped agricultural area that has very light traffic, much of which is slow-moving agricultural traffic. Construction of the project would be short-term, and temporary traffic conditions would return to pre-project conditions associated with maintenance activities on local roadways following construction of the project. During operations only a small number of truck trips would be generated each year at the same level as under current conditions. Therefore, impacts would be **less than significant**.

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

The project site is not located in a high or very high fire severity zone or State Responsibility Area (CALFIRE 2022). The proposed project would not change O&M activities at the project site, and construction activities would not expose people or structures to a significant risk of loss, injury, or death involving wildland fires. The agricultural lands surrounding the proposed project site are irrigated, and the proposed project site is also adjacent to a canal. These factors contribute to reducing the risk of wildfire within the proposed project site. Therefore, impacts would be **less than significant**.

3.10 Hydrology and Water Quality

Environmental Issue	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No 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 a 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?	☐	☐	☒	☐

3.10.1 Environmental Setting

Surface Water

The proposed project is located along the Sutter Bypass between the Sacramento River to the west and the Feather River to the east. The Sutter County General Plan designates 11 major watersheds within the County, which generally drain from the northeast to the southwest (Sutter County 2008). The project site overlaps with and borders the Lower Snake River Watershed to the east (Sutter County 2008). The Sutter Bypass is a significant man-made flood control system designed to collect overflow floodwaters from the Sacramento River after they pass through the Butte Slough and Butte Sink (Sutter County 2008). Extending approximately 27 miles, the Sutter Bypass begins north of Pass Road, west of the Sutter Buttes, and follows a generally south-southeast alignment until it joins the Feather River about 3 miles downstream from the rural community of Nicolaus (Sutter County 2008). The Snake River runs alongside the east side of

the project site in an unlined irrigation supply and runoff canal that serves approximately 25,000 acres of farmland (Yuba Sutter Farm Bureau 2023).

The Federal Emergency Management Agency (FEMA) has designated the lands in the project site as Flood Hazard Zone A (FEMA 2024). Lands with this flood zone designation are defined as areas with a 1 percent annual chance of flooding. The project site is not located in a tsunami hazard area (DOC 2022).

Groundwater

The groundwater basin underlying the project area is designated by DWR's Bulletin 118 as the Sutter Subbasin (Basin Number 5-21.62) of the Sacramento Valley Groundwater Basin (DWR 2018). The Sutter Subbasin lies in the eastern central portion of the Sacramento Valley Basin. It is bounded on the north by the confluence of Butte Creek and the Sacramento River and Sutter Buttes, on the west by the Sacramento River, on the south by the confluence of the Sacramento River and the Sutter Bypass, and on the east by the Feather River. The Sacramento Valley experiences a Mediterranean climate with hot, dry summers and mild, rainy winters. The region receives an average annual rainfall of about 20 inches, with rare snowfall (Sutter County 2008).

Major surface waters, including the Sutter Bypass, Sacramento River, and Feather River are key sources of groundwater recharge in the subbasin. Additional recharge sources include percolation from rainfall, agricultural irrigation, and subsurface inflow from neighboring groundwater basins (Sutter County 2008). Groundwater generally flows from north to south in the subbasin and therefore reflects similar patterns of subsurface flow at the project site. In 2022, representative monitoring wells in the Sutter Subbasin generally show annual groundwater level declines during the irrigation season and seasonal recovery to pre-irrigation levels once irrigation has ceased, with little to no variation by water year type (Sutter County 2023). Groundwater samples collected within 2 miles of the project site in January 2023 recorded depths of 3.44 feet below ground surface (bgs) at Well No. 14N02E26C001M and 6.58 feet bgs at Well No. 14N02E36F001M (Sustainable Groundwater Management Act [SGMA] 2023).

Water Quality

Water quality in the project area is regulated by the CVRWQCB, *Water Quality Control Plan for the Sacramento River Basin and the San Joaquin River Basin* (Basin Plan) (CVRWQCB 2019). The Basin Plan sets regulatory limits on specific water quality parameters in the region and provides guidance for particular land uses and their input to surface water quality, such as industrial discharge, wastewater treatment plants, agriculture, and recreation. Section 303(d) of the Clean Water Act (CWA) requires that the states make a list of waters that are not attaining water quality standards. The Sutter Bypass is listed on the 303(d) list for mercury and the Snake River is listed for the pesticide chlorpyrifos (SWRCB 2020).

3.10.2 Discussion

a) Violate any water quality standards or waste discharge requirements?

Materials used during construction of the project could produce sediment-laden runoff or contamination where they could be carried into receiving waters that could affect water quality in

the Sutter Bypass, Snake River. Accidental spills of construction-related substances such as oils and fuels could also contaminate both surface water and groundwater. The extent of potential impacts on water quality would depend on several factors: the tendency toward erosion of soil types encountered, soil chemistry, types of construction practices, extent of the disturbed area, duration of construction activities, proximity to receiving water bodies, and sensitivity of those water bodies to construction-related contaminants. Waterbodies within and near the project site including Sutter Bypass and Snake River are listed on the CWA impaired waterbodies list. Due to the potential for runoff at the site to impact nearby waterbodies which are already impaired as designated by the CWA thereby contributing to further water quality impairments, this impact is considered **potentially significant**. The following mitigation measure has been identified to address this impact:

Mitigation Measure: Implement Mitigation Measure GEO-1 (Prepare and Implement a Storm Water Pollution Prevention Plan or a Storm Water Management Plan and Associated Best Management Practices).

Refer to Mitigation Measure GEO-1 in Section 3.7 "Geology and Soils" for the full description of this measure.

Timing: Before and during construction.

Responsibility: DWR and SBFCA and its construction contractors.

Implementing Mitigation Measure GEO-1 would reduce the potentially significant impact related to violation of water quality standards or waste discharge requirements during construction because a SWPPP and a spill prevention, control, and countermeasure plan would be prepared and implemented consistent with permit requirements that would prevent and control pollution and minimize and control runoff and erosion into local waterways. Therefore, this impact would be **less than significant with mitigation incorporated**.

b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of preexisting nearby wells would drop to a level that would not support existing land uses or planned uses for which permits have been granted)?

The project would not include the use of groundwater. While construction activities would temporarily disturb soil, the cutoff wall installation and levee reconstruction would not involve groundwater extraction or reduce recharge capacity. Additionally, ground disturbing activities would occur during non-flood season when groundwater levels are lowest. The use of bentonite slurry for cutoff walls would mitigate underseepage while maintaining groundwater flow outside the immediate levee foundation. Additionally, the project does not include activities such as groundwater pumping or the installation of impermeable surfaces that could significantly affect recharge rates. Post-construction conditions would restore and stabilize the levee area, ensuring the continued percolation of rainfall and surface water flows. Groundwater levels and recharge in the project area are primarily influenced by larger hydrological patterns and agricultural

practices, which the project would not alter. Therefore, groundwater supplies, and groundwater recharge capability would not be significantly affected, and impacts 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, ii, iii, and iv) result in substantial on- or off-site erosion or siltation? substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite; create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or impede or redirect flood flows?

The project is designed to improve the levee system along the Sutter Bypass, which serves as a critical flood control structure, and would enhance its capacity to manage underseepage and maintain stability during high-flow events. The project would not add impervious surfaces that could significantly alter surface runoff patterns and would not alter the hydrology within the Sutter Bypass or surround landside waterways. Additionally, the proposed levee improvements are specifically designed to maintain the flood flows within the Sutter Bypass and would not impede or redirect flood flows to new areas. For these reasons, the proposed project would not alter the course of a stream or river in a manner that would result in substantial erosion or siltation, or result in flooding on- or off-site, and impacts would be **less than significant**.

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

The proposed project is located within a flood hazard zone and while the project site could be inundated during extreme flood events, the project itself is specifically designed to reduce flood risks by strengthening the levee system to prevent underseepage and levee failure. Once constructed, the DWR would not store hazardous materials onsite as under current operating activities. Further, the project site is not located within a tsunami hazard zone, and the risk of a seiche (a wave generated in an enclosed or semi-enclosed body of water) is negligible due to the lack of nearby large, enclosed water bodies. Therefore, the risk of pollutant release due to project inundation is considered **less than significant**.

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

Please refer to the discussions above under Questions a), b), and c). The project could result in potentially significant impacts to nearby waterbodies that are listed on the CWA 303(d) list which would conflict with the water quality control plan, or Basin Plan. The following mitigation measure would be implemented to address this impact.

Mitigation Measure: Implement Mitigation Measure GEO-1 (Prepare and Implement a Storm Water Pollution Prevention Plan or a Storm Water Management Plan and Associated Best Management Practices).

Refer to Mitigation Measure GEO-1 in Section 3.7 "Geology and Soils" for the full description of this measure.

Timing: Before and during construction.

Responsibility: DWR and SBFCA and its construction contractors.

Implementing Mitigation Measure GEO-1 would reduce the potentially significant impact related to conflict with or obstruct implementation of a water quality control plan to less than significant. The project would not extract groundwater or alter recharge areas in a way that would conflict with the goals or objectives of a sustainable groundwater management plan. Therefore, this impact would be **less than significant with mitigation incorporated**.

3.11 Land Use and Planning

Environmental Issue	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No 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?	☐	☐	☐	☒

3.11.1 Environmental Setting

The project site is designated under the Sutter County General Plan as Open Space, and is zoned as AG-80 (Agricultural 80-acre minimum) (Sutter County 2009). The AG-80 designation supports the long-term production, processing, distribution, and sale of food and fiber on prime agricultural soils and other productive or potentially productive lands (Sutter County 2011). Lands bordering the project site to the east also share the AG-80 designation.

The project site includes the existing SBEL, which serves to contain floodwater from the Sutter Bypass, protecting adjacent agricultural lands. The Sutter County General Plan designates Open Space and Agriculture land uses to support the long-term conservation of agricultural operations, natural resources, and compatible uses (Sutter County 2011).

3.11.2 Discussion

a) Physically divide an established community?

The project site is located in a rural setting characterized by open space and agricultural land uses. The proposed project involves improvements to an existing levee segment to address performance deficiencies and ensure compliance with flood control standards. It does not involve the construction of new linear infrastructure, such as roads or barriers, that would bisect or disrupt established communities. Additionally, the nearest communities are located outside the project footprint, and the construction activities would not create physical barriers that alter existing community layouts or access routes. The staging areas, temporary access routes, and haul roads required for construction are located within or adjacent to the levee footprint and have been planned to minimize disruptions. Therefore, the project would have **no impact** on the division of an established community.

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

The project is consistent with the applicable land use designations and there would be no change in land use associated with implementing the project. The proposed activities, including

improvements to the SBEL to address flood control deficiencies, align with the primary functions of these land use designations, which emphasize flood protection and agricultural viability. Construction of the proposed project would remove at least seven trees from the landside of the project site, with additional trees potentially requiring trimming to accommodate construction activities. However, the project would not conflict with any policies or regulations adopted to avoid an environmental effect. Therefore, the project would have **no impact**.

3.12 Mineral Resources

Environmental Issue	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No 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?	☐	☐	☐	☒

3.12.1 Environmental Setting

Lands throughout Sutter County are classified as Mineral Resource Zones (MRZs) of varying significance. The MRZ categories are as follows:

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

The project site is located within the Surface Mining and Reclamation Act of 1975 study area for concrete aggregate in the greater Sacramento area production-consumption region (O'Neal and Gius 2018). Aggregate material consists of sand, gravel, and crushed stones, all of which are considered construction material. The project site is designated as MRZ-1, as defined above (O'Neal and Gius 2018). Additionally, there are no areas of state or regional significance for mineral resources within Sutter County (Sutter County 2011).

There is one known active gas well (No. 82-27) near the project site just north of the intersection of Schlage Road and Levee Road (DOC 2024).

3.12.2 Discussion

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

The project site is not located within or near any known mineral resource areas and is designated as Surface Mining and Reclamation Act of 1975 and as MRZ-1, as noted previously. Therefore, the project would have **no impact**.

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

The project site is not located on or within the vicinity of a locally important mineral resource recovery site currently delineated on a local general plan, specific plan or other use plan (Sutter County 2011). There would be **no impact**.

3.13 Noise

Environmental Issue	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No 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 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 two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒

3.13.1 Environmental Setting

Noise and Vibration

Noise is defined as sound that is unwanted (loud, unexpected, or annoying). Excessive exposure to noise can result in adverse physical and psychological responses (e.g., hearing loss and other health effects, anger, and frustration); interfere with sleep, speech, and concentration; or diminish the quality of life.

The perceived loudness of sounds depends on many factors, including sound pressure level and frequency content. However, within the usual range of environmental sound levels, perception of loudness is relatively predictable, and can be approximated through frequency filtering using the standardized A-weighting network. There is a strong correlation between A-weighted sound levels (decibels expressed as dBA) and community response to noise. For this reason, the A-weighted sound level has become the standard descriptor for environmental noise assessment. All noise levels reported in this section are in terms of A-weighting.

Groundborne vibration is energy transmitted in waves through the ground. Vibration attenuates at a rate of approximately 50% for each doubling of distance from the source. The Federal Transit Authority (FTA) has established maximum-acceptable vibration thresholds for different land uses. These guidelines recommend 72 vibration dB (VdB) for residential uses and buildings where people normally sleep when the source of vibrations is frequent in nature (FTA 2018).

Noise-Sensitive Receptors

The project site is located in Sutter County, as are local access routes. Materials required for project construction may come from within 50 miles of the project site. The origin locations of

these haul trips are not known at this time; however, it is expected that vehicles would travel on highways (Hwy 99) to access the project site, to the extent feasible.

Land uses at and adjacent to the project site are agricultural with scattered rural residences. Land uses as defined by Federal, State, and local regulations as noise-sensitive vary slightly, but typically include schools, hospitals, rest homes, places of worship, long-term care facilities, mental care facilities, residences, convalescent (nursing) homes, hotels, certain parks, and other similar land uses. The closest noise-sensitive land uses are rural residential properties approximately 1 mile east of the project site. Residential uses along local haul routes are also noise-sensitive uses potentially affected by the project.

The primary existing noise sources at the project site and vicinity are on- and off-road road mobile sources (construction and agricultural equipment, automobile and truck traffic), aircraft overflights, and agricultural activities. Agricultural activities can generate sound levels similar to construction equipment but are typically dispersed and intermittent in nature.

Existing Vibration Environment

The existing vibration environment on the project site is dominated by local agricultural operations and transportation-related vibration from roads and highways. These sources would generate low amounts of vibration, with infrequent noticeable vibration.

Sutter County Noise Ordinance

Article 21.5 "Noise Control," within the Sutter Couty Code of Ordinance establishes hourly average, and maximum noise levels for exterior noise, as shown in **Table 3.13-1**. However, noise associated with construction, repair, remodeling, demolition, paving or grading of any real property or public works project located 1,000 feet or greater from noise-sensitive uses (i.e., residential uses, daycares, schools, convalescent homes, and medical care facilities) are exempt from noise standards, as long as the activities take place between the hours of 7:00 a.m. and 6:00 p.m. on weekdays (Monday through Friday), and 8:00 a.m. and 5:00 p.m. on Saturdays. Construction is prohibited on Sundays and legal holidays unless permission has been applied for and granted by the County. (Sutter County 2024)

Table 3.13-1. Sutter County Noise Ordinance

Noise Level Descriptor	Daytime (7:00 a.m. to 10:00 p.m.)	Nighttime (10:00 p.m. to 7:00 a.m.)
Hourly L_{eq} , dBA	55	45
Maximum Level, dBA	70	65

Notes: L_{eq} = average sound pressure level over a period of time; dBA = the relative loudness of sounds as perceived by the human ear;
Source: Sutter County 2024

3.13.2 Discussion

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

The proposed project would generate temporary and short-term construction noise from equipment operating on the project site, and from the transport of construction equipment, materials, and workers to and from the site. Noise levels from the project-related construction would be audible but would not increase substantially over existing levels. The list of construction equipment that may be used for project construction activities is shown in **Table 3.13-2** with typical noise levels generated at 50 feet from the equipment (reference levels). Because the closest sensitive noise receptor is located approximately 1 mile east of the project site and distance attenuation is 6 dB per doubling of distance (FTA 2018), noise levels at sensitive receptors would be approximately 50 dB, without considering other attenuation such as from ground absorption. Therefore, construction noise levels at the sensitive noise receptor would be considerably lower, and due to the presence of existing noise from nearby agricultural production, may not be perceptible. Therefore, this impact is considered **less than significant**.

Table 3.13-2. Construction Equipment and Typical Equipment Noise Levels.

Type of Equipment	Typical Noise Levels (dB) L_{max} at 50 Feet
Bulldozer	85
Compactor	82
Excavator	-
Generator	82
Grader	85
Front End Loader	80
Pump	82
Truck	84
Vibratory Roller	85

Notes:
dB = decibels; - = no value provided.
Leq = 1-hour equivalent sound level (the sound energy averaged over a continuous 1-hour period)
Source: Construction equipment list based on FTA 2018, adapted by GEI in 2024

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

The proposed project would generate construction vibration from equipment operating on the project site, and from the transport of construction equipment, materials, and workers to and from the site. Project construction–related vibration would result from the use of heavy earthmoving equipment for area grading. These activities would produce a vibration level of approximately 87 VdB (0.089 in/sec peak particle velocity) at a distance of 25 feet (which is the reference vibration level for operation of a large bulldozer [FTA 2018; Caltrans 2020]). The

distance between proposed construction activities and the closest acoustically sensitive uses would be approximately 5,500 feet. Given that vibration levels decrease by half by each doubling of distance, the project-related construction vibration level at the nearest receptors would not be perceptible. Therefore, no vibration impact is expected.

Construction of the proposed project would result in additional vehicle trips on the local roadway network as workers commute and equipment and materials are transported. Heavy truck traffic can generate groundborne vibration, which varies considerably depending on vehicle type, weight, and pavement conditions. However, groundborne vibration levels generated from vehicular traffic are not typically perceptible outside of the road right-of-way for rubber-tired vehicles. Therefore, 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 two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

The project site is not located within 2 miles of a public airport. The nearest public airport is the Sutter County Airport at a distance of approximately 8 to 9 miles (straight line) from the project site. Given the distance to the nearest airport, the proposed project would not expose people working in the project site to excessive noise levels. For these reasons, the project would have **no impact**.

3.14 Population and Housing

Environmental Issue	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No 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?	☐	☐	☐	☒

3.14.1 Environmental Setting

The project site is located in an unincorporated area of Sutter County. The unincorporated areas of Sutter County, including the project area, consists primarily of agricultural land uses, and since the Sutter County 2030 General Plan (Sutter County 2011) indicates that agricultural land uses would continue through the foreseeable future. Within Sutter County, a majority of the population resides in two incorporated cities: Yuba City and Live Oak. As of January 2024, the total population of Sutter County was 100,110 (DOF 2024). Approximately 7,431 housing units are occupied in unincorporated Sutter County, or 91.1% of the total housing units, with approximately 86.9% of the units as detached, single family homes (Sutter County 2011). In 2011, the Sutter County 2030 General Plan projected an increase of total population to 133,610 by 2040 (Sutter County 2011).

3.14.2 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 Employment Development Department estimates that approximately 1,700 residents in Sutter County are employed in construction (EDD 2024a). These existing residents who are employed in the construction industry would likely be sufficient to meet the demand for construction workers that would be generated by the proposed project. Therefore, an adequate number of construction workers for project construction could be found within the local area. Because workers serving the proposed project could be expected to come from nearby communities and cities in Sutter County, neither substantial population growth nor an increase in housing demand in the region is anticipated as a result of these jobs. The proposed project would also not entail the construction of new housing or commercial development, create long-term permanent new jobs from project operation, or directly induce substantial population growth. The project would have **no impact**.

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

The project site is located in an unincorporated rural agricultural area of Sutter County with no housing on or adjacent to the project site. The proposed project would not displace any existing homes or people; thus, there would be **no impact**.

3.15 Public Services

Environmental Issue	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No 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?	☐	☐	☐	☒

3.15.1 Environmental Setting

Fire protection services, including rescue, emergency medical services, and hazardous material response, are provided by the Sutter County (Sutter County 2011a). Law enforcement services in unincorporated areas of Sutter County are provided by the Sutter County Sheriff's Department. (Sutter County 2011b).

The project site is surrounded by privately-owned agricultural lands and the Sutter National Wildlife Refuge. There are no schools within 2 miles of the project site, and the nearest school is Barry Elementary School, located approximately 5.8 miles east of the project site. The nearest park is Happy Park in Yuba City, located approximately 5 miles northeast of the project site.

3.15.2 Discussion

a) Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, 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, or other public facilities?

