



Exhibit B
Sites Reservoir Project
Mitigation Monitoring and Reporting
Program

November 2023

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1.0 INTRODUCTION

In November 2023, the Sites Project Authority (Authority), as the state lead agency pursuant to the California Environmental Quality Act (CEQA), and the Bureau of Reclamation (Reclamation), as the federal lead agency pursuant to the National Environmental Policy Act (NEPA), issued a Final Environmental Impact Report (EIR)/Environmental Impact Statement (EIS) for the Sites Reservoir Project (Project).¹ The Final EIR/EIS satisfies the requirements of CEQA and NEPA and is the basis for the Authority and Reclamation’s selection of the Preferred Alternative (Alternative 3). Reclamation will ultimately make a decision on which alternative is selected in any Record of Decision issued.

Section 21081.6 of the California Public Resources Code and Sections 15091(d) and 15097 of the State CEQA Guidelines require public agencies to “adopt a program for monitoring or reporting on the revisions which it has required in the project and the measures it has imposed to mitigate or avoid significant environmental effects.” A Mitigation Monitoring and Reporting Program (MMRP) is required for the Project because the Authority has identified potentially significant adverse effects related to the construction and implementation of the Project and the Authority has identified mitigation measures to reduce those impacts in the Final EIR/EIS. This MMRP has been prepared for the Preferred Alternative. This MMRP will be adopted by the Sites Authority Board of Directors if the Board approves the Project. This MMRP has been prepared to ensure that all of the mitigation measures are implemented, completed, and documented in a satisfactory measure during the Project’s design, construction, and implementation. The MMRP may be modified by the Authority during Project implementation in response to changing conditions or Project modifications. Table 1 of the MMRP describes mitigation measures from the Final EIR/EIS that will mitigate the adverse environmental impacts of the Preferred Alternative. These measures were developed by the Authority and Reclamation in consultation with appropriate agencies, as well as input from the public, to meet the requirements of CEQA and NEPA. The mitigation measures in Table 1 are conditions of approval that the Authority is required to comply with as it implements the Preferred Alternative.

Five cooperating agencies are part of the NEPA review process: Western Area Power Administration, U.S. Environmental Protection Agency, U.S. Fish and Wildlife Service, National Marine Fisheries Service, and U.S. Army Corps of Engineers. The following responsible agencies are included as part of the CEQA process.

- California Department of Fish and Wildlife
- State Water Resources Control Board
- Central Valley Regional Water Quality Control Board, Central Valley Region 1
- Central Valley Flood Protection Board
- California Department of Water Resources
- California Water Commission
- Sites Storage Partners
- Tehama-Colusa Canal Authority and Glenn-Colusa Irrigation District (in their role as conveyance partners)

¹ Sites Project Authority and Bureau of Reclamation. 2023. *Sites Reservoir Project Final Environmental Impact Report/Environmental Impact Statement*. May. Sacramento CA. Available: <https://sitesproject.org/environmental-review/>.

Key legal requirements the Preferred Alternative is subject to are described for the following resource areas in Appendix 4A, *Regulatory Requirements*, in Volume 2 of the Final EIR/EIS.

- Surface Water Resources—Section 4A.1
- Surface Water Quality—Section 4A.2
- Fluvial Geomorphology—Section 4A.3
- Groundwater Resources—Section 4A.4
- Vegetation and Wetland Resources—Section 4A.5
- Wildlife Resources—Section 4A.6
- Aquatic Biological Resources—Section 4A.7
- Geology and Soils—Section 4A.8
- Minerals—Section 4A.9
- Land Use—Section 4A.10
- Agriculture and Forestry Resources—Section 4A.11
- Recreation Resources—Section 4A.12
- Energy—Section 4A.13
- Navigation, Transportation, and Traffic—Section 4A.14
- Noise—Section 4A.15
- Air Quality—Section 4A.16
- Greenhouse Gas Emissions—Section 4A.17
- Cultural Resources—Section 4A.18
- Tribal Cultural Resources—Section 4A.19
- Visual Resources—Section 4A.20
- Population and Housing—Section 4A.21
- Public Services and Utilities—Section 4A.22
- Public Health and Environmental Hazards—Section 4A.23
- Climate Change—Section 4A.24
- Indian Trust Assets—Section 4A.25
- Environmental Justice and Socioeconomics—Section 4A.26
- Cumulative Impacts—Section 31.1

The MMRP adheres to the Council on Environmental Quality’s (CEQ) regulations (40 Code of Federal Regulations [C.F.R.] § 1505²) and was prepared based on the CEQ finalized guidance entitled *Appropriate Use of Mitigation and Monitoring and Clarifying the Appropriate Use of Mitigated Findings of No Significant Impact* (CEQ January 14, 2011). The CEQ guidance assists NEPA lead agencies in developing mitigation programs that provide effective documentation, implementation, and monitoring of mitigation commitments.

² The NOI for which the Final EIS and Record of Decision is issued was published before September 14, 2020. Therefore, all references to CEQ regulations are to those regulations at 40 C.F.R. Parts 1500–1508 in existence as of the date the NOI was published in the Federal Register on November 9, 2001.

2.0 MITIGATION MONITORING AND REPORTING PROGRAM

The environmental effects of the Preferred Alternative will result in impacts considered significant under CEQA and in effects considered significant under NEPA. Mitigation measures that will reduce or eliminate potential adverse environmental impacts are described in Chapters 6 through 23 of Volume 1 of the Final EIR/EIS. The specific provisions contained in this MMRP are presented as a table and include mitigation measures identified in the Final EIR/EIS, organized by environmental issue and topical areas addressed in the Final EIR/EIS. In collaboration with the appropriate agencies, the Authority may refine the means by which it will implement a mitigation measure, as long as the alternative means will be equally or more effective. This MMRP describes implementation and monitoring procedural guidance, responsibilities, and timing for each mitigation measure identified in the Final EIR/EIS. Components include the following.

- **Mitigation Measure(s):** Provides the mitigation measure and monitoring requirements as identified in the Final EIR/EIS.
- **Impact Number and Impact Title:** Provides the impact number and description of the impact requiring mitigation as identified in the Final EIR/EIS.
- **Phase:** Provides the phase during which the mitigation measure will be implemented.
 - **Preconstruction**—Activities that directly precede the construction and serve as clearance for construction to begin.
 - **Construction**—Activities that occur during construction.
 - **Postconstruction**—Activities that directly follow construction or as a result of construction, and that do not relate to ongoing operations.
 - **Operations**—Activities related to the long-term operation and management of the reservoir, buildings or features, or surrounding land after the completion of construction.
- **Implementation Action:** Identifies the actions required to implement the measures, including any required agreements and/or conditions.
- **Implementation Responsibility:** Except as noted, identifies the entity that will be responsible for directly implementing the mitigation measures, monitoring, and reporting. Implementation can be the responsibility of the Authority or its Contractor. Monitoring will generally be the responsibility of the Contractor, with oversight provided by the Authority during construction. Long-term mitigation monitoring responsibilities will be the responsibility of the Authority.
- **Reporting Schedule:** Identifies the stage of the Project and the frequency that reporting is to occur, if reporting is required.
- **Record of Implementation:** Column for record keeping after implementation.

2.1 Roles and Responsibilities

As the CEQA lead agency and proponent of this Project, the Authority will implement the mitigation measures through its own actions, those of its Contractors, and actions taken in cooperation with other agencies and entities. The Authority is ultimately accountable for the overall administration of the MMRP and for assisting relevant individuals and parties in their oversight and reporting responsibilities. The responsibilities of mitigation implementation, monitoring, and reporting will be extended to several entities as discussed above; however, the Authority will bear the primary responsibility for verifying that the mitigation measures are implemented. When Project work is undertaken by the Authority's Contractor, the Contractor shall implement the mitigation measures that are pertinent to its scope of work. The Contractor shall monitor construction activities to ensure that the mitigation measures are being properly implemented and accurately report its activity and results to the Authority. The Authority will periodically check the Contractor's activity, reports, and effectiveness of mitigation activities.

- **Authority**—While the Authority retains responsibility for the implementation and reporting on mitigation measures as specified in this MMRP, activities may be delegated to an Authority representative or an Authority-approved contractor. Authority responsibilities may also include certain measures outside of the scope of the Contractor such as future studies or operations-phase implementation. In addition, oversight of implementation and reporting may be provided by Authority contractors or representatives as lead agency representatives to facilitate regulatory oversight, agency coordination and compliance during implementation and reporting.
- **Contractor**—The Contractor(s) (or the environmental team provided by the Contractor) will be responsible for implementing or monitoring mitigation measures as specified in this MMRP. This may include any of the following technical roles.
 - **Mitigation Manager**—The Mitigation Manager is responsible for overseeing their environmental team's implementation and reporting of environmental commitments, including onsite or offsite habitat for compensatory mitigation. The Mitigation Manager will be the principal agent in direct implementation of the MMRP and compliance assurance and will be responsible for reporting the status of each mitigation measure to the Authority in accordance with this MMRP.
 - **Paleontological Resources Specialist**—The Paleontological Resources Specialist is responsible for implementing mitigation measures related to paleontological resources in compliance with the terms and conditions outlined in the MMRP and the Paleontological Resource Monitoring and Mitigation Plan (PRMMP), including direction of the Paleontological Resource Monitor.
 - **Qualified Botanist**—The Qualified Botanist is responsible for implementing mitigation measures related to plants in compliance with the terms and conditions outlined in the MMRP. The Qualified Botanist will be responsible for direct implementation of the MMRP and compliance assurance by surveying and identification of resources. The Qualified Botanist may be required to possess specific expertise, education, or agency approval.

- **Qualified Biologist**—The Qualified Biologist is responsible for implementing mitigation measures related to biological resources in compliance with the terms and conditions outlined in the MMRP. The Qualified Biologist will be responsible for direct implementation of the MMRP and compliance assurance by surveying, identification and monitoring of resources. The Qualified Biologist may be required to possess specific expertise, education, or agency approval.
- **Qualified Entomologist**—The Qualified Entomologist is responsible for implementing mitigation measures related to insects in compliance with the terms and conditions outlined in the MMRP. The Qualified Entomologist will be responsible for direct implementation of the MMRP and compliance assurance by surveying, identification, and monitoring of resources. The Qualified Entomologist may be required to possess specific expertise, education, or agency approval.
- **Qualified Paleontological Resources Monitor**—The Qualified Paleontological Resources Monitor will be approved by and report directly to the Paleontological Resources Specialist. The Paleontological Resources Monitor will be present onsite within a reasonable monitoring distance during ground-disturbing activities in areas indicated as resource sensitive and will be the principal agent in the direct implementation of the MMRP and the PRMMP, and compliance assurance as directed by the Paleontological Resources Specialist. Paleontological Resource Monitors will have the equivalent of the following qualifications: Bachelor of Science or Bachelor of Arts degree in geology or paleontology and 1 year of experience monitoring in California; Associate of Science or Associate of Arts degree in geology, paleontology, or biology and 4 years of experience monitoring in California; or enrollment in upper-division classes pursuing a degree in the fields of geology or paleontology and 2 years of monitoring experience in California.
- **Secretary of Interior (SOI)-Qualified Architectural Historian**—The SOI-Qualified Architectural Historian is responsible for implementing mitigation measures related to National Register of Historic Places (NRHP) and/or the California Register of Historic Resources (CRHR) eligible built resources in compliance with the terms and conditions outlined in the MMRP.
- **Registered Professional Archaeologist**—The Registered Professional Archaeologist is responsible for implementing mitigation measures related to archaeological resources in compliance with the terms and conditions outlined in the MMRP.
- **Tribal Monitor**—The Tribal Monitor will be permitted onsite within a reasonable monitoring distance during ground-disturbing activities in areas indicated as culturally sensitive.

3.0 ENVIRONMENTAL MITIGATION MANAGEMENT AND ASSESSMENT SYSTEM

The Authority will implement an Environmental Mitigation Management and Assessment (EMMA) system consisting of strategic planning, policies, and procedures; organizational structure; staffing and responsibilities; milestones; schedule; and resources devoted to achieving the Authority's environmental commitments. The EMMA system will also include a component that tracks the implementation of mitigation measures (as well as Best Management Practices [BMPs]) and can produce reports on compliance. Authority staff will receive periodic reports on compliance and may request additional reports as necessary to ensure that the MMRP is fully implemented. This system will rely on data provided by the Contractor, its consultants, and others to produce status reports regarding construction status, permitting activities, monitoring, inspections, and other compliance activities.

Table 1. Sites Reservoir Project: Mitigation Monitoring and Reporting Program

Mitigation Text	Impact # and Impact Title	Phase	Implementation Action	Reporting Schedule	Implementation Responsibility	Record of Implementation
Surface Water Quality						
<p>WQ-1.1: Methylmercury Management</p> <p>The Authority will implement the following actions as part of the RMP (Section 2D.3) to minimize reservoir methylmercury production and bioaccumulation of methylmercury in reservoir fish so that the average methylmercury concentrations in Sites Reservoir fish do not exceed the 0.2 mg/kg sport fish objective³. Most of these actions are recommended actions for new reservoirs by the State Water Board and Regional Water Quality Control Boards, as identified in the <i>Draft Staff Report for Scientific Peer Review for the Amendment to the Water Quality Control Plan for Inland Surface Waters, Enclosed Bays, and Estuaries of California, Mercury Reservoir Provisions – Mercury TMDL and Implementation Program for Reservoirs</i> (State Water Resources Control Board 2017b). The potential effectiveness of these recommended methylmercury reduction actions is supported by current research (State Water Resources Control Board 2017b) but may be site-specific. Methylmercury reduction actions and fish tissue monitoring will be implemented in coordination with the State Water Board and Central Valley RWQCB, as required.</p> <ol style="list-style-type: none"> 1. Remove vegetation (e.g., brush, trees) in the inundation area prior to initial Sites Reservoir filling to reduce organic carbon. The decomposition of organic carbon in flooded soil and vegetation fuels the microbial methylation of mercury (Hall et al. 2005; Kelly et al. 1997). 2. Do not stock Sites Reservoir with fish for the first 10 years following its initial filling to reduce the potential for methylmercury bioaccumulation in reservoir fish when methylmercury levels in the reservoir are expected to be highest. 3. Upon completion of the initial filling of Sites Reservoir, implement a fish sampling program to determine whether game fish are present (e.g., due to unauthorized fish stocking) and whether a population has become established (i.e., presence of reproductively mature fish and several year classes). This sampling program would include one or two surveys in spring or early summer using a single electrofishing crew. The survey would include several transects along the shoreline, likely in the vicinity of the boat ramps and campgrounds. Once it has been determined that a population of game fish has established in the reservoir, begin monitoring Sites Reservoir fish tissue methylmercury concentrations (as total mercury) via annual tissue sampling. <p>Based on results from fish tissue monitoring, and in coordination with the State Water Board, Central Valley RWQCB, and the Office of Environmental Health Hazards Assessment, fish consumption warning signs will be posted in several visible locations around the reservoir if fish tissue concentrations exceed the 0.20 mg/kg ww sport fish objective⁴. As available in the reservoir, tissue from both sport and prey-sized fish from multiple species will be sampled in accordance with the State Water Board’s Surface Water Ambient Monitoring Program, Safe to Eat Workgroup protocol (State Water</p>	<p>Impact WQ-1: Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface water quality during construction</p> <p>Impact WQ-2: Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface water quality during operation</p> <p>Impact WILD-1: Substantial adverse effect (i.e., loss or removal), either directly or through habitat modifications, on wildlife species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service</p>	Preconstruction; construction; operations	Contract requirements; compliance reporting; monitoring	As needed	Authority; Contractor	Date: _____ Action Taken:

³ The average methylmercury concentrations shall not exceed 0.2 milligrams per kilogram (mg/kg) fish tissue within a calendar year. The water quality objective must be applied to trophic level 3 (TL3) or trophic level 4 (TL4) fish, whichever is the highest existing trophic level in the water body. The objective applies to the wet weight concentration in skinless fillet. Freshwater TL3 fish are between 150 to 500 millimeters (mm) in total length and TL4 fish are between 200 to 500 mm in total length, or as additionally limited in size in accordance with the “legal size” set for recreational fishing, established by Title 14, California Code of Regulations 14 Sections 1–53.03.

⁴ The average methylmercury concentrations shall not exceed 0.2 milligrams per kilogram (mg/kg) fish tissue within a calendar year. The water quality objective must be applied to trophic level 3 (TL3) or trophic level 4 (TL4) fish, whichever is the highest existing trophic level in the water body. The objective applies to the wet weight concentration in skinless fillet. Freshwater TL3 fish are between 150 to 500 millimeters (mm) in total length and TL4 fish are between 200 to 500 mm in total length, or as additionally limited in size in accordance with the “legal size” set for recreational fishing, established by Title 14, California Code of Regulations 14 Sections 1–53.03.

Mitigation Text	Impact # and Impact Title	Phase	Implementation Action	Reporting Schedule	Implementation Responsibility	Record of Implementation
<p>Resources Control Board 2021c, 2022b). Mercury in fish tissues will be analyzed according USEPA’s Method 1630 (U.S. Environmental Protection Agency 1998b, or as updated). The annual reservoir mercury monitoring program will continue for a minimum of 10 years following the first year of regulated reservoir stocking.</p> <p>4. Manage reservoir water chemistry to control methylmercury production. The scope of water chemistry management actions would be informed by actions proven feasible and effective at reducing mercury methylation in other mercury-impaired reservoirs in the state. Monitoring, including aqueous and fish tissue methylmercury, will be implemented to assess the effectiveness of methylmercury reduction measures.</p> <p>Water chemistry management actions may include the addition of an oxidant (e.g., DO) to the reservoir bottom waters (near the sediment-water interface) to reduce anoxia when the reservoir is stratified. Oxygen levels can be increased in the hypolimnion of a reservoir using a hypolimnetic oxygenation system (HOS). The use of HOS to reduce hypolimnetic anoxia may suppress mercury methylation and discharge to the hypolimnion in some reservoirs (State Water Resources Control Board 2017b:7-42, 7-43); however, the effectiveness of this method in reducing fish tissue mercury concentrations is not clear based on results from studies to date. Seelos et al. (2021) found that after 4 consecutive years of operation of a HOS in two California reservoirs, Guadalupe and Stevens Creek Reservoirs, there was a significant, albeit modest, decrease in fish tissue mercury and that results suggested that this may have been due to oxygenation mixing nutrients into surface water and enhancing primary productivity, which indirectly affected mercury bioaccumulation by diluting concentrations in phytoplankton, rather than directly lowering methylmercury in the water column. In contrast, in Calero Reservoir, within the same watershed as Guadalupe Reservoir, near-continuous HOS operation during “the 2014 dry season” reduced hypolimnetic methylmercury but did not substantially reduce mercury concentrations in zooplankton or small fish (McCord et al. 2016). McCord et al. (2016) hypothesized that operational factors may have accounted for the lack of reduction in methylmercury bioaccumulation: (1) operation of the HOS after the onset of hypoxia below the epilimnion, which allowed the accumulation of methylmercury in the hypolimnion and metalimnion and subsequent mixing of the accumulated methylmercury into the epilimnion making it available for uptake by phytoplankton; (2) a vertical gap between the oxygen diffuser line and the deepest sediments left an hypoxic zone that acted as an ongoing source of methylmercury to the hypolimnion, which was then mixed into the water column by the bubble plume of the HOS; and (3) the HOS did not overcome the hypoxia in the metalimnion, which may have provided methylmercury to the epilimnion.</p> <p>If a HOS is implemented at Sites Reservoir, the addition of oxygen would take place annually just prior to the onset of stratification until after reservoir turnover in late fall or early winter. Pilot studies within the reservoir will help inform the design (e.g., sizing, type of oxygenation system) and operation (i.e., design oxygen delivery rate) parameters that result in the most effective reduction of in-reservoir mercury methylation and fish tissue methylmercury concentrations while avoiding potential adverse effects on reservoir water quality. The Authority will retain a qualified water quality specialist and/or fisheries biologist with expertise in methylmercury management to design these studies.</p> <p>5. Manage reservoir fisheries to reduce in-reservoir fish tissue methylmercury levels. The scope of fisheries management actions would be informed by actions proven feasible</p>						

Mitigation Text	Impact # and Impact Title	Phase	Implementation Action	Reporting Schedule	Implementation Responsibility	Record of Implementation
<p>and effective at other mercury-impaired reservoirs in the state. Fisheries management actions could include the following.</p> <ul style="list-style-type: none"> a. Intensive fishing to reduce fish populations to provide more food resources for remaining fish. This would increase the growth rate in the remaining fish and reduce their methylmercury body burdens through somatic growth dilution. b. Stocking the reservoir with low-methylmercury prey fish for stocked predator fish to consume. c. Stocking more or different sport fish species, including lower trophic level sport fish. d. Stocking large, old predator fish from hatcheries that supply fish with low methylmercury concentrations. <p>To assess the effectiveness of methylmercury reduction actions after initial implementation, fish tissue methylmercury concentrations (as total mercury) will be monitored. Young fish will be sampled because they have accumulated methylmercury for a shorter time period relative to older, larger sport fish and therefore will better reflect recent mercury exposure (State Water Resources Control Board 2017b). Fish tissue methylmercury concentrations in young fish will be assessed prior to implementation of any methylmercury reduction action.</p> <p>To assess the effectiveness of fisheries management actions over the long term, ongoing monitoring of aqueous and fish tissue methylmercury in Sites Reservoir will be implemented per requirements or conditions in a water right order, Section 401 water quality certification issued pursuant to the CWA, or other appropriate order issued by the State Water Board and/or Central Valley RWQCB.</p>						
<p>WQ-2.1: Prevent Metal Impacts in Stone Corral Creek Associated with Sites Reservoir Discharge</p> <p>The metals of concern for Project operations include aluminum, copper, iron, and lead. Mercury is considered separately. The effect of the Project on metal concentrations in Stone Corral Creek is uncertain and therefore considered potentially significant without mitigation. To evaluate the potential effect, metal concentrations will be measured in samples collected from Stone Corral Creek approximately half a mile downstream from Sites Dam. Samples will be collected every other month for 1 year prior to construction and every other month after construction for a period sufficient to indicate that any impacts are less than significant, including during periods when the reservoir is at least 75% full. The measurements will include total and dissolved aluminum, copper, iron, lead, and hexavalent chromium. Hexavalent chromium is included because existing data are insufficient to evaluate potential Project effects. Measurements of metal concentrations will be accompanied by measurements of pH, dissolved organic carbon, and hardness because these parameters influence water quality standards for aquatic life protection for some metals. Additional metal measurements are planned for the Stone Corral Creek and Funks Creek Aquatic Study Plan (Section 2D.4).</p> <p>Under the No Project Alternative, exceedances of standards for the protection of aquatic life for total aluminum, copper, iron, and lead (standards shown in Table 6-9) tend to occur in the Sacramento River and Stone Corral Creek during the rainy season. Existing conditions of Stone Corral Creek without the Project would be considered as affected by elevated metal concentrations if they were found to exceed thresholds for aquatic life protection during the drier parts of the year when exceedances would not be expected. For evaluation purposes, this drier part of the year would begin in April or a month after the last diversions</p>	<p>Impact WQ-2: Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface water quality during operation</p>	<p>Preconstruction; postconstruction; operations</p>	<p>Compliance reporting; monitoring</p>	<p>Every other month</p>	<p>Authority; Contractor</p>	<p>Date: _____ Action Taken:</p>