The project site would continue to be served by Sutter County and the Sutter County Sheriff's Department. The project would not result in the need for new or physically

altered government facilities in order to maintain acceptable service ratios, response times, or other performance objectives for fire or police protection. Access to the site would be maintained during construction in accordance with Sutter County fire policies and regulations (Sutter County 2024). The proposed project would not provide any new housing or employment opportunities. Therefore, the proposed project would not generate new students, increase the demand on the local school systems, or generate new residents who would require new or expanded park facilities. No other public facilities would be affected by construction or operation of the proposed project. Therefore, there would be **no impact**.

3.16 Recreation

Environmental Issue	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XVI. RECREATION – Would the project:				
a) Would the project 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) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	☐	☐	☐	☒

3.16.1 Environmental Setting

Recreational activities in the project area primarily occur in wildlife areas. Sutter County encompasses approximately 15,947 acres of wildlife areas (Sutter County 2008). The Sutter Bypass Wildlife Area, managed by CDFW, spans the length of the Sutter Bypass from SR 20 to Nelson Slough, which includes the entire length of the proposed project site (CDFW 2016). Recreational activities permitted in the Sutter Wildlife Area include hunting, birding, and nature observation (CDFW 2024).

The NWR, managed by USFWS, is located along the Sutter Bypass, extending from Conduit Road at the southern end to McClatchy Road at the northern end. This refuge includes the project site and areas north of it (CDFW 2016). The NWR covers approximately 2,591 acres and is characterized by wetlands, grasslands, and riparian habitats. Recreational opportunities within the refuge include hiking, photography, wildlife viewing, and hunting (USFWS 2024). Two proposed staging areas east of the project site are located within the NWR.

Other wildlife areas in the project vicinity include the Colusa NWR and Delevan NWR, located approximately 15 miles and 20 miles northwest of the project site, respectively (USFWS 2022). The Feather River Wildlife Area, managed by CDFW, is located approximately 6.5 miles east of the project site (CDFW 2016).

Sutter County features numerous recreational areas along the Feather and Sacramento Rivers that provide boat launches, restrooms, picnicking, and camping facilities (Sutter County 2008). The Sacramento River is accessible through the following facilities: the Tisdale Boat Launch Facility, approximately 5 miles west of the project site, and by Donahue Road Park, approximately 11 miles south of the project site. There are no County or city-managed recreational facilities within or in the immediate vicinity of the proposed project site.

The Sutter Buttes, a prominent mountain range approximately 7 miles north of the project site, comprise about 13 percent of the county land (Sutter County 2008). Although the majority of the

range is privately owned and protected by a land trust, guided public and school hikes offer educational and recreational opportunities (Sutter County 2008).

3.16.2 Discussion

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

The project does not involve the construction of any new housing that would generate new residents who would increase the use of existing recreational facilities. Construction of the proposed project would not result in the closure of nearby recreational facilities. Construction activities may temporarily deter recreationalists from use of nearby recreational sites, such as the Sutter Wildlife Area or NWR, due to the presence of heavy-duty equipment and noise associated with construction activities; however, there are numerous other recreational facilities available for public use in the region (such as the Colusa and Delevan NWR, recreational areas along the Feather and Sacramento Rivers, and the Feather River Wildlife Area). Additionally, work is temporary and would only hinder access to recreational sites temporarily during the 2-year construction period. Therefore, the proposed project would not affect existing recreational facilities such that substantial physical deterioration of any facilities would occur or be accelerated, and this impact would be **less than significant.**

b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?

The project does not include or require the construction of new recreational facilities; therefore, there would be **no impact**.

3.17 Transportation

Environmental Issue	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No 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 CEQA Guidelines § 15064.3, subdivision (b)?	☐	☐	☒	☐
c) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☐	☒
d) Result in inadequate emergency access?	☐	☐	☒	☐

3.17.1 Environmental Setting

The proposed project is located in an unincorporated portion of Sutter County. Regional access to the project area would be provided primarily from SR 99. Local roadways that would be used to directly access the project site include South Butte Road, Hughes Road, Schlag Road, Obanion Road, and the gravel levee road adjacent to Sutter Bypass.

There are no designated transit or on-street bicycle/pedestrian facilities in the immediate vicinity of the project site. Additionally, there are no railways located in the vicinity of the project site.

There are no airports within 2 miles of the project site. The nearest airport is Sutter County Airport, located approximately 8.4 miles northeast of the project site.

3.17.2 Discussion

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

Construction of the proposed project would require hauling of equipment and materials to the project site and worker commute trips to and from the project area along local and county roads and major highways. Operations following project completion would involve periodic worker commute trips to and from the project site to conduct levee maintenance and inspections.

Because construction-generated traffic would be temporary and operations-related traffic would be the same compared to current conditions, the proposed project would not result in any long-term degradation in performance of any of the roadways in the vicinity of the proposed project. Daily trips after construction for operations and maintenance would be the same as current conditions and along the same roadways. Therefore, the proposed project would not conflict with

adopted applicable policies or plans related to the performance of the circulation system and impacts would be **less than significant**.

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

Operation of the proposed project would not require additional truck trips as O&M activities would be the same as current conditions and therefore, would not generate additional vehicle miles traveled compared to current conditions. Increased truck trips during construction would temporary and would not affect vehicle miles traveled trends for the region. Therefore, project operation would not conflict with or be inconsistent with CEQA Guidelines 15064.3 subdivision (b). Furthermore, the increased traffic resulting from project construction would be short-term and temporary and impacts would be **less than significant**.

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

The proposed project would not include any design elements that would lead to an increase in hazards or hazard risk. Post construction, the proposed project site would be functionally very similar to pre-construction and would not lead to any changes in use or operations. There would be **no impact**.

d) Result in inadequate emergency access?

Slow-moving trucks entering and exiting the site along local roadways could delay the movement of emergency vehicles or slow emergency access to or from locations near Sutter Bypass. However, emergency access would remain available during the full construction period, and because of the low number of truck trips associated with the project, reduction in emergency access would not be significant and the project would not result in inadequate emergency access. Construction of the proposed project would be short term and temporary, and operations-related traffic would be the same compared to current conditions. Therefore, impacts would be **less than significant.**

3.18 Tribal Cultural Resources

Environmental Issue	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XVIII. TRIBAL CULTURAL RESOURCES – Would the project				
e) Cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code § 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:	☐	☒	☐	☐
f) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k)?	☐	☒	☐	☐
g) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency will consider the significance of the resource to a California Native American tribe?	☐	☒	☐	☐

3.18.1 Environmental Setting

Assembly Bill 52

Assembly Bill (AB) 52, effective on July 1, 2015, amended CEQA and added sections relating to Native American consultation and TCRs. TCRs are either (1) sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American Tribe that is either on or eligible for inclusion in the CRHR or a local historic register; or (2) a resource that the lead agency, at its discretion and supported by substantial evidence, chooses to treat as a TCR. Additionally, a cultural landscape may also qualify as a TCR if it meets the criteria to be eligible for inclusion in the CRHR and is geographically defined in terms of the size and scope of the landscape. Other historical resources (as described in PRC 21084.1), a unique archaeological resource (as defined in PRC 21083.2[g]), or non-unique archaeological resources (as described in PRC 21083.2[h]), may also be a TCR if it conforms to the criteria to be eligible for inclusion in the CRHR.

California PRC Section 21084.2 provides that a project with an effect that may cause a substantial adverse change in the significance of a TCR may have a significant effect on the environment. California PRC Section 21080.3.1 (b) requires the lead agency (in this case, DWR) to begin consultation with California Native American Tribes that are traditionally and culturally affiliated with the geographic area of the project if the Tribe requests the lead agency, in writing,

to be informed by the lead agency through formal notification of projects that are proposed in that geographic area and the Tribe subsequently requests consultation. California PRC Section 21084.3 states that "public agencies will, when feasible, avoid damaging effects to any Tribal cultural resource."

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

California Natural Resources Agency Tribal Consultation Policy

The California Natural Resources Tribal Consultation Policy was adapted in 2012 with the purpose of the policy to ensure effective government-to-government consultation between the Natural Resources Agency, its departments, and California Native American Tribes. The goal of the policy is for Tribes to provide meaningful input in the development of regulations, rules, programs, plans, property decisions, and activities that may affect Tribal communities.

Department of Water Resources Tribal Engagement Policy

Effective March 8, 2016, DWR adopted the Tribal Engagement Policy to strengthen DWR's commitment to improving communication, collaboration, and consultation with California Native American Tribes. Consistent with Executive Order B-10-11, the California Natural Resources Agency Tribal Consultation Policy, and AB 52, the Tribal Engagement Policy includes the following principles to achieve early and meaningful Tribal engagement with California Native American Tribes:

- Establish meaningful dialogue between DWR and California Tribes early in planning for CEQA projects to ensure that DWR's Tribal outreach efforts are consistent with mandated Tribal consultation policies, and to ensure that California Tribes know how information from consultation affected DWR's decision-making process;
- Establish guidelines to share information between DWR and California Tribes, while protecting their confidential information to the fullest extent of the law;
- Consult with California Tribes to identify and protect TCRs where feasible, and to develop treatment and mitigation plans to mitigate for impacts on TCRs and cultural places;
- Develop criteria in communication plans and grant funding decisions for all applicable DWR programs that will facilitate Tribal participation;
- Provide cultural competency training for DWR executives, managers, supervisors, and staff on Tribal engagement and consultation practices to recognize that California Tribes have

distinct cultural, spiritual, environmental, economic, public health interests, and traditional ecological knowledge about California's natural resources; and

- Enable California Tribes to manage and act as caretakers of TCRs.

Tribal Setting

The project is situated in the traditional territory of both the Patwin (Wintun) and Valley Nisenan Tribes. Most Native American tribes in central California, including the Patwin and Nisenan, had similar subsistence-settlement patterns, material culture, and social structures (Kroeber 1929). A brief overview of the ethnographic literature for these groups is described below.

Nisenan

In the Nisenan territory, several political divisions (or tribelets) each had their own respective headmen who lived in the larger villages. As with most valley and foothill groups, the Nisenan utilized a wide variety of floral and faunal food sources. The acquisition of faunal species was accomplished through any number of techniques and implements including the bow and arrow, game drives, and decoys. Nets, traps, rodent hooks, and fire were all put to use in hunting small game. Fish were caught with nets, gorges, hooks, and harpoons (Wilson and Towne 1978).

Patwin

Similar to the Nisenan, the Patwin typically lived in small groups, commonly known as Tribelets. Tribelets were characterized by a main village with smaller satellite villages and temporary camps (Kroeber 1932). Temporary dwellings were built, outside the main village, for the purpose of hunting and seasonal rounds of food gathering, as did most Indigenous Californians. Of special importance to the Patwin diet were elk, deer, acorns, and salmon. Berries, nuts, herbs, and seeds were also gathered for processing. The Patwin acquired some non-local foods through trade and collaboration with neighboring Tribes. Group hunting methods were used to corral, shot, and or trap deer, elk, and larger fowl.

Today, many Patwin tribes are thriving and making strides in preserving and expanding their culture and heritage. In 2004 the Colusa Indian Community Council published the first edition of the Cachil DeHe Band of Wintun Indians language book and have instituted a program, the Language Application, to restore and proliferate the language (Colusa Indian Community Council 2024, Heritage April 15, 2024 [https://www.colusa-nsn.gov/government/heritage/]. The Yocha Dehe Wintun Nation has also published a grammar and dictionary book as well as a language website for Tribal Citizens (Yocha Dehe Wintun Nation 2024, Reviving Our Language April 16, 2024 [https://yochadehe.gov/culture/language/]).

Methods of Analysis

ECORP sent a letter to the NAHC requesting a search of the Sacred Land File to determine if there were any previously reported resources in the project vicinity. The NAHC responded by letter on August 30, 2024 and stated that their SLF search had negative results.

In accordance with PRC 21080.3.1, the CNRA *Tribal Consultation Policy* (Executive Order B-10-11), and DWR's *Native American Tribal Engagement Policy*, Native American Tribes that are culturally and traditionally affiliated with the project area were consulted for the project and

were requested to provide any information on TRCs, which could potentially be impacted by the proposed project. The list of Tribes consulted in accordance with PRC 21080.3.1 included Tribes that had previously requested consultation with both DWR and with Sutter County for any projects within the Tribes' area of cultural affiliation.

The Tribes contacted by DWR under AB 52 include:

1. Cachil DeHe Band of Wintun Indians – Colusa Indian Community
2. Enterprise Rancheria of Maidu Indians
3. Ione Band of Miwok Indians
4. Mechoopda Indian Tribe of Chico Rancheria
5. Nevada City Rancheria Nisenan Tribe
6. Pakan'yani Maidu of the Strawberry Valley Rancheria
7. Shingle Springs Band of Miwok Indians
8. United Auburn Indian Community (UAIC)
9. Wilton Rancheria
10. Yocha DeHe Wintun Nation

The Tribes contacted by DWR under the CNRA's Tribal Consultation Policy and DWR's Tribal Engagement Policy include:

1. Colfax-Todds Valley Consolidated Tribe
2. Kletsel Dehe Wintun Nation
3. Nashville Enterprise Miwok-Maidu-Nishinam Tribe
4. Tsi Akim Maidu

UAIC monitors also participated in the Tudor Small Communities Grant Levee Remediation Project on November 3 and 17, 2021. In addition, SBFCA invited UAIC to participate in the cultural resources pedestrian survey on August 22, 2024. UAIC accepted the invitation and a UAIC tribal monitor accompanied the survey crew on September 25, 2024. Lastly, Brian Marks with ECORP invited Enterprise Rancheria to participate in a cultural resource pedestrian survey on December 3rd, 2024. No TCRs were identified as a result of Tribal coordination.

3.18.2 Discussion

a) Cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code § 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:

i. Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k)?

ii. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency will consider the significance of the resource to a California Native American tribe?

No TCRs were identified in the project area during the cultural resource's investigation. However, it is possible that during project activities a TCR may be inadvertently discovered. If this occurs it would result in a **significant** impact. The following mitigation measures have been identified to address this impact.

Mitigation Measure CUL-1: WEAP Training for Cultural and Tribal Resources.

Please refer to section CUL-1 in Section 3.5 "Cultural Resources" for full description of this measure.

Timing: Before and during construction.

Responsibility: DWR and SBFCA and its construction contractors.

Mitigation Measure CUL-2: Avoid Potential Effects on Undiscovered Historical Resources, Tribal Cultural Resources, and Unique Archaeological Resources.

Please refer to section CUL-2 in Section 3.5 "Cultural Resources" for full description of this measure.

Timing: Before and during construction.

Responsibility: DWR and SBFCA and its construction contractors.

Mitigation Measure CUL-3: Avoid Potential Effects on Undiscovered Burials.

Please refer to section CUL-3 in Section 3.5 "Cultural Resources" for full description of this measure.

Timing: Before and during construction.

Responsibility: DWR and SBFCA and its construction contractors.

Implementing Mitigation Measures CUL-1, CUL-2, and CUL-3 would reduce any potentially significant impacts on any previously undiscovered TCR to a **less-than-significant level with mitigation incorporated** because the resources would be avoided and preserved in place or otherwise treated with culturally appropriate dignity to protect the resource.

3.19 Utilities and Service Systems

	Environmental Issue	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No 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, which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☐	☒
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	☐	☐	☒	☐

3.19.1 Environmental Setting

The project site is located within the SBFCA service area which provides flood management and flood risk reduction services within the Sutter-Butte Basin.

Water Supply

Potable water supplies in unincorporated Sutter County are provided by groundwater pumped from private wells (Sutter County 2008). As discussed in Section 3.10 "Hydrology and Water Quality", the groundwater basin underlying the project area is designated by DWR's Bulletin 118 as the Sutter Subbasin (Basin Number 5-21.62) of the Sacramento Valley Groundwater Basin (DWR 2018).

Several irrigation water companies and districts serve irrigation water within Sutter County, provided mainly by the Feather and Sacramento Rivers (Sutter County 2008). The project area is served by the Feather Water District and the Sutter Extension Water District (Sutter County 2008). The Wadsworth Canal is a leveed channel that flows into the Sutter Bypass north of the project site and conveys flood flows and irrigation supply (Sutter County 2008).

Wastewater

Sutter County is predominantly served by privately owned septic systems for the treatment and disposal of wastewater (Sutter County 2008). There is no wastewater treatment service at the project site.

Stormwater Drainage

Stormwater drainage throughout the majority of Sutter County is provided by piped conveyance systems and open channel systems (Sutter County 2008). Canals and gravity drain stormwater flows into the Sutter Bypass in the project area and the SBEL protects the surrounding agricultural lands from flooding. As mentioned above, the Wadsworth Canal is an unlined canal that also conveys flood flows in addition to irrigation supply. The Obanion Pump Station is owned by DWR and includes 6 pumps, each with a capacity of 120 cubic feet per second (cfs). It lifts water from the Gilsizer Slough and the lower Snake River into the Sutter Bypass (Sutter County 2008).

Solid Waste

Yuba Sutter Disposal Inc. provides collection, recycling, and disposal services unincorporated Sutter County (Sutter County 2008). The Ostrom Road Landfill is located about 18 miles east of the project site in Wheatland, Yuba County and is owned and operated by Norcal Waste Systems Ostrom Road LF Inc, a sister company to Yuba Sutter Disposal Inc. (Sutter County 2008). The Ostrom Road Landfill is a Class II, III landfill with a disposal area of 225 acres. The landfill is permitted to accept the following waste types: solid waste, wastewater treatment sludge, construction debris, food and green waste, some types of contaminated soils, and non-friable asbestos (Sutter County 2008). Its maximum permitted capacity is 43 million cubic yards (mcy) with 39 mcy remaining, and an estimated operation termination date of December 31, 2066 (CalRecycle 2019).

Electrical and Natural Gas

PG&E provides electrical and gas services to customers within Sutter County (Sutter County 2008). There is at least one 230 kilovolt (kV) overhead electrical transmission line and one 500 kV overhead electrical transmission line east of the project site and crossing over the staging areas (CEC 2024). The 230 kV line follows alongside the SBEL about 55 feet to the east. The 500 kV line follows east of the 230kV line from the southern end of the project site and then follows the Snake River north (CEC 2024). There is an electrical substation off Obanion Road east of the project site. No underground pipelines or telecommunication cables have been identified within the project site.

3.19.2 Discussion

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

The proposed project does not include new or expanded residential, commercial, or industrial development that would necessitate additional demand for water supply, wastewater treatment, or stormwater drainage facilities. No wastewater treatment facilities would be installed as part of the proposed project. Implementation of the proposed project would not require any additional electric power or natural gas (see Section 3.6, "Energy," above for more details), and would not require the use of any telecommunications facilities.

The project's improvements to the SBEL include stormwater management measures to ensure that construction activities do not adversely impact local drainage systems. Further, as state in Section 3.10, "Hydrology and Water Quality," the project would not result in any changes to stormwater runoff or hydrology that would require the construction of new or expanded stormwater facilities.

As discussed in Chapter 2, "Project Description," the relocation or modification of existing penetrations and encroachments, such as electrical distribution lines, gas, irrigation, and drainage pipe crossings, within the project site, would be required. Coordination with utility owners/providers has been initiated to identify infrastructure locations and appropriate protection measures, and temporary bypasses may be required for some. All potential utility relocation or modifications would occur at a minimum of 20 feet of the landside toe, or within 15 feet of the waterside toe , and would be relocated either in advance of or concurrent with project construction activities.

Although steps would be taken to minimize potential impacts to utilities, project construction activities, including grading and excavation, could inadvertently damage identified and unidentified utility equipment and facilities. In addition, the required relocation of existing utilities could result in interruptions in service. Furthermore, the extent and intensity of project construction activities could affect service providers' abilities to quickly repair damage and/or restore interrupted service. Therefore, this temporary impact would be **potentially significant**. The following mitigation measures have been identified to address this impact.

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

DWR shall ensure that SBFCA and its contractors implement the following measures before construction begins to avoid and minimize potential damage to utilities, infrastructure, and service disruptions during construction.

- Coordinate with applicable utility and service providers to implement orderly relocation of utilities that need to be removed or relocated.
- Provide notification of any potential interruptions in service to the appropriate agencies and affected landowners.
- Verify through field surveys and Underground Service Alert service the locations of buried utilities in the project site, including natural gas, petroleum, and sewer pipelines. Any buried utility lines shall be clearly marked in the area of construction

(e.g., in the field) and on the construction specifications in advance of any earth-moving activities.

- Prepare and implement a response plan that addresses potential accidental damage to a utility line. The plan shall 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 shall include worker education training in response to such situations.

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

- Coordinate with PG&E to relocate electrical and natural gas transmission lines and associated infrastructure such as power poles.

Timing: Before and during construction activities.

Responsibility: DWR and SBFCA and its construction contractors.

The implementation of Mitigation Measure UTL-1 would reduce the potentially significant impact associated with disruption of utilities because SBFCA and its contractors would coordinate with affected utility service providers and customers to minimize utility interruptions and inadvertent damage to unknown buried utilities to the maximum extent feasible, prepare a response plan to address service interruptions, and relocate and install disturbed utilities comparable to existing conditions. The project would result in a **less than significant impact 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 project does not involve any new residential, commercial, or industrial development that would increase demand for water supplies. Water required for the project would be limited to temporary construction activities, such as dust suppression and soil compaction, and would be sourced locally through existing water providers or trucked in as necessary. Given the temporary, limited nature of water use, the project would not impact the availability of water supplies during normal, dry, or multiple dry years. Therefore, this impact would be **less than significant**.

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

During project implementation, DWR, and SBFCA or its contractor may have portable toilet facilities available onsite temporarily for use by construction workers. Given the small construction workforce of a maximum of 25-50 workers onsite daily for the construction period, this amount of waste would be minimal. Since the project does not require any connection to or service from an existing wastewater treatment provider, there would be no demand placed on local wastewater treatment infrastructure. Once construction is concluded, portable facilities

would be removed, and the wastewater would be properly handled and disposed in accordance with all applicable laws and regulations. There would be **no impact**.

d and e) 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? Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?

The project's construction activities would generate solid waste, primarily consisting of construction debris, cleared vegetation, and excavated soils unsuitable for reuse in levee construction. Solid waste generated by the project would be managed in compliance with all applicable federal, state, and local regulations. Given Ostrom landfill's significant remaining capacity, it is well-equipped to accommodate the solid waste generated by the project without exceeding local infrastructure limits.

The project would also incorporate waste minimization measures, such as reusing excavated soils that meet engineering requirements for levee reconstruction and recycling construction materials whenever feasible. These practices align with state and local waste reduction goals. As the project would not generate solid waste in quantities that exceed the capacity of existing facilities or conflict with solid waste reduction goals, and would comply with all applicable statutes and regulations, the impact would be **less than significant**.

3.20 Wildfire

Environmental Issue	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No 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?	☐	☐	☐	☒

3.20.1 Environmental Setting

Fire protection services, including rescue, emergency medical services, and hazardous material response, are provided by the Sutter County (Sutter County 2011). The project site is located in a largely undeveloped area surrounded by agricultural uses and NWR. The project site is not located in a moderate, high, very high severity fire zone in a State or Local Responsibility Area. (CALFIRE 2022).

3.20.2 Discussion

a, b, c, d) If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project: Substantially impair an adopted emergency response plan or emergency evacuation plan; 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; 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; or 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 project site is not located in a very high fire hazard severity zone or state responsibility area. There would not be an increase in the number of users at the project site or in the vicinity that could impair emergency response or evacuation compared to existing conditions. Additionally, the short-term, temporary nature of construction and the intermittent nature of material off hauling and drop-off via large trucks at the project site would not pose a risk to emergency response or evacuation during an emergency. Therefore, the project would have **no impact**.

3.21 Mandatory Findings of Significance

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

Authority: Public Resources Code Sections 21083, 21083.5.
Reference: Government Code Sections 65088.4.
Public Resources Code Sections 21080, 21083.5, 21095; *Eureka Citizens for Responsible Govt. v. City of Eureka* (2007) 147 Cal.App.4th 357; *Protect the Historic Amador Waterways v. Amador Water Agency* (2004) 116 Cal.App.4th at 1109; *San Franciscans Upholding the Downtown Plan v. City and County of San Francisco* (2002) 102 Cal.App.4th 656.

3.21.1 Discussion

a) Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of an endangered, rare, or threatened species, or eliminate important examples of the major periods of California history or prehistory?

The analysis conducted in this IS concludes that the proposed project with mitigation would not have a significant effect on the physical environment and would not result in any of the impacts defined in a) above.

As evaluated in Section 3.3, “Air Quality,” the proposed project could have potential adverse effects during construction activities on air quality emissions. However, with implementation of Mitigation Measures AQ-1 through AQ-3, impacts on air quality would be reduced to **less-than-significant level with mitigation**.

As evaluated in Section 3.4, "Biological Resources," the proposed project could have potential adverse effects during construction activities on special-status plants and wildlife, nesting birds, and sensitive habitats. However, with implementation of Mitigation Measures BIO-1, BIO-2, BIO-3, BIO-4, BIO-5, BIO-6, BIO-7a, BIO-7b, BIO-8a, BIO-8b, and BIO-9, these impacts would be reduced to **less-than-significant level with mitigation**.

As evaluated in Section 3.5, "Cultural Resources," the proposed project could have potential adverse effects during ground-disturbing construction activities on presently unknown subsurface historical and archaeological resources and human remains. However, with implementation of Mitigation Measures CUL-1, CUL-2, and CUL-3, these potential impacts, if they occur, would be reduced to **less-than-significant level with mitigation**.

As evaluated in Sections 3.7, "Geology and Soils," and 3.10, "Hydrology and Water Quality," the proposed project could result in adverse effects to groundwater quality and/or surface water quality during construction activities. However, with implementation of Mitigation Measure GEO-1, these impacts would be reduced to **less-than-significant level with mitigation**.

As evaluated in Section 3.8 "Greenhouse Gas Emissions," the proposed project could result in adverse effects during construction activities on GHG. However, with Implementation of AQ-1, AQ-2, and AQ-3, impacts on GHG would be reduced to **less-than-significant level with mitigation**.

As evaluated in Section 3.18, "Tribal Cultural Resources," the proposed project could adversely affect Tribal Cultural Resources if any are discovered during project-related construction activities. However, with implementation of Mitigation Measure CUL-1, CUL-2, and CUL-3, these impacts would be reduced to **less-than-significant level with mitigation**.

b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)

Construction of the proposed project would result in temporary and short-term impacts that would be primarily limited to the project site and immediate vicinity. As discussed in this IS, the proposed project would result in less-than-significant impacts or no impacts on the following resource areas: aesthetics, agriculture and forestry, energy, GHG emissions, hazards and hazardous materials, land use and planning, mineral resources, noise, population and housing, public services, recreation, and wildfire. Furthermore, mitigation measures have been identified in this IS that would reduce impacts to a less-than-significant level in the following areas: air quality, biological resources, cultural resources, geology and soils, hydrology and water quality, tribal cultural resources, and utilities and service systems. Therefore, all impacts would be less than significant or would be reduced to a less-than-significant level through implementation of required mitigation measures, and the proposed project would not make a cumulatively considerable incremental contribution to significant cumulative adverse impacts on those resource areas. The incremental effects of the proposed project would not be cumulatively

considerable when viewed together with the effects of past, present, and reasonably foreseeable future projects. Therefore, cumulative impacts would be **less than significant**.

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

As discussed throughout this IS, construction and operation of the proposed project would not cause substantial adverse effects on human beings, either directly or indirectly. Furthermore, mitigation measures are identified to reduce the proposed project's potentially significant effects on biological resources, cultural resources, geology and soils, hydrology and water quality, tribal cultural resources, and utilities and service systems to less-than-significant levels. Thus, construction and operation of the proposed project would not cause substantial adverse effects on human beings, either directly or indirectly. Therefore, impacts on human beings would be **less than significant**.

Chapter 4. References

MITIGATED NEGATIVE DECLARATION

No references cited.

INITIAL STUDY

No references cited.

1 Introduction

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2 Project Description

No references cited.

3 Environmental Checklist

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3.1 Aesthetics

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Appendix A. Air Quality and GHG Modeling

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Sutter Bypass East Levee Detailed Report

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1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	Sutter Bypass East Levee
Construction Start Date	4/1/2026
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	3.40
Precipitation (days)	1.20
Location	39.08475162089158, -121.75171557195569
County	Sutter
City	Unincorporated
Air District	Feather River AQMD
Air Basin	Sacramento Valley
TAZ	309
EDFZ	4
Electric Utility	Pacific Gas & Electric Company
Gas Utility	Pacific Gas & Electric
App Version	2022.1.1.29

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
User Defined Linear	5.20	Mile	19.0	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-5	Use Advanced Engine Tiers
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.	29.4	24.6	229	229	0.49	9.30	1,159	1,169	8.59	168	176	—	62,068	62,068	1.83	4.06	56.0	63,327
Mit.	7.50	6.82	60.5	230	0.49	1.42	317	318	1.39	52.8	54.1	—	62,068	62,068	1.83	4.06	56.0	63,327
% Reduced	74%	72%	74%	> -0.5%	—	85%	73%	73%	84%	68%	69%	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	11.5	9.68	84.6	99.3	0.19	3.85	21.7	25.5	3.55	10.3	13.8	—	23,007	23,007	0.76	0.91	0.40	23,298
Mit.	3.18	2.94	21.6	111	0.19	0.55	10.4	11.0	0.53	4.50	5.02	—	23,007	23,007	0.76	0.91	0.40	23,298
% Reduced	72%	70%	74%	-11%	—	86%	52%	57%	85%	56%	64%	—	—	—	—	—	—	—
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	7.65	6.42	60.1	60.0	0.12	2.47	193	196	2.28	31.6	33.9	—	15,364	15,364	0.46	0.87	5.31	15,641
Mit.	2.00	1.81	16.4	60.4	0.12	0.39	54.4	54.8	0.38	10.5	10.8	—	15,364	15,364	0.46	0.87	5.31	15,641
% Reduced	74%	72%	73%	-1%	—	84%	72%	72%	84%	67%	68%	—	—	—	—	—	—	—
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Unmit.	1.40	1.17	11.0	11.0	0.02	0.45	35.3	35.7	0.42	5.77	6.18	—	2,544	2,544	0.08	0.14	0.88	2,590
Mit.	0.36	0.33	2.99	11.0	0.02	0.07	9.93	10.0	0.07	1.91	1.98	—	2,544	2,544	0.08	0.14	0.88	2,590
% Reduced	74%	72%	73%	-1%	—	84%	72%	72%	84%	67%	68%	—	—	—	—	—	—	—

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	28.9	24.3	228	219	0.48	9.24	1,159	1,169	8.54	168	176	—	61,337	61,337	1.83	4.06	56.0	62,648
2027	29.4	24.6	229	229	0.49	9.30	1,136	1,146	8.59	165	174	—	62,068	62,068	1.78	3.91	49.8	63,327
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	11.5	9.68	84.6	99.3	0.19	3.85	21.6	25.5	3.55	10.2	13.8	—	23,007	23,007	0.76	0.91	0.40	23,298
2027	10.2	8.60	79.3	97.3	0.17	3.49	21.7	25.2	3.22	10.3	13.5	—	20,578	20,578	0.67	0.90	0.37	20,865
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	7.06	5.93	55.6	52.8	0.11	2.28	190	192	2.11	30.7	32.8	—	14,213	14,213	0.44	0.86	5.31	14,485
2027	7.65	6.42	60.1	60.0	0.12	2.47	193	196	2.28	31.6	33.9	—	15,364	15,364	0.46	0.87	4.92	15,641
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	1.29	1.08	10.2	9.64	0.02	0.42	34.7	35.1	0.38	5.60	5.98	—	2,353	2,353	0.07	0.14	0.88	2,398
2027	1.40	1.17	11.0	11.0	0.02	0.45	35.3	35.7	0.42	5.77	6.18	—	2,544	2,544	0.08	0.14	0.82	2,590

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	7.26	6.59	60.2	216	0.48	1.35	317	318	1.33	52.8	54.1	—	61,337	61,337	1.83	4.06	56.0	62,648
2027	7.50	6.82	60.5	230	0.49	1.42	311	312	1.39	52.2	53.6	—	62,068	62,068	1.78	3.91	49.8	63,327
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	3.18	2.94	21.6	111	0.19	0.55	10.4	11.0	0.53	4.49	5.02	—	23,007	23,007	0.76	0.91	0.40	23,298
2027	3.07	2.81	21.3	100	0.17	0.54	10.4	11.0	0.53	4.50	5.02	—	20,578	20,578	0.67	0.90	0.37	20,865

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	1.80	1.64	15.5	52.4	0.11	0.34	53.4	53.7	0.34	10.1	10.4	—	14,213	14,213	0.44	0.86	5.31	14,485
2027	2.00	1.81	16.4	60.4	0.12	0.39	54.4	54.8	0.38	10.5	10.8	—	15,364	15,364	0.46	0.87	4.92	15,641
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	0.33	0.30	2.82	9.56	0.02	0.06	9.74	9.80	0.06	1.84	1.91	—	2,353	2,353	0.07	0.14	0.88	2,398
2027	0.36	0.33	2.99	11.0	0.02	0.07	9.93	10.0	0.07	1.91	1.98	—	2,544	2,544	0.08	0.14	0.82	2,590

3. Construction Emissions Details

3.1. Year 1 - Mobilization, Clearing, Grubbing and Stripping (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-Roa d Equipment	2.25	1.89	17.0	15.5	0.03	0.78	—	0.78	0.71	—	0.71	—	2,910	2,910	0.12	0.02	—	2,920
Dust From Material Movement	—	—	—	—	—	—	12.0	12.0	—	5.95	5.95	—	—	—	—	—	—	—
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-Roa d Equipment	0.21	0.18	1.58	1.45	< 0.005	0.07	—	0.07	0.07	—	0.07	—	271	271	0.01	< 0.005	—	272
Dust From Material Movement	—	—	—	—	—	—	1.11	1.11	—	0.55	0.55	—	—	—	—	—	—	—
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-Roa d Equipment	0.04	0.03	0.29	0.26	< 0.005	0.01	—	0.01	0.01	—	0.01	—	44.9	44.9	< 0.005	< 0.005	—	45.0
Dust From Material Movement	—	—	—	—	—	—	0.20	0.20	—	0.10	0.10	—	—	—	—	—	—	—
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	0.49	0.46	0.32	6.74	0.00	0.00	1.01	1.01	0.00	0.24	0.24	—	1,119	1,119	0.05	0.04	3.72	1,136
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	0.11	0.07	4.14	0.90	0.02	0.07	0.99	1.06	0.07	0.27	0.34	—	3,557	3,557	0.03	0.56	6.43	3,730

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.04	0.47	0.00	0.00	0.09	0.09	0.00	0.02	0.02	—	94.8	94.8	< 0.005	< 0.005	0.15	96.2
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	0.01	0.01	0.41	0.08	< 0.005	0.01	0.09	0.10	0.01	0.03	0.03	—	331	331	< 0.005	0.05	0.26	347
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.09	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	15.7	15.7	< 0.005	< 0.005	0.02	15.9
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	0.02	0.02	< 0.005	< 0.005	0.01	—	54.9	54.9	< 0.005	0.01	0.04	57.5

3.2. Year 1 - Mobilization, Clearing, Grubbing and Stripping (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-Roa d Equipment	0.27	0.27	1.42	15.2	0.03	0.05	—	0.05	0.05	—	0.05	—	2,910	2,910	0.12	0.02	—	2,920
Dust From Material Movement	—	—	—	—	—	—	4.67	4.67	—	2.32	2.32	—	—	—	—	—	—	—
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-Roa d Equipment	0.03	0.03	0.13	1.42	< 0.005	0.01	—	0.01	0.01	—	0.01	—	271	271	0.01	< 0.005	—	272
Dust From Material Movement	—	—	—	—	—	—	0.43	0.43	—	0.22	0.22	—	—	—	—	—	—	—
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-Roa d Equipment	< 0.005	< 0.005	0.02	0.26	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	44.9	44.9	< 0.005	< 0.005	—	45.0
Dust From Material Movement	—	—	—	—	—	—	0.08	0.08	—	0.04	0.04	—	—	—	—	—	—	—
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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.49	0.46	0.32	6.74	0.00	0.00	1.01	1.01	0.00	0.24	0.24	—	1,119	1,119	0.05	0.04	3.72	1,136
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	0.11	0.07	4.14	0.90	0.02	0.07	0.99	1.06	0.07	0.27	0.34	—	3,557	3,557	0.03	0.56	6.43	3,730
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.04	0.47	0.00	0.00	0.09	0.09	0.00	0.02	0.02	—	94.8	94.8	< 0.005	< 0.005	0.15	96.2
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	0.01	0.01	0.41	0.08	< 0.005	0.01	0.09	0.10	0.01	0.03	0.03	—	331	331	< 0.005	0.05	0.26	347
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.09	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	15.7	15.7	< 0.005	< 0.005	0.02	15.9
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	0.02	0.02	< 0.005	< 0.005	0.01	—	54.9	54.9	< 0.005	0.01	0.04	57.5

3.3. Year 2 - Mobilization, Clearing, Grubbing, and Stripping (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-Roa d Equipment	2.18	1.83	16.1	15.2	0.03	0.73	—	0.73	0.67	—	0.67	—	2,910	2,910	0.12	0.02	—	2,920
Dust From Material Movement	—	—	—	—	—	—	12.0	12.0	—	5.95	5.95	—	—	—	—	—	—	—
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-Roa d Equipment	0.26	0.22	1.90	1.79	< 0.005	0.09	—	0.09	0.08	—	0.08	—	343	343	0.01	< 0.005	—	344
Dust From Material Movement	—	—	—	—	—	—	1.41	1.41	—	0.70	0.70	—	—	—	—	—	—	—
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-Roa d Equipment	0.05	0.04	0.35	0.33	< 0.005	0.02	—	0.02	0.01	—	0.01	—	56.8	56.8	< 0.005	< 0.005	—	57.0
Dust From Material Movement	—	—	—	—	—	—	0.26	0.26	—	0.13	0.13	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.47	0.43	0.32	6.24	0.00	0.00	1.01	1.01	0.00	0.24	0.24	—	1,097	1,097	0.02	0.04	3.34	1,112
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	0.09	0.06	3.20	0.71	0.02	0.06	0.78	0.83	0.06	0.21	0.27	—	2,745	2,745	0.03	0.44	4.72	2,881
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.04	0.55	0.00	0.00	0.12	0.12	0.00	0.03	0.03	—	118	118	< 0.005	< 0.005	0.17	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	0.01	0.01	0.40	0.08	< 0.005	0.01	0.09	0.10	0.01	0.03	0.03	—	323	323	< 0.005	0.05	0.24	339
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.10	0.00	0.00	0.02	0.02	0.00	0.01	0.01	—	19.5	19.5	< 0.005	< 0.005	0.03	19.7
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	< 0.005	< 0.005	0.07	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	53.6	53.6	< 0.005	0.01	0.04	56.2

3.4. Year 2 - Mobilization, Clearing, Grubbing, and Stripping (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-Roa d Equipment	0.27	0.27	1.42	15.2	0.03	0.05	—	0.05	0.05	—	0.05	—	2,910	2,910	0.12	0.02	—	2,920
Dust From Material Movement	—	—	—	—	—	—	4.66	4.66	—	2.32	2.32	—	—	—	—	—	—	—
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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Off-Roa d Equipment	0.03	0.03	0.17	1.80	< 0.005	0.01	—	0.01	0.01	—	0.01	—	343	343	0.01	< 0.005	—	344
Dust From Material Movement	—	—	—	—	—	—	0.55	0.55	—	0.27	0.27	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Roa d Equipment	0.01	0.01	0.03	0.33	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	56.8	56.8	< 0.005	< 0.005	—	57.0
Dust From Material Movement	—	—	—	—	—	—	0.10	0.10	—	0.05	0.05	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.47	0.43	0.32	6.24	0.00	0.00	1.01	1.01	0.00	0.24	0.24	—	1,097	1,097	0.02	0.04	3.34	1,112
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	0.09	0.06	3.20	0.71	0.02	0.06	0.78	0.83	0.06	0.21	0.27	—	2,745	2,745	0.03	0.44	4.72	2,881
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.04	0.55	0.00	0.00	0.12	0.12	0.00	0.03	0.03	—	118	118	< 0.005	< 0.005	0.17	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	0.01	0.01	0.40	0.08	< 0.005	0.01	0.09	0.10	0.01	0.03	0.03	—	323	323	< 0.005	0.05	0.24	339
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.10	0.00	0.00	0.02	0.02	0.00	0.01	0.01	—	19.5	19.5	< 0.005	< 0.005	0.03	19.7
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	< 0.005	< 0.005	0.07	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	53.6	53.6	< 0.005	0.01	0.04	56.2

3.5. Year 2 - Levee Degrade and Utility Removal (2027) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Roa d Equipment	8.06	6.77	60.6	53.2	0.10	2.60	—	2.60	2.39	—	2.39	—	10,389	10,389	0.42	0.08	—	10,425

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Dust From Material Movement	—	—	—	—	—	—	45.9	45.9	—	23.6	23.6	—	—	—	—	—	—	—
Onsite truck	0.09	0.07	1.67	0.93	0.01	0.01	272	272	0.01	27.1	27.1	—	719	719	0.02	0.12	1.04	755
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Roa d	2.49	2.09	18.8	16.5	0.03	0.80	—	0.80	0.74	—	0.74	—	3,216	3,216	0.13	0.03	—	3,227
Dust From Material Movement	—	—	—	—	—	—	14.2	14.2	—	7.30	7.30	—	—	—	—	—	—	—
Onsite truck	0.03	0.02	0.54	0.29	< 0.005	< 0.005	83.9	83.9	< 0.005	8.37	8.37	—	223	223	0.01	0.04	0.14	234
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Roa d Equipment	0.46	0.38	3.43	3.00	0.01	0.15	—	0.15	0.14	—	0.14	—	533	533	0.02	< 0.005	—	534
Dust From Material Movement	—	—	—	—	—	—	2.59	2.59	—	1.33	1.33	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.10	0.05	< 0.005	< 0.005	15.3	15.3	< 0.005	1.53	1.53	—	36.9	36.9	< 0.005	0.01	0.02	38.8
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.47	0.43	0.32	6.24	0.00	0.00	1.01	1.01	0.00	0.24	0.24	—	1,097	1,097	0.02	0.04	3.34	1,112
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	0.09	0.06	3.42	0.76	0.02	0.06	0.83	0.89	0.06	0.23	0.29	—	2,938	2,938	0.03	0.47	5.05	3,084
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.13	0.12	0.11	1.45	0.00	0.00	0.31	0.31	0.00	0.07	0.07	—	309	309	0.01	0.01	0.45	313
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	0.03	0.02	1.12	0.24	0.01	0.02	0.26	0.28	0.02	0.07	0.09	—	910	910	0.01	0.15	0.67	954
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.26	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	51.1	51.1	< 0.005	< 0.005	0.07	51.9
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	0.01	< 0.005	0.20	0.04	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.02	—	151	151	< 0.005	0.02	0.11	158

3.6. Year 2 - Levee Degrade and Utility Removal (2027) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Roa d Equipment	1.26	1.21	8.79	52.1	0.10	0.26	—	0.26	0.25	—	0.25	—	10,389	10,389	0.42	0.08	—	10,425
Dust From Material Movement	—	—	—	—	—	—	17.9	17.9	—	9.19	9.19	—	—	—	—	—	—	—
Onsite truck	0.09	0.07	1.67	0.93	0.01	0.01	68.5	68.5	0.01	6.85	6.86	—	719	719	0.02	0.12	1.04	755
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Roa d Equipment	0.39	0.38	2.72	16.1	0.03	0.08	—	0.08	0.08	—	0.08	—	3,216	3,216	0.13	0.03	—	3,227
Dust From Material Movement	—	—	—	—	—	—	5.54	5.54	—	2.85	2.85	—	—	—	—	—	—	—
Onsite truck	0.03	0.02	0.54	0.29	< 0.005	< 0.005	21.1	21.1	< 0.005	2.11	2.12	—	223	223	0.01	0.04	0.14	234
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Roa d Equipment	0.07	0.07	0.50	2.94	0.01	0.01	—	0.01	0.01	—	0.01	—	533	533	0.02	< 0.005	—	534
Dust From Material Movement	—	—	—	—	—	—	1.01	1.01	—	0.52	0.52	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.10	0.05	< 0.005	< 0.005	3.86	3.86	< 0.005	0.39	0.39	—	36.9	36.9	< 0.005	0.01	0.02	38.8
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.47	0.43	0.32	6.24	0.00	0.00	1.01	1.01	0.00	0.24	0.24	—	1,097	1,097	0.02	0.04	3.34	1,112
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	0.09	0.06	3.42	0.76	0.02	0.06	0.83	0.89	0.06	0.23	0.29	—	2,938	2,938	0.03	0.47	5.05	3,084
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.13	0.12	0.11	1.45	0.00	0.00	0.31	0.31	0.00	0.07	0.07	—	309	309	0.01	0.01	0.45	313
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	0.03	0.02	1.12	0.24	0.01	0.02	0.26	0.28	0.02	0.07	0.09	—	910	910	0.01	0.15	0.67	954
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.26	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	51.1	51.1	< 0.005	< 0.005	0.07	51.9
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	0.01	< 0.005	0.20	0.04	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.02	—	151	151	< 0.005	0.02	0.11	158

3.7. Year 1 - Levee Degrade and Utility Removal (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-Roa d Equipment	8.29	6.96	63.0	54.4	0.10	2.73	—	2.73	2.51	—	2.51	—	10,389	10,389	0.42	0.08	—	10,425
Dust From Material Movement	—	—	—	—	—	—	45.9	45.9	—	23.6	23.6	—	—	—	—	—	—	—
Onsite truck	0.10	0.07	1.83	1.01	0.01	0.01	295	295	0.01	29.4	29.4	—	799	799	0.02	0.13	1.21	838
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Roa d Equipment	2.32	1.94	17.6	15.2	0.03	0.76	—	0.76	0.70	—	0.70	—	2,903	2,903	0.12	0.02	—	2,913
Dust From Material Movement	—	—	—	—	—	—	12.8	12.8	—	6.59	6.59	—	—	—	—	—	—	—
Onsite truck	0.03	0.02	0.53	0.29	< 0.005	< 0.005	82.1	82.1	< 0.005	8.19	8.20	—	224	224	0.01	0.04	0.15	234
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Roa d Equipment	0.42	0.35	3.22	2.78	< 0.005	0.14	—	0.14	0.13	—	0.13	—	481	481	0.02	< 0.005	—	482
Dust From Material Movement	—	—	—	—	—	—	2.34	2.34	—	1.20	1.20	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.10	0.05	< 0.005	< 0.005	15.0	15.0	< 0.005	1.50	1.50	—	37.0	37.0	< 0.005	0.01	0.02	38.8
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.49	0.46	0.32	6.74	0.00	0.00	1.01	1.01	0.00	0.24	0.24	—	1,119	1,119	0.05	0.04	3.72	1,136
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	0.10	0.07	3.88	0.84	0.02	0.07	0.92	0.99	0.07	0.25	0.32	—	3,336	3,336	0.03	0.52	6.03	3,498
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.13	0.11	0.11	1.41	0.00	0.00	0.28	0.28	0.00	0.07	0.07	—	284	284	0.01	0.01	0.45	289
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	0.03	0.02	1.15	0.24	0.01	0.02	0.26	0.28	0.02	0.07	0.09	—	932	932	0.01	0.15	0.73	977
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.26	0.00	0.00	0.05	0.05	0.00	0.01	0.01	—	47.1	47.1	< 0.005	< 0.005	0.07	47.8

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	< 0.005	0.21	0.04	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.02	—	154	154	< 0.005	0.02	0.12	162

3.8. Year 1 - Levee Degrade and Utility Removal (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-Roa d Equipment	1.26	1.21	8.79	52.1	0.10	0.26	—	0.26	0.25	—	0.25	—	10,389	10,389	0.42	0.08	—	10,425
Dust From Material Movement	—	—	—	—	—	—	17.9	17.9	—	9.20	9.20	—	—	—	—	—	—	—
Onsite truck	0.10	0.07	1.83	1.01	0.01	0.01	74.3	74.3	0.01	7.43	7.44	—	799	799	0.02	0.13	1.21	838
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Roa d Equipment	0.35	0.34	2.46	14.5	0.03	0.07	—	0.07	0.07	—	0.07	—	2,903	2,903	0.12	0.02	—	2,913
Dust From Material Movement	—	—	—	—	—	—	5.00	5.00	—	2.57	2.57	—	—	—	—	—	—	—
Onsite truck	0.03	0.02	0.53	0.29	< 0.005	< 0.005	20.7	20.7	< 0.005	2.07	2.07	—	224	224	0.01	0.04	0.15	234
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Roa d Equipment	0.06	0.06	0.45	2.65	< 0.005	0.01	—	0.01	0.01	—	0.01	—	481	481	0.02	< 0.005	—	482
Dust From Material Movement	—	—	—	—	—	—	0.91	0.91	—	0.47	0.47	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.10	0.05	< 0.005	< 0.005	3.78	3.78	< 0.005	0.38	0.38	—	37.0	37.0	< 0.005	0.01	0.02	38.8
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.49	0.46	0.32	6.74	0.00	0.00	1.01	1.01	0.00	0.24	0.24	—	1,119	1,119	0.05	0.04	3.72	1,136
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	0.10	0.07	3.88	0.84	0.02	0.07	0.92	0.99	0.07	0.25	0.32	—	3,336	3,336	0.03	0.52	6.03	3,498
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Worker	0.13	0.11	0.11	1.41	0.00	0.00	0.28	0.28	0.00	0.07	0.07	—	284	284	0.01	0.01	0.45	289
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	0.03	0.02	1.15	0.24	0.01	0.02	0.26	0.28	0.02	0.07	0.09	—	932	932	0.01	0.15	0.73	977
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.26	0.00	0.00	0.05	0.05	0.00	0.01	0.01	—	47.1	47.1	< 0.005	< 0.005	0.07	47.8
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	0.01	< 0.005	0.21	0.04	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.02	—	154	154	< 0.005	0.02	0.12	162

3.9. Year 1 - Cutoff Wall Construction (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-Roa d Equipment	5.71	4.79	43.6	43.3	0.07	2.00	—	2.00	1.84	—	1.84	—	7,454	7,454	0.30	0.06	—	7,480
Dust From Material Movement	—	—	—	—	—	—	18.4	18.4	—	9.43	9.43	—	—	—	—	—	—	—
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-Roa d Equipment	5.71	4.79	43.6	43.3	0.07	2.00	—	2.00	1.84	—	1.84	—	7,454	7,454	0.30	0.06	—	7,480
Dust From Material Movement	—	—	—	—	—	—	18.4	18.4	—	9.43	9.43	—	—	—	—	—	—	—
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-Roa d Equipment	2.69	2.26	20.6	20.4	0.03	0.94	—	0.94	0.87	—	0.87	—	3,513	3,513	0.14	0.03	—	3,525
Dust From Material Movement	—	—	—	—	—	—	8.66	8.66	—	4.45	4.45	—	—	—	—	—	—	—
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-Roa d Equipment	0.49	0.41	3.75	3.72	0.01	0.17	—	0.17	0.16	—	0.16	—	582	582	0.02	< 0.005	—	584
Dust From Material Movement	—	—	—	—	—	—	1.58	1.58	—	0.81	0.81	—	—	—	—	—	—	—

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
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.49	0.46	0.32	6.74	0.00	0.00	1.01	1.01	0.00	0.24	0.24	—	1,119	1,119	0.05	0.04	3.72	1,136
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	0.13	0.08	4.71	1.02	0.03	0.08	1.12	1.20	0.08	0.31	0.39	—	4,043	4,043	0.04	0.63	7.31	4,239
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.45	0.40	0.47	4.88	0.00	0.00	1.01	1.01	0.00	0.24	0.24	—	989	989	0.02	0.04	0.10	1,001
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.12	0.07	5.09	1.05	0.03	0.08	1.12	1.20	0.08	0.31	0.39	—	4,046	4,046	0.04	0.63	0.19	4,235
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.21	0.19	0.19	2.37	0.00	0.00	0.48	0.48	0.00	0.11	0.11	—	479	479	0.02	0.02	0.76	487
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	0.06	0.04	2.34	0.49	0.01	0.04	0.53	0.56	0.04	0.14	0.18	—	1,906	1,906	0.02	0.30	1.49	1,996
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.03	0.43	0.00	0.00	0.09	0.09	0.00	0.02	0.02	—	79.4	79.4	< 0.005	< 0.005	0.13	80.5
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	0.01	0.43	0.09	< 0.005	0.01	0.10	0.10	0.01	0.03	0.03	—	316	316	< 0.005	0.05	0.25	331

3.10. Year 1 - Cutoff Wall Construction (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-Roa d Equipment	1.29	1.19	10.6	43.1	0.07	0.29	—	0.29	0.27	—	0.27	—	7,454	7,454	0.30	0.06	—	7,480
Dust From Material Movement	—	—	—	—	—	—	7.17	7.17	—	3.68	3.68	—	—	—	—	—	—	—
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-Roa d Equipment	1.29	1.19	10.6	43.1	0.07	0.29	—	0.29	0.27	—	0.27	—	7,454	7,454	0.30	0.06	—	7,480

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Dust From Material Movement	—	—	—	—	—	—	7.17	7.17	—	3.68	3.68	—	—	—	—	—	—	—
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-Roa d Equipment	0.61	0.56	4.99	20.3	0.03	0.13	—	0.13	0.13	—	0.13	—	3,513	3,513	0.14	0.03	—	3,525
Dust From Material Movement	—	—	—	—	—	—	3.38	3.38	—	1.73	1.73	—	—	—	—	—	—	—
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-Roa d Equipment	0.11	0.10	0.91	3.70	0.01	0.02	—	0.02	0.02	—	0.02	—	582	582	0.02	< 0.005	—	584
Dust From Material Movement	—	—	—	—	—	—	0.62	0.62	—	0.32	0.32	—	—	—	—	—	—	—
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	0.49	0.46	0.32	6.74	0.00	0.00	1.01	1.01	0.00	0.24	0.24	—	1,119	1,119	0.05	0.04	3.72	1,136
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	0.13	0.08	4.71	1.02	0.03	0.08	1.12	1.20	0.08	0.31	0.39	—	4,043	4,043	0.04	0.63	7.31	4,239
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.45	0.40	0.47	4.88	0.00	0.00	1.01	1.01	0.00	0.24	0.24	—	989	989	0.02	0.04	0.10	1,001
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.12	0.07	5.09	1.05	0.03	0.08	1.12	1.20	0.08	0.31	0.39	—	4,046	4,046	0.04	0.63	0.19	4,235
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.21	0.19	0.19	2.37	0.00	0.00	0.48	0.48	0.00	0.11	0.11	—	479	479	0.02	0.02	0.76	487
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	0.06	0.04	2.34	0.49	0.01	0.04	0.53	0.56	0.04	0.14	0.18	—	1,906	1,906	0.02	0.30	1.49	1,996
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.03	0.43	0.00	0.00	0.09	0.09	0.00	0.02	0.02	—	79.4	79.4	< 0.005	< 0.005	0.13	80.5
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	0.01	0.43	0.09	< 0.005	0.01	0.10	0.10	0.01	0.03	0.03	—	316	316	< 0.005	0.05	0.25	331

3.11. Year 2 - Cutoff Wall Construction (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-Roa d Equipment	6.90	5.79	53.3	58.2	0.09	2.43	—	2.43	2.24	—	2.24	—	9,840	9,840	0.40	0.08	—	9,873
Dust From Material Movement	—	—	—	—	—	—	18.4	18.4	—	9.43	9.43	—	—	—	—	—	—	—
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-Roa d Equipment	6.90	5.79	53.3	58.2	0.09	2.43	—	2.43	2.24	—	2.24	—	9,840	9,840	0.40	0.08	—	9,873
Dust From Material Movement	—	—	—	—	—	—	18.4	18.4	—	9.43	9.43	—	—	—	—	—	—	—
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-Roa d Equipment	3.18	2.66	24.5	26.8	0.04	1.12	—	1.12	1.03	—	1.03	—	4,529	4,529	0.18	0.04	—	4,544
Dust From Material Movement	—	—	—	—	—	—	8.46	8.46	—	4.34	4.34	—	—	—	—	—	—	—
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-Roa d Equipment	0.58	0.49	4.48	4.89	0.01	0.20	—	0.20	0.19	—	0.19	—	750	750	0.03	0.01	—	752
Dust From Material Movement	—	—	—	—	—	—	1.54	1.54	—	0.79	0.79	—	—	—	—	—	—	—
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	0.47	0.43	0.32	6.24	0.00	0.00	1.01	1.01	0.00	0.24	0.24	—	1,097	1,097	0.02	0.04	3.34	1,112
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	0.13	0.08	4.70	1.05	0.03	0.08	1.15	1.23	0.08	0.31	0.40	—	4,039	4,039	0.04	0.65	6.94	4,239
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.43	0.38	0.40	4.54	0.00	0.00	1.01	1.01	0.00	0.24	0.24	—	970	970	0.02	0.04	0.09	982

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.12	0.07	5.10	1.07	0.03	0.08	1.15	1.23	0.08	0.31	0.40	—	4,042	4,042	0.04	0.65	0.18	4,236
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.20	0.18	0.17	2.15	0.00	0.00	0.46	0.46	0.00	0.11	0.11	—	459	459	0.01	0.02	0.66	466
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	0.06	0.04	2.29	0.49	0.01	0.04	0.53	0.56	0.04	0.14	0.18	—	1,860	1,860	0.02	0.30	1.38	1,950
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.03	0.39	0.00	0.00	0.08	0.08	0.00	0.02	0.02	—	76.0	76.0	< 0.005	< 0.005	0.11	77.1
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	0.01	0.01	0.42	0.09	< 0.005	0.01	0.10	0.10	0.01	0.03	0.03	—	308	308	< 0.005	0.05	0.23	323

3.12. Year 2 - Cutoff Wall Construction (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-Roa d Equipment	1.67	1.54	12.7	59.5	0.09	0.37	—	0.37	0.35	—	0.35	—	9,840	9,840	0.40	0.08	—	9,873
Dust From Material Movement	—	—	—	—	—	—	7.17	7.17	—	3.68	3.68	—	—	—	—	—	—	—
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-Roa Equipmen	1.67 t	1.54	12.7	59.5	0.09	0.37	—	0.37	0.35	—	0.35	—	9,840	9,840	0.40	0.08	—	9,873
Dust From Material Movement	—	—	—	—	—	—	7.17	7.17	—	3.68	3.68	—	—	—	—	—	—	—
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-Roa d Equipment	0.77	0.71	5.87	27.4	0.04	0.17	—	0.17	0.16	—	0.16	—	4,529	4,529	0.18	0.04	—	4,544
Dust From Material Movement	—	—	—	—	—	—	3.30	3.30	—	1.69	1.69	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Off-Roa d Equipment	0.14	0.13	1.07	5.00	0.01	0.03	—	0.03	0.03	—	0.03	—	750	750	0.03	0.01	—	752
Dust From Material Movement	—	—	—	—	—	—	0.60	0.60	—	0.31	0.31	—	—	—	—	—	—	—
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	0.47	0.43	0.32	6.24	0.00	0.00	1.01	1.01	0.00	0.24	0.24	—	1,097	1,097	0.02	0.04	3.34	1,112
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	0.13	0.08	4.70	1.05	0.03	0.08	1.15	1.23	0.08	0.31	0.40	—	4,039	4,039	0.04	0.65	6.94	4,239
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.43	0.38	0.40	4.54	0.00	0.00	1.01	1.01	0.00	0.24	0.24	—	970	970	0.02	0.04	0.09	982
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.12	0.07	5.10	1.07	0.03	0.08	1.15	1.23	0.08	0.31	0.40	—	4,042	4,042	0.04	0.65	0.18	4,236
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.20	0.18	0.17	2.15	0.00	0.00	0.46	0.46	0.00	0.11	0.11	—	459	459	0.01	0.02	0.66	466
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	0.06	0.04	2.29	0.49	0.01	0.04	0.53	0.56	0.04	0.14	0.18	—	1,860	1,860	0.02	0.30	1.38	1,950
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.03	0.39	0.00	0.00	0.08	0.08	0.00	0.02	0.02	—	76.0	76.0	< 0.005	< 0.005	0.11	77.1
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	0.01	0.01	0.42	0.09	< 0.005	0.01	0.10	0.10	0.01	0.03	0.03	—	308	308	< 0.005	0.05	0.23	323

3.13. Year 2 - Levee and Utility Reconstruction (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-Roa d Equipment	9.40	7.89	69.8	69.1	0.12	3.10	—	3.10	2.86	—	2.86	—	12,899	12,899	0.52	0.10	—	12,944
Dust From Material Movement	—	—	—	—	—	—	47.8	47.8	—	23.8	23.8	—	—	—	—	—	—	—
Onsite truck	0.25	0.18	4.49	2.50	0.02	0.03	731	731	0.03	73.0	73.0	—	1,935	1,935	0.05	0.31	2.79	2,031

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Roa d Equipment	1.00	0.84	7.46	7.38	0.01	0.33	—	0.33	0.31	—	0.31	—	1,378	1,378	0.06	0.01	—	1,383
Dust From Material Movement	—	—	—	—	—	—	5.11	5.11	—	2.54	2.54	—	—	—	—	—	—	—
Onsite truck	0.03	0.02	0.50	0.27	< 0.005	< 0.005	77.9	77.9	< 0.005	7.77	7.78	—	207	207	0.01	0.03	0.13	217
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Roa d Equipment	0.18	0.15	1.36	1.35	< 0.005	0.06	—	0.06	0.06	—	0.06	—	228	228	0.01	< 0.005	—	229
Dust From Material Movement	—	—	—	—	—	—	0.93	0.93	—	0.46	0.46	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.09	0.05	< 0.005	< 0.005	14.2	14.2	< 0.005	1.42	1.42	—	34.3	34.3	< 0.005	0.01	0.02	36.0
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.47	0.43	0.32	6.24	0.00	0.00	1.01	1.01	0.00	0.24	0.24	—	1,097	1,097	0.02	0.04	3.34	1,112
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	0.29	0.19	10.8	2.40	0.07	0.19	2.63	2.82	0.19	0.72	0.91	—	9,265	9,265	0.09	1.48	15.9	9,725
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.04	0.04	0.50	0.00	0.00	0.11	0.11	0.00	0.03	0.03	—	107	107	< 0.005	< 0.005	0.15	108
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	0.03	0.02	1.22	0.26	0.01	0.02	0.28	0.30	0.02	0.08	0.10	—	990	990	0.01	0.16	0.73	1,038
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.09	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	17.7	17.7	< 0.005	< 0.005	0.03	17.9
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	0.01	< 0.005	0.22	0.05	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.02	—	164	164	< 0.005	0.03	0.12	172

3.14. Year 2 - Levee and Utility Reconstruction (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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Off-Roa d Equipment	1.47	1.42	7.94	69.6	0.12	0.31	—	0.31	0.30	—	0.30	—	12,899	12,899	0.52	0.10	—	12,944
Dust From Material Movement	—	—	—	—	—	—	18.6	18.6	—	9.28	9.28	—	—	—	—	—	—	—
Onsite truck	0.25	0.18	4.49	2.50	0.02	0.03	184	184	0.03	18.4	18.5	—	1,935	1,935	0.05	0.31	2.79	2,031
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Roa d Equipment	0.16	0.15	0.85	7.43	0.01	0.03	—	0.03	0.03	—	0.03	—	1,378	1,378	0.06	0.01	—	1,383
Dust From Material Movement	—	—	—	—	—	—	1.99	1.99	—	0.99	0.99	—	—	—	—	—	—	—
Onsite truck	0.03	0.02	0.50	0.27	< 0.005	< 0.005	19.6	19.6	< 0.005	1.96	1.97	—	207	207	0.01	0.03	0.13	217
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Roa d Equipment	0.03	0.03	0.15	1.36	< 0.005	0.01	—	0.01	0.01	—	0.01	—	228	228	0.01	< 0.005	—	229
Dust From Material Movement	—	—	—	—	—	—	0.36	0.36	—	0.18	0.18	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.09	0.05	< 0.005	< 0.005	3.58	3.58	< 0.005	0.36	0.36	—	34.3	34.3	< 0.005	0.01	0.02	36.0
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.47	0.43	0.32	6.24	0.00	0.00	1.01	1.01	0.00	0.24	0.24	—	1,097	1,097	0.02	0.04	3.34	1,112
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	0.29	0.19	10.8	2.40	0.07	0.19	2.63	2.82	0.19	0.72	0.91	—	9,265	9,265	0.09	1.48	15.9	9,725
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.04	0.04	0.50	0.00	0.00	0.11	0.11	0.00	0.03	0.03	—	107	107	< 0.005	< 0.005	0.15	108
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	0.03	0.02	1.22	0.26	0.01	0.02	0.28	0.30	0.02	0.08	0.10	—	990	990	0.01	0.16	0.73	1,038
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.09	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	17.7	17.7	< 0.005	< 0.005	0.03	17.9
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	0.01	< 0.005	0.22	0.05	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.02	—	164	164	< 0.005	0.03	0.12	172

3.15. Year 1 - Levee Resurfacing (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-Roa d Equipment	1.24	1.04	7.79	9.82	0.01	0.39	—	0.39	0.36	—	0.36	—	1,490	1,490	0.06	0.01	—	1,495
Dust From Material Movement	—	—	—	—	—	—	1.00	1.00	—	0.11	0.11	—	—	—	—	—	—	—
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-Roa d Equipment	0.03	0.03	0.19	0.24	< 0.005	0.01	—	0.01	0.01	—	0.01	—	36.7	36.7	< 0.005	< 0.005	—	36.9
Dust From Material Movement	—	—	—	—	—	—	0.02	0.02	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Roa d Equipment	0.01	< 0.005	0.04	0.04	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	6.08	6.08	< 0.005	< 0.005	—	6.10
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.25	0.23	0.16	3.37	0.00	0.00	0.51	0.51	0.00	0.12	0.12	—	559	559	0.02	0.02	1.86	568
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	0.23	0.15	8.72	1.89	0.05	0.15	2.07	2.22	0.15	0.57	0.72	—	7,489	7,489	0.07	1.17	13.5	7,853
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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	—	12.5	12.5	< 0.005	< 0.005	0.02	12.7
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	0.01	< 0.005	0.23	0.05	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.02	—	185	185	< 0.005	0.03	0.14	194
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.08	2.08	< 0.005	< 0.005	< 0.005	2.11

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
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	0.04	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	30.6	30.6	< 0.005	< 0.005	0.02	32.0

3.16. Year 1 - Levee Resurfacing (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-Roa d Equipment	0.17	0.17	2.81	10.4	0.01	0.03	—	0.03	0.03	—	0.03	—	1,490	1,490	0.06	0.01	—	1,495
Dust From Material Movement	—	—	—	—	—	—	0.39	0.39	—	0.04	0.04	—	—	—	—	—	—	—
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-Roa d Equipment	< 0.005	< 0.005	0.07	0.26	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	36.7	36.7	< 0.005	< 0.005	—	36.9
Dust From Material Movement	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Roa d Equipment	< 0.005	< 0.005	0.01	0.05	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	6.08	6.08	< 0.005	< 0.005	—	6.10
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.25	0.23	0.16	3.37	0.00	0.00	0.51	0.51	0.00	0.12	0.12	—	559	559	0.02	0.02	1.86	568
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	0.23	0.15	8.72	1.89	0.05	0.15	2.07	2.22	0.15	0.57	0.72	—	7,489	7,489	0.07	1.17	13.5	7,853
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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	—	12.5	12.5	< 0.005	< 0.005	0.02	12.7

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	< 0.005	0.23	0.05	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.02	—	185	185	< 0.005	0.03	0.14	194
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.08	2.08	< 0.005	< 0.005	< 0.005	2.11
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	0.04	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	30.6	30.6	< 0.005	< 0.005	0.02	32.0

3.17. Year 1 - Hydroseeding (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-Roa d Equipment	1.13	0.95	9.45	13.3	0.02	0.49	—	0.49	0.45	—	0.45	—	2,009	2,009	0.08	0.02	—	2,016
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-Roa d Equipment	0.03	0.02	0.23	0.33	< 0.005	0.01	—	0.01	0.01	—	0.01	—	49.5	49.5	< 0.005	< 0.005	—	49.7
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
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Roa d Equipment	0.01	< 0.005	0.04	0.06	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	8.20	8.20	< 0.005	< 0.005	—	8.23
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	0.22	0.20	0.23	2.44	0.00	0.00	0.51	0.51	0.00	0.12	0.12	—	494	494	0.01	0.02	0.05	501
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	—	12.5	12.5	< 0.005	< 0.005	0.02	12.7
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

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
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.08	2.08	< 0.005	< 0.005	< 0.005	2.11
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. Year 1 - Hydroseeding (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-Roa d Equipment	0.19	0.19	0.99	14.1	0.02	0.04	—	0.04	0.04	—	0.04	—	2,009	2,009	0.08	0.02	—	2,016
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-Roa d Equipment	< 0.005	< 0.005	0.02	0.35	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	49.5	49.5	< 0.005	< 0.005	—	49.7
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
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Roa d Equipment	< 0.005	< 0.005	< 0.005	0.06	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	8.20	8.20	< 0.005	< 0.005	—	8.23
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	0.22	0.20	0.23	2.44	0.00	0.00	0.51	0.51	0.00	0.12	0.12	—	494	494	0.01	0.02	0.05	501
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	—	12.5	12.5	< 0.005	< 0.005	0.02	12.7
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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.08	2.08	< 0.005	< 0.005	< 0.005	2.11
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. Year 1 Demobilization (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-Roa d Equipment	3.63	3.05	25.0	31.8	0.07	1.27	—	1.27	1.17	—	1.17	—	7,119	7,119	0.29	0.06	—	7,144
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-Roa d Equipment	0.12	0.10	0.82	1.05	< 0.005	0.04	—	0.04	0.04	—	0.04	—	234	234	0.01	< 0.005	—	235
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-Roa d Equipment	0.02	0.02	0.15	0.19	< 0.005	0.01	—	0.01	0.01	—	0.01	—	38.7	38.7	< 0.005	< 0.005	—	38.9
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	0.22	0.20	0.23	2.44	0.00	0.00	0.51	0.51	0.00	0.12	0.12	—	494	494	0.01	0.02	0.05	501
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	0.01	0.51	0.10	< 0.005	0.01	0.11	0.12	0.01	0.03	0.04	—	402	402	< 0.005	0.06	0.02	421
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.08	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	16.7	16.7	< 0.005	< 0.005	0.03	17.0
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	< 0.005	< 0.005	0.02	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	13.2	13.2	< 0.005	< 0.005	0.01	13.8
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.77	2.77	< 0.005	< 0.005	< 0.005	2.81
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	2.19	2.19	< 0.005	< 0.005	< 0.005	2.29

3.20. Year 1 Demobilization (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-Roa d Equipment	0.67	0.67	3.50	42.6	0.07	0.13	—	0.13	0.13	—	0.13	—	7,119	7,119	0.29	0.06	—	7,144
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-Roa d Equipment	0.02	0.02	0.12	1.40	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	234	234	0.01	< 0.005	—	235
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-Roa d Equipment	< 0.005	< 0.005	0.02	0.26	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	38.7	38.7	< 0.005	< 0.005	—	38.9
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	0.22	0.20	0.23	2.44	0.00	0.00	0.51	0.51	0.00	0.12	0.12	—	494	494	0.01	0.02	0.05	501
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	0.01	0.51	0.10	< 0.005	0.01	0.11	0.12	0.01	0.03	0.04	—	402	402	< 0.005	0.06	0.02	421
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.08	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	16.7	16.7	< 0.005	< 0.005	0.03	17.0
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	< 0.005	< 0.005	0.02	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	13.2	13.2	< 0.005	< 0.005	0.01	13.8
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.77	2.77	< 0.005	< 0.005	< 0.005	2.81

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	2.19	2.19	< 0.005	< 0.005	< 0.005	2.29

3.21. Year 2 - Levee Resurfacing (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-Roa d Equipment	1.19	1.00	7.30	9.85	0.01	0.36	—	0.36	0.33	—	0.33	—	1,491	1,491	0.06	0.01	—	1,496
Dust From Material Movement	—	—	—	—	—	—	1.00	1.00	—	0.11	0.11	—	—	—	—	—	—	—
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-Roa d Equipment	0.03	0.02	0.18	0.24	< 0.005	0.01	—	0.01	0.01	—	0.01	—	36.8	36.8	< 0.005	< 0.005	—	36.9
Dust From Material Movement	—	—	—	—	—	—	0.02	0.02	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Roa d Equipment	0.01	< 0.005	0.03	0.04	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	6.09	6.09	< 0.005	< 0.005	—	6.11
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.23	0.22	0.16	3.12	0.00	0.00	0.51	0.51	0.00	0.12	0.12	—	548	548	0.01	0.02	1.67	556
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	0.23	0.15	8.51	1.89	0.05	0.15	2.07	2.22	0.15	0.57	0.72	—	7,308	7,308	0.07	1.17	12.6	7,671
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Worker	0.01	< 0.005	< 0.005	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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	< 0.005	0.22	0.05	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.02	—	180	180	< 0.005	0.03	0.13	189
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	0.00	0.00	0.00	0.00	0.00	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	0.04	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	29.8	29.8	< 0.005	< 0.005	0.02	31.3

3.22. Year 2 - Levee Resurfacing (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-Roa d Equipment	0.17	0.17	2.81	10.4	0.01	0.03	—	0.03	0.03	—	0.03	—	1,491	1,491	0.06	0.01	—	1,496
Dust From Material Movement	—	—	—	—	—	—	0.39	0.39	—	0.04	0.04	—	—	—	—	—	—	—
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-Roa d Equipment	< 0.005	< 0.005	0.07	0.26	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	36.8	36.8	< 0.005	< 0.005	—	36.9
Dust From Material Movement	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Roa d Equipment	< 0.005	< 0.005	0.01	0.05	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	6.09	6.09	< 0.005	< 0.005	—	6.11
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Worker	0.23	0.22	0.16	3.12	0.00	0.00	0.51	0.51	0.00	0.12	0.12	—	548	548	0.01	0.02	1.67	556
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	0.23	0.15	8.51	1.89	0.05	0.15	2.07	2.22	0.15	0.57	0.72	—	7,308	7,308	0.07	1.17	12.6	7,671
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	< 0.005	< 0.005	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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	< 0.005	0.22	0.05	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.02	—	180	180	< 0.005	0.03	0.13	189
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	0.00	0.00	0.00	0.00	0.00	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	0.04	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	29.8	29.8	< 0.005	< 0.005	0.02	31.3

3.23. Year 2 - Hydroseeding (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-Roa d Equipment	1.04	0.87	8.77	13.2	0.02	0.42	—	0.42	0.38	—	0.38	—	2,009	2,009	0.08	0.02	—	2,016
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-Roa d Equipment	0.03	0.03	0.29	0.43	< 0.005	0.01	—	0.01	0.01	—	0.01	—	66.0	66.0	< 0.005	< 0.005	—	66.3
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Roa d Equipment	0.01	0.01	0.05	0.08	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	10.9	10.9	< 0.005	< 0.005	—	11.0
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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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
Worker	0.21	0.19	0.20	2.27	0.00	0.00	0.51	0.51	0.00	0.12	0.12	—	485	485	0.01	0.02	0.04	491
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	0.08	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	16.4	16.4	< 0.005	< 0.005	0.02	16.6
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	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.72	2.72	< 0.005	< 0.005	< 0.005	2.75
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

3.24. Year 2 - Hydroseeding (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-Roa d Equipment	0.19	0.19	0.99	14.1	0.02	0.04	—	0.04	0.04	—	0.04	—	2,009	2,009	0.08	0.02	—	2,016
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-Roa d Equipment	0.01	0.01	0.03	0.46	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	66.0	66.0	< 0.005	< 0.005	—	66.3
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Roa d Equipment	< 0.005	< 0.005	0.01	0.08	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	10.9	10.9	< 0.005	< 0.005	—	11.0
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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.21	0.19	0.20	2.27	0.00	0.00	0.51	0.51	0.00	0.12	0.12	—	485	485	0.01	0.02	0.04	491

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
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	0.08	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	16.4	16.4	< 0.005	< 0.005	0.02	16.6
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	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.72	2.72	< 0.005	< 0.005	< 0.005	2.75
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

3.25. Year 2 - Demobilization and Site Cleanup (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-Roa d Equipment	1.30	1.09	10.8	15.6	0.02	0.55	—	0.55	0.51	—	0.51	—	2,357	2,357	0.10	0.02	—	2,365
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-Roa d Equipment	0.03	0.03	0.27	0.38	< 0.005	0.01	—	0.01	0.01	—	0.01	—	58.1	58.1	< 0.005	< 0.005	—	58.3
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Roa d Equipment	0.01	< 0.005	0.05	0.07	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	9.62	9.62	< 0.005	< 0.005	—	9.65
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	0.21	0.19	0.20	2.27	0.00	0.00	0.51	0.51	0.00	0.12	0.12	—	485	485	0.01	0.02	0.04	491
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	0.01	0.01	0.49	0.10	< 0.005	0.01	0.11	0.12	0.01	0.03	0.04	—	392	392	< 0.005	0.06	0.02	411
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	< 0.005	< 0.005	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	0.00	0.00	0.00	0.00	0.00	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	—	9.67	9.67	< 0.005	< 0.005	0.01	10.1
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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.60	1.60	< 0.005	< 0.005	< 0.005	1.68

3.26. Year 2 - Demobilization and Site Cleanup (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-Roa d Equipment	0.22	0.22	1.16	16.5	0.02	0.04	—	0.04	0.04	—	0.04	—	2,357	2,357	0.10	0.02	—	2,365
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-Roa d Equipm	0.01	0.01	0.03	0.41	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	58.1	58.1	< 0.005	< 0.005	—	58.3
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Roa d Equipment	< 0.005	< 0.005	0.01	0.07	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	9.62	9.62	< 0.005	< 0.005	—	9.65
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	0.21	0.19	0.20	2.27	0.00	0.00	0.51	0.51	0.00	0.12	0.12	—	485	485	0.01	0.02	0.04	491
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	0.01	0.49	0.10	< 0.005	0.01	0.11	0.12	0.01	0.03	0.04	—	392	392	< 0.005	0.06	0.02	411
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Worker	0.01	< 0.005	< 0.005	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	0.00	0.00	0.00	0.00	0.00	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	—	9.67	9.67	< 0.005	< 0.005	0.01	10.1
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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.60	1.60	< 0.005	< 0.005	< 0.005	1.68

3.27. Year 1 - Levee and Utility Reconstruction (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-Roa d Equipment	9.71	8.15	73.2	70.3	0.12	3.29	—	3.29	3.03	—	3.03	—	12,898	12,898	0.52	0.10	—	12,942
Dust From Material Movement	—	—	—	—	—	—	47.8	47.8	—	23.8	23.8	—	—	—	—	—	—	—
Onsite truck	0.25	0.18	4.55	2.50	0.02	0.03	731	731	0.03	73.0	73.0	—	1,981	1,981	0.05	0.31	3.01	2,078
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Roa d Equipment	1.04	0.87	7.83	7.51	0.01	0.35	—	0.35	0.32	—	0.32	—	1,378	1,378	0.06	0.01	—	1,383
Dust From Material Movement	—	—	—	—	—	—	5.11	5.11	—	2.54	2.54	—	—	—	—	—	—	—
Onsite truck	0.03	0.02	0.51	0.27	< 0.005	< 0.005	77.9	77.9	< 0.005	7.77	7.78	—	212	212	0.01	0.03	0.14	222
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Roa d Equipment	0.19	0.16	1.43	1.37	< 0.005	0.06	—	0.06	0.06	—	0.06	—	228	228	0.01	< 0.005	—	229
Dust From Material Movement	—	—	—	—	—	—	0.93	0.93	—	0.46	0.46	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.09	0.05	< 0.005	< 0.005	14.2	14.2	< 0.005	1.42	1.42	—	35.1	35.1	< 0.005	0.01	0.02	36.8
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Worker	0.49	0.46	0.32	6.74	0.00	0.00	1.01	1.01	0.00	0.24	0.24	—	1,119	1,119	0.05	0.04	3.72	1,136
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	0.29	0.19	11.1	2.40	0.07	0.19	2.63	2.82	0.19	0.72	0.91	—	9,495	9,495	0.09	1.48	17.2	9,956
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.04	0.04	0.54	0.00	0.00	0.11	0.11	0.00	0.03	0.03	—	109	109	0.01	< 0.005	0.17	110
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	0.03	0.02	1.25	0.26	0.01	0.02	0.28	0.30	0.02	0.08	0.10	—	1,015	1,015	0.01	0.16	0.79	1,063
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.10	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	18.0	18.0	< 0.005	< 0.005	0.03	18.3
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	< 0.005	0.23	0.05	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.02	—	168	168	< 0.005	0.03	0.13	176

3.28. Year 1 - Levee and Utility Reconstruction (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-Roa d Equipment	1.47	1.42	7.94	69.6	0.12	0.31	—	0.31	0.30	—	0.30	—	12,898	12,898	0.52	0.10	—	12,942
Dust From Material Movement	—	—	—	—	—	—	18.6	18.6	—	9.28	9.28	—	—	—	—	—	—	—
Onsite truck	0.25	0.18	4.55	2.50	0.02	0.03	184	184	0.03	18.4	18.5	—	1,981	1,981	0.05	0.31	3.01	2,078
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Roa d Equipment	0.16	0.15	0.85	7.43	0.01	0.03	—	0.03	0.03	—	0.03	—	1,378	1,378	0.06	0.01	—	1,383
Dust From Material Movement	—	—	—	—	—	—	1.99	1.99	—	0.99	0.99	—	—	—	—	—	—	—
Onsite truck	0.03	0.02	0.51	0.27	< 0.005	< 0.005	19.6	19.6	< 0.005	1.96	1.97	—	212	212	0.01	0.03	0.14	222
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Roa d Equipment	0.03	0.03	0.15	1.36	< 0.005	0.01	—	0.01	0.01	—	0.01	—	228	228	0.01	< 0.005	—	229

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Dust From Material Movement	—	—	—	—	—	—	0.36	0.36	—	0.18	0.18	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.09	0.05	< 0.005	< 0.005	3.58	3.58	< 0.005	0.36	0.36	—	35.1	35.1	< 0.005	0.01	0.02	36.8
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.49	0.46	0.32	6.74	0.00	0.00	1.01	1.01	0.00	0.24	0.24	—	1,119	1,119	0.05	0.04	3.72	1,136
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	0.29	0.19	11.1	2.40	0.07	0.19	2.63	2.82	0.19	0.72	0.91	—	9,495	9,495	0.09	1.48	17.2	9,956
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.04	0.04	0.54	0.00	0.00	0.11	0.11	0.00	0.03	0.03	—	109	109	0.01	< 0.005	0.17	110
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	0.03	0.02	1.25	0.26	0.01	0.02	0.28	0.30	0.02	0.08	0.10	—	1,015	1,015	0.01	0.16	0.79	1,063
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.10	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	18.0	18.0	< 0.005	< 0.005	0.03	18.3
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	< 0.005	0.23	0.05	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.02	—	168	168	< 0.005	0.03	0.13	176

4. Operations Emissions Details

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Remove d	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Remove d	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
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. voided 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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Remove d	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Remove d	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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
Year 1 - Mobilization, Clearing, Grubbing and Stripping	Linear, Grubbing & Land Clearing	4/1/2026	5/9/2026	6.00	34.0	—
Year 2 - Mobilization, Clearing, Grubbing, and Stripping	Linear, Grubbing & Land Clearing	4/1/2027	5/20/2027	6.00	43.0	—
Year 2 - Levee Degrade and Utility Removal	Linear, Grubbing & Land Clearing	4/8/2027	8/17/2027	6.00	113	—

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Year 1 - Levee Degrade and Utility Removal	Linear, Grading & Excavation	4/8/2026	8/4/2026	6.00	102	—
Year 1 - Cutoff Wall Construction	Linear, Drainage, Utilities, & Sub-Grade	4/15/2026	10/31/2026	6.00	172	—
Year 2 - Cutoff Wall Construction	Linear, Drainage, Utilities, & Sub-Grade	4/15/2027	10/27/2027	6.00	168	—
Year 2 - Levee and Utility Reconstruction	Linear, Trenching	5/6/2027	6/19/2027	6.00	39.0	—
Year 1 - Levee Resurfacing	Linear, Trenching	6/20/2026	6/30/2026	6.00	9.00	—
Year 1 - Hydroseeding	Linear, Trenching	10/13/2026	10/21/2026	7.00	9.00	—
Year 1 Demobilization	Linear, Trenching	10/13/2026	10/24/2026	7.00	12.0	—
Year 2 - Levee Resurfacing	Linear, Trenching	7/2/2027	7/10/2027	7.00	9.00	—
Year 2 - Hydroseeding	Linear, Trenching	10/13/2027	10/26/2027	6.00	12.0	—
Year 2 - Demobilization and Site Cleanup	Linear, Trenching	10/20/2027	10/28/2027	7.00	9.00	—
Year 1 - Levee and Utility Reconstruction	Linear, Trenching	5/6/2026	6/19/2026	6.00	39.0	—

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
Year 1 - Mobilization, Clearing, Grubbing and Stripping	Rubber Tired Dozers	Diesel	Average	2.00	7.00	367	0.40
Year 1 - Mobilization, Clearing, Grubbing and Stripping	Graders	Diesel	Average	1.00	7.00	148	0.41
Year 2 - Mobilization, Clearing, Grubbing, and Stripping	Rubber Tired Dozers	Diesel	Average	2.00	7.00	367	0.40
Year 2 - Mobilization, Clearing, Grubbing, and Stripping	Graders	Diesel	Average	1.00	7.00	148	0.41
Year 2 - Levee Degrade and Utility Removal	Excavators	Diesel	Average	2.00	14.0	36.0	0.38
Year 2 - Levee Degrade and Utility Removal	Rubber Tired Dozers	Diesel	Average	4.00	14.0	367	0.40
Year 2 - Levee Degrade and Utility Removal	Plate Compactors	Diesel	Average	4.00	14.0	8.00	0.43
Year 1 - Levee Degrade and Utility Removal	Excavators	Diesel	Average	2.00	14.0	36.0	0.38
Year 1 - Levee Degrade and Utility Removal	Rubber Tired Dozers	Diesel	Average	4.00	14.0	367	0.40

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Year 1 - Levee Degrade and Utility Removal	Plate Compactors	Diesel	Average	4.00	14.0	8.00	0.43
Year 1 - Cutoff Wall Construction	Excavators	Diesel	Average	4.00	11.2	36.0	0.38
Year 1 - Cutoff Wall Construction	Rubber Tired Dozers	Diesel	Average	2.00	11.2	367	0.40
Year 1 - Cutoff Wall Construction	Tractors/Loaders/Back hoes	Diesel	Average	1.00	1.40	84.0	0.37
Year 1 - Cutoff Wall Construction	Generator Sets	Diesel	Average	2.00	14.0	14.0	0.74
Year 1 - Cutoff Wall Construction	Pumps	Diesel	Average	1.00	14.0	11.0	0.74
Year 1 - Cutoff Wall Construction	Other Construction Equipment	Diesel	Average	8.00	7.00	82.0	0.42
Year 2 - Cutoff Wall Construction	Excavators	Diesel	Average	4.00	11.2	36.0	0.38
Year 2 - Cutoff Wall Construction	Rubber Tired Dozers	Diesel	Average	2.00	11.2	367	0.40
Year 2 - Cutoff Wall Construction	Tractors/Loaders/Back hoes	Diesel	Average	1.00	1.40	84.0	0.37
Year 2 - Cutoff Wall Construction	Generator Sets	Diesel	Average	2.00	14.0	14.0	0.74
Year 2 - Cutoff Wall Construction	Pumps	Diesel	Average	2.00	14.0	11.0	0.74
Year 2 - Cutoff Wall Construction	Other Construction Equipment	Diesel	Average	8.00	14.0	82.0	0.42
Year 2 - Levee and Utility Reconstruction	Rubber Tired Dozers	Diesel	Average	4.00	14.0	367	0.40
Year 2 - Levee and Utility Reconstruction	Graders	Diesel	Average	2.00	14.0	148	0.41
Year 2 - Levee and Utility Reconstruction	Tractors/Loaders/Back hoes	Diesel	Average	2.00	14.0	84.0	0.37
Year 2 - Levee and Utility Reconstruction	Plate Compactors	Diesel	Average	4.00	14.0	8.00	0.43
Year 1 - Levee Resurfacing	Graders	Diesel	Average	1.00	14.0	148	0.41
Year 1 - Levee Resurfacing	Rollers	Diesel	Average	2.00	14.0	36.0	0.38
Year 1 - Hydroseeding	Other Material Handling Equipment	Diesel	Average	1.00	14.0	93.0	0.40
Year 1 - Hydroseeding	Other Construction Equipment	Diesel	Average	5.00	7.00	82.0	0.42
Year 1 Demobilization	Tractors/Loaders/Back hoes	Diesel	Average	1.00	7.00	84.0	0.37
Year 1 Demobilization	Other Construction Equipment	Diesel	Average	6.00	14.0	82.0	0.42
Year 1 Demobilization	Off-Highway Trucks	Diesel	Average	2.00	10.5	376	0.38
Year 2 - Levee Resurfacing	Graders	Diesel	Average	1.00	14.0	148	0.41
Year 2 - Levee Resurfacing	Rollers	Diesel	Average	2.00	14.0	36.0	0.38

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Year 2 - Hydroseeding	Other Material Handling Equipment	Diesel	Average	1.00	14.0	93.0	0.40
Year 2 - Hydroseeding	Other Construction Equipment	Diesel	Average	5.00	7.00	82.0	0.42
Year 2 - Demobilization and Site Cleanup	Tractors/Loaders/Back hoes	Diesel	Average	1.00	7.00	84.0	0.37
Year 2 - Demobilization and Site Cleanup	Other Construction Equipment	Diesel	Average	5.00	10.5	82.0	0.42
Year 1 - Levee and Utility Reconstruction	Rubber Tired Dozers	Diesel	Average	4.00	14.0	367	0.40
Year 1 - Levee and Utility Reconstruction	Graders	Diesel	Average	2.00	14.0	148	0.41
Year 1 - Levee and Utility Reconstruction	Tractors/Loaders/Back hoes	Diesel	Average	2.00	14.0	84.0	0.37
Year 1 - Levee and Utility Reconstruction	Plate Compactors	Diesel	Average	4.00	14.0	8.00	0.43

5.2.2. Mitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Year 1 - Mobilization, Clearing, Grubbing and Stripping	Rubber Tired Dozers	Diesel	Tier 4 Final	2.00	7.00	367	0.40
Year 1 - Mobilization, Clearing, Grubbing and Stripping	Graders	Diesel	Tier 4 Final	1.00	7.00	148	0.41
Year 2 - Mobilization, Clearing, Grubbing, and Stripping	Rubber Tired Dozers	Diesel	Tier 4 Final	2.00	7.00	367	0.40
Year 2 - Mobilization, Clearing, Grubbing, and Stripping	Graders	Diesel	Tier 4 Final	1.00	7.00	148	0.41
Year 2 - Levee Degrade and Utility Removal	Excavators	Diesel	Tier 4 Final	2.00	14.0	36.0	0.38
Year 2 - Levee Degrade and Utility Removal	Rubber Tired Dozers	Diesel	Tier 4 Final	4.00	14.0	367	0.40
Year 2 - Levee Degrade and Utility Removal	Plate Compactors	Diesel	Average	4.00	14.0	8.00	0.43
Year 1 - Levee Degrade and Utility Removal	Excavators	Diesel	Tier 4 Final	2.00	14.0	36.0	0.38
Year 1 - Levee Degrade and Utility Removal	Rubber Tired Dozers	Diesel	Tier 4 Final	4.00	14.0	367	0.40
Year 1 - Levee Degrade and Utility Removal	Plate Compactors	Diesel	Average	4.00	14.0	8.00	0.43

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Year 1 - Cutoff Wall Construction	Excavators	Diesel	Tier 4 Final	4.00	11.2	36.0	0.38
Year 1 - Cutoff Wall Construction	Rubber Tired Dozers	Diesel	Tier 4 Final	2.00	11.2	367	0.40
Year 1 - Cutoff Wall Construction	Tractors/Loaders/Back hoes	Diesel	Tier 4 Final	1.00	1.40	84.0	0.37
Year 1 - Cutoff Wall Construction	Generator Sets	Diesel	Average	2.00	14.0	14.0	0.74
Year 1 - Cutoff Wall Construction	Pumps	Diesel	Average	1.00	14.0	11.0	0.74
Year 1 - Cutoff Wall Construction	Other Construction Equipment	Diesel	Tier 4 Final	8.00	7.00	82.0	0.42
Year 2 - Cutoff Wall Construction	Excavators	Diesel	Tier 4 Final	4.00	11.2	36.0	0.38
Year 2 - Cutoff Wall Construction	Rubber Tired Dozers	Diesel	Tier 4 Final	2.00	11.2	367	0.40
Year 2 - Cutoff Wall Construction	Tractors/Loaders/Back hoes	Diesel	Tier 4 Final	1.00	1.40	84.0	0.37
Year 2 - Cutoff Wall Construction	Generator Sets	Diesel	Average	2.00	14.0	14.0	0.74
Year 2 - Cutoff Wall Construction	Pumps	Diesel	Average	2.00	14.0	11.0	0.74
Year 2 - Cutoff Wall Construction	Other Construction Equipment	Diesel	Tier 4 Final	8.00	14.0	82.0	0.42
Year 2 - Levee and Utility Reconstruction	Rubber Tired Dozers	Diesel	Tier 4 Final	4.00	14.0	367	0.40
Year 2 - Levee and Utility Reconstruction	Graders	Diesel	Tier 4 Final	2.00	14.0	148	0.41
Year 2 - Levee and Utility Reconstruction	Tractors/Loaders/Back hoes	Diesel	Tier 4 Final	2.00	14.0	84.0	0.37
Year 2 - Levee and Utility Reconstruction	Plate Compactors	Diesel	Average	4.00	14.0	8.00	0.43
Year 1 - Levee Resurfacing	Graders	Diesel	Tier 4 Final	1.00	14.0	148	0.41
Year 1 - Levee Resurfacing	Rollers	Diesel	Tier 4 Final	2.00	14.0	36.0	0.38
Year 1 - Hydroseeding	Other Material Handling Equipment	Diesel	Tier 4 Final	1.00	14.0	93.0	0.40
Year 1 - Hydroseeding	Other Construction Equipment	Diesel	Tier 4 Final	5.00	7.00	82.0	0.42
Year 1 Demobilization	Tractors/Loaders/Back hoes	Diesel	Tier 4 Final	1.00	7.00	84.0	0.37
Year 1 Demobilization	Other Construction Equipment	Diesel	Tier 4 Final	6.00	14.0	82.0	0.42
Year 1 Demobilization	Off-Highway Trucks	Diesel	Tier 4 Final	2.00	10.5	376	0.38
Year 2 - Levee Resurfacing	Graders	Diesel	Tier 4 Final	1.00	14.0	148	0.41
Year 2 - Levee Resurfacing	Rollers	Diesel	Tier 4 Final	2.00	14.0	36.0	0.38
Year 2 - Hydroseeding	Other Material Handling Equipment	Diesel	Tier 4 Final	1.00	14.0	93.0	0.40

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Year 2 - Hydroseeding	Other Construction Equipment	Diesel	Tier 4 Final	5.00	7.00	82.0	0.42
Year 2 - Demobilization and Site Cleanup	Tractors/Loaders/Back hoes	Diesel	Tier 4 Final	1.00	7.00	84.0	0.37
Year 2 - Demobilization and Site Cleanup	Other Construction Equipment	Diesel	Tier 4 Final	5.00	10.5	82.0	0.42
Year 1 - Levee and Utility Reconstruction	Rubber Tired Dozers	Diesel	Tier 4 Final	4.00	14.0	367	0.40
Year 1 - Levee and Utility Reconstruction	Graders	Diesel	Tier 4 Final	2.00	14.0	148	0.41
Year 1 - Levee and Utility Reconstruction	Tractors/Loaders/Back hoes	Diesel	Tier 4 Final	2.00	14.0	84.0	0.37
Year 1 - Levee and Utility Reconstruction	Plate Compactors	Diesel	Average	4.00	14.0	8.00	0.43

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Year 1 - Mobilization, Clearing, Grubbing and Stripping	—	—	—	—
Year 1 - Mobilization, Clearing, Grubbing and Stripping	Worker	100	14.3	LDA,LDT1,LDT2
Year 1 - Mobilization, Clearing, Grubbing and Stripping	Vendor	0.00	8.80	HHDT,MHDT
Year 1 - Mobilization, Clearing, Grubbing and Stripping	Hauling	53.1	20.0	HHDT
Year 1 - Mobilization, Clearing, Grubbing and Stripping	Onsite truck	—	—	HHDT
Year 2 - Mobilization, Clearing, Grubbing, and Stripping	—	—	—	—
Year 2 - Mobilization, Clearing, Grubbing, and Stripping	Worker	100	14.3	LDA,LDT1,LDT2
Year 2 - Mobilization, Clearing, Grubbing, and Stripping	Vendor	0.00	8.80	HHDT,MHDT
Year 2 - Mobilization, Clearing, Grubbing, and Stripping	Hauling	42.0	20.0	HHDT
Year 2 - Mobilization, Clearing, Grubbing, and Stripping	Onsite truck	—	—	HHDT
Year 2 - Levee Degrade and Utility Removal	—	—	—	—
Year 2 - Levee Degrade and Utility Removal	Worker	100	14.3	LDA,LDT1,LDT2
Year 2 - Levee Degrade and Utility Removal	Vendor	0.00	8.80	HHDT,MHDT
Year 2 - Levee Degrade and Utility Removal	Hauling	45.0	20.0	HHDT
Year 2 - Levee Degrade and Utility Removal	Onsite truck	71.0	2.60	HHDT
Year 1 - Levee Degrade and Utility Removal	—	—	—	—
Year 1 - Levee Degrade and Utility Removal	Worker	100	14.3	LDA,LDT1,LDT2

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Year 1 - Levee Degrade and Utility Removal	Vendor	0.00	8.80	HHDT,MHDT
Year 1 - Levee Degrade and Utility Removal	Hauling	49.8	20.0	HHDT
Year 1 - Levee Degrade and Utility Removal	Onsite truck	77.0	2.60	HHDT
Year 1 - Cutoff Wall Construction	—	—	—	—
Year 1 - Cutoff Wall Construction	Worker	100	14.3	LDA,LDT1,LDT2
Year 1 - Cutoff Wall Construction	Vendor	0.00	8.80	HHDT,MHDT
Year 1 - Cutoff Wall Construction	Hauling	60.4	20.0	HHDT
Year 1 - Cutoff Wall Construction	Onsite truck	—	—	HHDT
Year 2 - Cutoff Wall Construction	—	—	—	—
Year 2 - Cutoff Wall Construction	Worker	100	14.3	LDA,LDT1,LDT2
Year 2 - Cutoff Wall Construction	Vendor	0.00	8.80	HHDT,MHDT
Year 2 - Cutoff Wall Construction	Hauling	61.8	20.0	HHDT
Year 2 - Cutoff Wall Construction	Onsite truck	—	—	HHDT
Year 2 - Levee and Utility Reconstruction	—	—	—	—
Year 2 - Levee and Utility Reconstruction	Worker	100	14.3	LDA,LDT1,LDT2
Year 2 - Levee and Utility Reconstruction	Vendor	—	8.80	HHDT,MHDT
Year 2 - Levee and Utility Reconstruction	Hauling	142	20.0	HHDT
Year 2 - Levee and Utility Reconstruction	Onsite truck	191	2.60	HHDT
Year 1 - Levee Resurfacing	—	—	—	—
Year 1 - Levee Resurfacing	Worker	50.0	14.3	LDA,LDT1,LDT2
Year 1 - Levee Resurfacing	Vendor	—	8.80	HHDT,MHDT
Year 1 - Levee Resurfacing	Hauling	112	20.0	HHDT
Year 1 - Levee Resurfacing	Onsite truck	—	—	HHDT
Year 1 - Hydroseeding	—	—	—	—
Year 1 - Hydroseeding	Worker	50.0	14.3	LDA,LDT1,LDT2
Year 1 - Hydroseeding	Vendor	—	8.80	HHDT,MHDT
Year 1 - Hydroseeding	Hauling	0.00	20.0	HHDT
Year 1 - Hydroseeding	Onsite truck	—	—	HHDT
Year 1 Demobilization	—	—	—	—
Year 1 Demobilization	Worker	50.0	14.3	LDA,LDT1,LDT2
Year 1 Demobilization	Vendor	—	8.80	HHDT,MHDT
Year 1 Demobilization	Hauling	6.00	20.0	HHDT
Year 1 Demobilization	Onsite truck	—	—	HHDT
Year 2 - Levee Resurfacing	—	—	—	—
Year 2 - Levee Resurfacing	Worker	50.0	14.3	LDA,LDT1,LDT2

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Year 2 - Levee Resurfacing	Vendor	—	8.80	HHDT,MHDT
Year 2 - Levee Resurfacing	Hauling	112	20.0	HHDT
Year 2 - Levee Resurfacing	Onsite truck	—	—	HHDT
Year 2 - Hydroseeding	—	—	—	—
Year 2 - Hydroseeding	Worker	50.0	14.3	LDA,LDT1,LDT2
Year 2 - Hydroseeding	Vendor	—	8.80	HHDT,MHDT
Year 2 - Hydroseeding	Hauling	0.00	20.0	HHDT
Year 2 - Hydroseeding	Onsite truck	—	—	HHDT
Year 2 - Demobilization and Site Cleanup	—	—	—	—
Year 2 - Demobilization and Site Cleanup	Worker	50.0	14.3	LDA,LDT1,LDT2
Year 2 - Demobilization and Site Cleanup	Vendor	—	8.80	HHDT,MHDT
Year 2 - Demobilization and Site Cleanup	Hauling	6.00	20.0	HHDT
Year 2 - Demobilization and Site Cleanup	Onsite truck	—	—	HHDT
Year 1 - Levee and Utility Reconstruction	—	—	—	—
Year 1 - Levee and Utility Reconstruction	Worker	100	14.3	LDA,LDT1,LDT2
Year 1 - Levee and Utility Reconstruction	Vendor	—	8.80	HHDT,MHDT
Year 1 - Levee and Utility Reconstruction	Hauling	142	20.0	HHDT
Year 1 - Levee and Utility Reconstruction	Onsite truck	191	2.60	HHDT

5.3.2. Mitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Year 1 - Mobilization, Clearing, Grubbing and Stripping	—	—	—	—
Year 1 - Mobilization, Clearing, Grubbing and Stripping	Worker	100	14.3	LDA,LDT1,LDT2
Year 1 - Mobilization, Clearing, Grubbing and Stripping	Vendor	0.00	8.80	HHDT,MHDT
Year 1 - Mobilization, Clearing, Grubbing and Stripping	Hauling	53.1	20.0	HHDT
Year 1 - Mobilization, Clearing, Grubbing and Stripping	Onsite truck	—	—	HHDT
Year 2 - Mobilization, Clearing, Grubbing, and Stripping	—	—	—	—
Year 2 - Mobilization, Clearing, Grubbing, and Stripping	Worker	100	14.3	LDA,LDT1,LDT2
Year 2 - Mobilization, Clearing, Grubbing, and Stripping	Vendor	0.00	8.80	HHDT,MHDT
Year 2 - Mobilization, Clearing, Grubbing, and Stripping	Hauling	42.0	20.0	HHDT
Year 2 - Mobilization, Clearing, Grubbing, and Stripping	Onsite truck	—	—	HHDT
Year 2 - Levee Degrade and Utility Removal	—	—	—	—
Year 2 - Levee Degrade and Utility Removal	Worker	100	14.3	LDA,LDT1,LDT2
Year 2 - Levee Degrade and Utility Removal	Vendor	0.00	8.80	HHDT,MHDT

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Year 2 - Levee Degrade and Utility Removal	Hauling	45.0	20.0	HHDT
Year 2 - Levee Degrade and Utility Removal	Onsite truck	71.0	2.60	HHDT
Year 1 - Levee Degrade and Utility Removal	—	—	—	—
Year 1 - Levee Degrade and Utility Removal	Worker	100	14.3	LDA,LDT1,LDT2
Year 1 - Levee Degrade and Utility Removal	Vendor	0.00	8.80	HHDT,MHDT
Year 1 - Levee Degrade and Utility Removal	Hauling	49.8	20.0	HHDT
Year 1 - Levee Degrade and Utility Removal	Onsite truck	77.0	2.60	HHDT
Year 1 - Cutoff Wall Construction	—	—	—	—
Year 1 - Cutoff Wall Construction	Worker	100	14.3	LDA,LDT1,LDT2
Year 1 - Cutoff Wall Construction	Vendor	0.00	8.80	HHDT,MHDT
Year 1 - Cutoff Wall Construction	Hauling	60.4	20.0	HHDT
Year 1 - Cutoff Wall Construction	Onsite truck	—	—	HHDT
Year 2 - Cutoff Wall Construction	—	—	—	—
Year 2 - Cutoff Wall Construction	Worker	100	14.3	LDA,LDT1,LDT2
Year 2 - Cutoff Wall Construction	Vendor	0.00	8.80	HHDT,MHDT
Year 2 - Cutoff Wall Construction	Hauling	61.8	20.0	HHDT
Year 2 - Cutoff Wall Construction	Onsite truck	—	—	HHDT
Year 2 - Levee and Utility Reconstruction	—	—	—	—
Year 2 - Levee and Utility Reconstruction	Worker	100	14.3	LDA,LDT1,LDT2
Year 2 - Levee and Utility Reconstruction	Vendor	—	8.80	HHDT,MHDT
Year 2 - Levee and Utility Reconstruction	Hauling	142	20.0	HHDT
Year 2 - Levee and Utility Reconstruction	Onsite truck	191	2.60	HHDT
Year 1 - Levee Resurfacing	—	—	—	—
Year 1 - Levee Resurfacing	Worker	50.0	14.3	LDA,LDT1,LDT2
Year 1 - Levee Resurfacing	Vendor	—	8.80	HHDT,MHDT
Year 1 - Levee Resurfacing	Hauling	112	20.0	HHDT
Year 1 - Levee Resurfacing	Onsite truck	—	—	HHDT
Year 1 - Hydroseeding	—	—	—	—
Year 1 - Hydroseeding	Worker	50.0	14.3	LDA,LDT1,LDT2
Year 1 - Hydroseeding	Vendor	—	8.80	HHDT,MHDT
Year 1 - Hydroseeding	Hauling	0.00	20.0	HHDT
Year 1 - Hydroseeding	Onsite truck	—	—	HHDT
Year 1 Demobilization	—	—	—	—
Year 1 Demobilization	Worker	50.0	14.3	LDA,LDT1,LDT2
Year 1 Demobilization	Vendor	—	8.80	HHDT,MHDT

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Year 1 Demobilization	Hauling	6.00	20.0	HHDT
Year 1 Demobilization	Onsite truck	—	—	HHDT
Year 2 - Levee Resurfacing	—	—	—	—
Year 2 - Levee Resurfacing	Worker	50.0	14.3	LDA,LDT1,LDT2
Year 2 - Levee Resurfacing	Vendor	—	8.80	HHDT,MHDT
Year 2 - Levee Resurfacing	Hauling	112	20.0	HHDT
Year 2 - Levee Resurfacing	Onsite truck	—	—	HHDT
Year 2 - Hydroseeding	—	—	—	—
Year 2 - Hydroseeding	Worker	50.0	14.3	LDA,LDT1,LDT2
Year 2 - Hydroseeding	Vendor	—	8.80	HHDT,MHDT
Year 2 - Hydroseeding	Hauling	0.00	20.0	HHDT
Year 2 - Hydroseeding	Onsite truck	—	—	HHDT
Year 2 - Demobilization and Site Cleanup	—	—	—	—
Year 2 - Demobilization and Site Cleanup	Worker	50.0	14.3	LDA,LDT1,LDT2
Year 2 - Demobilization and Site Cleanup	Vendor	—	8.80	HHDT,MHDT
Year 2 - Demobilization and Site Cleanup	Hauling	6.00	20.0	HHDT
Year 2 - Demobilization and Site Cleanup	Onsite truck	—	—	HHDT
Year 1 - Levee and Utility Reconstruction	—	—	—	—
Year 1 - Levee and Utility Reconstruction	Worker	100	14.3	LDA,LDT1,LDT2
Year 1 - Levee and Utility Reconstruction	Vendor	—	8.80	HHDT,MHDT
Year 1 - Levee and Utility Reconstruction	Hauling	142	20.0	HHDT
Year 1 - Levee and Utility Reconstruction	Onsite truck	191	2.60	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)
Year 1 - Mobilization, Clearing, Grubbing and Stripping	14,450	0.00	19.0	0.00	—
Year 2 - Mobilization, Clearing, Grubbing, and Stripping	14,450	0.00	19.0	0.00	—
Year 2 - Levee Degrade and Utility Removal	4,150	36,513	19.0	0.00	—
Year 1 - Levee Degrade and Utility Removal	4,150	36,513	19.0	0.00	—
Year 1 - Cutoff Wall Construction	83,100	0.00	19.0	0.00	—
Year 2 - Cutoff Wall Construction	83,100	0.00	19.0	0.00	—
Year 2 - Levee and Utility Reconstruction	44,250	0.00	205	0.00	—
Year 1 - Levee Resurfacing	8,050	0.00	7.88	0.00	—
Year 2 - Levee Resurfacing	8,050	0.00	7.88	0.00	—
Year 1 - Levee and Utility Reconstruction	44,250	0.00	205	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 Linear	19.0	100%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
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	28.8	annual days of extreme heat
Extreme Precipitation	3.10	annual days with precipitation above 20 mm
Sea Level Rise	—	meters of inundation depth
Wildfire	6.54	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	5	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	5	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	57.1
AQ-PM	20.2
AQ-DPM	24.8
Drinking Water	65.1
Lead Risk Housing	73.3
Pesticides	91.5
Toxic Releases	20.3
Traffic	0.78
Effect Indicators	—
CleanUp Sites	68.9
Groundwater	78.9
Haz Waste Facilities/Generators	35.6
Impaired Water Bodies	96.8
Solid Waste	77.6
Sensitive Population	—
Asthma	81.1
Cardio-vascular	52.2
Low Birth Weights	4.29
Socioeconomic Factor Indicators	—
Education	72.9
Housing	29.2
Linguistic	35.3
Poverty	67.6
Unemployment	33.6

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	32.49069678
Employed	26.07468241
Median HI	23.76491723
Education	—
Bachelor's or higher	17.77235981
High school enrollment	100
Preschool enrollment	20.05646093
Transportation	—
Auto Access	52.22635699
Active commuting	72.56512255
Social	—
2-parent households	97.48492237
Voting	86.92416271
Neighborhood	—
Alcohol availability	67.83010394
Park access	2.194276915
Retail density	0.641601437
Supermarket access	2.399589375
Tree canopy	55.90914924
Housing	—
Homeownership	39.81778519
Housing habitability	63.0822533
Low-inc homeowner severe housing cost burden	44.68112409
Low-inc renter severe housing cost burden	76.01693828
Uncrowded housing	45.28422944
Health Outcomes	—
Insured adults	39.56114462
Arthritis	0.0
Asthma ER Admissions	14.5
High Blood Pressure	0.0
Cancer (excluding skin)	0.0

Indicator	Result for Project Census Tract
Asthma	0.0
Coronary Heart Disease	0.0
Chronic Obstructive Pulmonary Disease	0.0
Diagnosed Diabetes	0.0
Life Expectancy at Birth	15.7
Cognitively Disabled	46.5
Physically Disabled	17.3
Heart Attack ER Admissions	26.4
Mental Health Not Good	0.0
Chronic Kidney Disease	0.0
Obesity	0.0
Pedestrian Injuries	19.6
Physical Health Not Good	0.0
Stroke	0.0
Health Risk Behaviors	—
Binge Drinking	0.0
Current Smoker	0.0
No Leisure Time for Physical Activity	0.0
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	0.0
Children	9.5
Elderly	31.8
English Speaking	27.5
Foreign-born	38.2
Outdoor Workers	2.0
Climate Change Adaptive Capacity	—
Impervious Surface Cover	93.7
Traffic Density	0.3
Traffic Access	0.0
Other Indices	—
Hardship	67.1
Other Decision Support	—
2016 Voting	72.1

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	62.0
Healthy Places Index Score for Project Location (b)	42.0
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
Construction: Construction Phases	Construction phasing provided by HDR.
Construction: Off-Road Equipment	Construction equipment provided by HDR.
Construction: Dust From Material Movement	Material quantities provided by HDR.
Construction: Trips and VMT	Worker trips per day are estimated based on information provided by HDR. Hauling quantities calculated by CalEEMod are used.

Appendix B. Biological Resources Database Searches

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Selected Elements by Common Name

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Quad IS (Gilsizer Slough (3912116) OR Kirkville (3812187) OR Nicolaus (3812185) OR Olivehurst (3912115) OR Sutter (3912126) OR Sutter Buttes (3912127) OR Sutter Causeway (3812186) OR Tisdale Weir (3912117) OR Yuba City (3912125))
 AND Taxonomic Group IS (Fish OR Amphibians OR Reptiles OR Birds OR Mammals OR Mollusks OR Arachnids OR Crustaceans OR Insects OR Ferns OR Gymnosperms OR Monocots OR Dicots OR Lichens OR Bryophytes)

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
American bumble bee *Bombus pensylvanicus*	IIHYM24260	None	None	G3G4	S2	
Antioch Dunes anthicid beetle *Anthicus antiochensis*	IICOL49020	None	None	G3	S3	
Baker's navarretia *Navarretia leucocephala ssp. bakeri*	PDPLM0C0E1	None	None	G4T2	S2	1B.1
bank swallow *Riparia riparia*	ABPAU08010	None	Threatened	G5	S3	
cackling (=Aleutian Canada) goose *Branta hutchinsii leucopareia*	ABNJB05035	Delisted	None	G5T3	S3	WL
California black rail *Laterallus jamaicensis coturniculus*	ABNME03041	None	Threatened	G3T1	S2	FP
California linderiella *Linderiella occidentalis*	ICBRA06010	None	None	G2G3	S2S3	
chinook salmon - Central Valley spring-run ESU *Oncorhynchus tshawytscha pop. 11*	AFCHA0205L	Threatened	Threatened	G5T2Q	S2	
Colusa layia *Layia septentrionalis*	PDAST5N0F0	None	None	G2	S2	1B.2
Crotch's bumble bee *Bombus crotchii*	IIHYM24480	None	Candidate Endangered	G2	S2	
Ferris' milk-vetch *Astragalus tener var. ferrisiae*	PDFAB0F8R3	None	None	G2T1	S1	1B.1
foothill yellow-legged frog - north Sierra DPS *Rana boylii pop. 3*	AAABH01053	None	Threatened	G3T2	S2	
giant gartersnake *Thamnophis gigas*	ARADB36150	Threatened	Threatened	G2	S2	
great blue heron *Ardea herodias*	ABNGA04010	None	None	G5	S4	
great egret *Ardea alba*	ABNGA04040	None	None	G5	S4	
greater sandhill crane *Antigone canadensis tabida*	ABNMK01014	None	Threatened	G5T5	S2	FP
green sturgeon - southern DPS *Acipenser medirostris pop. 1*	AFCAA01031	Threatened	None	G2T1	S1	SSC

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Hartweg's golden sunburst *Pseudobahia bahiifolia*	PDAST7P010	Endangered	Endangered	G1	S1	1B.1
Lawrence's goldfinch *Spinus lawrencei*	ABPBY06100	None	None	G3G4	S4	
least Bell's vireo *Vireo bellii pusillus*	ABPBW01114	Endangered	Endangered	G5T2	S3	
Marysville California kangaroo rat *Dipodomys californicus eximius*	AMAFD03071	None	None	G4T1	S1	SSC
mountain plover *Charadrius montanus*	ABNNB03100	None	None	G3	S2	SSC
North American porcupine *Erethizon dorsatum*	AMAFJ01010	None	None	G5	S3	
northwestern pond turtle *Actinemys marmorata*	ARAAD02031	Proposed Threatened	None	G2	SNR	SSC
pallid bat *Antrozous pallidus*	AMACC10010	None	None	G4	S3	SSC
recurved larkspur *Delphinium recurvatum*	PDRAN0B1J0	None	None	G2?	S2	1B.2
Sacramento anthicid beetle *Anthicus sacramento*	IICOL49010	None	None	G4	S4	
Sacramento splittail *Pogonichthys macrolepidotus*	AFCJB34020	None	None	G3	S3	SSC
Sacramento Valley tiger beetle *Cicindela hirticollis abrupta*	IICOL02106	None	None	G5TH	SH	
Sanford's arrowhead *Sagittaria sanfordii*	PMALI040Q0	None	None	G3	S3	1B.2
song sparrow ("Modesto" population) *Melospiza melodia pop. 1*	ABPBXA3013	None	None	G5T3?Q	S3?	SSC
steelhead - Central Valley DPS *Oncorhynchus mykiss irideus pop. 11*	AFCHA0209K	Threatened	None	G5T2Q	S2	SSC
Swainson's hawk *Buteo swainsoni*	ABNKC19070	None	Threatened	G5	S4	
tricolored blackbird *Agelaius tricolor*	ABPBXB0020	None	Threatened	G1G2	S2	SSC
valley elderberry longhorn beetle *Desmocerus californicus dimorphus*	IICOL48011	Threatened	None	G3T3	S3	
veiny monardella *Monardella venosa*	PDLAM18082	None	None	G1	S1	1B.1
vernal pool fairy shrimp *Branchinecta lynchi*	ICBRA03030	Threatened	None	G3	S3	

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
vernal pool tadpole shrimp	ICBRA10010	Endangered	None	G3	S3	
Lepidurus packardi						
western yellow-billed cuckoo	ABNRB02022	Threatened	Endangered	G5T2T3	S1	
Coccyzus americanus occidentalis						
white-tailed kite	ABNKC06010	None	None	G5	S3S4	FP
Elanus leucurus						
woolly rose-mallow	PDMAL0H0R3	None	None	G5T3	S3	1B.2
Hibiscus lasiocarpos var. occidentalis						
Wright's trichocoronis	PDAST9F031	None	None	G4T3	S1	2B.1
Trichocoronis wrightii var. wrightii						

Record Count: 42

CALIFORNIA NATIVE PLANT SOCIETY

CNPS Rare Plant Inventory

Search Results

14 matches found. Click on scientific name for details

Search Criteria: 9-Quad include [**3912125:3812185:3912115:3912126:3912117:3912116:3912127:3812187:3812186**]

▲ SCIENTIFIC NAME	COMMON NAME	FAMILY	LIFEFORM	BLOOMING PERIOD	FED LIST	STATE LIST	GLOBAL RANK	STATE RANK	CA RARE PLANT RANK	CA ENDEMIC	DATE ADDED	PHOTO
Astragalus tener var. *ferrisiae*	Ferris' milk-vetch	Fabaceae	annual herb	Apr-May	None	None	G2T1	S1	1B.1	Yes	1994-01-01	No Photo Available
Cryptantha rostellata	red-stemmed cryptantha	Boraginaceae	annual herb	Apr-Jun	None	None	G4	S3	4.2		2018-06-26	No Photo Available
Darlingtonia californica	California pitcherplant	Sarraceniaceae	Perennial rhizomatous herb (carnivorous)	Apr-Aug	None	None	G4	S4	4.2		1980-01-01	© 2021 Scot Loring
Delphinium recurvatum	Recurved larkspur	Ranunculaceae	perennial herb	Mar-Jun	None	None	G2?	S2	1B.2	Yes	1988-01-01	No Photo Available
Hemizonia congesta ssp. *calyculata*	Mendocino tarplant	Asteraceae	annual herb	Jul-Nov	None	None	G5T4	S4	4.3	Yes	1974-01-01	© 2015 John Doyen
Hesperevax caulescens	Hogwallow starfish	Asteraceae	annual herb	Mar-Jun	None	None	G3	S3	4.2	Yes	2001-01-01	© 2017 John Doyen
Hibiscus lasiocarpos var. *occidentalis*	woolly rose-mallow	Malvaceae	Perennial rhizomatous herb (emergent)	Jun-Sep	None	None	G5T3	S3	1B.2	Yes	1974-01-01	© 2020 Steven Perry
Lathyrus delnorticus	Del Norte pea	Fabaceae	perennial herb	Jun-Jul	None	None	G4	S3	4.3		1974-01-01	© 2016 Keir Morse

▲ SCIENTIFIC NAME	COMMON NAME	FAMILY	LIFEFORM	BLOOMING PERIOD	FED LIST	STATE LIST	GLOBAL RANK	STATE RANK	CA RARE PLANT RANK	CA ENDEMIC	DATE ADDED	PHOTO
Layia septentrionalis	Colusa layia	Asteraceae	annual herb	Apr-May	None	None	G2	S2	1B.2	Yes	1994-01-01	© 2013 Jake Ruygt
Monardella venosa	Veiny monardella	Lamiaceae	annual herb	May-Jul	None	None	G1	S1	1B.1	Yes	1984-01-01	© 2007 George W. Hartwell
Navarretia leucocephala ssp. *bakeri*	Baker's navarretia	Polemoniaceae	annual herb	Apr-Jul	None	None	G4T2	S2	1B.1	Yes	1994-01-01	© 2018 Barry Rice
Pseudobahia bahiifolia	Hartweg's golden sunburst	Asteraceae	annual herb	Mar-Apr	FE	CE	G1	S1	1B.1	Yes	1974-01-01	No Photo Available
Sagittaria sanfordii	Sanford's arrowhead	Alismataceae	perennial rhizomatous herb (emergent)	May- Oct (Nov)	None	None	G3	S3	1B.2	Yes	1984-01-01	©2013 Debra L. Cook
Trichocoronis wrightii var. *wrightii*	Wright's trichocoronis	Asteraceae	annual herb	May-Sep	None	None	G4T3	S1	2B.1		1988-01-01	No Photo Available

Showing 1 to 14 of 14 entries

Suggested Citation:

California Native Plant Society, Rare Plant Program. 2024. Rare Plant Inventory (online edition, v9.5). Website https://www.rareplants.cnps.org [accessed 27 November 2024].

IPaC **U.S. Fish & Wildlife Service**

IPaC resource list

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

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

Location

Sutter County, California

Local office

Sacramento Fish And Wildlife Office

(916) 414-6600
(916) 414-6713

Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

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

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

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

Listed species[1] and their critical habitats are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries[2]).

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

---

1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information. IPaC only shows species that are regulated by USFWS (see FAQ).

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

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

Birds

NAME	STATUS
Yellow-billed Cuckoo Coccyzus americanus There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/3911	Threatened

Reptiles

NAME	STATUS
Giant Garter Snake Thamnophis gigas Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/4482	Threatened
Northwestern Pond Turtle Actinemys marmorata Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/1111	Proposed Threatened

Amphibians

NAME	STATUS
Western Spadefoot Spea hammondii Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/5425	Proposed Threatened

Insects

NAME	STATUS
Monarch Butterfly Danaus plexippus Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/9743	Candidate

Valley Elderberry Longhorn Beetle Desmocerus californicus dimorphus Wherever found There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/7850	Threatened

Crustaceans

NAME	STATUS
Vernal Pool Fairy Shrimp Branchinecta lynchi Wherever found There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/498	Threatened
Vernal Pool Tadpole Shrimp Lepidurus packardi Wherever found There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/2246	Endangered

Flowering Plants

NAME	STATUS
Hartweg's Golden Sunburst Pseudobahia bahiifolia Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/1704	Endangered

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

There are no critical habitats at this location.

You are still required to determine if your project(s) may have effects on all above listed species.

Bald & Golden Eagles

Bald and golden eagles are protected under the Bald and Golden Eagle Protection Act[1] and the Migratory Bird Treaty Act[2].

Any person or organization who plans or conducts activities that may result in impacts to bald or golden eagles, or their habitats[3], should follow appropriate regulations and consider implementing appropriate conservation measures, as described in the links below. Specifically, please review the "Supplemental Information on Migratory Birds and Eagles".

Additional information can be found using the following links:

- Eagle Management https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide conservation measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf
- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

There are likely bald eagles present in your project area. For additional information on bald eagles, refer to Bald Eagle Nesting and Sensitivity to Human Activity

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

NAME	BREEDING SEASON
Bald Eagle *Haliaeetus leucocephalus* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.	Breeds Jan 1 to Aug 31
Golden Eagle *Aquila chrysaetos* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1680	Breeds Jan 1 to Aug 31

Probability of Presence Summary

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

Probability of Presence (■)

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

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

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

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

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

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

Special-status Plant Species Evaluated for Potential to Occur In the Study Area

Species Name	Blooming Period	Legal Status Federal/State/CRPR[1]	Habitat Associations	Potential to Occur In Study Area and/or Project Site
Ferris' milk-vetch *Astragalus tener* var. *ferrisiae*	April – June	–/–/1B.1	Meadows and seeps (vernally mesic), valley and foothill grassland (subalkaline flats). Elevation 5-245 feet.	**No potential to occur**; no suitable habitat (subalkaline soils) are present in the study area.
recurved larkspur *Delphinium recurvatum*	March – June	–/–/1B.2	Alkaline soils in chenopod scrub, cismontane woodland, and grassland. Elevation: 9–2,591 feet.	**No potential to occur**; no suitable habitat (alkaline soil) is present in the study area.
woolly rose-mallow *Hibiscus lasiocarpos var. occidentalis*	June–September	–/–/1B.2	Often in riprap on sides of levees; marshes and swamps (freshwater). Elevation 0-395 feet.	**Could occur;** suitable habitat (i.e., low-elevation marsh habitat associated with emergent vegetation in agricultural canals) occurs within the study area.
Colusa layia *Layia seotentrionalis*	April – May	–/–/1B.2	Sandy serpentine soils in chaparral, cismontane woodland, and grassland. Elevation: 325–3,595 feet.	**No potential to occur;** study area is outside the known elevation range for this species and suitable habitat (sandy serpentine soils) is not present.
veiny monardella *Monardella venosa*	May – July	–/–/1B.1	Heavy clay soils in cismontane woodland and grassland. Elevation: 195–1,345 feet.	**No potential to occur;** study area is outside the known elevation range for this species.
Baker's navarretia *Navarretia leucocephala ssp. bakeri*	April – July	–/–/1B.1	Mesic soils in meadows, seeps, vernal pools, cismontane woodland, and lower montane coniferous forest. Elevation: 15–5,710 feet.	**No potential to occur;** study area is outside the known elevation range for this species and suitable habitat (mesic soils) are not present.
Hartweg's golden sunburst *Pseudobahia bahiifolia*	March – April	E/E/1B.1	Clay, often acidic, soils in cismontane woodland and grassland. Elevation: 45–490 feet.	**Unlikely to occur;** marginally suitable habitat is present in grasslands within the study area, but current distribution for this species is outside of the study area.
Sanford's arrowhead *Sagittaria sanfordii*	May – November	–/–/1B.2	Marshes and swamps (assorted shallow freshwater). Elevation 0-2,135 feet.	**Could occur;** suitable habitat is within the study area (i.e., low-elevation marsh habitat associated with emergent vegetation in agricultural canals).
Wright's trichocoronis *Trichocoronis wrightii var. wrightii*	May – September	–/–/2B.1	Alkaline soils in meadows, seeps, marshes, swamps, riparian forests, and vernal pools. Elevation: 16–1,427 feet.	**No potential to occur**; no suitable habitat (alkaline soil) is present in the study area.

Notes: CRPR = California Rare Plant Rank

[1] Legal Status Definitions:

E Plant species listed as Endangered under the Federal and/or California Endangered Species Act.
– No listing under the Federal and/or California Endangered Species Act.
1B Plant species considered Rare, Threatened, or Endangered in California and elsewhere.
2B Plant species considered Rare or Endangered in California but more common elsewhere.
California Rare Plant Rank Extensions:
.1 Seriously threatened in California.
.2 Moderately threatened in California.

[2] Potential for Occurrence Definitions
Could occur: Extant species distribution, habitat conditions, behavior of the species, known occurrences (as documented in the CNDDB, or USFWS and/or CNPS databases) in the project vicinity, or other factors, indicate that the species could occur.
Unlikely to occur: Although the project site is located within the extant range of the species, the species is unlikely to be present because of very restricted distribution and/or because only low-quality habitat or very limited habitat is present in the project site and vicinity.
No potential to occur: The project site is located outside of the species extant distribution and/or potential habitat to support the species is not present.

Sources: Baldwin et al. 2012; CDFW 2024a; CNPS 2024a; CNPS 2024b; USFWS 2024; data collected and compiled by GEI Consultants Inc., in 2024

Special-status Wildlife Species Evaluated for Potential to Occur In Study Area

Species Name	Legal Status Federal/ State[1]	Habitat Associations	Potential to Occur In Study Area and/or Project Site[2]
Invertebrates			
Crotch's bumble bee *Bombus crotchii*	–/C	Open grassland and scrub. Primarily nests underground and requires flowering plants for foraging.	**Could occur**; flowering plants and grassland in and adjacent to the study area provide suitable habitat. Nearest known occurrence is over 10 miles north; however, occurrence data is sparse for this species (Xerces 2024b).
vernal pool fairy shrimp *Branchinecta lynchi*	T/–	Vernal pools and other seasonal wetlands.	**No potential to occur**; no suitable habitat is present in the study area.
monarch butterfly *Danaus plexippus*	PT/–	Overwinter in forested areas for protection, typically preferring eucalyptus trees, and breed where nectar and milkweed are readily available.	**Unlikely to occur**; plants on-site could provide foraging opportunities and there is at least one known occurrence of milkweed (*Asclepias* ssp.) within the study area and several more nearby. There is one known occurrence of an individual monarch within 0.5 mile of the study area (Xerces Society 2024a). The study area is outside the range for overwintering habitat, and no roosting habitat is present. Species likely only to occasionally occur as migrant.
valley elderberry longhorn beetle *Desmocerus californicus dimorphus*	T/–	Closely associated with blue elderberry (*Sambucus cerulea*), an obligate host for the beetle larvae.	**Could occur**; while no elderberry shrubs have been documented in past surveys, there is the potential for shrubs to be present in the study area.
vernal pool tadpole shrimp *Lepidurus packardi*	E/–	Vernal pools and other seasonal wetlands.	**No potential to occur**; no suitable habitat is present in the study area.
Fish			
green sturgeon – southern Distinct Population Segment (DPS) *Acipenser medirostris*	T/SSC	Spawning occurs primarily in the Sacramento River, but those that spawn in the Feather and Yuba Rivers are also part of the southern DPS. Oceanic waters, bays, and estuaries during non-spawning season. Enters San Francisco Bay late winter through early spring, and spawn occurs from April through early July. Spawn in cool sections of river mainstems in deep pools containing small to medium-sized gravel, cobble, or boulder substrate	**Known to occur:** there is suitable migratory and rearing habitat is present within the Sutter Bypass.
white sturgeon *Acipenser transmontanus*	–/C, SSC	Salt water from Ensenada to Alaska. Spawn in large river systems along the west coast. Currently, self-sustaining populations only occur in the Sacramento, Columbia, and Fraser Rivers. Spawn in large, deep pools.	**Could occur:** marginally suitable migratory, spawning, and rearing habitat is present within the Sutter Bypass.

Species Name	Legal Status Federal/ State[1]	Habitat Associations	Potential to Occur In Study Area and/or Project Site[2]
Sacramento splittail *Pogonichthys macrolepidotus*	–/SSC	Require a rising hydrograph for upstream migration and flooded vegetation for spawning and rearing areas for their early life history stages.	**Known to occur:** suitable habitat is present within the Sutter Bypass.
steelhead – Central Valley DPS *Oncorhynchus mykiss irideus*	T/SSC	Spawning habitat includes gravel-bottomed, fast-flowing, well-oxygenated rivers and streams. Non-spawning habitat includes estuarine and marine waters.	**Known to occur:** suitable seasonal migratory and rearing habitat is present within the Sutter Bypass.
Chinook salmon – Central Valley spring-run Evolutionarily Significant Unit (ESU) *Oncorhynchus tshawytscha*	T/T	Currently found in the Sacramento-San Joaquin River Delta, the Sacramento River and its tributaries, including American, Yuba and Feather Rivers, and Mill, Deer, and Butte Creeks. The numbers of adults are dependent on pool depth and volume, amount of cover, and proximity to gravel.	**Known to occur:** suitable seasonal migratory and rearing habitat is present within the Sutter Bypass.
Chinook salmon – Central Valley fall/late fall-run ESU *Oncorhynchus tshawytscha*	–/SSC	Currently found primarily in the Sacramento River, where most spawning and rearing of juveniles takes place in the reach between Red Bluff Diversion Dam and Redding's Keswick Dam. The specific habitat requirements of late fall-run chinook salmon have not been determined but they are presumably similar to other Central Valley chinook salmon runs.	**Known to occur:** suitable seasonal migratory and rearing habitat is present within the Sutter Bypass.
Chinook salmon – Sacramento River winter-run ESU *Oncorhynchus tshawytscha*	E/E	Currently found in the Sacramento River below Keswick Dam. Spawns in the Sacramento River but not its tributaries. Requires clean, cold water over gravel beds	**Known to occur:** suitable seasonal migratory and rearing habitat is present within the Sutter Bypass.
Amphibians and Reptiles			
northwestern pond turtle *Actinemys marmorata*	PT/SSC	Permanent or nearly permanent water bodies with abundant vegetation and rocky or muddy bottoms.	**Known to occur**; suitable aquatic and upland habitat is present in the study area. Several known occurrences within the study area from 2023 to 2024 from previous GEI monitoring.
foothill yellow-legged frog (north Sierra DPS) *Rana boylii*	–/T	Generally found in shallow flowing streams and rivers with at least cobble sized substrate. Breeding generally occurs at the margins of wide shallow channels with reduced flow variation near tributary confluences.	**No potential to occur**; no suitable habitat is present in the study area.
western spadefoot *Spea hammondii*	PT/SSC	Generally found in grasslands, oak woodlands, coastal sage scrub, and chaparral in washes, floodplains, alluvial fans, playas, and alkali flats.	**No potential to occur**; no suitable habitat is present in the study area.

Species Name	Legal Status Federal/ State[1]	Habitat Associations	Potential to Occur In Study Area and/or Project Site[2]
giant garter snake *Thamnophis gigas*	T/T	Aquatic habitat with emergent herbaceous vegetation and adjacent upland habitat for cover and refuge from flooding.	**Known to occur**; suitable aquatic and upland habitat is present in the study area. Several known occurrences within the study area from 2023 to 2024 from previous GEI monitoring and many more within the surrounding area (CDFW 2024a).
Birds			
tricolored blackbird *Agelaius tricolor*	–/T, SSC	Forages in grasslands, agricultural fields, and other open habitats; nests in marshes and other dense vegetation.	**Known to occur**; suitable nesting and foraging habitat is present in the study area. Several known individual and foraging occurrences within the study area from recent years (eBird 2024). The nearest known breeding site is immediately outside of the study area but has not been known to be active since the 1990's (CDFW 2024a).
greater sandhill crane *Antigone canadensis tabida*	–/T, FP	Does not nest in the Central Valley. Winters in annual and perennial grassland habitats, moist croplands with rice or corn stubble, and open, emergent wetlands. Prefers treeless plains.	**Known to occur**; suitable overwintering and foraging habitat within the study area. There are several individual foraging occurrences within the study area (eBird 2024). However, this species does not nest in the Central Valley, so species presence would only be foraging and/or flyovers.
golden eagle *Aquila chrysaetos*	–/FP	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.	**Known to occur**; suitable foraging habitat is present in the study area. There is at least one known individual occurrence within the study area and several more within 1 mile (eBird 2024). However, there is no suitable nesting habitat within the study area, so species presence would likely just be foraging.
burrowing owl *Athene cunicularia*	–/C, SSC	Nest and forages in grasslands and agricultural fields with natural or artificial burrows or friable soils.	**Could occur;** non-inundated agricultural fields and grassland provide suitable foraging and nesting habitat within and adjacent to the study area. There are several occurrences within 4 miles of the study area (eBird 2024).
Swainson's hawk *Buteo swainsonii*	–/T	Forages in grasslands and agricultural fields; nests in open woodland or scattered trees.	**Known to occur**; suitable foraging and nesting habitat is present within the study area. At least two known nesting occurrences within the study area from 2003 and many more individual sightings of foraging within recent years (CDFW 2024a, eBird 2024).
mountain plover *Charadrius montanus*	–/SSC	Wintering birds can be found in any shortgrass habitat, including alkali flats, burned fields, and tilled farms, primarily from September to March.	**Could occur;** suitable overwintering habitat is present in the greater study area adjacent to the project and nearest known occurrences are 3 miles away (CDFW 2024a, eBird 2024).

Species Name	Legal Status Federal/ State[1]	Habitat Associations	Potential to Occur In Study Area and/or Project Site[2]
northern harrier *Circus cyaneus*	–/SSC	Nests and forages in grasslands, agricultural fields, and marshes.	**Known to occur**; suitable foraging and nesting habitat is present in the study area. Several known occurrences within the study area from 2023 to 2024 from previous GEI surveys and many more within the surrounding area (eBird 2024). No known records of nesting.
western yellow-billed cuckoo *Coccyzus americanus occidentalis*	T/E	Forages in a variety of riparian habitats, but nests in extensive riparian thicket or forest with dense, low vegetation.	**Known to occur**; marginally suitable nesting and foraging habitat is present within riparian habitat on both sides of the Sutter Bypass. There has been one known occurrence within the study area from 2010 and several more recent occurrences within 1 mile of the study area from 2008, 2010, and 2020 (eBird 2024). However, there is no suitable nesting habitat within the project site, so species presence would likely just be foraging.
white-tailed kite *Elanus leucurus*	–/FP	Forages in grasslands and agricultural fields; nests in woodlands and isolated trees and.	**Known to occur**; suitable nesting and foraging habitat is present within the study area. Several known occurrences within the study area from 2023 to 2024 from previous GEI surveys and many more within the surrounding area (CDFW 2024a, eBird 2024). No known records of nesting.
bald eagle *Haliaeetus leucocephalus*	–/E, FP	Nests in large, old-growth, or dominant live trees with open branchwork, especially ponderosa pine. Requires large bodies of water or rivers with abundant fish, and adjacent snags.	**Known to occur**; suitable nesting and foraging habitat is present in the study area. Several known occurrences within the study area from 2023 to 2024 from previous GEI surveys and many more within the surrounding area (eBird 2024). No known records of nesting.
yellow-breasted chat *Icteria virens*	–/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 and shallow.	**Could occur**; suitable nesting and foraging habitat is present within riparian habitat on both sides of the Sutter Bypass, though habitat is better within the Sutter National Wildlife Refuge, north of the study area. There have been known recent occurrences within 1 mile of that study area from 2005 and 2008 (eBird 2024).
least bittern *Ixobrychus exilis*	–/SSC	Nests in dense emergent vegetation in fresh and brackish marshes; rarely in tamarisk in desert riparian scrub.	**Could occur**; suitable nesting and foraging habitat is present within the Sutter Bypass, though habitat is better within the Sutter National Wildlife Refuge, north of the study area. There have been several known recent occurrences within 1 mile of the study area (eBird 2024).

Species Name	Legal Status Federal/ State[1]	Habitat Associations	Potential to Occur In Study Area and/or Project Site[2]
loggerhead shrike *Lanius ludovicianus*	–/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.	**Known to occur**; suitable nesting and foraging habitat is present in the study area and several known occurrences within the study area (eBird 2024).
California black rail *Laterallus jamaicensis coturniculus*	–/T, FP	Nests in marshes and wet meadows, including riparian marshes, wetlands, and coastal prairies. They require shallow water and vegetation cover.	**Could occur;** marginally suitable nesting and foraging habitat is present in the study area, and there are two known occurrences within 1 mile east of the study area from 2001 and 2006 (CDFW 2024a).
song sparrow (“Modesto” population) *Melospiza melodia*	–/SSC	Nests and forages in emergent freshwater marsh and riparian scrub and woodland.	**Known to occur**; suitable nesting and foraging habitat is present and many known occurrences within the study area (CDFW 2024a, eBird 2024).
bank swallow *Riparia riparia*	–/T	Nests in vertical banks or bluffs of suitable soil, typically adjacent to water, and forages in adjacent open habitat.	**Known to occur**; suitable foraging habitat is present in the study area. There are several occurrences within the study area and several more within 1 mile (eBird 2024). However, there is no suitable nesting habitat within the study area, so species presence would likely just be foraging.
yellow warbler *Setophaga petechia*	–/SSC	Usually found in riparian deciduous habitats in summer: cottonwoods, shallows, alders, and other small trees and shrubs typical of low, open-canopy riparian woodland. Also breeds in montane shrubbery in open coniferous forests.	**Known to occur**; suitable nesting and foraging habitat is present in the study area and several known occurrences within the study area (eBird 2024).
least Bell’s vireo *Vireo bellii pusillus*	E/E	Typically occurs in structurally diverse riparian habitat with dense shrub layer.	**No potential to occur**; study area is outside the known range for this species.
Mammals			
pallid bat *Antrozous pallidus*	–/SSC	Wide variety of habitats and roosts in tree cavities and caves, as well as artificial sites (e.g., bridges and buildings).	**Could occur;** suitable roosting habitat is present in riparian habitat along the Sutter Bypass.
Marysville California kangaroo rat *Dipodomys californicus eximius*	–/SSC	Restricted to the Sutter Buttes, Sutter County. Generally occurs in annual grassland but has also been found in clearings of chaparral on low elevation slopes	**No potential to occur**; study area is outside the known range for this species.

Species Name	Legal Status Federal/ State[1]	Habitat Associations	Potential to Occur In Study Area and/or Project Site[2]
western red bat *Lasiurus frantzii*	–/SSC	Ranges across the Central Valley, as well as the coast and Coast Range mountains. Occurs in most habitats except desert and alpine areas. Roosts in trees, sometimes shrubs, and typically at the margins of habitats.	**Could occur;** suitable roosting habitat is present in riparian habitat along the Sutter Bypass.

Notes: DPS = distinct population segment

[1] Legal Status Definitions:

C Wildlife species identified as a candidate species for listing under Federal and/or California Endangered Species Act.
E Wildlife species listed as Endangered under the Federal and/or California Endangered Species Act.
FP Wildlife species listed as Fully Protected under the California Fish and Game Code.
P Proposed for listing as threatened or endangered under Federal and/or California Endangered Species Act.
SSC Wildlife species listed as Species of Special Concern by the California Department of Fish and Wildlife.
T Wildlife species listed as Threatened under the Federal and/or California Endangered Species Act.
– No status under Federal and/or California laws and regulations.

[2] Potential for Occurrence Definitions:

Known to occur: The species, or evidence of its presence, was observed in the project site during previous field surveys (as reported in background information materials) or was recently reported by others.
Could occur: Extant species distribution, habitat conditions, behavior of the species, known occurrences (as documented in the CNDDB or USFWS database) in the vicinity, or other factors, indicate that the species could occur.
Unlikely to occur: Although the project site is located within the extant range of the species, the species is unlikely to be present because of very restricted distribution and/or because only low-quality habitat or very limited habitat is present in the project site and vicinity.
No potential to occur: The project site is located outside of the species extant distribution and/or potential habitat to support the species is not present.

Sources: CDFW 2024a; eBird 2024; iNaturalist 2024; Shuford and Gardali 2008; USFWS 2024a; Xerces Society 2024 data collected and compiled by GEI Consultants Inc., in 2024