Mitigation Text	Impact # and Impact Title	Phase	Implementation Action	Reporting Schedule	Implementation Responsibility	Record of Implementation
<p>to Sites Reservoir storage, whichever is later, and run through November or until the commencement of diversions to storage, whichever is earlier.</p> <p>If measurements from Stone Corral Creek taken during this dry period indicate that concentration of one or more of these metals is greater than water quality standards for the protection of aquatic life, actions to reduce metal concentrations in Stone Corral Creek will be implemented to reduce concentrations to levels that meet these standards. Mitigative actions may include, but are not limited to, one or more of the following types of measures.</p> <ul style="list-style-type: none"> • Modify the flow released to Stone Corral Creek. Changes in release flow could affect metal concentrations in the reservoir discharge by altering the withdrawal zone in the reservoir. • Release occasional pulses of high flow. Flow pulses could flush away low-quality sediment and water from the bottom of the reservoir adjacent to Sites Dam. • Add a vertical extension in the reservoir at the withdrawal point. This extension would pull water from higher in the reservoir, where metal concentrations are expected to be lower. • Pump water from the top of Sites Reservoir for release into Stone Corral Creek. Based on the demonstration of the effect of partial settling of suspended sediment on total metal concentrations in Sites Reservoir and the conservative nature of this assessment, metal concentrations in Sites Reservoir are generally expected to meet water quality standards for metals for the protection of aquatic life during the drier parts of the year in water located above the deepest portions of the reservoir. • • Discontinue or delay releases. The flow regime for Sites Reservoir releases to Stone Corral Creek has not yet been established, but it is likely to be similar to the natural hydrograph. If Sites Reservoir releases to Stone Corral Creek exceed the objective described above (exceed thresholds for aquatic life protection during the drier parts of the year when exceedances would not be expected), releases could be discontinued in the spring or delayed in the fall without substantial deviation from the flow pattern of the natural hydrograph. 						
<p>WQ-2.2: Prevent Net Detrimental Metal and Pesticide Effects Associated with Moving Colusa Basin Drain Water Through the Yolo Bypass</p> <p>The effect of the Project on metal and pesticide concentrations in the Yolo Bypass due to increased inflow from the CBD is uncertain and therefore considered potentially significant without mitigation. Flow augmentation with other water sources is continuing to be evaluated with oversight from the Delta Coordination Group. The effect of Yolo Bypass flow augmentation on pesticide levels in water and plankton is under investigation by the U.S. Geological Survey and DWR (Orlando et al. 2020:99). This mitigation measure provides for monitoring of metal concentrations in the Yolo Bypass and for cessation of flows from the Project to the Yolo Bypass if needed for avoiding significant impacts.</p> <p>To monitor metal concentrations, metal concentrations will be measured in samples collected at the downstream end of the CBD and at two locations in the Yolo Bypass, one in the Tule Canal and the other in the Toe Drain. Samples will be collected monthly during June–October to evaluate concentrations before and during the period of CBD discharge to the Yolo Bypass.</p> <p>If the pesticide studies indicate that flow augmentation would increase pesticide concentrations to a level that could be detrimental to fish or if the metal measurements</p>	<p>Impact WQ-2: Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface water quality during operation</p> <p>Impact FISH-8: Operations effects on delta smelt</p>	Operations	Compliance reporting; monitoring	As needed	Authority	Date: _____ Action Taken:

Mitigation Text	Impact # and Impact Title	Phase	Implementation Action	Reporting Schedule	Implementation Responsibility	Record of Implementation
<p>indicate that the Project habitat flows could cause Yolo Bypass concentrations of metals to exceed water quality standards for aquatic life protection, the potential net effects of these elevated concentrations on aquatic communities will be evaluated. Net effects include additive or synergistic effects, effects on food supply for fish, and direct effects on fish. This evaluation will be part of the ongoing evaluation conducted by CDFW and other agencies to determine net benefits of the Yolo Bypass habitat flows and the Project's funded ecosystem benefits under the WSIP. CDFW would have the discretion to modify WSIP water that is released to Yolo Bypass, depending on the state of the science and fish needs, and flows would cease if there were no net benefit.</p>						
Vegetation and Wetland Resources						
<p>VEG-1.1: Conduct Appropriately Timed Surveys for Special-Status Plant Species Prior to Construction Activities</p> <p>The Authority will require qualified botanists to conduct special-status plant surveys of the Project footprint, including all permanent and temporary construction impact areas and a 250-foot-wide buffer area to encompass areas where indirect effects may occur. The surveys will be conducted in accordance with <i>Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities</i> (California Department of Fish and Wildlife 2018), or the most current protocols, specifically with respect to the number and timing of surveys, use of reference populations, and evaluation of negative findings. Surveys will occur during the seasons that special-status plant species would be evident and identifiable, which generally is during their blooming periods. The surveys will be conducted no more than 3 years prior to the start of ground-disturbing activities. The results of the surveys will be submitted in a report to CDFW and/or USFWS for review no less than 1 year prior to the start of ground-disturbing activities.</p> <p>The survey report will include the location and description of all work areas and the location and description of all occupied habitat for special-status plant species. The report will also identify locations where effective avoidance measures could be implemented. In areas where no special-status plant species are present, no further mitigation will be required.</p>	<p>Impact VEG-1: Substantial adverse effect (i.e., loss or removal), either directly or through habitat modifications, on plant species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service</p>	Preconstruction	Contract requirements; compliance reporting; surveys	No less than 1 year prior to the start of ground-disturbing activities	Authority; Contractor; Qualified Botanist	Date: _____ Action Taken:
<p>VEG-1.2: Establish Activity Exclusion Zones Around Special-Status Plants in Temporary Impact Areas and Compensate for Permanent Impacts on Special-Status Plant Species</p> <p>Where surveys conducted according to Mitigation Measure VEG-1.1 determine that a special-status plant species is present in or adjacent to an area where temporary ground-disturbing activities would take place, the Authority will avoid Project impacts on the species, if feasible, through the establishment of activity exclusion zones, in which no ground-disturbing activities will take place, including construction staging or other temporary work areas. Activity exclusion zones for special-status plant species will be a minimum of 50 feet established around each occupied habitat site, the boundaries of which will be clearly marked with construction exclusion fencing or its equivalent. The establishment of activity exclusion zones will not be required if no construction-related disturbances will occur within 250 feet of the occupied habitat. The size of activity exclusion zones may be reduced below 50 feet through consultation with a qualified biologist and with concurrence from CDFW or, for any federally listed species, from USFWS based on site-specific conditions.</p> <p>If exclusion zones cannot feasibly be established for avoidance, and construction would result in take of federally listed or state-listed plants or plant parts (roots, shoots, fruit, or</p>	<p>Impact VEG-1: Substantial adverse effect (i.e., loss or removal), either directly or through habitat modifications, on plant species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service</p> <p>Impact VEG-4: Conflict with any local policies or ordinances protecting vegetation resources (including wetlands and non-wetland waters), such as a tree preservation policy or ordinance</p>	Preconstruction; construction; operations	Contract requirements; compliance reporting; surveying; monitoring; exclusion fencing	Annually	Authority; Contractor; Mitigation Manager; Qualified Biologist	Date: _____ Action Taken:

Mitigation Text	Impact # and Impact Title	Phase	Implementation Action	Reporting Schedule	Implementation Responsibility	Record of Implementation
<p>seeds), the Authority will apply for take authorization through an Incidental Take Permit from USFWS for any federally listed plant or CDFW for any state-listed plant.</p> <p>Prior to any construction activities that would result in permanent impacts on special-status plants, the Authority will acquire and permanently protect compensatory mitigation habitat for each affected species at a minimum 2:1 ratio (2 acres preserved for every 1 acre permanently affected), but the final compensation ratios will be based on site-specific information and determined through coordination with the applicable state and/or federal agencies (CDFW, USFWS) during permit processing. The compensation acreage used for the ratio will be based on the area of impact as determined by surveys required under Mitigation Measure VEG-1.1. Compensatory mitigation will be accomplished by procurement of existing onsite or offsite occupied habitat acquired in fee, through conservation easements, or by purchasing credits from a certified conservation bank or mitigation bank. The purchase of mitigation credits or the establishment of onsite or offsite mitigation areas (or a combination of the two) would be completed as agreed upon by the Authority, USFWS, and/or CDFW, as appropriate for the species being mitigated. If onsite or offsite occupied habitat is acquired (permittee-responsible mitigation), the habitat will require monitoring by the Authority. If credits are purchased from a certified bank, no further monitoring will be required.</p> <p>The Authority will monitor any permittee-responsible mitigation habitat annually for a minimum of 5 years, or as required by the regulating agency, to verify that the habitat suitability and extent of species cover are maintained. For these mitigation areas, the Authority will prepare and implement an operations and management plan for each compensation habitat, with funding provided through an endowment. The plan will include requirements to monitor the occupied habitat, including the special-status species absolute and relative cover, cover of other native species, and cover of invasive species. The plan will also be consistent with the LMP and will determine and implement appropriate management measures to maintain the habitat and the plant species cover at the same or greater extent as when the occupied habitat was acquired. Management measures may include removal of invasive plant species. The Authority will submit annual monitoring reports to CDFW or, for any federally listed species to USFWS, for review and verification that the Project remains in compliance with the mitigation requirements.</p>						
<p>VEG-1.3: Establish Activity Exclusion Zones Around Special-Status Plants Prior to Vegetation Maintenance Activities</p> <p>Prior to surface-disturbing maintenance or herbicide use, the Authority will use the results of the surveys conducted under Mitigation Measure VEG-1.1 to mark the known locations of special-status plants in or within 50 feet of any maintenance areas. Prior to maintenance requiring surface disturbance or vegetation removal in annual grassland, chaparral, oak woodland and savanna, and wetlands, the Authority will require qualified botanists to conduct special-status plant surveys of the maintenance areas. If any special-status plants are found in or within 50 feet of the maintenance areas, the Authority will fence and avoid the plants that could be affected by surface-disturbing maintenance activities.</p>	<p>Impact VEG-1: Substantial adverse effect (i.e., loss or removal), either directly or through habitat modifications, on plant species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service</p>	Operations	Surveys; exclusion fencing	None	Authority; Contractor; Qualified Botanist	Date: _____ Action Taken:
<p>VEG-2.1: Conduct Surveys for Sensitive Natural Communities and Oak Woodlands in the Project Area Prior to Construction Activities</p> <p>Prior to the start of any Project construction activities, the Authority will retain qualified botanists to conduct surveys of the Project area, including all permanent and temporary impact areas and an additional buffer of 250 feet to encompass potential indirectly affected areas. The surveys will be conducted in accordance with <i>Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities</i></p>	<p>Impact VEG-2: Substantial adverse effect (i.e., loss or removal) on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service</p>	Preconstruction; construction	Compliance reporting; surveys	No less than 90 days prior to the start of ground-disturbing activities	Authority; Contractor; Qualified Botanist	Date: _____ Action Taken:

Mitigation Text	Impact # and Impact Title	Phase	Implementation Action	Reporting Schedule	Implementation Responsibility	Record of Implementation
<p>(California Department of Fish and Wildlife 2018), or most current protocols. Surveys will occur during the season that plant species would be evident and identifiable, which generally is during their blooming season. Surveys will also include assessment of SRA cover, using standard methods for measuring linear feet and area, in all permanent and temporary impact areas. The surveys will be conducted no more than 3 years prior to the start of ground-disturbing activities.</p> <p>The results of the survey will be submitted in a report to CDFW and/or USFWS for review no less than 90 days prior to the start of ground-disturbing activities. The report will include the location and description of all work areas and the location and description of all sensitive natural communities and oak woodlands, and it will identify locations where effective avoidance measures could be implemented. In areas where no sensitive natural communities or oak woodlands are present, no further mitigation will be required.</p>	<p>Impact VEG-4: Conflict with any local policies or ordinances protecting vegetation resources (including wetlands and non-wetland waters), such as a tree preservation policy or ordinance</p> <p>Impact VEG-5: Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan</p> <p>Impact FISH-1: Construction effects on special-status fish</p>					
<p>VEG-2.2: Avoid and Compensate for Adverse Effects on Sensitive Natural Communities</p> <p>Where surveys determine that a sensitive natural community is present in or adjacent to an area where temporary ground-disturbing activities would take place, the Authority will avoid Project impacts on the community, if feasible, through the establishment of activity exclusion zones, in which no ground-disturbing activities will take place, including construction staging or other temporary work areas. Activity exclusion zones for sensitive natural communities will be a minimum of 50 feet established around each community site, the boundaries of which will be clearly marked with construction exclusion fencing or its equivalent. The establishment of activity exclusion zones will not be required if no construction-related disturbances will occur within 250 feet of the sensitive natural community. The size of activity exclusion zones may be reduced below 50 feet through consultation with a qualified biologist and with concurrence from CDFW or, for any federally protected communities of concern, from USFWS based on site-specific conditions.</p> <p>Prior to any activities that would result in permanent impacts on sensitive natural communities, the Authority will acquire and permanently protect compensation habitat for each affected sensitive natural community at a minimum 1:1 ratio (1 acre restored or created for every 1 acre removed), or by an equivalent or greater requirement determined through coordination with state and/or federal agencies (CDFW, USFWS) during permit processing. The compensation acreage used for the ratio will be based on the area of impact as determined by surveys required under Mitigation Measure VEG-2.1. In addition to mitigating the loss of riparian habitat, specific measures will be included, as detailed in Impact FISH-1, to compensate for the loss of SRA cover (area and linear feet), as portions of the affected riparian habitat also provide SRA cover for fish. Loss of SRA cover will be mitigated at a ratio of 3:1 or by an equivalent or greater requirement determined through coordination with state and/or federal agencies (CDFW, USFWS, and NMFS). The mitigation credits for SRA cover mitigation will apply toward riparian habitat mitigation requirements (i.e., the acreage required for compensation will not be duplicated).</p> <p>Compensation habitat for sensitive natural communities will consist of existing onsite or offsite in-kind habitat acquired in fee, through conservation easements, or from by purchasing credits from a certified conservation bank or mitigation bank. The purchase of mitigation credits or the establishment of onsite or offsite mitigation areas (or a combination of the two) would be completed as agreed upon by the Authority, CDFW, USFWS, and/or NMFS, as appropriate for the resource being mitigated. If onsite or offsite habitat is acquired (permittee-responsible mitigation), the habitat will require monitoring</p>	<p>Impact VEG-2: Substantial adverse effect (i.e., loss or removal) on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service</p> <p>Impact VEG-4: Conflict with any local policies or ordinances protecting vegetation resources (including wetlands and non-wetland waters), such as a tree preservation policy or ordinance</p> <p>Impact VEG-5: Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan</p> <p>Impact WILD-1: Substantial adverse effect (i.e., loss or removal), either directly or through habitat modifications, on wildlife species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.</p> <p>Impact WILD-2: Substantial interference with the movement of a native resident or migratory wildlife species or with established native resident or migratory wildlife corridors, or impediment of the use of native wildlife nursery sites</p>	Preconstruction; construction; postconstruction	Surveys; contract requirements; compliance reporting; exclusion fencing; monitoring; acquisition/funding	Annually	Authority; Contractor; Mitigation Manager; Qualified Biologist	Date: _____ Action Taken:

Mitigation Text	Impact # and Impact Title	Phase	Implementation Action	Reporting Schedule	Implementation Responsibility	Record of Implementation
<p>by the Authority. If credits are purchased from a certified bank, no further monitoring will be required.</p> <p>The Authority will monitor any permittee-responsible mitigation areas annually for a period of 10 years for woodland habitats or 5 years for herbaceous habitats or more as required by CDFW or USFWS, to verify that the community suitability is maintained including survival and cover of plantings. For these mitigation areas, the Authority will prepare and implement an operations and management plan for each compensation community, with funding provided through an endowment. The plan will include requirements to monitor the mitigation areas, including comparisons between the mitigation habitat and a reference site of the same habitat retained in the preconstruction survey buffer area. Monitoring criteria may include survival, size, vigor, and percent cover of the dominant tree species for woodland habitats; percent cover of shrubs for riparian habitat and herbaceous species for grassland habitats; percent cover of invasive species for all sensitive community types; and any other relevant performance standards of the permittee-responsible mitigation required by agencies as part of the permits. In any years in which the performance standards are not met, causes for the failure, such as inadequate maintenance, irrigation, or other biotic factors will be assessed; remedial measures will be developed and implemented; and replacement plantings will be installed. The monitoring period for any subsequent plantings will restart from the date of planting. The Authority will submit annual monitoring reports to CDFW or, for any federally protected communities, to USFWS for review and verification that the Project remains in compliance with the mitigation.</p>	<p>Impact WILD-3: Conflict with any local policies or ordinances protecting wildlife resources</p> <p>Impact WILD-4: Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan</p> <p>Impact FISH-1: Construction effects on special-status fish</p>					
<p>VEG-2.3: Establish Activity Exclusion Zones Around Sensitive Natural Communities Prior to Vegetation Maintenance Activities</p> <p>The Authority will retain a qualified botanist to use the results of the surveys conducted under Mitigation Measure VEG-2.1 to mark the locations of sensitive natural communities in vegetation maintenance areas. The Authority will fence and avoid any parts of sensitive natural communities that occur in or within 50 feet of the vegetation maintenance areas that could be affected by surface-disturbing maintenance activities. The 50-foot distance could be reduced if there are existing barriers, such as roads or buildings, between the maintenance area and the sensitive natural community that would prevent movement of soil or any herbicides used for maintenance into the sensitive natural community. The fencing will allow for wildlife movement and the Authority will maintain the fencing throughout the operations period. Alternatively, if sensitive natural communities cannot be completely avoided, the size of the affected area will be minimized to the full extent possible. If the remaining impacts on sensitive natural communities as the result of vegetation maintenance activities added together exceed 0.1 acre, the Authority will implement additional compensatory mitigation based on the same requirements as described in Mitigation Measure VEG-2.2.</p>	<p>Impact VEG-2: Substantial adverse effect (i.e., loss or removal) on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service</p>	Operations	Contract requirements; compliance reporting; exclusion fencing; acquisition/funding	As needed	Authority; Contractor; Mitigation Manager; Qualified Botanist	Date: _____ Action Taken:
<p>VEG-3.1: Avoid and Minimize Disturbance of Wetlands and Non-Wetland Waters During Construction Activities</p> <p>To the extent practicable, the Authority will avoid and minimize impacts on wetlands and non-wetland waters during construction by implementing the measures listed below. These measures will be incorporated into contract specifications and implemented by the construction contractor. Compliance will be monitored by a qualified biologist and reported as indicated in BMP-35.</p> <ul style="list-style-type: none"> The roads, pipelines, electrical corridors, and recreation areas will be designed, to the extent practicable, to avoid direct and indirect impacts on wetlands and non-wetland waters. 	<p>Impact VEG-3: Substantial adverse effect (i.e., loss or removal) 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</p> <p>Impact VEG-4: Conflict with any local policies or ordinances protecting vegetation resources (including wetlands</p>	Construction	Contract requirements; compliance reporting; design; monitoring; exclusion fencing; funding/acquisition	As needed	Authority; Contractor; Mitigation Manager; Qualified Biologist	Date: _____ Action Taken:

Mitigation Text	Impact # and Impact Title	Phase	Implementation Action	Reporting Schedule	Implementation Responsibility	Record of Implementation
<ul style="list-style-type: none"> In wetlands and non-wetland waters that will be preserved, construction activities will be avoided in saturated or ponded natural wetlands and drainages during the wet season (spring and winter) to the maximum extent feasible. Where such activities are unavoidable, protective practices such as use of padding or vehicles with balloon tires will be employed. Exposed drainage banks and levees above drainages will be stabilized immediately following completion of construction activities. Non-wetland waters will be restored in a manner that encourages vegetation to reestablish to its pre-Project condition and reduces the effects of erosion on the drainage system. Any trees, shrubs, debris, or soils that are inadvertently deposited below the ordinary high-water mark of streams will be removed in a manner that minimizes disturbance of the drainage bed and bank. To the extent feasible, in-stream construction below the ordinary high-water mark of natural drainages will be restricted to the low-flow period (generally April through October). <p>Where wetlands or non-wetland waters (streams or ponds) are present in or adjacent to an area where temporary ground-disturbing activities would take place, the Authority will avoid Project impacts on wetlands, streams, and ponds through the establishment of activity exclusion zones, in which no ground-disturbing activities will take place, including construction staging or other temporary work areas. Activity exclusion zones will be established around each wetland and at the edges of each stream or pond, the boundaries of which will be clearly marked with construction exclusion fencing. The establishment of activity exclusion zones will not be required if no construction-related disturbances will occur in 250 feet of a wetland, stream, or pond. The size of activity exclusion zones may be reduced based on site-specific conditions, such as the presence of hydrologic or topographic barriers, through consultation with a qualified biologist and with concurrence from CDFW and/or State Water Board, for state-regulated wetlands and non-wetland waters or, from USACE for any federally protected wetlands or non-wetland waters. Where temporary impacts on wetlands, streams, or ponds cannot be avoided during construction, the impact will be compensated as a permanent impact, as outlined in Mitigation Measure VEG-3.2.</p>	<p>and non-wetland waters), such as a tree preservation policy or ordinance</p> <p>Impact VEG-5: Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan</p> <p>Impact WILD-1: Substantial adverse effect (i.e., loss or removal), either directly or through habitat modifications, on wildlife species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.</p> <p>Impact WILD-2: Substantial interference with the movement of a native resident or migratory wildlife species or with established native resident or migratory wildlife corridors, or impediment of the use of native wildlife nursery sites</p> <p>Impact WILD-3: Conflict with any local policies or ordinances protecting wildlife resources</p> <p>Impact WILD-4: Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan</p>					
<p>VEG-3.2: Compensate for Temporary and Permanent Impacts on State- or Federally Protected Wetlands</p> <p>For unavoidable temporary and permanent impacts on wetlands, the Authority will compensate for the loss by creation or acquisition and permanent protection of suitable wetland habitat to ensure no net loss of wetland habitat functions and values. Compensation will be provided for all permanent impacts and temporary impacts on wetlands that last longer than 1 year, and mitigation will be implemented immediately following temporary impacts and concurrent with or in advance of permanent impacts. Final compensation acreages will be based on the verified aquatic resources delineation and through the CWA Section 404 and 401 permitting process. Mitigation for temporary impacts will occur on site, if feasible. Compensation will also be in compliance with the <i>Regional Compensatory Mitigation and Monitoring Guidelines for South Pacific Division</i> (U.S. Army Corps of Engineers 2015). Any permanent impact on wetlands will be mitigated by creating or preserving wetlands at a minimum 1:1 ratio (1 acre restored or created for every 1 acre filled), but the final compensation ratios may include additional compensation and will be based on site-specific information and determined through coordination with</p>	<p>Impact VEG-3: Substantial adverse effect (i.e., loss or removal) 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</p> <p>Impact VEG-4: Conflict with any local policies or ordinances protecting vegetation resources (including wetlands and non-wetland waters), such as a tree preservation policy or ordinance</p> <p>Impact VEG-5: Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved</p>	Construction; postconstruction	Compliance reporting; funding/acquisition; design	At the completion of each monitoring period	Authority; Mitigation Manager; Qualified Biologist	Date: _____ Action Taken:

Mitigation Text	Impact # and Impact Title	Phase	Implementation Action	Reporting Schedule	Implementation Responsibility	Record of Implementation
<p>state and federal agencies (State Water Board, USACE) during permit processing. Where wetland impacts overlap with listed species impacts, mitigation will be coordinated for both resources and will not be duplicated.</p> <p>Wetland mitigation will consist of replacement habitat that may be a combination of the following two options, purchase of mitigation bank credits and permittee-responsible mitigation. The purchase of mitigation credits or the establishment of onsite or offsite mitigation areas (or a combination of the two) would be completed as agreed upon by the Authority, USACE, State Water Board, and/or CDFW, as appropriate for the resource being mitigated. Purchase of mitigation bank credits will be the preferred compensation method to reduce the risk and uncertainty of mitigation success and avoid temporal losses of wetland function during the establishment phase of wetland creation or restoration.</p> <ul style="list-style-type: none"> The Authority will purchase offsite mitigation bank credits for the affected wetland type (i.e., forested wetland [riparian], freshwater marsh, scrub-shrub wetland [riparian], seasonal wetland) at a USACE-approved and CDFW-approved mitigation bank to allow for economy of scale and higher quality habitat due to large patch size. Preference will also be for a mitigation bank in the same watershed as the affected wetlands. The Authority will provide written evidence to the resource agencies that compensation has been established through the purchase of mitigation credits. The Authority will not be required to monitor mitigation credit wetlands. For permittee-responsible mitigation, the Authority will retain a qualified restoration biologist to develop a wetland restoration and monitoring plan that involves creating or enhancing the affected wetland type (i.e., forested wetland [riparian], freshwater marsh, scrub-shrub wetland [riparian], seasonal wetland) in open space in the Project area or at an offsite location. The Authority will coordinate with CDFW, USACE, and the State Water Board for final plan approval prior to the removal of any wetland habitat and will ensure implementation of the wetland restoration plan. The plan will be based on the Project alternative selected and the extent of wetlands at the time of construction. The plan will identify how, where, and when mitigation will occur, monitoring and maintenance activities, success criteria, funding assurances, appropriate long-term management measures, and agency reporting requirements. The plan will include a species list and specify the number of each species, planting locations, and maintenance requirements. Plantings will use an appropriate method (i.e., seed, container plant, or plug) for the best survival potential and cost efficiency. The extent of planting will ensure that the required mitigation ratio will be reached by the end of the monitoring period and that stem density, canopy cover, and species composition requirements are met. Species seeded will be similar to those removed from the Project area and will consist of inoculum taken from the affected wetlands. The survival rates and vegetative cover of wetland plantings and wetland hydrology will be monitored annually for 5 years, or an equivalent or longer period as required in the Project permits and compared with nearby undisturbed reference wetlands. Progress reports will be provided to the USACE and the State Water Board at the completion of each monitoring period. If the percent vegetative cover of wetland plants is equivalent to reference sites at the end of the monitoring period, the revegetation will be considered successful. Planting survival requirements will be 70% at the end of 5 years, or greater, if required by the Project permits. If the survival criterion of 70% is not met in any monitoring year or at the end of the monitoring period, planting and monitoring will be repeated after mortality causes have been identified and remedial measures have been implemented, and the monitoring period will be extended to account for the required number of 	<p>local, regional, or state habitat conservation plan</p> <p>Impact WILD-1: Substantial adverse effect (i.e., loss or removal), either directly or through habitat modifications, on wildlife species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.</p> <p>Impact WILD-2: Substantial interference with the movement of a native resident or migratory wildlife species or with established native resident or migratory wildlife corridors, or impediment of the use of native wildlife nursery sites</p> <p>Impact WILD-3: Conflict with any local policies or ordinances protecting wildlife resources</p> <p>Impact WILD-4: Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan</p> <p>Impact FISH-1: Construction effects on special-status fish</p>					

Mitigation Text	Impact # and Impact Title	Phase	Implementation Action	Reporting Schedule	Implementation Responsibility	Record of Implementation
<p>monitoring years for all plantings. Mitigation sites will be protected in perpetuity in a conservation easement or through deed restriction.</p>						
<p>VEG-3.3: Compensate for Temporary and Permanent Impacts on State- or Federally Protected Non-Wetland Waters</p> <p>For unavoidable temporary and permanently affected streams and ponds, the Authority will compensate for the loss by creation or acquisition and permanent protection of suitable open-water habitat to ensure no net loss of stream or pond habitat functions and values. Compensation will be provided for all permanent impacts and temporary impacts on non-wetland waters that last longer than 1 year, and mitigation will be implemented immediately following temporary impacts and concurrent with or in advance of permanent impacts. Final compensation acreages will be based on the verified aquatic resources delineation and through the CWA Section 404 and 401 permitting process. Mitigation for temporary impacts will occur on site, if feasible. Compensation will also be in compliance with the <i>Regional Compensatory Mitigation and Monitoring Guidelines for South Pacific Division</i> (U.S. Army Corps of Engineers 2015). Any permanent effect on open-water habitat will be mitigated by creating or preserving habitat at a 1:1 ratio (1 acre restored or created for every 1 acre filled), or by an equivalent or greater requirement as determined through coordination with state and federal agencies (State Water Board, USACE) during permit processing. Compensation will be provided for all permanent impacts and temporary impacts on non-wetland waters that last longer than 1 year, and mitigation will be implemented concurrent with or in advance of construction-related impacts. Final compensation acreages will be based on the verified aquatic resources delineation and through the CWA Section 404 and 401 permitting process. Where stream or pond impacts overlap with listed species impacts, mitigation will be coordinated for both resources and not be duplicated.</p> <p>Stream and pond mitigation will consist of replacement habitat that may be a combination of the following two options, which include purchase of mitigation bank credits and permittee-responsible mitigation. The purchase of mitigation credits or the establishment of onsite or offsite mitigation areas (or a combination of the two) would be completed as agreed upon by the Authority, USACE, State Water Board, and/or CDFW, as appropriate for the resource being mitigated. Purchase of mitigation bank credits will be the preferred compensation method to reduce the risk and uncertainty of mitigation success and avoid temporal losses of stream and pond functions during the establishment phase of creation or restoration.</p> <ul style="list-style-type: none"> The Authority will purchase offsite mitigation bank credits at a USACE-approved and CDFW-approved mitigation bank. Out-of-kind compensation may be used based for stream or pond, if approved by the regulatory agencies. Preference will also be for a mitigation bank in the same watershed as the affected streams and ponds. The Authority will provide written evidence to the USACE and State Water Board that compensation has been established through the purchase of mitigation credits. The Authority will not be required to monitor mitigation credit non-wetland waters. For permittee-responsible mitigation, the Authority will retain a qualified restoration biologist to develop a non-wetland restoration and monitoring plan that involves creating or enhancing the affected water type (i.e., ephemeral, intermittent, or perennial stream, or pond) in open space in the Project area or at an offsite location. The Authority will coordinate with CDFW, USACE, and the State Water Board for final plan approval prior to the removal of any stream or pond habitat and will ensure implementation of the restoration plan. The plan will be based on the Project 	<p>Impact VEG-3: Substantial adverse effect (i.e., loss or removal) 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</p> <p>Impact VEG-4: Conflict with any local policies or ordinances protecting vegetation resources (including wetlands and non-wetland waters), such as a tree preservation policy or ordinance</p> <p>Impact VEG-5: Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan</p> <p>Impact WILD-1: Substantial adverse effect (i.e., loss or removal), either directly or through habitat modifications, on wildlife species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.</p> <p>Impact WILD-2: Substantial interference with the movement of a native resident or migratory wildlife species or with established native resident or migratory wildlife corridors, or impediment of the use of native wildlife nursery sites</p> <p>Impact WILD-3: Conflict with any local policies or ordinances protecting wildlife resources</p> <p>Impact WILD-4: Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan</p> <p>Impact FISH-1: Construction effects on special-status fish</p>	<p>Construction; postconstruction</p>	<p>Compliance reporting; funding/acquisition; monitoring</p>	<p>At the completion of each monitoring period</p>	<p>Authority; Mitigation Manager</p>	<p>Date: _____ Action Taken:</p>

Mitigation Text	Impact # and Impact Title	Phase	Implementation Action	Reporting Schedule	Implementation Responsibility	Record of Implementation
<p>alternative selected and the Extent of streams and ponds at the time of construction. The plan will identify how, where, and when mitigation will occur, monitoring and maintenance activities, success criteria, funding assurances, appropriate long-term management measures, and agency reporting requirements. The plan will include grading specifications and design information for creation of stream and pond habitat. The bank stability and downcutting of streams and hydrology of ponds will be monitored annually for a minimum of 5 years, or as required in the Project permits. Progress reports will be provided to the USACE and the State Water Board at the completion of each monitoring period. If stream and pond structure and stability are retained at the end of the monitoring period, the mitigation will be considered successful. If the stream stability or pond hydrology is not met in any monitoring year or at the end of the monitoring period, remedial measures will be implemented, and the monitoring period will be extended to account for the required number of monitoring years. Mitigation sites will be protected in perpetuity in a conservation easement or through deed restriction.</p>						
<p>VEG-3.4: Establish Activity Exclusion Zones Around Wetlands and Non-Wetland Waters Prior to Vegetation Maintenance Activities</p> <p>The Authority will retain a wetland specialist to mark the boundaries of wetlands and non-wetland waters in vegetation maintenance areas using the verified aquatic resources delineation prepared for Project permitting. If wetlands or non-wetland waters occur in or within 50 feet of the vegetation maintenance areas, the wetlands or non-wetland waters will be fenced and avoided by all surface-disturbing maintenance activities. Alternatively, if wetlands and non-wetland waters cannot be completely avoided, the size of the affected area will be minimized to the full extent possible. The Authority will implement additional compensatory mitigation that is based on the same requirements as those specified in Mitigation Measures VEG-3.2 and VEG-3.3 for any remaining impacts on wetlands or non-wetland waters from vegetation maintenance activities.</p>	<p>Impact VEG-3: Substantial adverse effect (i.e., loss or removal) 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</p>	Operations	Contract requirements; compliance reporting; exclusion fencing; acquisition/funding	At the completion of each monitoring period, if necessary	Authority; Contractor; Mitigation Manager; Qualified Biologist	Date: _____ Action Taken:
<p>VEG-4.1: Avoid and Minimize Potential Adverse Effects on Oak Woodlands During Construction</p> <p>Where surveys determine that oak woodlands are present in or adjacent to an area where temporary ground-disturbing activities would take place, the Authority will avoid impacts on oak woodlands through the establishment of activity exclusion zones, within which no ground-disturbing activities will take place, including construction staging or other temporary work areas. Activity exclusion zones for oak woodlands will be established at the edges of oak woodland habitat that is within 50 feet of construction activity, the boundaries of which will be clearly marked with construction exclusion fencing. The establishment of activity exclusion zones will not be required if no construction-related disturbances will occur within 50 feet of an oak woodland.</p> <p>The following measures will also be implemented during construction of each Project component to protect and minimize effects on retained oak woodland trees that are adjacent to construction activities.</p> <ul style="list-style-type: none"> The potential for long-term loss of woody vegetation will be minimized by pruning vegetation rather than removing entire trees or shrubs in areas where complete removal is not required. Any trees or shrubs that need to be trimmed will be cut at least 1 foot above ground level to leave the root systems intact and allow for more rapid regeneration. Cutting will be limited to the minimum area necessary in the construction zone. To protect nesting birds, no pruning or removal of woody vegetation will be performed between February 1 and August 31 without preconstruction bird surveys 	<p>Impact VEG-4: Conflict with any local policies or ordinances protecting vegetation resources (including wetlands and non-wetland waters), such as a tree preservation policy or ordinance</p> <p>Impact VEG-5: Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan</p> <p>Impact WILD-1: Substantial adverse effect (i.e., loss or removal), either directly or through habitat modifications, on wildlife species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.</p>	Construction	Contract requirements; exclusion fencing	None	Authority; Contractor	Date: _____ Action Taken:

Mitigation Text	Impact # and Impact Title	Phase	Implementation Action	Reporting Schedule	Implementation Responsibility	Record of Implementation
<p>conducted in accordance with CDFW and/or USFWS requirements, as described in Mitigation Measures WILD-1.22 and WILD-1.23, Conduct Vegetation Removal During the Non-Breeding Season of Nesting Migratory Birds and Conduct Preconstruction Surveys for Non-Raptor Nesting Migratory Birds and Implement Protective Measures if Found, respectively.</p> <ul style="list-style-type: none"> • Operation or parking of vehicles, digging, trenching, slope cuts, soil compaction, grading, paving, or placement of fill will be prohibited within 6 feet of the driplines of retained oak woodland trees. • Any offsite drainage will be directed in such a way as to prevent drainage into adjacent oak woodlands. 	<p>Impact WILD-2: Substantial interference with the movement of a native resident or migratory wildlife species or with established native resident or migratory wildlife corridors, or impediment of the use of native wildlife nursery sites</p> <p>Impact WILD-3: Conflict with any local policies or ordinances protecting wildlife resources</p> <p>Impact WILD-4: Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan</p>					
<p>VEG-4.2: Compensate for Adverse Effects on Oak Woodlands</p> <p>Per protection of oak trees in oak woodland in Policy CON 1-9 from the Colusa County General Plan, the Authority, in coordination with Colusa County, will develop a management plan for the protection and enhancement of oak woodlands to offset the loss of oak woodlands. This plan will mitigate the loss of oak woodlands using one or more of the following options:</p> <ul style="list-style-type: none"> • Offsite deed restriction or conservation easement acquisition and/or acquisition in fee title by a land conservation organization for purposes of offsite oak woodland conservation; • In-lieu fee payment to the Oak Woodlands Conservation Fund; • Replacement planting onsite in an area subject to deed restriction or conservation easement; • Replacement planting off site in an area subject to a conservation easement; or • A combination of these options. <p>The establishment of offsite conservation areas, payment of an in-lieu fee, or onsite or offsite planting areas (or a combination of the options) would be completed as agreed upon by the Authority and Colusa County. Prior to any activities that would result in permanent impacts on oak woodlands, any permanent impacts to oak woodlands will be mitigated by creating or preserving oak woodlands at a 1:1 ratio (1 acre restored or created for every 1 acre removed), or by an equivalent or greater requirement as determined through coordination with Colusa County during permit processing. The compensation acreage used for the ratio will be based on the area of impact as determined by surveys required under Mitigation Measure VEG-2.1. In accordance with requirements of the California Oak Woodland Conservation Act (California Public Resources Code 21083.4), replacement planting will not account for more than 50% of the oak woodland mitigation requirement. Therefore, up to half of the oak woodland impact mitigation requirement will consist of onsite or offsite replacement planting. The replacement planting area must be suitable for tree planting, not conflict with current or planned land uses, and be large enough to accommodate replacement plantings at a density equal to the density of the affected oak woodlands, up to a maximum density of 200 trees per acre. The remaining portion of the oak woodland impact mitigation requirement will be implemented in the form of an in-lieu fee payment to the state or to the county in which the oak woodland is affected.</p>	<p>Impact VEG-4: Conflict with any local policies or ordinances protecting vegetation resources (including wetlands and non-wetland waters), such as a tree preservation policy or ordinance</p> <p>Impact VEG-5: Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan</p> <p>Impact WILD-1: Substantial adverse effect (i.e., loss or removal), either directly or through habitat modifications, on wildlife species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.</p> <p>Impact WILD-2: Substantial interference with the movement of a native resident or migratory wildlife species or with established native resident or migratory wildlife corridors, or impediment of the use of native wildlife nursery sites</p> <p>Impact WILD-3: Conflict with any local policies or ordinances protecting wildlife resources</p> <p>Impact WILD-4: Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved</p>	Construction; postconstruction	Contract requirements; compliance reporting; design; acquisition/funding	Annually	Authority; Mitigation Manager	Date: _____ Action Taken:

Mitigation Text	Impact # and Impact Title	Phase	Implementation Action	Reporting Schedule	Implementation Responsibility	Record of Implementation
<p>The Authority will prepare and implement a mitigation and monitoring plan for oak woodlands, with funding provided through an endowment. The plan will include requirements to implement appropriate management measures to maintain the oak woodlands. The Authority will monitor oak woodland plantings annually for at least 5 years to verify that the habitat quality is maintained and meets success criteria. Success criteria for oak woodland plantings may include criteria such as survival of plantings, tree vigor, tree diameter, and tree canopy size. Planting survival requirements will be 70% at the end of 5 years with at least fair or good vigor, or as required by Colusa County. The plan will also coordinate with the LMP and will determine and implement appropriate management measures to maintain the community and meet monitoring performance standards. If the survival and vigor criteria are not met in any monitoring year or at the end of the monitoring period, planting and monitoring will be repeated after mortality or insufficient growth causes have been identified and remedial measures have been implemented, and the monitoring period will be extended to account for the required number of monitoring years for all plantings. Mitigation sites will be protected in perpetuity in a conservation easement or through deed restriction.</p>	<p>local, regional, or state habitat conservation plan</p>					
<p>VEG-4.3: Establish Activity Exclusion Zones Around Blue Oak Woodlands Prior to Vegetation Maintenance Activities</p> <p>The Authority will retain qualified botanists to mark the locations of blue oak woodlands in vegetation maintenance areas using the results of the surveys conducted under Mitigation Measure VEG-2.1. If blue oak woodland occurs in or within 50 feet of the vegetation maintenance areas, the outer dripline of the woodland canopy will be fenced and avoided by all surface-disturbing maintenance activities. Alternatively, if blue oak woodlands cannot be completely avoided, the size of the affected area will be minimized to the full extent possible. If the remaining impacts on blue oak woodland by vegetation maintenance activities exceed 0.1 acre, the Authority will implement additional compensatory mitigation based on the same requirements as described in Mitigation Measure VEG-4.2.</p>	<p>Impact VEG-4: Conflict with any local policies or ordinances protecting vegetation resources (including wetlands and non-wetland waters), such as a tree preservation policy or ordinance</p>	<p>Operations</p>	<p>Contract requirements; compliance reporting; exclusion fencing; acquisition/funding</p>	<p>Annually, if required</p>	<p>Authority; Qualified Botanists</p>	<p>Date: _____ Action Taken:</p>
<p>Wildlife Resources</p>						
<p>WILD-1.1: Assess Habitat Suitability and Survey Suitable Habitat for Vernal Pool Branchiopods</p> <p>Once property access is granted and prior to the start of construction, the Authority will retain qualified biologists to assess habitat suitability and conduct surveys for vernal pool branchiopods in the Project area and where modeled habitat is within 250 feet of the Project area and indirect effects may occur. Qualified biologists are defined as those who have a recovery permit from USFWS to conduct surveys for listed vernal pool branchiopods. The surveys will be conducted in accordance with the <i>Survey Guidelines for the Listed Large Branchiopods</i>, which recommend surveys at 14-day intervals after initial inundation of habitat until the habitat dries or it has been inundated for a minimum of 90 consecutive days (U.S. Fish and Wildlife Service 2015b). Surveys in accordance with the guidelines take a minimum of 1 year to complete and will be initiated early enough to allow completion before the start of construction. The biologists will submit the results of the surveys in a report to USFWS, per the requirements of the biologists' recovery permits.</p>	<p>Impact WILD-1: Substantial adverse effect (i.e., loss or removal), either directly or through habitat modifications, on wildlife species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.</p> <p>Impact WILD-2: Substantial interference with the movement of a native resident or migratory wildlife species or with established native resident or migratory wildlife corridors, or impediment of the use of native wildlife nursery sites</p> <p>Impact WILD-3: Conflict with any local policies or ordinances protecting wildlife resources</p>	<p>Preconstruction</p>	<p>Compliance reporting; surveying</p>	<p>Following completion of survey</p>	<p>Authority; Qualified Biologist</p>	<p>Date: _____ Action Taken:</p>

Mitigation Text	Impact # and Impact Title	Phase	Implementation Action	Reporting Schedule	Implementation Responsibility	Record of Implementation
	<p>Impact WILD-4: Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan</p>					
<p>WILD-1.2: Avoid and Minimize Potential Effects on Vernal Pool Branchiopods and Western Spadefoot</p> <p>The following steps will be taken to avoid or minimize potential effects on vernal pool branchiopods and western spadefoot.</p> <ul style="list-style-type: none"> • Ground disturbance within 250 feet of occupied habitat or suitable habitat that has not been surveyed that would not be directly affected will be avoided during the rainy season (approximately October 15 through May 15). Compensation will be provided for habitat occupied by listed vernal pool branchiopods that cannot be avoided during the rainy season (Mitigation Measure WILD-1.3). • If a portion of occupied vernal pool branchiopod or western spadefoot habitat will be filled (i.e., permanent impacts), the filling will be conducted when the habitat is completely dry. • If requested by USFWS, the top 3 to 4 inches of soil of pools occupied by listed or unlisted vernal pool branchiopods that would be destroyed or completely filled will be removed and stored in the Project area until ready for placement in created or restored habitat outside of the Project footprint. The topsoil will be covered with tarps or other appropriate material and orange construction barrier fencing or stakes and flagging will be installed around the covered topsoil. A qualified biologist will be on site to monitor the removal and covering of the topsoil during periodic monitoring visits to the Project area. The stored topsoil will be spread over the bottom of created or restored pools prior to the start of the winter rainy season. 	<p>Impact WILD-1: Substantial adverse effect (i.e., loss or removal), either directly or through habitat modifications, on wildlife species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.</p> <p>Impact WILD-2: Substantial interference with the movement of a native resident or migratory wildlife species or with established native resident or migratory wildlife corridors, or impediment of the use of native wildlife nursery sites</p> <p>Impact WILD-3: Conflict with any local policies or ordinances protecting wildlife resources</p> <p>Impact WILD-4: Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan</p>	Construction	Contract requirements; compliance reporting; monitoring; exclusion fencing; acquisition/funding	As needed	Authority; Mitigation Manager; Qualified Biologist	Date: _____ Action Taken:
<p>WILD-1.3: Compensate for Impacts on Occupied Vernal Pool Branchiopod Habitat</p> <p>The Authority will compensate for direct and indirect effects on occupied vernal pool branchiopod habitat through the purchase of mitigation credits at a USFWS-approved mitigation or conservation bank or through acquiring, creating, restoring and/or protecting habitat in perpetuity at a location approved by USFWS. Direct and indirect effects on occupied habitat will be mitigated by preserving occupied habitat at a 2:1 ratio (habitat preserved : habitat directly or indirectly affected) or by an equivalent or greater amount as determined during ESA Section 7 consultation with USFWS. In addition, direct effects on occupied habitat will be mitigated by creating or preserving occupied habitat at a 1:1 ratio (habitat created : habitat directly affected) or by an equivalent or greater amount as determined during ESA Section 7 consultation with USFWS. The purchase of mitigation credits or the establishment of onsite or offsite mitigation areas (or a combination of these options) would be completed as agreed upon by the Authority, Reclamation, and USFWS. USFWS-approved conservation banks have long-term adaptive management plans with performance standards. Therefore, if mitigation is through a USFWS-approved conservation bank, the bank's performance standards and success criteria will be applied.</p>	<p>Impact WILD-1: Substantial adverse effect (i.e., loss or removal), either directly or through habitat modifications, on wildlife species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.</p> <p>Impact WILD-2: Substantial interference with the movement of a native resident or migratory wildlife species or with established native resident or migratory wildlife corridors, or impediment of the use of native wildlife nursery sites</p>	Construction; postconstruction	Compliance reporting; surveying; acquisition/funding	As needed	Authority; Mitigation Manager; Qualified Biologist	Date: _____ Action Taken:

Mitigation Text	Impact # and Impact Title	Phase	Implementation Action	Reporting Schedule	Implementation Responsibility	Record of Implementation
<p>If credits are not purchased at a USFWS-approved conservation bank, the Authority will implement standards for long-term management and protection of conservation areas. The Authority will work closely with USFWS during the planning and development of conservation areas. Once established, conservation areas will be surveyed by a USFWS-approved biologist a minimum of two times per year during the wet season (generally November through April). The biologist will survey for the presence of listed vernal pool branchiopods, evaluate the adequacy of site protection (e.g., fencing, signage) and weed control, assess potential threats to vernal pool branchiopods, and take photographs of the site. The biologist will also survey a set of reference pools to compare to the preserved and created/restored pools. The reference pools should be located in proximity to the conservation area and exhibit characteristics similar to the preserved and created/restored pools.</p> <p>For non-mitigation bank compensation, the performance standard for occupancy of the created/restored pools by listed vernal pool branchiopods is a minimum of 5% of the total number of created/restored pools supporting listed vernal pool branchiopods over a 10-year monitoring period. A pool must be occupied at least once during the 10-year monitoring period to be considered occupied. If the performance standard cannot be achieved, the Authority and Reclamation will consult with USFWS to determine if the standard is not realistic based on data from other vernal pool surveys in the Project region and/or implement an alternative compensatory mitigation approach.</p> <p>Working closely with USFWS during planning and development of the conservation area, monitoring the conservation area to ensure performance standards are achieved, and applying adaptive management actions when the performance standard is not achieved will ensure that the compensatory mitigation is effective and compensates for the loss of occupied habitat resulting from the Project.</p>	<p>Impact WILD-3: Conflict with any local policies or ordinances protecting wildlife resources</p> <p>Impact WILD-4: Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan</p>					
<p>WILD-1.4: Evaluate and Survey Potential Habitat for Antioch Dunes Anthicid and Sacramento Anthicid Beetles and Implement Protective Measures</p> <p>The Authority will retain a qualified entomologist (experienced with anthicid beetle identification and habitat suitability) to assess and survey the area of potentially suitable habitat for Antioch Dunes anthicid and Sacramento anthicid beetles prior to the start of construction of the Sacramento River discharge. If suitable habitat is not present or no Antioch Dunes anthicid and Sacramento anthicid beetles are observed and the entomologist concurs that no further surveys are needed, no further actions are required. If either beetle species is observed, the entomologist will relocate the beetles to suitable habitat outside of the impact area. The entomologist will report observations of either beetle species to CDFW and submit occurrence data to the CNDDDB. The Authority will protect any suitable habitat in the vicinity of the work area that will not be affected with fencing or stakes and flagging. No construction related foot or vehicle traffic will be allowed in the fenced or flagged area. The Authority will remove fencing when construction of the Sacramento River discharge is complete.</p>	<p>Alternative 2 only:</p> <p>Impact WILD-1: Substantial adverse effect (i.e., loss or removal), either directly or through habitat modifications, on wildlife species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.</p> <p>Impact WILD-2: Substantial interference with the movement of a native resident or migratory wildlife species or with established native resident or migratory wildlife corridors, or impediment of the use of native wildlife nursery sites</p> <p>Impact WILD-3: Conflict with any local policies or ordinances protecting wildlife resources</p> <p>Impact WILD-4: Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved</p>	Preconstruction; construction; postconstruction	Contract requirements; compliance reporting; surveying; remedial action; exclusion fencing	As needed	Authority; Contractor; Qualified Entomologist	Date: _____ Action Taken:

Mitigation Text	Impact # and Impact Title	Phase	Implementation Action	Reporting Schedule	Implementation Responsibility	Record of Implementation
	local, regional, or state habitat conservation plan					
<p>WILD-1.5: Compensate for the Loss of Occupied Antioch Dunes Anthicid and Sacramento Anthicid Beetle Habitat</p> <p>The Authority will compensate for the permanent loss of occupied Antioch Dunes anthicid beetle and/or Sacramento anthicid beetle habitat by restoring disturbed habitat or preserving occupied habitat along the Sacramento River, preferably in the vicinity of the affected area, at a 1:1 ratio (acres restored or preserved : acres of permanent impact). The Authority will retain a qualified entomologist to assess habitat to be restored or preserved and provide guidance on habitat restoration. The Authority will retain a qualified entomologist to monitor the restored or preserved habitat annually for a minimum of 5 years. Monitoring will be conducted at the preserved area to ensure that habitat conditions are maintained at baseline conditions or better, that the habitat has not been degraded, and that it continues to be occupied by the beetle(s). If habitat is restored, the entomologist will conduct monitoring to ensure the restored habitat conditions are maintained, survey for beetle occupancy, and make adaptive management recommendations for habitat improvements. The Authority will submit monitoring reports that include habitat conditions, beetle occupancy information, and photographs to the CDFW annually. If either beetle is observed during habitat monitoring, the entomologist will submit occurrence information to the CNDDDB.</p>	<p>Alternative 2 only:</p> <p>Impact WILD-1: Substantial adverse effect (i.e., loss or removal), either directly or through habitat modifications, on wildlife species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.</p> <p>Impact WILD-2: Substantial interference with the movement of a native resident or migratory wildlife species or with established native resident or migratory wildlife corridors, or impediment of the use of native wildlife nursery sites</p> <p>Impact WILD-3: Conflict with any local policies or ordinances protecting wildlife resources</p> <p>Impact WILD-4: Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan</p>	Construction; postconstruction	Contract requirements; compliance reporting; surveying; monitoring; acquisition	Annually	Authority; Qualified Entomologist	Date: _____ Action Taken:
<p>WILD-1.6: Conduct Surveys for Suitable Valley Elderberry Longhorn Beetle Habitat</p> <p>The Authority will retain qualified biologists or botanists (i.e., with elderberry/valley elderberry longhorn beetle experience) to conduct surveys to identify and map locations of elderberry shrubs in work areas and within 165 feet of the work areas. For shrubs located in non-riparian areas, elderberry stems will be examined for the presence of valley elderberry beetle exit holes. This information will be used to determine the amount of compensation required for the loss of elderberry shrubs in accordance with the <i>Framework for Assessing Impacts to the Valley Elderberry Longhorn Beetle (Desmocerus californicus dimorphus)</i> (U.S. Fish and Wildlife Service 2017a). The biologist will mark elderberry shrubs in or within 165 feet of work areas with flagging for future removal or protection.</p>	<p>Impact WILD-1: Substantial adverse effect (i.e., loss or removal), either directly or through habitat modifications, on wildlife species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.</p> <p>Impact WILD-2: Substantial interference with the movement of a native resident or migratory wildlife species or with established native resident or migratory wildlife corridors, or impediment of the use of native wildlife nursery sites</p> <p>Impact WILD-3: Conflict with any local policies or ordinances protecting wildlife resources</p> <p>Impact WILD-4: Conflict with the provisions of an adopted Habitat</p>	Preconstruction; construction	Contract requirements; compliance reporting; surveying; exclusion fencing	As needed	Authority; Qualified Biologist/Botanist/ Entomologist	Date: _____ Action Taken:

Mitigation Text	Impact # and Impact Title	Phase	Implementation Action	Reporting Schedule	Implementation Responsibility	Record of Implementation
	Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan					
<p>WILD-1.7: Fence Elderberry Shrubs to be Protected</p> <p>Elderberry shrubs in or within 165 feet of work areas that will not be removed will be protected during construction. If not already marked, a qualified biologist will flag the elderberry shrubs that will be protected during construction. The Authority's contractor will install orange construction barrier fencing or stakes and flagging at the edge of the buffer areas established for each shrub and signs indicating the potential for beetle presence and excluding any Project activity within the buffer areas will be posted prior to the start of work. The buffer area distances will be proposed by the biologist and approved by USFWS. No construction activities will be permitted in the buffer area other than those activities necessary to erect the fencing or stakes and flagging without written permission from USFWS.</p> <p>If orange construction barrier fencing is used, it will be placed such that there is at least a 1-foot gap between the ground and the bottom of the orange construction fencing to minimize the potential for snakes and other ground-dwelling animals to become caught in the fencing. Buffer areas around elderberry shrubs will be inspected periodically by a qualified biologist until Project construction is complete or until the fences or staking/flagging are removed, as approved by the biological monitor and the resident engineer. The Authority's contractor will be responsible for maintaining the buffer area fences around elderberry shrubs throughout construction and removing the fencing or staking and flagging when construction is complete. The biologist's fencing inspection reports will be provided to the Authority.</p>	<p>Impact WILD-1: Substantial adverse effect (i.e., loss or removal), either directly or through habitat modifications, on wildlife species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.</p> <p>Impact WILD-2: Substantial interference with the movement of a native resident or migratory wildlife species or with established native resident or migratory wildlife corridors, or impediment of the use of native wildlife nursery sites</p> <p>Impact WILD-3: Conflict with any local policies or ordinances protecting wildlife resources</p> <p>Impact WILD-4: Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan</p>	Preconstruction; construction; postconstruction	Contract requirements; compliance reporting; monitoring; exclusion fencing	As needed	Authority; Contractor; Qualified Biologist	Date: _____ Action Taken:
<p>WILD-1.8: Transplant Permanently Affected Elderberry Shrubs and Compensate for Loss of Valley Elderberry Longhorn Beetle and its Habitat</p> <p>Before construction begins, the Authority will retain a qualified contractor to transplant elderberry shrubs that cannot be avoided to a USFWS-approved mitigation or conservation bank or other approved area in accordance with the <i>Framework for Assessing Impacts to the Valley Elderberry Longhorn Beetle (Desmocerus californicus dimorphus)</i> (U.S. Fish and Wildlife Service 2017a). Elderberry shrubs that cannot be avoided will be transplanted during the plant's dormant phase (November through the first 2 weeks of February). A qualified biological monitor will remain on site while the shrubs are being transplanted. Additionally, the Authority will compensate for permanent impacts on occupied riparian habitat by creating or preserving habitat at a 3:1 (acres of created or preserved habitat : acres of permanent impact) or by an equivalent or greater amount as determined in consultation with USFWS. The Authority will compensate for permanent impacts on occupied non-riparian habitat by creating or preserving habitat at a ratio of 1:1 for all acres that are permanently affected, or by transplanting affected elderberry shrubs containing valley elderberry longhorn beetle exit holes and providing compensation at a 1:1 ratio for the area of the affected shrubs. The purchase of mitigation credits or the establishment of onsite or offsite mitigation areas (or a combination of these options) would be completed as agreed upon by the Authority, Reclamation, and USFWS.</p>	<p>Impact WILD-1: Substantial adverse effect (i.e., loss or removal), either directly or through habitat modifications, on wildlife species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.</p> <p>Impact WILD-2: Substantial interference with the movement of a native resident or migratory wildlife species or with established native resident or migratory wildlife corridors, or impediment of the use of native wildlife nursery sites</p> <p>Impact WILD-3: Conflict with any local policies or ordinances protecting wildlife resources</p>	Preconstruction; construction; postconstruction	Contract requirements; compliance reporting; acquisition/funding; remedial action; monitoring	As needed	Authority; Contractor; Mitigation Manager; Qualified Biologist	Date: _____ Action Taken:

Mitigation Text	Impact # and Impact Title	Phase	Implementation Action	Reporting Schedule	Implementation Responsibility	Record of Implementation
<p>USFWS-approved conservation banks have long-term adaptive management plans with performance standards. If credits are not purchased at a USFWS-approved conservation bank, the Authority will implement standards for long-term management and protection of conservation areas. The Authority will work closely with USFWS during the planning and development of preservation areas. Once established, preservation areas will be surveyed by a USFWS-approved biologist a minimum of two times per year between February 14 and June 30. The biologist will search for valley elderberry longhorn beetle exit holes, evaluate the adequacy of site protection (e.g., fencing, signage) and weed control, assess potential threats to the beetle, take photographs of the site, and evaluate the performance standards below.</p> <ol style="list-style-type: none"> 1. A minimum of 60% of the initial elderberry and native associate plantings must survive over the first 5 years after the site is established. As much as feasible, elderberry shrubs should be well distributed throughout the site; however, in some instances underlying geologic or hydrologic issues might preclude elderberry establishment over some portion of the site. If significant die-back occurs within the first 3 years, replanting may be used to achieve the 60% performance standard. However, replanting efforts should be concentrated in areas containing surviving elderberry plants. In some instances, overplanting may be used to offset the selection of a less suitable site. 2. After 5 years, the site must show signs of recruitment. A successful site should have evidence of new growth on existing plantings, as well as natural recruitment of elderberry. New growth is characterized as stems 1.2 inches in diameter. If no signs of recruitment are observed, the Authority and Reclamation will discuss possible remedies with the USFWS. <p>Following USFWS's interim standards for the long-term management and protection of mitigation sites, working closely with USFWS during planning and development of the preservation area, monitoring the preservation area to ensure performance standards are achieved, and replanting elderberries when the performance standards are not achieved will ensure that the compensatory mitigation is effective and compensates for the losses resulting from the Project.</p>	<p>Impact WILD-4: Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan</p>					
<p>WILD-1.9: Protect Special-Status Invertebrates and Their Host and Food Plants from Herbicide and Pesticide Use</p> <p>To minimize impacts on valley elderberry longhorn beetle, monarch butterfly, Crotch bumble bee, and western bumble bee from herbicide drift, herbicide application will be limited to areas immediately adjacent to Project facilities and will be conducted using handheld equipment. Herbicides and pesticides will be applied only by applicators with current licenses and/or certifications from the California Department of Pesticide Regulation. The applicator will follow the herbicide label directions. Spray nozzles will be kept within 24 inches of target vegetation during spraying. The most current information on herbicide toxicity on wildlife will be used to inform future decisions about herbicide and pesticide use during operations.</p>	<p>Impact WILD-1: Substantial adverse effect (i.e., loss or removal), either directly or through habitat modifications, on wildlife species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.</p> <p>Impact WILD-2: Substantial interference with the movement of a native resident or migratory wildlife species or with established native resident or migratory wildlife corridors, or impediment of the use of native wildlife nursery sites</p> <p>Impact WILD-3: Conflict with any local policies or ordinances protecting wildlife resources</p>	Operations	Compliance requirements	None	Authority	Date: _____ Action Taken:

Mitigation Text	Impact # and Impact Title	Phase	Implementation Action	Reporting Schedule	Implementation Responsibility	Record of Implementation
	Impact WILD-4: Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan					
<p>WILD-1.10: Assess Habitat Suitability and Survey for Presence of Monarch Butterfly Nectar and Larval Host Plants</p> <p>No more than 3 years prior to the start of ground-disturbing activities botanists will identify and map locations of milkweed and/or nectar plants using information from https://xerces.org/sites/default/files/publications/19-046_01_MonarchNectarPlants_California_web-3pg.pdf or the most up-to-date information. During special-status plant surveys (Mitigation Measure VEG-1.1), botanists will map actual presence of these plants in areas that would be permanently or temporarily affected by construction.</p>	<p>Impact WILD-1: Substantial adverse effect (i.e., loss or removal), either directly or through habitat modifications, on wildlife species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.</p> <p>Impact WILD-2: Substantial interference with the movement of a native resident or migratory wildlife species or with established native resident or migratory wildlife corridors, or impediment of the use of native wildlife nursery sites</p> <p>Impact WILD-3: Conflict with any local policies or ordinances protecting wildlife resources</p> <p>Impact WILD-4: Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan</p>	Preconstruction; construction	Compliance reporting; surveying	Following completion of assessment	Authority; Qualified Biologist	Date: _____ Action Taken:
<p>WILD-1.11: Compensate for Loss of Monarch Butterfly Nectar and Larval Host Plants</p> <p>The Authority will compensate for permanent loss of suitable monarch butterfly habitat (as identified through implementation of Mitigation Measure WILD-1.10) by including native milkweed and nectar plants for monarch butterfly in onsite and/or offsite mitigation plans for sensitive natural communities (Mitigation Measure VEG-2.2). The Authority will compensate for permanent loss of suitable monarch butterfly habitat by planting native milkweed and nectar plants at suitable onsite and/or offsite restoration or preservation areas at a ratio of 1:1 (acres lost : acres planted). The offsite restoration areas would provide suitable habitat constituents for monarch butterfly (e.g., roosting habitat, nectar plants, native milkweed) and will be preserved through a conservation easement. The establishment of restoration areas would be completed as agreed upon by the Authority, USFWS, and CDFW.</p> <p>The Authority will compensate for temporary loss of suitable monarch butterfly habitat by including native milkweed and nectar plants in planting palettes for onsite restoration of sensitive natural communities (Mitigation Measure VEG-2.2) or temporarily disturbed grassland, and/or at offsite mitigation areas.</p>	<p>Impact WILD-1: Substantial adverse effect (i.e., loss or removal), either directly or through habitat modifications, on wildlife species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.</p> <p>Impact WILD-2: Substantial interference with the movement of a native resident or migratory wildlife species or with established native resident or migratory wildlife corridors, or impediment of the use of native wildlife nursery sites</p>	Construction; postconstruction	Compliance reporting; surveys; monitoring; acquisition/funding	Annually	Authority; Qualified Botanist	Date: _____ Action Taken:

Mitigation Text	Impact # and Impact Title	Phase	Implementation Action	Reporting Schedule	Implementation Responsibility	Record of Implementation
<p>The Authority will utilize monarch butterfly information from The Xerces Society to ensure that mitigation areas provide the suitable habitat constituents described above for monarch butterfly. The Authority will conduct baseline surveys of each onsite and offsite mitigation area to determine the baseline habitat conditions for monarch butterfly prior to implementing habitat improvements (i.e., planting), if applicable. Each area will be surveyed by qualified botanists to determine the extent of naturally occurring milkweed and nectar plants. After onsite restoration is completed at each mitigation area, qualified botanists will conduct surveys during 3 of the next 5 years and evaluate each site to determine if the area and condition of milkweed and nectar plants achieve the performance standards of being at or above baseline conditions.</p> <p>Methods and results of surveys, and recommendations for adaptive management actions as needed, will be included in annual monitoring reports for each mitigation area (if there is more than one) and will be submitted to USFWS and CDFW.</p> <p>Using the latest information from The Xerces Society during planning and development of the mitigation areas, monitoring the mitigation areas to ensure performance standards are achieved and implementing adaptive management options when the performance standards are not achieved will ensure that the compensatory mitigation is effective and compensates for the losses resulting from the Project.</p>	<p>Impact WILD-3: Conflict with any local policies or ordinances protecting wildlife resources</p> <p>Impact WILD-4: Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan</p>					
<p>WILD-1.12: Assess Habitat Suitability and Survey for Presence of Crotch Bumble Bee and Western Bumble Bee Food Plants</p> <p>No more than 3 years prior to the start of ground-disturbing activities, botanists will identify and map locations of patches of native plants in the taxa most commonly associated with Crotch bumble bee and western bumble bee that would be permanently or temporarily affected by construction during special-status plant surveys (Mitigation Measure VEG-1.1). Native plants of the following genera are appropriate for Crotch bumble bee: <i>Antirrhinum</i>, <i>Asclepias</i>, <i>Phacelia</i>, <i>Chaenactis</i>, <i>Clarkia</i>, <i>Dendromecon</i>, <i>Eriogonum</i>, <i>Eschscholzia</i>, <i>Lupinus</i>, <i>Medicago</i>, and <i>Salvia</i>. Native plants of the following taxa are appropriate for western bumble bee: <i>Asteraceae</i>, <i>Ceanothus</i>, <i>Centaurea</i>, <i>Chrysothamnus</i>, <i>Cirsium</i>, <i>Eriogonum</i>, <i>Geranium</i>, <i>Grindelia</i>, <i>Lupinus</i>, <i>Melilotus</i>, <i>Monardella</i>, <i>Rubus</i>, <i>Penstemon</i>, <i>Solidago</i>, and <i>Trifolium</i>.</p>	<p>Impact WILD-1: Substantial adverse effect (i.e., loss or removal), either directly or through habitat modifications, on wildlife species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.</p> <p>Impact WILD-2: Substantial interference with the movement of a native resident or migratory wildlife species or with established native resident or migratory wildlife corridors, or impediment of the use of native wildlife nursery sites</p> <p>Impact WILD-3: Conflict with any local policies or ordinances protecting wildlife resources</p> <p>Impact WILD-4: Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan</p>	Preconstruction; construction	Compliance reporting; surveys; monitoring	Following completion of assessment	Authority; Qualified Botanist	Date: _____ Action Taken:

Mitigation Text	Impact # and Impact Title	Phase	Implementation Action	Reporting Schedule	Implementation Responsibility	Record of Implementation
<p>WILD-1.13: Compensate for Loss of Crotch Bumble Bee and Western Bumble Bee Habitat</p> <p>The Authority will compensate for permanent loss of suitable bumble bee foraging habitat (as identified through implementation of Mitigation Measure WILD-1.12) by including suitable native nectar- and pollen-producing plants commonly used as food sources by Crotch and western bumble bees in onsite and/or offsite mitigation plans for sensitive natural communities (Mitigation Measure VEG-2.2). The Authority will compensate for permanent loss of suitable Crotch and western bumble bee habitat by planting native suitable native nectar- and pollen-producing plants at suitable onsite and/or offsite restoration or preservation areas at a ratio of 1:1 (acres lost : acres planted). The Authority will compensate for temporary loss of suitable Crotch and western bumble bee habitat by including native bumble bee food plants in planting palettes for onsite restoration of sensitive natural communities (Mitigation Measure VEG-2.2) or temporarily disturbed grassland and/or at offsite mitigation areas.</p> <p>Native plants of the following genera are appropriate for Crotch bumble bee: <i>Antirrhinum</i>, <i>Asclepias</i>, <i>Phacelia</i>, <i>Chaenactis</i>, <i>Clarkia</i>, <i>Dendromecon</i>, <i>Eriogonum</i>, <i>Eschscholzia</i>, <i>Lupinus</i>, <i>Medicago</i>, and <i>Salvia</i>. Native plants of the following taxa are appropriate for western bumble bee: <i>Asteraceae</i>, <i>Ceanothus</i>, <i>Centaurea</i>, <i>Chrysothamnus</i>, <i>Cirsium</i>, <i>Eriogonum</i>, <i>Geranium</i>, <i>Grindelia</i>, <i>Lupinus</i>, <i>Melilotus</i>, <i>Monardella</i>, <i>Rubus</i>, <i>Penstemon</i>, <i>Solidago</i>, and <i>Trifolium</i>. In mitigation areas where these plant genera are present, habitat will be preserved. In mitigation areas where these plant genera are absent, these plant genera will be seeded or planted, as appropriate based on site conditions. Mitigation areas will be placed under a conservation easement.</p> <p>The Authority will utilize bumble bee conservation information from The Xerces Society to ensure that mitigation areas provide the suitable native nectar- and pollen-producing plants described above for Crotch bumble bee and western bumble bee. The Authority will conduct baseline surveys of each onsite and offsite mitigation area to determine the baseline habitat conditions for Crotch bumble bee and western bumble bee prior to implementing habitat improvements (i.e., planting), if applicable. Each area will be surveyed by qualified botanists to determine the extent of naturally occurring native nectar- and pollen-producing plants. After onsite restoration is completed at each mitigation area, qualified botanists will conduct surveys during 3 of the next 5 years and evaluate each site to determine if the area and condition of native nectar- and pollen-producing plants achieve the performance standards of being at or above baseline conditions.</p> <p>Methods and results of surveys and recommendations for adaptive management actions as needed will be included in annual monitoring reports for each mitigation area (if there is more than one) and will be submitted to USFWS and CDFW.</p> <p>Using the latest information from The Xerces Society during planning and development of the mitigation area, monitoring the mitigation area to ensure performance standards are achieved, and implementing adaptive management options when the performance standards are not achieved will ensure that the compensatory mitigation is effective and compensates for the losses resulting from the Project.</p>	<p>Impact WILD-1: Substantial adverse effect (i.e., loss or removal), either directly or through habitat modifications, on wildlife species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.</p> <p>Impact WILD-2: Substantial interference with the movement of a native resident or migratory wildlife species or with established native resident or migratory wildlife corridors, or impediment of the use of native wildlife nursery sites</p> <p>Impact WILD-3: Conflict with any local policies or ordinances protecting wildlife resources</p> <p>Impact WILD-4: Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan</p>	Construction; postconstruction	Contract requirements; compliance reporting; acquisition/funding surveying; monitoring	Annually	Authority; Mitigation Manager; Qualified Botanist	Date: _____ Action Taken:

Mitigation Text	Impact # and Impact Title	Phase	Implementation Action	Reporting Schedule	Implementation Responsibility	Record of Implementation
<p>WILD-1.14: Assess Habitat Suitability and Survey Suitable Habitat for Western Spadefoot, California Red-legged Frog, and Western Pond Turtle</p> <p>Once property access is granted and prior to the start of construction, the Authority will retain qualified biologists to assess habitat suitability and conduct surveys for western spadefoot, California red-legged frog, and western pond turtle in the Project area and where potentially suitable habitat is within 300 feet of the Project area where impacts from operation may occur. Qualified biologists are defined as those who have experience evaluating habitat and conducting focused surveys for western spadefoot, California red-legged frog, and western pond turtle. The surveys will be conducted in accordance with the following conditions.</p> <ul style="list-style-type: none"> Western spadefoot habitat assessments and surveys of seasonal wetland habitat will be conducted during vernal pool branchiopod habitat assessments and surveys (Mitigation Measure WILD-1.1). Habitat assessment and surveys for California red-legged frog will be conducted in accordance with the <i>Revised Guidance on Site Assessments and Field Surveys for the California Red-legged Frog</i>, which provides direction for site assessments and recommend up to eight surveys that are conducted over a period of 9–12 months (U.S. Fish and Wildlife Service 2005b). Habitat assessment and surveys for western pond turtle and western spadefoot (intermittent streams) will be conducted concurrently with the California red-legged frog surveys. <p>The qualified biologists will prepare and submit reports describing the methods and results of the habitat assessments and surveys to the Authority, CDFW, and USFWS.</p>	<p>Impact WILD-1: Substantial adverse effect (i.e., loss or removal), either directly or through habitat modifications, on wildlife species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.</p> <p>Impact WILD-2: Substantial interference with the movement of a native resident or migratory wildlife species or with established native resident or migratory wildlife corridors, or impediment of the use of native wildlife nursery sites</p> <p>Impact WILD-3: Conflict with any local policies or ordinances protecting wildlife resources</p> <p>Impact WILD-4: Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan</p>	Preconstruction	Compliance reporting; surveying	As needed	Authority; Qualified Biologist	Date: _____ Action Taken:
<p>WILD-1.15: Design and Construct Wildlife Crossings for New Roadways at Suitable Locations</p> <p>The Authority will retain a qualified wildlife biologist with expertise in wildlife crossing use and design to conduct a wildlife connectivity and crossing assessment and to determine where suitable wildlife crossing structures would be most effective along North Road, Sites Lodoga Road, South Road, and other roads as determined by the Authority and the wildlife biologist, in coordination with CDFW. Wildlife crossing structures will be designed and constructed at suitable locations to provide habitat connectivity and safe movement for an array of wildlife likely to use the Project area. To ensure that the assessment is inclusive of a variety of species, a wildlife crossing species guild (WCG) approach will be used as detailed in Kintsch et al. (2015). This WCG approach will include ecological and behavioral needs of a variety of species inhabiting the Project area/region. The Authority will also use information from other documents (e.g., Clevenger and Huijser 2011; Langton and Clevenger 2020; Ontario Ministry of Natural Resources and Forestry 2016) when planning and designing corridors for amphibians and reptiles. Wildlife crossing locations and design will be determined based on WCG species inhabiting the Project area/region, habitat features, topography, existing land ownership and use, and the future state of the study area (as shown or described in planning documents) through a wildlife connectivity and crossing assessment. Where possible, wildlife crossings will be located where there is compatible land ownership and use and opportunities for habitat preservation on either side of the wildlife crossing.</p> <p>Prior to final roadway design for the Project, a wildlife connectivity assessment will be conducted to assess existing and expected wildlife movement and habitat connectivity conditions, evaluate Project-related impacts on connectivity and species movement, and</p>	<p>Impact WILD-1: Substantial adverse effect (i.e., loss or removal), either directly or through habitat modifications, on wildlife species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.</p> <p>Impact WILD-2: Substantial interference with the movement of a native resident or migratory wildlife species or with established native resident or migratory wildlife corridors, or impediment of the use of native wildlife nursery sites</p> <p>Impact WILD-3: Conflict with any local policies or ordinances protecting wildlife resources</p> <p>Impact WILD-4: Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved</p>	Preconstruction	Contract requirements; compliance reporting; surveying; design	As needed	Authority; Qualified Biologist	Date: _____ Action Taken:

Mitigation Text	Impact # and Impact Title	Phase	Implementation Action	Reporting Schedule	Implementation Responsibility	Record of Implementation
<p>identify appropriate wildlife crossing locations and designs. Other connectivity enhancement strategies such as land acquisition, retrofit of existing structures, habitat enhancement, and traffic control will be considered as part of the connectivity assessment to maintain and enhance connectivity in the area surrounding the reservoir. The assessment will include a landscape-scale and local (Project)-scale assessments. The assessment may use database research, field surveys, photo monitoring, GIS modeling, or a combination thereof to identify existing wildlife species in the Project area, determine how connectivity and species movement may be affected by the Project, and determine the appropriate locations and designs of wildlife crossings.</p> <p>Wildlife crossings will be located at appropriate frequencies within contiguous suitable habitat and in other locations where crossing structures are warranted (e.g., riparian/riverine crossings) to accommodate a range of species expected to move through the area. For example, for small-bodied animals like amphibians, reptiles, and small mammals, where species habitat and movement needs are present, wildlife crossings may be located no more than 1,000 feet apart or as determined appropriate for specific target species. For medium- and large-bodied animals, such as bobcats, coyotes, tule elk, and deer, wildlife crossings may be located no more than 1 mile apart.</p> <p>Wildlife crossings will be located where there is suitable habitat on both sides of the roadway. If feasible and depending on the size and ecological and behavioral needs of target species, vegetative cover will be provided near entrances to give animals security and reduce negative effects such as lights and noise associated with the road. Suitable habitat and/or cover will also be provided in the crossing structure wherever feasible. This may be achieved by designing culverts or culvert-like structures to be high enough to allow light for plants to grow, installing rubble piles, stumps, or branches to provide cover for smaller animals in the crossings, and leaving earthen bottoms in crossing structures.</p> <p>When possible, wildlife crossings will be located away from areas used or dominated by humans, including recreation areas, trails, and lighted areas to avoid reduced wildlife crossing movement function and to prevent human-wildlife conflict.</p> <p>Wildlife crossings will be designed to optimally facilitate movement for multiple WCG species. When possible, proposed culverts will be constructed to function as multi-use culverts, which are designed to ensure that they facilitate wildlife movement. Multi-use culvert crossings will be designed to be optimally accessible to wildlife movement and will also be designed to require minimal maintenance.</p> <p>Wildlife fencing will be installed to direct wildlife toward crossings and prevent species' access to roadways and other areas they must be excluded from. Escape opportunities such as jump-out ramps may be provided as appropriate in conjunction with fencing to allow animals to escape from the roadway.</p>	<p>local, regional, or state habitat conservation plan</p>					
<p>WILD-1.16: Monitor and Maintain Wildlife Crossings</p> <p>Because many wildlife species will avoid or be obstructed by structures with a substantial amount of debris or blockages, the Authority will require a qualified wildlife biologist to regularly monitor crossings and culverts and clear them or oversee the clearing of debris and other blockages. Cameras, roadkill surveys, or other methods will be used to monitor wildlife crossing use. Vegetative cover will be maintained near crossing entrances to provide cover and reduce negative effects such as artificial lighting and noise associated with the road. A monitoring and maintenance plan for wildlife crossings will be developed during design of wildlife crossings (Mitigation Measure WILD-1.15). Plan components will include but are not limited to specifications and methods for documenting postconstruction conditions, the approach for and frequency of monitoring and maintenance, performance</p>	<p>Impact WILD-1: Substantial adverse effect (i.e., loss or removal), either directly or through habitat modifications, on wildlife species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.</p> <p>Impact WILD-2: Substantial interference with the movement of a native resident</p>	<p>Operations</p>	<p>Contract requirements; monitoring; design</p>	<p>As needed</p>	<p>Authority; Qualified Biologist</p>	<p>Date: _____ Action Taken:</p>

Mitigation Text	Impact # and Impact Title	Phase	Implementation Action	Reporting Schedule	Implementation Responsibility	Record of Implementation
standards, reporting requirements, and adaptive management actions to ensure long-term success of crossing structure function.	<p>or migratory wildlife species or with established native resident or migratory wildlife corridors, or impediment of the use of native wildlife nursery sites</p> <p>Impact WILD-3: Conflict with any local policies or ordinances protecting wildlife resources</p> <p>Impact WILD-4: Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan</p>					
<p>WILD-1.17: Implement California Red-legged Frog Protective Measures</p> <p>If California red-legged frog is found in the Project area either incidentally or during surveys conducted in accordance with Mitigation Measure WILD-1.14, the Authority will implement the following protective measures. These measures will apply to upland habitat (within 300 feet) and dispersal habitat (within 1 mile) of aquatic habitats that are found to be occupied during surveys.</p> <ul style="list-style-type: none"> Occupied aquatic habitat will not be removed or filled until California red-legged frogs have been relocated to suitable habitat outside of disturbance areas or other actions that will avoid mortality of individuals or effects on the population as determined during ESA Section 7 consultation with USFWS. Occupied aquatic habitat that will not be removed or disturbed will be protected with exclusion fencing along the edge of the work area a minimum of 200 feet from the aquatic habitat. The fencing will be installed to prevent individuals from entering the work area but will not completely enclose the pond or exclude dispersal to and from the pond. The USFWS-approved biologist will assist with preparing the fence plans and will be present during installation. The fencing will be installed to a depth of 6 inches and extended at least 30 inches above grade. The contractor will avoid placing fencing on top of ground squirrel burrows. The fence will be pulled taut at each support to prevent folds or sagging. A USFWS-approved biologist will also walk all fence lines daily to look for individual frogs stranded along fence lines. Fencing will be inspected and maintained in good condition throughout work and will be removed after work is complete and all construction equipment is removed from the work area. A USFWS-approved biologist will be present during all ground-disturbing work in California red-legged frog upland and dispersal habitats during the rainy season (generally October 15 to May 1) when frogs are dispersing. The biologist will survey work areas for frogs and for rodent burrows in potential upland habitat immediately prior to the start of any ground-disturbing work (including moving equipment into the area). If a California red-legged frog is found, it will be moved out of the work area in accordance with the USFWS biological opinion for the Project. Disturbance of suitable habitat will be minimized to the maximum extent feasible. In the event a California red-legged frog is trapped, construction within 300 feet of the location will cease until the individual has been removed from the location per a USFWS-approved relocation plan. The plan will include trapping and relocation 	<p>Impact WILD-1: Substantial adverse effect (i.e., loss or removal), either directly or through habitat modifications, on wildlife species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.</p> <p>Impact WILD-2: Substantial interference with the movement of a native resident or migratory wildlife species or with established native resident or migratory wildlife corridors, or impediment of the use of native wildlife nursery sites</p> <p>Impact WILD-3: Conflict with any local policies or ordinances protecting wildlife resources</p> <p>Impact WILD-4: Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan</p>	Construction	Contract requirements; compliance reporting; exclusion fencing, remedial action	As needed	Authority; Qualified Biologist	Date: _____ Action Taken:

Mitigation Text	Impact # and Impact Title	Phase	Implementation Action	Reporting Schedule	Implementation Responsibility	Record of Implementation
<p>methods, relocation sites, and post-relocation monitoring. Only USFWS-approved biologists will be allowed to relocate listed species to outside of the construction area.</p> <ul style="list-style-type: none"> If ground disturbance or vegetation removal will occur in suitable upland or dispersal habitats during or 24 hours following a rain event between October 15 and May 1, a USFWS-approved biologist will be onsite to monitor the work and ensure that the exclusion fencing is intact. Following a rain event, no work will proceed until a USFWS-approved biologist has inspected the work areas and verified that there are no California red-legged frogs present. A rain event is to be considered precipitation of at least 0.25 inch within a 24-hour period. Activities within suitable upland/dispersal habitat will cease no less than 30 minutes before sunset and will not begin again prior to no less than 30 minutes after sunrise. Except when necessary for driver or pedestrian safety artificial lighting at a worksite will be prohibited during the hours of darkness when working in suitable California red-legged frog upland/dispersal habitat. For any night work, the driving path and work area will be surveyed for California red-legged frog immediately prior to work and nighttime work will be monitored by a USFWS-approved biologist. If work must be conducted at night, all lighting will be directed away and shielded from California red-legged frog habitat outside the work area to minimize light spillover to the greatest extent possible. 						
<p>WILD-1.18: Compensate for Permanent and Temporary Losses of Occupied California Red-legged Frog Aquatic and Upland Habitats</p> <p>The Authority will compensate for the permanent and temporary losses of occupied California red-legged frog aquatic habitat and associated upland habitat through the purchase of mitigation credits at a USFWS-approved mitigation or conservation bank or through acquiring or preserving and protecting habitat in perpetuity at a location approved by USFWS. Permanent impacts on habitat will be mitigated by restoring or preserving habitat at a 2:1 ratio (habitat restored or preserved : habitat affected) or by an equivalent or greater amount as determined during Section 7 ESA consultation with USFWS. Temporary impacts on habitat will be mitigated by restoring or preserving habitat at a 1:1 ratio (habitat restored or preserved : habitat affected), or by an equivalent or greater amount as determined during Section 7 ESA consultation with USFWS for the Project. The purchase of mitigation credits or the establishment of onsite or offsite mitigation areas (or a combination of these options) would be completed as agreed upon by the Authority, Reclamation, and USFWS.</p> <p>USFWS-approved conservation banks have long-term adaptive management plans with performance standards. Therefore, if mitigation occurs through a USFWS-approved conservation bank, the bank's performance standards and success criteria will be applied.</p> <p>If credits are not purchased at a USFWS-approved conservation bank, the Authority will implement standards for long-term management and protection of conservation areas. The Authority will work closely with USFWS during the planning and development of conservation areas. Conservation areas will have suitable aquatic and upland habitat. Once established, conservation areas will be surveyed by a USFWS-approved biologist a minimum of two times between January 1 and June 30. The biologist will survey aquatic habitat for California red-legged frog, evaluate the adequacy of site protection (e.g., fencing, signage), assess potential threats to the frog, and take photographs of the site. The biologist will also survey a set of reference ponds or other aquatic habitat known to be occupied by California red-legged frog to compare to the preserved and created/restored aquatic habitat. The</p>	<p>Impact WILD-1: Substantial adverse effect (i.e., loss or removal), either directly or through habitat modifications, on wildlife species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.</p> <p>Impact WILD-2: Substantial interference with the movement of a native resident or migratory wildlife species or with established native resident or migratory wildlife corridors, or impediment of the use of native wildlife nursery sites</p> <p>Impact WILD-3: Conflict with any local policies or ordinances protecting wildlife resources</p> <p>Impact WILD-4: Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan</p>	Construction; postconstruction	Contract requirements; compliance reporting; acquisition/funding	As needed	Authority; Mitigation Manager	Date: _____ Action Taken:

Mitigation Text	Impact # and Impact Title	Phase	Implementation Action	Reporting Schedule	Implementation Responsibility	Record of Implementation
<p>reference ponds/habitat should be located within proximity to the conservation area and exhibit characteristics similar to the preserved and created/restored habitat.</p> <p>Performance standards for management of non-mitigation bank ponds are as follows: (1) > 10% of the shoreline is vegetated; (2) 30%–60% of the pond has emergent vegetation; and (3) 40%–70% of the pond is open water. Performance standards are not included for California red-legged frog occupancy since the objective of the Project mitigation is to establish compensatory suitable habitat rather than to ensure occupancy. Therefore, the successful establishment of aquatic and upland habitats based on the floristic, physical, and hydrologic components of the habitats will be used to evaluate the success of offsite California red-legged frog habitat compensatory mitigation. If the performance standards cannot be achieved, the Authority and Reclamation will consult with USFWS to implement an alternative compensatory mitigation approach.</p> <p>Working closely with USFWS during planning and development of the conservation area and monitoring the conservation area to ensure performance standards are achieved and adaptive management actions are applied when the performance standards are not achieved will ensure that the compensatory mitigation is effective and compensates for the losses resulting from the Project.</p>						
<p>WILD-1.19: Conduct Preconstruction Surveys for Western Pond Turtle and Monitor Initial In-Water Work</p> <p>The Authority will retain qualified biologists (i.e., experienced in the identification of and knowledge of the life history and habitats of western pond turtle) to conduct preconstruction surveys within 24 hours of the start of activities that disturb occupied or suitable western pond turtle aquatic habitat. The biologist will survey the aquatic habitat and adjacent marsh, riparian, and grassland habitat in the construction area. If in-water work does not start immediately, the biologist will return to the construction site immediately prior to the start of in-water work to conduct another preconstruction survey. The biologist will remain onsite until initial in-water work is complete. If a turtle becomes trapped during initial in-water work, a biologist who is CDFW-approved to capture and relocate turtles during construction of the Project will relocate the individual to suitable aquatic habitat upstream or downstream of the construction area. The construction crew will be instructed to notify the crew foreman who will contact the biologist if a turtle is found trapped in the construction area. Work in the area where the turtle is trapped will stop until the biologist arrives and removes and relocates the turtle. The biologist will report their activities to CDFW within 24 hours of relocating any turtle.</p>	<p>Impact WILD-1: Substantial adverse effect (i.e., loss or removal), either directly or through habitat modifications, on wildlife species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.</p> <p>Impact WILD-2: Substantial interference with the movement of a native resident or migratory wildlife species or with established native resident or migratory wildlife corridors, or impediment of the use of native wildlife nursery sites</p> <p>Impact WILD-3: Conflict with any local policies or ordinances protecting wildlife resources</p> <p>Impact WILD-4: Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan</p>	Preconstruction; construction	Contract requirements; compliance reporting; surveying; monitoring; remedial action	Within 24 hours of relocating any turtle	Authority; Qualified Biologist	Date: _____ Action Taken:
<p>WILD-1.20: Implement Protective Measures for Giant Gartersnake</p> <p>The Authority will implement the following protective measures when working in or near giant gartersnake habitat.</p> <ul style="list-style-type: none"> When possible, all construction activity in suitable giant gartersnake aquatic habitat, and upland habitat within 200 feet of suitable aquatic habitat, will be conducted during the snake’s active period (between May 1 and October 1). For work that cannot be 	<p>Impact WILD-1: Substantial adverse effect (i.e., loss or removal), either directly or through habitat modifications, on wildlife species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California</p>	Preconstruction; construction	Contract requirements; compliance reporting; surveying; monitoring; exclusion	As needed	Authority; Qualified Biologist	Date: _____ Action Taken:

Mitigation Text	Impact # and Impact Title	Phase	Implementation Action	Reporting Schedule	Implementation Responsibility	Record of Implementation
<p>conducted between May 1 and October 1, additional protective measures, such as installing exclusion fencing or additional biological monitoring, or other measures determined during consultation with USFWS and CDFW, will be implemented.</p> <ul style="list-style-type: none"> Any dewatered habitat will remain dry for at least 15 consecutive days after April 15 and prior to excavating or filling of the dewatered habitat. The movement of heavy equipment within 200 feet of the banks of potential giant gartersnake aquatic habitat will be confined to designated haul routes to minimize habitat disturbance. Vegetation clearing within 200 feet of the banks of suitable giant gartersnake aquatic habitat will be limited to the minimum area necessary. Avoided giant gartersnake habitat in or adjacent to the Project area will be flagged and designated as an activity exclusion zone, to be avoided by all construction personnel. To reduce the likelihood of snakes entering the construction area, exclusion fencing will be installed along the edge of the construction area that is within 200 feet of suitable aquatic habitat. The exclusion fencing will be installed during the active period for giant gartersnakes (May 1 to October 1) to reduce the potential for injury and mortality during this activity. The exclusion fencing will consist of 3-foot-tall silt fencing buried 4 to 6 inches below ground level. A USFWS- and CDFW-approved biologist will conduct a preconstruction survey of work areas within 200 feet of suitable giant gartersnake habitat no more than 24 hours before the start of work in that area. Prior to construction activities each morning, construction personnel will inspect exclusion and orange barrier fencing to ensure they are both in good working order. If any snakes are observed in the construction area during this inspection or at any other time during construction, the USFWS- and CDFW-approved biologist will be contacted to survey the site for snakes. The work area will be re-inspected and surveyed whenever a lapse in construction activity of 2 weeks or more has occurred. If a snake (believed to be a giant gartersnake) is encountered during construction, activities will cease until appropriate corrective measures have been completed or it has been determined that the snake will not be harmed. The Authority will prepare a giant gartersnake relocation plan for review and approval by USFWS and CDFW prior to Project implementation. The plan will include trapping and relocation methods, relocation sites, and post-relocation monitoring. If a giant gartersnake becomes trapped, construction will cease until the individual has been relocated to an appropriate location as described in the approved relocation plan. Only USFWS and CDFW-approved biologists will conduct surveys and move listed species in accordance with the approved relocation plan. 	<p>Department of Fish and Wildlife or U.S. Fish and Wildlife Service.</p> <p>Impact WILD-2: Substantial interference with the movement of a native resident or migratory wildlife species or with established native resident or migratory wildlife corridors, or impediment of the use of native wildlife nursery sites</p> <p>Impact WILD-3: Conflict with any local policies or ordinances protecting wildlife resources</p> <p>Impact WILD-4: Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan</p>		fencing; remedial action; design			
<p>WILD-1.21: Compensate for Permanent and Temporary Losses of Giant Gartersnake Aquatic and Upland Habitats</p> <p>The Authority will compensate for the permanent and temporary losses of suitable giant gartersnake aquatic habitat and associated upland habitat through the purchase of mitigation credits at a USFWS- and CDFW-approved mitigation or conservation bank or through acquiring and protecting habitat in perpetuity at a location approved by USFWS and CDFW. Permanent impacts on habitat will be mitigated by restoring or preserving habitat at a 3:1 ratio (habitat restored or preserved: habitat affected) or by an equivalent or greater amount as determined through consultation with USFWS or CDFW. Temporary impacts on habitat will be mitigated by restoring or preserving habitat at a 1:1 ratio (habitat</p>	<p>Impact WILD-1: Substantial adverse effect (i.e., loss or removal), either directly or through habitat modifications, on wildlife species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.</p>	Construction; postconstruction	Contract requirements; compliance reporting; acquisition/funding	As needed	Authority; Mitigation Manager; Qualified Biologist	Date: _____ Action Taken:

Mitigation Text	Impact # and Impact Title	Phase	Implementation Action	Reporting Schedule	Implementation Responsibility	Record of Implementation
<p>restored or preserved : habitat affected), or by an equivalent or greater amount as determined during consultation with USFWS or CDFW. The purchase of mitigation credits or the establishment of onsite or offsite mitigation areas (or a combination of these options) would be completed as agreed upon by the Authority, Reclamation, USFWS, and CDFW.</p> <p>USFWS and CDFW-approved conservation/mitigation banks have long-term adaptive management plans with performance standards. If mitigation occurs through a USFWS and CDFW-approved conservation/ mitigation bank, the bank's performance standards and success criteria will be applied.</p> <p>If credits are not purchased at a USFWS and CDFW-approved conservation bank, the Authority will implement standards for long-term management and protection of conservation areas. The Authority will work closely with USFWS and CDFW during the planning and development of conservation areas. Conservation areas will have suitable aquatic and upland habitat. Once established, conservation areas will be surveyed annually by a USFWS- and CDFW- approved biologist. The biologist will assess the aquatic and upland habitat conditions, evaluate the adequacy of site protection (e.g., fencing, signage), assess potential threats to giant gartersnake, and take photographs of the site. The biologist will prepare monitoring reports that will include methods and results of monitoring and recommendations for adaptive management actions as needed.</p> <p>Performance standards for non-mitigation bank aquatic and upland habitat compensation will provide the basis for monitoring parameters and will help determine the need for possible remedial actions after Project implementation. General performance standards for management of non-mitigation bank giant gartersnake habitat are as follows: (1) protected habitat is supplied with a reliable source of clean water from March through November or at a minimum, through the critical active summer months; (2) a sufficient amount of upland habitat is adjacent to aquatic habitat and is not inundated during the active season (May 1 through October 1); (3) the site provides available and abundant bankside vegetative cover (i.e., tule, cattail) for cover; and (4) permanent shelter, such as bankside cracks or crevices, holes, or small mammal burrows and upland winter refugia (areas that do not flood) must be present and maintained. During planning and development of the mitigation area, additional or more refined performance standards may be developed in coordination with USFWS and CDFW. Performance standards are not included for giant gartersnake occupancy since the objective of the Project mitigation is to establish compensatory suitable habitat rather than to ensure occupancy. Therefore, the successful establishment of aquatic and upland habitats based on the floristic, physical, and hydrologic components of the habitats will be used to evaluate the success of offsite giant gartersnake habitat compensatory mitigation.</p> <p>Working closely with USFWS and CDFW during planning and development of the conservation area, monitoring the conservation area to ensure performance standards are achieved, and applying adaptive management actions when the performance standards are not achieved will ensure that the compensatory mitigation is effective and compensates for the losses resulting from the Project.</p>	<p>Impact WILD-2: Substantial interference with the movement of a native resident or migratory wildlife species or with established native resident or migratory wildlife corridors, or impediment of the use of native wildlife nursery sites</p> <p>Impact WILD-3: Conflict with any local policies or ordinances protecting wildlife resources</p> <p>Impact WILD-4: Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan</p>					
<p>WILD-1.22: Conduct Vegetation Removal During the Non-Breeding Season of Nesting Migratory Birds</p> <p>The Authority will, to the maximum extent feasible, remove trees, shrubs, and herbaceous vegetation during the non-breeding season for most migratory birds (generally between September 1 and January 31) to remove nesting substrate and avoid potential delays in construction caused by the presence of nesting birds. If vegetation cannot be removed between September 1 and January 31, or if ground cover re-establishes in areas where</p>	<p>Impact WILD-1: Substantial adverse effect (i.e., loss or removal), either directly or through habitat modifications, on wildlife species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California</p>	Preconstruction; construction	Contract requirements; compliance reporting; surveying	None	Authority; Contractor	Date: _____ Action Taken:

Mitigation Text	Impact # and Impact Title	Phase	Implementation Action	Reporting Schedule	Implementation Responsibility	Record of Implementation
<p>vegetation has been removed, the affected area will be surveyed for nesting birds, as discussed in Mitigation Measure WILD-1.23.</p>	<p>Department of Fish and Wildlife or U.S. Fish and Wildlife Service.</p> <p>Impact WILD-2: Substantial interference with the movement of a native resident or migratory wildlife species or with established native resident or migratory wildlife corridors, or impediment of the use of native wildlife nursery sites</p> <p>Impact WILD-3: Conflict with any local policies or ordinances protecting wildlife resources</p> <p>Impact WILD-4: Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan</p>					
<p>WILD-1.23: Conduct Preconstruction Surveys for Non-Raptor Nesting Migratory Birds and Implement Protective Measures if Found</p> <p>For special-status species where survey protocols have been established by CDFW, USFWS, or technical advisory committees, those survey protocols will supersede this measure (i.e., Mitigation Measures WILD-1.24, WILD-1.28, and WILD-1.29 for burrowing owl, golden eagle/bald eagle, and Swainson’s hawk/white-tailed kite). The Authority will retain qualified wildlife biologists with knowledge of the relevant species to conduct non-raptor nesting bird surveys no more than 14 days prior to the start of construction. Where suitable habitat is present to support bank swallow, yellow-breasted chat, tricolored blackbird, yellow warbler, and song sparrow (Modesto population), wildlife biologists will thoroughly survey habitat and listen for calls and songs of these species. Surveys for non-raptor nesting migratory birds will include examining all potential nesting habitat in and within 50 feet of work areas on foot and/or using binoculars. Surveys for nesting raptors will be conducted during Swainson’s hawk/white-tailed kite surveys. If no active nests are detected during these surveys, no additional measures are required. During all nesting bird surveys, the biologist will document any special-status bird species detected in the survey area.</p> <p>If an active nest is found in the survey area, a no-disturbance buffer will be established around the nest site to avoid disturbance or destruction of the site until the end of the breeding season (August 31) or until after a qualified wildlife biologist determines that the young have fledged and moved out of the Project area (this date varies by species). The extent of these buffers will be determined by the biologist in coordination with USFWS and CDFW and will depend on the species, level of noise or construction disturbance, line of sight between the nest and the disturbance, ambient levels of noise and other disturbances, and other topographical or artificial barriers. If it is determined that the no-disturbance buffer cannot be maintained, the Authority and the qualified biologist will consult with USFWS and CDFW about implementing a reduced buffer but requiring full-time nest monitoring by a qualified biologist to watch for signs of stress. If behaviors indicating stress or potential nest abandonment (e.g., visible or audible agitation, leaving the nest at an unusual time or for an unusual length of time), the biologist will have the authority to stop work until the bird has returned to the nest or otherwise shows signs of recovery from the stress.</p>	<p>Impact WILD-1: Substantial adverse effect (i.e., loss or removal), either directly or through habitat modifications, on wildlife species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.</p> <p>Impact WILD-2: Substantial interference with the movement of a native resident or migratory wildlife species or with established native resident or migratory wildlife corridors, or impediment of the use of native wildlife nursery sites</p> <p>Impact WILD-3: Conflict with any local policies or ordinances protecting wildlife resources</p> <p>Impact WILD-4: Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan</p>	Preconstruction; construction	Contract requirements; compliance reporting; surveying; monitoring	As needed	Authority; Qualified Biologist	Date: _____ Action Taken:

Mitigation Text	Impact # and Impact Title	Phase	Implementation Action	Reporting Schedule	Implementation Responsibility	Record of Implementation
<p>For federally and state-listed species, the above protective measures will be implemented, and the Authority will contact CDFW and USFWS to discuss the need for take authorization if the Authority does not already have such authorization.</p>						
<p>WILD-1.24: Conduct Surveys for Western Burrowing Owl Prior to Construction and Implement Avoidance and Minimization Measures if Found</p> <p>The Authority will retain qualified biologists (experienced at identification of burrowing owls and their habitat) to conduct burrowing owl surveys in accordance with CDFW's 2012 Staff Report on Burrowing Owl Mitigation (2012 Staff Report) (California Department of Fish and Game 2012). Biologists will conduct four surveys during the breeding season as follows: (1) one survey between February 15 and April 15, and (2) a minimum of three surveys at least 3 weeks apart between April 15 and July 15, with at least one survey after June 15. Biologists will also conduct four surveys spread evenly throughout the non-breeding season (September 1 to January 31). A report describing the methods and results of the survey will be submitted to CDFW within 30 days of completing the surveys.</p> <p>The Authority will retain qualified biologists to conduct preconstruction take avoidance surveys for active burrows according to methodology in the 2012 Staff Report. If burrowing owls are found during any of the surveys, the Authority will implement Mitigation Measure WILD-1.25, which requires habitat to be replaced at a conservation area before permanent impacts occur. Because ample lead time is necessary to acquire and protect replacement habitat, these efforts should begin as soon as possible after presence of burrowing owls is determined.</p> <p>Regardless of results from the surveys described above, if suitable habitat is present in the Project area, take avoidance (preconstruction) surveys will be conducted in the Project area (i.e., the area of ground disturbance and surrounding 500 feet) no less than 14 days prior to and 24 hours before initiating ground-disturbing activities (i.e., two surveys). If suitable habitat within 500 feet of ground disturbance is not accessible because of landowner restrictions, then the survey will extend to the edge of where access is allowed. Because burrowing owls may re-colonize a site after a few days, subsequent surveys will be conducted if more than 48 hours pass between Project activities. If no burrowing owls are found, no further mitigation is required. If burrowing owls are found, the Authority will implement the following measures summarized from the 2012 Staff Report.</p> <ul style="list-style-type: none"> • Occupied burrows will not be disturbed during the breeding season (February 1–August 31). • Depending on the time of year and level of disturbance, a 164-foot to 1,640-foot-wide buffer area will be established around occupied burrows. No construction will be authorized within the buffer unless a qualified biologist determines through non-invasive methods that egg laying and incubation have not begun or that juveniles are foraging independently and are capable of independent survival. • To the maximum extent possible, burrows occupied during the non-breeding season by migratory or non-migratory resident burrowing owls will be avoided. • To the maximum extent possible, destruction of unoccupied burrows in temporary impact areas will be avoided, and visible markers will be placed near burrows to ensure they are not collapsed. • Occupied burrows that cannot be avoided will have exclusion devices installed and be collapsed. Burrow exclusion will be conducted only by qualified biologists during the non-breeding season, before breeding behavior is exhibited and after the burrow is confirmed empty by site surveillance and/or scoping. 	<p>Impact WILD-1: Substantial adverse effect (i.e., loss or removal), either directly or through habitat modifications, on wildlife species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.</p> <p>Impact WILD-2: Substantial interference with the movement of a native resident or migratory wildlife species or with established native resident or migratory wildlife corridors, or impediment of the use of native wildlife nursery sites</p> <p>Impact WILD-3: Conflict with any local policies or ordinances protecting wildlife resources</p> <p>Impact WILD-4: Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan</p>	<p>Preconstruction; construction</p>	<p>Contract requirements; compliance reporting; surveying; monitoring; remedial action</p>	<p>Within 30 days of completing the surveys</p>	<p>Authority; Qualified Biologist</p>	<p>Date: _____ Action Taken:</p>

Mitigation Text	Impact # and Impact Title	Phase	Implementation Action	Reporting Schedule	Implementation Responsibility	Record of Implementation
<ul style="list-style-type: none"> • Qualified biologists will conduct additional take avoidance surveys, as described above. • Qualified biologists will monitor the Project site for burrowing owls during Project construction activities. • Impacts on burrowing owls and their habitat will be minimized by using buffer areas, visual screens, and other measures during Project construction activities. Recommended buffer distances in the 2012 Staff Report will be used or site-specific buffers and visual screens will be determined through information collected during site-specific monitoring and consultation with CDFW. 						
<p>WILD-1.25: Restore Temporarily Disturbed Habitat and Compensate for the Permanent Loss of Occupied Burrowing Owl Habitat</p> <p>If burrowing owls have been documented to occupy burrows at the Project site in the last 3 years, CDFW considers the site occupied and mitigation is required (California Department of Fish and Game 2012:6).</p> <p>The Authority will restore temporarily disturbed areas to pre-Project conditions. The Authority will mitigate for permanent impacts on occupied burrowing owl habitat in accordance with the 2012 Staff Report Permanent impacts will be mitigated by creating or preserving habitat at a 1:1 ratio (habitat created or preserved : habitat permanently affected) or by an equivalent or greater amount as determined in coordination with CDFW. Replacement habitat will be established through onsite mitigation, offsite mitigation, and/or credits purchased at a CDFW-approved mitigation or conservation bank. The purchase of mitigation credits or the establishment of onsite or offsite mitigation areas (or a combination of these options) would be completed as agreed upon by the Authority and CDFW.</p> <p>CDFW-approved mitigation banks have long-term adaptive management plans with performance standards. If mitigation occurs through a CDFW-approved conservation/mitigation bank, the bank's performance standards and success criteria will be applied.</p> <p>If credits are not purchased at a CDFW-approved conservation bank, the Authority will implement standards for long-term management and protection of mitigation areas. A conservation easement would be placed on offsite mitigation land. A mitigation monitoring plan will be prepared for onsite and offsite mitigation to ensure the long-term success of the habitat. The mitigation monitoring plan will describe the requirements for monitoring and maintaining the site, performance standards, adaptive management techniques, and reporting requirements.</p> <p>The Authority will work closely with CDFW during the planning and development of onsite and offsite mitigation areas. Mitigation areas will provide suitable nesting and foraging habitat. Once established, mitigation areas will be periodically monitored by a CDFW-approved biologist. The biologist will survey the site for presence of western burrowing owl, assess the suitability of the site in providing nesting and foraging habitat (including the abundance of prey), evaluate the adequacy of site protection (e.g., fencing, signage), assess potential threats to burrowing owls, and take photographs of the site. The biologist should determine the number of adult burrowing owls and pairs, and if the numbers are maintained between monitoring years. The frequency of monitoring will be determined based on site-specific conditions in coordination with CDFW and will be included in the mitigation monitoring plan.</p> <p>Performance standards for management of burrowing owl habitat will be based on site-specific conditions and included in the mitigation monitoring plan. Performance standards may include managing vegetation height to between 4.7 and 13 centimeters through</p>	<p>Impact WILD-1: Substantial adverse effect (i.e., loss or removal), either directly or through habitat modifications, on wildlife species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.</p> <p>Impact WILD-2: Substantial interference with the movement of a native resident or migratory wildlife species or with established native resident or migratory wildlife corridors, or impediment of the use of native wildlife nursery sites</p> <p>Impact WILD-3: Conflict with any local policies or ordinances protecting wildlife resources</p> <p>Impact WILD-4: Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan</p>	Construction; postconstruction	Contract requirements; compliance reporting; monitoring; acquisition/funding	As needed	Authority; Mitigation Manager; Qualified Biologist	Date: _____ Action Taken:

Mitigation Text	Impact # and Impact Title	Phase	Implementation Action	Reporting Schedule	Implementation Responsibility	Record of Implementation
<p>grazing or mowing (California Department of Fish and Game 2012) and maintaining conditions that promote or support natural prey distribution and abundance, especially in proximity to occupied burrows. The successful establishment or maintenance of suitable breeding and foraging habitat based on the vegetation height and prey abundance will be used to evaluate the success of the burrowing owl habitat compensatory mitigation.</p> <p>Working closely with CDFW during planning and development of the conservation area, monitoring the conservation area to ensure performance standards are achieved, and applying adaptive management when performance standards are not achieved will ensure that the compensatory mitigation is effective and compensates for the permanent habitat loss resulting from the Project.</p>						
<p>WILD-1.26: Protect Special-Status Wildlife from Rodenticide Use</p> <p>To minimize the potential for wildlife to be poisoned by ingesting rodenticide, use of rodenticides will be minimized to the maximum extent feasible and limited to areas immediately surrounding Project facilities. Facilities will be maintained in a manner to reduce the potential for nuisance rodents, including sealing openings in structures, securely storing trash bins, and installing signage at recreation areas discouraging feeding of wildlife and encouraging disposal of food and other trash in designated containers. Signage will include text from the California Code of Regulations that states it is illegal to feed big game mammals and that feeding of wildlife is considered harassment and should not be done under any circumstances.</p> <p>Wherever feasible, alternatives to rodenticide will be used for rodent eradication, such as traps, if they can be used safely around other wildlife. Additionally, to minimize the risk to non-target species from directly ingesting rodenticides, anticoagulant and non-anticoagulant rodenticides will not be broadcast. The Authority will consult with California Department of Pesticide Regulation's PRESCRIBE database (https://www.cdpr.ca.gov/docs/endspec/prescint.htm) prior to any vertebrate pest control activity. The database incorporates section by section coordination with CDFW's Biogeographic Information and Observation System and the CNDDDB to provide species-specific use restrictions that are not on pesticide labels, including use of modified bait stations and what those modifications must be.</p>	<p>Impact WILD-1: Substantial adverse effect (i.e., loss or removal), either directly or through habitat modifications, on wildlife species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.</p> <p>Impact WILD-2: Substantial interference with the movement of a native resident or migratory wildlife species or with established native resident or migratory wildlife corridors, or impediment of the use of native wildlife nursery sites</p> <p>Impact WILD-3: Conflict with any local policies or ordinances protecting wildlife resources</p> <p>Impact WILD-4: Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan</p>	Operations	Compliance requirements	None	Authority; Contractor	Date: _____ Action Taken:

Mitigation Text	Impact # and Impact Title	Phase	Implementation Action	Reporting Schedule	Implementation Responsibility	Record of Implementation
<p>WILD-1.27: Construct Overhead Power Lines and Associated Equipment Following Suggested Practices to Reduce Bird Collisions with Power Lines</p> <p>The Authority will ensure that new transmission lines and associated equipment will be properly fitted with wildlife protective devices to isolate and insulate structures to prevent injury or mortality of birds. Protective measures shall follow the guidelines provided in <i>Reducing Avian Collisions with Power Lines: The State of the Art</i> (Avian Power Line Interaction Committee 2012), or the current Avian Power Line Interaction Committee guidelines in place at the time the transmission lines are installed, and will include insulating hardware or conductors against simultaneous contact, using poles that minimize impacts to birds, and increasing the visibility of conductors or wires to prevent or minimize bird collisions.</p>	<p>Impact WILD-1: Substantial adverse effect (i.e., loss or removal), either directly or through habitat modifications, on wildlife species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.</p> <p>Impact WILD-2: Substantial interference with the movement of a native resident or migratory wildlife species or with established native resident or migratory wildlife corridors, or impediment of the use of native wildlife nursery sites</p> <p>Impact WILD-3: Conflict with any local policies or ordinances protecting wildlife resources</p> <p>Impact WILD-4: Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan</p>	Preconstruction; construction; operations	Contract requirements	None	Authority; Contractor	Date: _____ Action Taken:
<p>WILD-1.28: Conduct Focused Surveys for Golden Eagle and Bald Eagle and Implement Protective Measures if Found</p> <p>Prior to the start of construction, the Authority will retain qualified wildlife biologists (experienced with raptor identification and behaviors) to conduct focused surveys for golden eagle and bald eagle nests in suitable habitat in the Project area and within a 2-mile radius of the Project area.</p> <p>The surveys will be conducted in accordance with <i>the Interim Golden Eagle Inventory and Monitoring Protocols; and other Recommendations</i> (Pagel et al. 2010), <i>Protocol for Evaluating Bald Eagle Habitat and Populations in California</i> (Jackman and Jenkins 2004), <i>Bald Eagle Breeding Survey Instructions</i> (California Department of Fish and Wildlife 2017) and <i>Updated Eagle Nest Survey Protocol</i> (U.S. Fish and Wildlife Service 2020b).</p> <p>Prior to conducting surveys, existing survey reports and other known breeding area records will be reviewed, and a map of potential nest sites will be created using GIS mapping of suitable nesting habitat. If feasible, an initial survey will be conducted during the fall or winter, prior to the initial occupancy survey, to identify existing nest sites. Nest locations will be mapped using GPS software and will be used during the occupancy surveys.</p> <p>For golden eagle, based on the results of the initial survey, aerial (helicopter) or ground surveys will be conducted to assess nest occupancy. A minimum of two aerial surveys or ground observation periods lasting at least 4 hours each will be conducted in a single breeding season (January 1 through August 31) to confirm presence/absence of golden eagle. Each survey will be conducted at least 30 days apart. Surveys will be conducted in the morning during favorable weather conditions.</p>	<p>Impact WILD-1: Substantial adverse effect (i.e., loss or removal), either directly or through habitat modifications, on wildlife species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.</p> <p>Impact WILD-2: Substantial interference with the movement of a native resident or migratory wildlife species or with established native resident or migratory wildlife corridors, or impediment of the use of native wildlife nursery sites</p> <p>Impact WILD-3: Conflict with any local policies or ordinances protecting wildlife resources</p> <p>Impact WILD-4: Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved</p>	Preconstruction; construction	Contract requirements; compliance reporting; surveying; monitoring	As needed	Authority; Qualified Biologist	Date: _____ Action Taken:

Mitigation Text	Impact # and Impact Title	Phase	Implementation Action	Reporting Schedule	Implementation Responsibility	Record of Implementation
<p>For bald eagle, based on the results of the initial survey, a minimum of three surveys will be conducted during the bald eagle nesting season (January 1 to July 31) in the year that construction will begin, and each year during the construction period, to look for new nests. The first survey will be conducted in the early breeding period in early March, and additional surveys will be conducted in mid-nesting season (late April or early May) and late in the season (mid-June). Surveys will be conducted in the morning, if feasible, during favorable weather conditions.</p> <p>For both species, the final survey methods and survey area boundaries will be determined based on coordination with USFWS and CDFW, and all survey results will be submitted to these agencies.</p> <p>No active bald eagle or golden eagle nest trees will be removed during the nesting season. If an occupied golden eagle or bald eagle nest is identified in the survey area, a no-disturbance buffer will be established around the nest site to avoid disturbance or destruction of the site, consistent with the USFWS's <i>Recommended Buffer Zones for Human Activities around Nesting Sites of Bald Eagles in California and Nevada</i> and the USFWS <i>Recommended Buffer Zones for Ground-based Human Activities around Nesting Sites of Golden Eagles in California and Nevada</i> (U.S. Fish and Wildlife Service 2017c, 2020c). If it is determined that the no-disturbance buffer cannot be maintained, the Authority and the qualified biologist will consult with USFWS and CDFW about implementing a reduced buffer but requiring full-time nest monitoring by a qualified biologist to watch for signs of stress. If behaviors indicating stress or potential nest abandonment (e.g., visible or audible agitation, leaving the nest at an unusual time or for an unusual length of time), the biologist will have the authority to stop work until the bird has returned to the nest or otherwise shows signs of recovery from the stress. Work will be delayed as long as necessary to ensure that nest abandonment does not occur.</p>	<p>local, regional, or state habitat conservation plan</p>					
<p>WILD-1.29: Compensate for the Loss of Eagle Nest Trees</p> <p>Prior to the start of construction, the Authority will prepare an Eagle Conservation Plan in consultation with USFWS, which will ensure that the loss of eagle nest trees results in a less-than-significant impact. Based on the results of the Eagle Conservation Plan and eagle nest surveys (Mitigation Measure WILD-1.28), the Authority will purchase compensatory mitigation credits from the Bald Eagle and Golden Eagle Electrocutation Prevention In-lieu Fee Program for the loss of eagle nest trees. The number of credits necessary to offset the permitted level of eagle take is determined by the permittee and USFWS during the consultation process. As such, the number of credits purchased to offset the effects of the Project will be specified in the Eagle Take Permit issued by USFWS.</p>	<p>Impact WILD-1: Substantial adverse effect (i.e., loss or removal), either directly or through habitat modifications, on wildlife species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.</p> <p>Impact WILD-2: Substantial interference with the movement of a native resident or migratory wildlife species or with established native resident or migratory wildlife corridors, or impediment of the use of native wildlife nursery sites</p> <p>Impact WILD-3: Conflict with any local policies or ordinances protecting wildlife resources</p> <p>Impact WILD-4: Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved</p>	<p>Preconstruction</p>	<p>Compliance reporting; design; acquisition/funding</p>	<p>As needed</p>	<p>Authority; Mitigation Manager</p>	<p>Date: _____ Action Taken:</p>

Mitigation Text	Impact # and Impact Title	Phase	Implementation Action	Reporting Schedule	Implementation Responsibility	Record of Implementation
	local, regional, or state habitat conservation plan					
<p>WILD-1.30: Conduct Focused Surveys for Nesting Swainson’s Hawk, White-tailed Kite, and Other Raptors Prior to Construction and Implement Protective Measures During Construction</p> <p>The Authority will retain qualified wildlife biologists (experienced with raptor identification and behaviors) to conduct focused surveys for Swainson’s hawk, white-tailed kite, and other raptor nesting areas before construction begins. Survey methodology will follow the Swainson’s Hawk Technical Advisory Committee’s methodology (Swainson’s Hawk Technical Advisory Committee 2000). A minimum of six surveys will be conducted during the appropriate timeframes discussed in the methodology. If needed, the qualified biologists will coordinate with CDFW regarding the extent and number of surveys. Surveys will generally be conducted from February to July. Survey methods and results will be reported to CDFW within 30 days of the completion of the surveys.</p> <p>Because the area surrounding the Project area is largely undeveloped, focused surveys for Swainson’s hawk and white-tailed kite will be conducted in the Project area and in a buffer area up to 0.5 mile around the Project area. The survey area for other nesting raptors will encompass potential habitat within 500 feet of work areas. The portions of the Swainson’s hawk/white-tailed kite buffer area containing unsuitable nesting habitat and/or with an obstructed line of sight to the Project area will not be surveyed.</p> <p>No active Swainson’s hawk or white-tailed kite nest trees will be removed during the nesting season. If the biologists find an active Swainson’s hawk or white-tailed kite nest, the contractor will maintain a 0.25-mile no-work buffer between construction activities and the active nest(s) until it has been determined that the young have fledged. The biologists will mark the no-work buffer with stakes and signs and will check the location at least weekly to ensure that the signs are in place and the buffer is being maintained. No work will be authorized within the buffer except for vehicle travel. If a 0.25-mile buffer around the nest cannot be maintained, the Authority and a qualified biologist will consult with CDFW about implementing alternative protective measures that are sufficient to minimize the risk of disturbance, such as a reduced buffer with full-time nest monitoring by a qualified biologist. If nesting raptors exhibit agitated behavior indicating stress, the biological monitor will have the authority to stop construction in that area until they determine that the young have fledged.</p> <p>For active nests of other raptors, no-disturbance buffers will be established around the nest sites to avoid disturbance or destruction of the sites until the end of the breeding season (August 31) or until after a qualified wildlife biologist determines that the young have fledged and moved out of the Project area (this date varies by species). The extent of these buffers will be determined by the biologist in coordination with USFWS and CDFW and will depend on the species, level of noise or construction disturbance, line of sight between the nest and the disturbance, ambient levels of noise and other disturbances, and other topographical or artificial barriers.</p>	<p>Impact WILD-1: Substantial adverse effect (i.e., loss or removal), either directly or through habitat modifications, on wildlife species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.</p> <p>Impact WILD-2: Substantial interference with the movement of a native resident or migratory wildlife species or with established native resident or migratory wildlife corridors, or impediment of the use of native wildlife nursery sites</p> <p>Impact WILD-3: Conflict with any local policies or ordinances protecting wildlife resources</p> <p>Impact WILD-4: Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan</p>	Preconstruction; construction	Contract requirements; compliance reporting; surveying	Within 30 days of completion of surveys	Authority; Qualified Biologist	Date: _____ Action Taken:
<p>WILD-1.31: Compensate for the Permanent Loss of Foraging Habitat for Swainson’s Hawk and White-tailed Kite</p> <p>The Authority will compensate for permanent loss of suitable Swainson’s hawk and white-tailed kite foraging habitat by restoring or preserving habitat onsite or offsite at a 1:1 ratio (habitat restored or preserved : habitat affected) for foraging habitat within 10 miles of an active Swainson’s hawk nest (i.e., determined active during current surveys or within the last 5 years based on available data from prior surveys, if any). Onsite or offsite mitigation</p>	<p>Impact WILD-1: Substantial adverse effect (i.e., loss or removal), either directly or through habitat modifications, on wildlife species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California</p>	Preconstruction; construction	Contract requirements; compliance reporting; acquisition/funding	As needed	Authority; Mitigation Manager; Qualified Biologist	Date: _____ Action Taken:

Mitigation Text	Impact # and Impact Title	Phase	Implementation Action	Reporting Schedule	Implementation Responsibility	Record of Implementation
<p>lands will provide suitable foraging habitat and sufficient potential nesting trees to support Swainson’s hawk (including protected trees or planted trees, or both), as determined by a qualified biologist, in an area with Swainson’s hawk nesting densities equal to or greater than nesting densities in the Project area. The Authority may purchase mitigation credits for Swainson’s hawk habitat from a CDFW-approved mitigation or conservation bank in lieu of or in addition to onsite or offsite habitat preservation. The purchase of mitigation credits or the establishment of onsite or offsite mitigation areas (or a combination of these options) would be completed as agreed upon by the Authority and CDFW.</p>	<p>Department of Fish and Wildlife or U.S. Fish and Wildlife Service.</p> <p>Impact WILD-2: Substantial interference with the movement of a native resident or migratory wildlife species or with established native resident or migratory wildlife corridors, or impediment of the use of native wildlife nursery sites</p> <p>Impact WILD-3: Conflict with any local policies or ordinances protecting wildlife resources</p> <p>Impact WILD-4: Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan</p>					
<p>WILD-1.32: Conduct Surveys and Implement Protection Measures for Special-Status Bat Species Prior to Building/Structure Demolition</p> <p>Prior to building/structure demolition, the Authority will retain a qualified biologist (defined below) to conduct preconstruction surveys and implement protective measures for pallid bat, Townsend’s big-eared bat, silver-haired bat, long-eared myotis, and other bats that roost in or on buildings and structures. At least 30 days prior to the demolition of the existing buildings and structures, qualified biologists will conduct an initial daytime survey to assess the buildings/structures for potential bat roosting habitat, and to look for bats and indications of bat use. The qualified biologists will have knowledge of the natural history of the species that may be present, have sufficient experience determining bat occupancy, and be familiar with bat survey techniques. The qualified biologist will examine both the inside and outside of the buildings/structures for potential roosting habitat, as well as routes of entry to the building and structures. Locations of any roosting bats, signs of bat use, and entry and exit points will be noted and mapped on a drawing of the buildings and structures. Roost sites will also be photographed as feasible. Depending on the results of the habitat assessment, the Authority will ensure the following steps are taken:</p> <ul style="list-style-type: none"> • If the building and structures can be assessed (i.e., sufficient areas of the buildings and structures can be examined) and no habitat or limited potential habitat for roosting bats is present and no signs of bat use are present, the building may be demolished within 24 hours. If the building is not demolished within 24 hours, another survey of the interior and exterior of the buildings/structure by a qualified biologist will be conducted within 24 hours of the scheduled demolition. • If moderate or high potential habitat for roosting bats is present and habitat can be thoroughly surveyed, the structure may be demolished within 24 hours. If there are no signs of bat use but the habitat cannot be thoroughly surveyed, measures will be implemented under the guidance of the qualified biologists to exclude bats from using the buildings and structures as a roost site to the extent feasible given the conditions of the structures, such as sealing off entry points. Prior to installing exclusion measures, the qualified biologists will re-survey the buildings and structures to ensure that no bats are present. In addition, a preconstruction survey of the interior and exterior of the 	<p>Impact WILD-1: Substantial adverse effect (i.e., loss or removal), either directly or through habitat modifications, on wildlife species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.</p> <p>Impact WILD-2: Substantial interference with the movement of a native resident or migratory wildlife species or with established native resident or migratory wildlife corridors, or impediment of the use of native wildlife nursery sites</p> <p>Impact WILD-3: Conflict with any local policies or ordinances protecting wildlife resources</p> <p>Impact WILD-4: Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan</p>	Preconstruction; construction	Contract requirements; compliance reporting; surveying; design; remedial action; exclusion fencing	As needed	Authority; Qualified Biologist	Date: _____ Action Taken:

Mitigation Text	Impact # and Impact Title	Phase	Implementation Action	Reporting Schedule	Implementation Responsibility	Record of Implementation
<p>buildings and structures will be conducted within 24 hours of demolition to confirm that no bats are present.</p> <p>If moderate or high potential habitat is present and bats or bat sign are observed, exclusion measures are not installed as described above, or the buildings or structures provide suitable habitat but cannot be fully assessed, the Authority will implement the following protective measures:</p> <ul style="list-style-type: none"> • Prior to initiating demolition activities, follow-up surveys will be conducted to determine if bats are present and the species of bats present. The qualified biologists will develop a survey plan (number, timing, and type of surveys) and conduct surveys using night vision goggles and/or active acoustic monitoring using full spectrum bat detectors will be conducted. • The qualified biologist will develop a plan to discourage or exclude bat use of buildings/structures prior to demolition based on the timing of demolition, extent of evidence of bat use or occupied habitat, and species present. The plan may include modifying the structure to be less appealing for roosting without causing harm to bats, installing exclusion measures, or using light or other means to deter bats from using the buildings and structures to roost. The plan will be submitted to CDFW for review and comment. • A preconstruction survey of the interior and exterior of the building and structures will be conducted within 24 hours of demolition to confirm that no bats are present. <p>Depending on the species of bats present, size of the bat roost, and timing of the demolition, the Authority will implement the following additional protective measures as applicable:</p> <ul style="list-style-type: none"> • To avoid impacts on maternity colonies and/or hibernating bats, buildings/structures where bats are confirmed to be present will not be demolished during the maternity season (generally assumed to be between April 15 and August 15 for this Project) or the hibernation season (generally from November 1 to March 1). Removal of occupied roosting habitat will be conducted only following the maternity season and prior to hibernation, generally between August 16 and October 31, unless exclusionary devices are first installed. Other measures, such as using lights to deter bat roosting, may be used as developed by the qualified biologist and as approved by CDFW, if applicable. • Installation of exclusion devices will be conducted only before maternity colonies establish (generally after March 1) or after they disperse (generally August 15 to October 31) to prevent bats from occupying a roost site during demolition to the extent feasible. Exclusionary devices will be installed by or under the supervision of a qualified biologist. 						
<p>WILD-1.33: Conduct Surveys and Implement Protection Measures for Special-Status Bat Species Prior to Tree Trimming and Removal</p> <p>Prior to tree trimming or removal, the Authority will retain a qualified biologist to conduct preconstruction surveys and implement protective measures for pallid bat, Townsend’s big-eared bat, silver-haired bat, western red bat, hoary bat, long-eared myotis, and other tree-roosting bats. Prior to initiating tree trimming or removal, a qualified biologist will examine the trees to be removed or trimmed to identify suitable bat roosting habitat. Because of the limited timeframe for tree removal (September 15 to October 31), the tree habitat assessment should be conducted early enough to provide information to inform tree removal planning. The biologists will identify high-quality habitat features (e.g., large tree cavities, basal hollows, loose or peeling bark, larger snags), and the area around these</p>	<p>Impact WILD-1: Substantial adverse effect (i.e., loss or removal), either directly or through habitat modifications, on wildlife species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.</p>	<p>Preconstruction; construction</p>	<p>Contract requirements; compliance reporting; surveying; remedial action</p>	<p>As needed (observation of injured or dead special-status bats will be reported)</p>	<p>Authority; Qualified Biologist</p>	<p>Date: _____ Action Taken:</p>

Mitigation Text	Impact # and Impact Title	Phase	Implementation Action	Reporting Schedule	Implementation Responsibility	Record of Implementation
<p>features will be searched for bats and indications of bat use. If the tree can be assessed and no habitat for roosting bats is present, no further actions are necessary and tree removal or trimming may commence. Because signs of bat use are not easily found, and trees cannot be completely surveyed for bat roosts, the Authority will implement the following protective measures listed below for trees containing potential roosting habitat.</p> <ul style="list-style-type: none"> Trimming or removal of trees with potentially suitable bat roosting habitat will be avoided during the maternity season (generally between April 1 and July 31) and the hibernation season (generally from November 1 to March 1). Removal of trees providing bat roosting habitat will be conducted only before maternity colonies establish (generally after March 1) or after they disperse (generally August 1 to October 31). If a maternity roost is found, the roost will be protected until July 31 or until the qualified biologist has determined the maternity roost is no longer active. Appropriate no-work buffers around the roost will be established under direction of the qualified biologist. Buffer distances may vary depending on the species and activities being conducted. Trimming and removal of trees (between July 31 and October 31) with suitable roosting habitat will be monitored by a qualified biologist. Tree trimming and removal will be conducted using a two-phase removal process conducted over two consecutive days. In the afternoon on the first day, limbs and branches will be removed using chainsaws only. Only branches or limbs without cavities, crevices, or deep bark fissures will be removed; branches and limbs with these features will be avoided. On the second day, the entire tree will be removed. The qualified biologist will search through downed vegetation for injured or dead bats. Observation of injured or dead special-status bats will be reported to CDFW. 	<p>Impact WILD-2: Substantial interference with the movement of a native resident or migratory wildlife species or with established native resident or migratory wildlife corridors, or impediment of the use of native wildlife nursery sites</p> <p>Impact WILD-3: Conflict with any local policies or ordinances protecting wildlife resources</p> <p>Impact WILD-4: Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan</p>					
<p>WILD-1.34: Compensate for Permanent Impacts on Occupied Roosting Habitat</p> <p>The Authority will compensate for the permanent loss of occupied roosting habitat by constructing and/or installing suitable replacement habitat onsite or at an offsite preservation area. The roosting habitat type and design will be developed in coordination with CDFW. A monitoring plan will be prepared to ensure the replacement habitat is maintained and functions as intended. Annual reports will be submitted to CDFW to document compliance with monitoring requirements.</p>	<p>Impact WILD-1: Substantial adverse effect (i.e., loss or removal), either directly or through habitat modifications, on wildlife species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.</p> <p>Impact WILD-2: Substantial interference with the movement of a native resident or migratory wildlife species or with established native resident or migratory wildlife corridors, or impediment of the use of native wildlife nursery sites</p> <p>Impact WILD-3: Conflict with any local policies or ordinances protecting wildlife resources</p> <p>Impact WILD-4: Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved</p>	Preconstruction; construction; postconstruction	Contract requirements; compliance reporting; acquisition/funding	Annually	Authority; Mitigation Manager	Date: _____ Action Taken:

Mitigation Text	Impact # and Impact Title	Phase	Implementation Action	Reporting Schedule	Implementation Responsibility	Record of Implementation
	local, regional, or state habitat conservation plan					
<p>WILD-1.35: Implement Protective Measures to Avoid and Minimize Potential Impacts on American Badger</p> <p>Where suitable habitat is present for American badger in and within 200 feet of work areas where ground disturbance will occur, the Authority will implement the following protective measures.</p> <ul style="list-style-type: none"> The Authority will retain qualified biologists (experienced with the identification of suitable badger dens) to conduct a preconstruction survey for active badger dens prior to temporary or permanent ground disturbance. The preconstruction survey will be conducted no less than 14 days and no more than 30 days before the beginning of ground disturbance. The biologists will conduct den searches by systematically walking transects through the area to be disturbed and a 200-foot buffer area. Transect distance should be based on the height of vegetation such that 100% visual coverage of the disturbance area is achieved. If a suitable or occupied den is found during the survey, the biologist will record the den dimensions, the shape of the den entrance, presence of tracks, scat, or prey remains, den occupancy (i.e., suitable, potentially occupied, or occupied), recent excavations at the den site, and the den location. To the maximum extent feasible, disturbance or destruction of suitable dens for American badger in temporary impact areas will be avoided. Any occupied or potentially occupied American badger den will be avoided by establishing an exclusion zone around the den. For potentially occupied dens, a 50-foot exclusion zone will be applied around the den; for occupied dens, a 100-foot exclusion zone will be applied around the den. The width of exclusion zones around maternity dens may exceed 100 feet, will be determined through coordination with CDFW, and will remain in place throughout the pup-rearing season (February 15 through July 1). Any adjustments to buffers will require prior written approval by CDFW. If the den cannot be avoided, the Authority will contact CDFW for direction on additional steps to be taken. Unoccupied suitable dens that would be destroyed by construction may be removed by hand excavation by a biologist or under the supervision of a biologist; a mini excavator may be used to facilitate excavation of dens. 	<p>Impact WILD-1: Substantial adverse effect (i.e., loss or removal), either directly or through habitat modifications, on wildlife species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.</p> <p>Impact WILD-2: Substantial interference with the movement of a native resident or migratory wildlife species or with established native resident or migratory wildlife corridors, or impediment of the use of native wildlife nursery sites</p> <p>Impact WILD-3: Conflict with any local policies or ordinances protecting wildlife resources</p> <p>Impact WILD-4: Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan</p>	Preconstruction; construction	Contract requirements; compliance reporting; surveying; exclusion fencing; acquisition/funding	As needed	Authority; Qualified Biologist	Date: _____ Action Taken:
Aquatic Biological Resources						
<p>FISH-8.1: Prevent Detrimental Dissolved Oxygen and Water Temperature Effects on Fish Associated with Moving Colusa Basin Drain Water Through the Yolo Bypass</p> <p>To evaluate potential water quality effects, when Project releases are made via the Dunnigan Pipeline to the Yolo Bypass DO and water temperature will be measured at 15-minute intervals within 50 feet of the Project discharge location at the Dunnigan Pipeline, at existing California Data Exchange Center stations at the upstream end of the Yolo Bypass at Ridge Cut Slough, and at the downstream end at Lisbon Weir. Measurements of DO and water temperature will occur before and during the period of CBD discharge to the Yolo Bypass, the same as is described for Mitigation Measure WQ-2.2.</p> <p>Downstream DO and temperature measurements, together with water quality measurements of water released from Sites Reservoir, will be evaluated to determine whether habitat flow releases from Sites Reservoir would lower DO and increase temperatures in the Yolo Bypass Toe Drain and Cache Slough Complex to a level that could</p>	Impact FISH-8: Operations effects on delta smelt	Operations	Contract requirements; compliance reporting; monitoring	As needed	Authority	Date: _____ Action Taken:

Mitigation Text	Impact # and Impact Title	Phase	Implementation Action	Reporting Schedule	Implementation Responsibility	Record of Implementation								
<p>be detrimental to delta smelt inhabiting these areas. Dissolved oxygen and temperature criteria for determining effects will be developed in collaboration with the fishery agencies and will maintain existing DO and temperature levels suitable to delta smelt that will not exceed recognized critical physiological thresholds. This evaluation will be part of ongoing monitoring to determine benefits of the Yolo Bypass habitat flows and the Project's funded ecosystem benefits under WSIP. CDFW would have the discretion to modify WSIP water that is released to Yolo Bypass, depending on best available science and fish needs. If measurements indicate DO or temperature criteria are exceeded in the Yolo Bypass Toe Drain and Cache Slough Complex as a result of Project releases and these criteria cannot be maintained for delta smelt, actions to improve DO concentration and temperature will be implemented. Mitigative actions may include, but are not limited to one or more of the following types of measures:</p> <ul style="list-style-type: none"> • Use of engineered actions (e.g., installation of aerators) to prevent exceedance of critical physiological thresholds for delta smelt. • Cessation of releases of flow to the Yolo Bypass until temperature and DO concentration do not exceed critical physiological thresholds for delta smelt. 														
<p>FISH-9.1: Tidal Habitat Restoration for Longfin Smelt Tidal habitat restoration mitigation for longfin smelt was calculated based on the same method recently applied by DWR (2019d:5-5). The method is described in more detail in Appendix 11F, Section 11F.7, <i>Tidal Habitat Restoration Mitigation Calculations for Longfin Smelt</i>. The mitigation requirement for each alternative varies between 5.1 and 9.7 acres (Table 11-89). The mitigation will consist of tidal wetland habitat within the Delta/Suisun Marsh and will be completed prior to commencement of Project operations.</p> <p>Table 11-89. Tidal Habitat Restoration Mitigation for Longfin Smelt (Acres).</p> <table border="1"> <thead> <tr> <th>Alt 1A</th> <th>Alt 1B</th> <th>Alt 2</th> <th>Alt 3</th> </tr> </thead> <tbody> <tr> <td>5.1</td> <td>8.3</td> <td>5.1</td> <td>9.7</td> </tr> </tbody> </table>	Alt 1A	Alt 1B	Alt 2	Alt 3	5.1	8.3	5.1	9.7	Impact FISH-9: Operations effects on longfin smelt	Construction	Contract requirements; compliance reporting; funding	As needed	Authority	Date: _____ Action Taken:
Alt 1A	Alt 1B	Alt 2	Alt 3											
5.1	8.3	5.1	9.7											
Geology and Soils														
<p>GEO-7.1: Retain a Qualified Paleontological Resource Specialist Prior to the Start of Construction The Authority will retain a qualified Paleontological Resource Specialist once the construction footprint can be accessed and the engineering design is at sufficient level of detail but at least 90 days prior to the start of construction. The Paleontological Resource Specialist will meet the minimum or equivalent qualifications for a paleontological resources manager, as described in the SVP guidelines (2010).</p> <p>The Authority will retain qualified Paleontological Resource Monitors with the assistance of the Paleontological Resource Specialist to monitor construction activities, as described in the PRMMP. Paleontological Resource Monitors will have the equivalent of the following qualifications:</p> <ul style="list-style-type: none"> • Bachelor of Science or Bachelor of Arts degree in geology or paleontology and 1 year of experience monitoring in California • Associate of Science or Associate of Arts degree in geology, paleontology, or biology and 4 years of experience monitoring in California • Enrollment in upper-division classes pursuing a degree in the fields of geology or paleontology and 2 years of monitoring experience in California. 	Impact GEO-7: Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature	Preconstruction; construction	Contract requirements; monitoring	None	Authority; Qualified Paleontological Resources Monitor	Date: _____ Action Taken:								

Mitigation Text	Impact # and Impact Title	Phase	Implementation Action	Reporting Schedule	Implementation Responsibility	Record of Implementation
<p>GEO-7.2: Consultation with the Paleontological Resource Specialist Prior to and During Project Construction</p> <p>At least 30 days prior to the start of construction, the Authority will provide maps or drawings to the Paleontological Resource Specialist that show the planned construction footprint. Maps will identify all areas where ground disturbance is anticipated during Project implementation. The plan drawings will show the location, depth, and extent of all ground disturbances affecting paleontologically sensitive sediment. If construction proceeds in phases, maps and drawings may be submitted prior to the start of each phase. In addition, the proposed schedule of each Project phase will be provided to the Paleontological Resource Specialist. Before work commences on affected phases, the Authority will notify the Paleontological Resource Specialist of any construction phase scheduling changes.</p>	<p>Impact GEO-7: Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature</p>	Preconstruction; construction	Contract requirements	None	Authority; Qualified Paleontological Resources Specialist	Date: _____ Action Taken:
<p>GEO-7.3: Prepare and Implement a Paleontological Resources Monitoring and Mitigation Plan</p> <p>Once the construction footprint can be accessed and the engineering design is at sufficient level of detail, the Authority will prepare a PRMMP to identify general and specific measures to minimize potential effects on significant paleontological resources. Approval of the PRMMP by the Authority will occur prior to any ground disturbance. The PRMMP will function as the formal guide for paleontological resources monitoring, collecting, and sampling activities, and may be modified by the Authority to accommodate new data or changes to the Project. This document will be used as the basis of discussion when onsite decisions or changes are proposed. Copies of the PRMMP will reside with the Authority, Paleontological Resource Specialist, each Paleontological Resource Monitor, and the Authority's onsite manager.</p> <p>The PRMMP will be developed in accordance with professional guidelines and be consistent with those issued by SVP (2010) and will include the following:</p> <ul style="list-style-type: none"> Procedures for the performance and sequence of resource-related tasks, such as any literature searches, preconstruction surveys, appropriate worker environmental training module, construction monitoring, mapping and data recovery, discovery situations, fossil preparation and collection, identification and inventory, preparation of final reports, transmittal of materials for curation, and final report will be provided in the PRMMP, including: <ul style="list-style-type: none"> A discussion of the geologic units expected to be encountered, the location and depth of the units relative to the Project footprint, when known, and the known paleontological sensitivity of those units A discussion of the locations of where the monitoring of construction activities is deemed necessary, and a proposed plan for monitoring and sampling An explanation of why, how, and how much sampling is expected to take place and in what units, including descriptions of different sampling procedures that may be used A discussion of procedures to be followed in the event of a significant fossil discovery, diverting construction away from a find, resuming construction, and how notifications will be performed A discussion of equipment and supplies necessary for collection of fossil materials and any specialized equipment needed to prepare, remove, load, transport, and analyze large-sized fossils or extensive fossil deposits 	<p>Impact GEO-7: Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature</p>	Preconstruction; construction	Contract requirements; compliance reporting; design; surveying; monitoring, remedial action	As needed	Authority; Qualified Paleontological Resources Specialist	Date: _____ Action Taken:

Mitigation Text	Impact # and Impact Title	Phase	Implementation Action	Reporting Schedule	Implementation Responsibility	Record of Implementation
<ul style="list-style-type: none"> Procedures for inventory, preparation, and delivery for curation into a retrievable storage collection in a repository or museum, which meet SVP standards and requirements for the curation of paleontological resources Identification of the institution(s) that will be approached to receive data and fossil materials collected, and requirements or specifications for materials delivered for curation <p>The PRMMP will also provide guidance for preparation of a Paleontological Resources Report by the designated Paleontological Resource Specialist at the conclusion of ground-disturbing activities that may affect paleontological resources. The Paleontological Resources Report will include an analysis of the collected fossil materials and related information, including a description and inventory of recovered fossil materials, a map showing the location of paleontological resources encountered, determinations of sensitivity and significance, and a statement by the Paleontological Resource Specialist that effects on paleontological resources have been mitigated to be not adverse.</p>						
<p>GEO-7.4: Conduct Monitoring During Project Construction and Prepare Monthly Reports</p> <p>The Authority will ensure that the Paleontological Resource Specialist and Paleontological Resource Monitor(s) monitor construction excavations consistent with the PRMMP in areas where potential fossil-bearing materials have been identified, both at reservoir sites and along any constructed linear facilities associated with the Project.</p> <p>The Authority will ensure that the Paleontological Resource Specialist and Paleontological Resource Monitor(s) have the authority to halt or redirect construction if paleontological resources are encountered. The Authority will ensure that there is no interference with monitoring activities, as directed by the Paleontological Resource Specialist.</p> <p>The Authority will ensure that the Paleontological Resource Specialist prepares and submits monthly summaries of monitoring and other paleontological resources management activities. The summary will include the name(s) of the Paleontological Resource Specialist or Paleontological Resource Monitor(s) active during the month; general descriptions of training and monitored construction activities; and general locations of excavations, grading, and other activities. A section of the report will include the geologic units or subunits encountered, descriptions of samplings, if any, and a list of identified fossils. A final section of the report will address any issues or concerns about the Project relating to paleontological resources mitigation activities, including any incidents of non-compliance or any changes to the monitoring plan by the Paleontological Resource Specialist. If no monitoring took place during the month, the report will include an explanation as to why monitoring was not conducted.</p>	<p>Impact GEO-7: Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature</p>	Construction	Contract requirements; compliance reporting; monitoring	Monthly	Authority; Paleontological Resources Specialist; Qualified Paleontological Resources Monitor	Date: _____ Action Taken:
<p>GEO-7.5: Ensure Implementation of the Paleontological Resources Monitoring and Mitigation Plan</p> <p>The Authority, through the designated Paleontological Resource Specialist, will ensure that all components of the PRMMP are performed during construction.</p>	<p>Impact GEO-7: Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature</p>	Construction	Contract requirements; compliance reporting	As needed	Authority; Paleontological Resources Specialist	Date: _____ Action Taken:
Agriculture and Forestry Resources						
<p>AG-1.1: Purchase Agricultural Conservation Easements to Preserve Regional Important Farmland</p> <p>Prior to the commencement of any Project activities that would result in the permanent conversion of Important Farmland, the Authority will enter into an agreement with the DOC California Farmland Conservancy Program to mitigate for the permanent conversion of Important Farmland through purchase of agricultural easements. The Authority will fund</p>	<p>Impact WILD-1: Substantial adverse effect (i.e., loss or removal), either directly or through habitat modifications, on wildlife species identified as a candidate, sensitive, or special-status species in local or regional plans, policies,</p>	Preconstruction; construction; operations	Contract requirements; acquisition/funding	None	Authority; Mitigation Manager	Date: _____ Action Taken:

Mitigation Text	Impact # and Impact Title	Phase	Implementation Action	Reporting Schedule	Implementation Responsibility	Record of Implementation
<p>the California Farmland Conservancy Program to enable them to (1) identify suitable agricultural land for mitigation of Project impacts and (2) fund the purchase of agricultural conservation easements from willing sellers. The Authority will coordinate with the California Farmland Conservancy Program to identify suitable lands and purchase agricultural conservation easements from willing sellers at a ratio of at least 1:1 to preserve Important Farmland in an amount commensurate with the quantity and quality of converted farmlands.</p>	<p>or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.</p> <p>Impact WILD-2: Substantial interference with the movement of a native resident or migratory wildlife species or with established native resident or migratory wildlife corridors, or impediment of the use of native wildlife nursery sites</p> <p>Impact WILD-3: Conflict with any local policies or ordinances protecting wildlife resources</p> <p>Impact WILD-4: Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan</p> <p>Impact AG-1: Conversion of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to nonagricultural use.</p> <p>Impact AG-2: Conflict with existing zoning for agricultural use or a Williamson Act contract</p> <p>Impact AG-3: Conversion of Prime Farmland, Farmland of Statewide Importance, or Unique Farmland, as designated under the federal Farmland Protection Policy Act, to nonagricultural use</p>					
<p>AG-2.1: Minimize Impacts on Williamson Act–Contracted Lands, Comply with Government Code Sections 51290–51293, and Coordinate with Landowners and Agricultural Operators</p> <p>To reduce impacts on lands under Williamson Act contract, the Authority will implement the measures below.</p> <ul style="list-style-type: none"> The Authority will comply with Government Code Sections 51290–51293 with respect to acquiring lands under Williamson Act contract. <ul style="list-style-type: none"> Sections 51290(a)–51290(b) state that State policy, consistent with the purpose of the Williamson Act to preserve and protect agricultural land, is to avoid locating public improvements and any public utilities improvements in agricultural preserves, whenever practicable. If such improvements must be located within a preserve, they will be located on land that is not under contract. 	<p>Impact AG-2: Conflict with existing zoning for agricultural use or a Williamson Act contract</p>	<p>Construction; operations</p>	<p>Contract requirements; compliance reporting; acquisition/funding</p>	<ol style="list-style-type: none"> Within 10 working days upon completion of land acquisition; Before completion of any proposed substantial changes to the public improvement; and Before acquired land is returned to private ownership. 	<p>Authority</p>	<p>Date: _____ Action Taken:</p>

Mitigation Text	Impact # and Impact Title	Phase	Implementation Action	Reporting Schedule	Implementation Responsibility	Record of Implementation
<ul style="list-style-type: none"> Whenever it appears that land within a preserve or under contract may be required for a public improvement, DOC and the local jurisdiction responsible for administering the preserve must be notified (Section 51291(b)). Within 30 days of being notified, DOC and the local jurisdiction will forward comments to the Authority, which the Authority must consider (Section 51291(b)). A public improvement may not be located within an agricultural preserve unless findings are made that (1) the location is not based primarily on the lower cost of acquiring land in an agricultural preserve and (2) for agricultural land covered under a contract for any public improvement, no other land exists within or outside the preserve where it is reasonably feasible to locate the public improvement (Sections 51921(a) and 51921(b)). The contract will be terminated when land is acquired by eminent domain or in lieu of eminent domain (Section 51295). The Authority will notify DOC within 10 working days upon completion of the acquisition (Section 51291(c)). The Authority will notify DOC and the local jurisdiction before completion of any proposed substantial changes to the public improvement (Section 51291(d)). If, after acquisition, the Authority determines that the property will not be used for the proposed public improvement, DOC and the local jurisdiction administering the involved preserve will be notified before the land is returned to private ownership. The land would be reenrolled in a new contract or encumbered by an enforceable restriction at least as restrictive as that provided by the Williamson Act (Section 51295). The Authority will coordinate with landowners and agricultural operators to sustain existing agricultural operations, at the landowners' discretion, within the study area until the individual agricultural parcels are needed for Project construction. 						
Air Quality						
<p>AQ-1.1: Zero Emission and/or Near Zero Emission Vehicles and Off-Road Equipment This mitigation measure will reduce the impact of Project construction emissions from on-road vehicles and off-road equipment through the following commitments.</p> <ul style="list-style-type: none"> The Authority will require that all construction contractors use ZE or NZE technology for all light-duty on-road vehicles (e.g., passenger cars, light-duty trucks) associated with the Project to the maximum extent feasible. The Authority will require that all construction contractors use ZE or NZE technology for heavy-duty on-road vehicles (e.g., for hauling, material delivery and soil import/export) associated with the Project to the maximum extent feasible. The Authority will require that all Project construction contractors use ZE or NZE vehicles for off-road construction equipment use associated with the Project to the maximum extent feasible. <p>For all the above requirements, the Authority will require that construction contractors provide documentation to the Authority, on an annual basis at minimum, showing the percentage of vehicles and equipment that are ZE or NZE. Based on this reporting, the Authority will require that all construction contractors are meeting minimum percentages of ZE or NZE vehicles and equipment, and those minimum percentages will be determined at the time of construction. If local or state regulations mandate a faster transition to using ZE and/or NZE vehicles at the time of construction, the more stringent regulations will be</p>	<p>Impact AQ-1: Result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is nonattainment under an applicable federal or state ambient air quality standard during construction, or conflict with or obstruct implementation of the applicable air quality plan</p> <p>Effect EJ-1: Disproportionate and adverse effects on minority populations</p> <p>Effect EJ-2: Disproportionate and adverse effects on low-income populations</p>	Construction	Contract requirements; compliance reporting	Annually (at minimum)	Authority; Contractor	Date: _____ Action Taken:

Mitigation Text	Impact # and Impact Title	Phase	Implementation Action	Reporting Schedule	Implementation Responsibility	Record of Implementation
<p>applied. It is possible that such new regulations will be adopted; Executive Order N-79-20, issued by California Governor Newsom on September 23, 2020, states the following objectives:</p> <ul style="list-style-type: none"> • Light duty and passenger car sales be 100% zero-emission vehicles (ZEV) by 2035 • Full transition to ZEV short haul/drayage trucks by 2035 • Full transition to ZEV heavy-duty long-haul trucks, where feasible, by 2045 • Full transition to ZE off-road equipment by 2035, where feasible. 						
<p>AQ-1.2: Offset Construction-Generated Criteria Pollutants in CCAPCD, GCAPCD, and YSAQMD</p> <p>Prior to issuance of construction contracts, the Authority will enter into a memorandum or multiple memoranda of understanding (MOU) with CCAPCD, GCAPCD, YSAQMD, TCAPCD, or other air district located in the SVAB (collectively referred to as the Air Districts), to reduce NO_x and PM₁₀. Emissions above the CEQA thresholds will be reduced to the extent practicable and feasible, per the following criteria:</p> <ul style="list-style-type: none"> • The Authority will identify emissions offsets in geographies closest to the Project first (Maxwell, Willows, Colusa County, Glenn County) and only go to larger geographies (i.e., other counties in the SVAB) if adequate offsets cannot be found in closer geographies or the procurement of such offsets would create an undue financial burden. All offsets must occur within the SVAB. The Authority will provide the following justification for not using offsets in closer geographies in terms of either availability or cost prohibition. <ul style="list-style-type: none"> • No mechanism or program will be available in the reasonably foreseeable future to track the quantity of offsets available in closer geographies, or it is otherwise not possible to accurately verify and account for the exchange of offsets. • Lack of enough offsets available in closer geographies. • Prohibitively costly offsets in closer geographies as defined by the Authority. • Offsets in any geography within the SVAB would be infeasible based on these criteria as well (lack of enough offsets and/or prohibitively costly as defined above). <p>The mitigation offset fee amount will be determined at the time of mitigation to fund emissions reduction projects within the SVAB. The Air Districts may require an additional administrative fee to cover staff time, and that fee will be determined in the MOU(s). The mitigation offset fee will be determined by the Authority and the Air Districts based on the type of projects available at the time of mitigation. The fee is intended to fund emissions reduction projects to achieve reductions. Documentation of payment will be provided to the Authority or its designated representative.</p> <p>The MOU will include details for the annual calculation of required offsets the Authority must achieve, funds to be paid, administrative fee, and the timing of the emissions reduction projects. Acceptance of this fee by the Air Districts will serve as an acknowledgment and commitment by Air Districts to: (1) implement an emissions reduction project(s) within a timeframe to be determined based on the type of project(s) selected after receipt of the mitigation fee designed to achieve the emission reduction objectives; and (2) provide documentation to the Authority or its designated representative describing the project(s) funded by the mitigation fee, including the amount of emissions reduced (tons per year) in the SVAB from the emissions reduction project(s). To qualify under this mitigation measure, the specific emissions reduction project(s) must result in emission reductions in the SVAB that are real, surplus, quantifiable, enforceable, and will not otherwise be achieved through compliance with existing regulatory requirements or any</p>	<p>Impact AQ-1: Result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is nonattainment under an applicable federal or state ambient air quality standard during construction, or conflict with or obstruct implementation of the applicable air quality plan</p> <p>Effect EJ-1: Disproportionate and adverse effects on minority populations</p> <p>Effect EJ-2: Disproportionate and adverse effects on low-income populations</p>	Preconstruction	Contract requirements; compliance reporting; design; funding	Annually	Authority	Date: _____ Action Taken:

Mitigation Text	Impact # and Impact Title	Phase	Implementation Action	Reporting Schedule	Implementation Responsibility	Record of Implementation
<p>other legal requirement. Funding will need to be received prior to contracting with participants and should allow enough time to receive and process applications to fund and implement offsite reduction projects prior to commencement of Project activities being reduced. This will roughly equate to 1 year prior to the required mitigation; additional lead time may be necessary depending on the level of offsite emission reductions required for a specific year. Because all of the Air Districts where Project activities would occur are located in the SVAB, the offsets do not need to occur within the same Air District as the emissions exceedances.</p>						
<p>AQ-2.1: Recreational Boat Emissions Minimization Plan</p> <p>To reduce ROG emissions from recreational boats at the reservoir, the Authority will develop and implement an emissions reduction plan. The plan will include strategies that the Authority will implement during the operational lifetime of the recreational area at the reservoir that are likely to reduce emissions. The plan will be part of the Recreation Management Plan (Section 2D.8) and thus approved at the same time as the Recreation Management Plan. The strategies that the Authority could implement to reduce boat emissions include but are not limited to the following.</p> <ul style="list-style-type: none"> • Provide free or reduced launch fees for low-emitting or electric boats, to incentivize boats that are alternatively fueled. • Post signage near launch areas encouraging users to turn off the boat engines when not in use. • Track boat usage and type (i.e., motorized, electric, nonmotorized) at the reservoir on an annual basis by maintaining records of the number and types of boats operated at the reservoir. To maintain these records, the Authority will operate staffed kiosks at the reservoir, and boat users will be required to check in at these kiosks prior to launching their boats. Emissions from boat usage will be quantified based on the Authority's records, and the effectiveness of the minimization plan will be assessed based on the quantification results and relative to the applicable air district threshold at the time of operations. 	<p>Impact AQ-2: Result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is nonattainment under an applicable federal or state ambient air quality standard during operations, or conflict with or obstruct implementation of the applicable air quality plan</p> <p>Effect EJ-1: Disproportionate and adverse effects on minority populations</p> <p>Effect EJ-2: Disproportionate and adverse effects on low-income populations</p>	Operations	Design; compliance reporting	As needed	Authority	Date: _____ Action Taken:
<p>AQ-2.2: Offset Operation-Generated Criteria Pollutants in CCAPCD and GCAPCD</p> <p>Prior to issuance of the commencement of recreational boating activities, the Authority will enter into a memorandum or multiple MOUs with CCAPCD, GCAPCD, YSAQMD, TCAPCD, or other air district located in the SVAB (collectively referred to as the Air Districts), to reduce ROG. Per Mitigation Measure AQ-2.1, the emissions from recreational boat use will be quantified. The emissions in excess of the applicable air district thresholds at the time of operations, including the total of all operations-related activity (e.g., boat use, maintenance activities, recreational visitor vehicle trips) will be offset to the maximum extent possible. Emissions above the CEQA thresholds will be reduced as much as possible, per the following criteria.</p> <ul style="list-style-type: none"> • The Authority will identify emissions offsets in geographies closest to the Project first (Maxwell, Willows, Colusa County, Glenn County) and only go to larger geographies (i.e., other counties in the SVAB) if adequate offsets cannot be found in closer geographies or the procurement of such offsets would create an undue financial burden. All offsets must occur within the SVAB. The Authority will provide the following justification for not using offsets in closer geographies in terms of either availability or cost prohibition. • No mechanism or program will be available in the reasonably foreseeable future to track the quantity of offsets available in closer geographies, or it is otherwise not possible to accurately verify and account for the exchange of offsets. 	<p>Impact AQ-2: Result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is nonattainment under an applicable federal or state ambient air quality standard during operations, or conflict with or obstruct implementation of the applicable air quality plan</p> <p>Effect EJ-1: Disproportionate and adverse effects on minority populations</p> <p>Effect EJ-2: Disproportionate and adverse effects on low-income populations</p>	Operations	Compliance reporting; funding	Annually	Authority	Date: _____ Action Taken:

Mitigation Text	Impact # and Impact Title	Phase	Implementation Action	Reporting Schedule	Implementation Responsibility	Record of Implementation
<ul style="list-style-type: none"> Lack of enough offsets available in closer geographies. Prohibitively costly offsets in closer geographies as defined by the Authority. Offsets in any geography within the SVAB would be infeasible based on these criteria as well (lack of enough offsets and/or prohibitively costly as defined above). The mitigation offset fee amount will be determined at the time of mitigation to fund emissions reduction projects within the SVAB. The Air Districts may require an additional administrative fee to cover staff time, and that fee will be determined in the MOU(s). The mitigation offset fee will be determined by the Authority and the Air Districts based on the type of projects available at the time of mitigation. The fee is intended to fund emissions reduction projects to achieve reductions. Documentation of payment will be provided to the Authority or its designated representative. The MOU will include details for the annual calculation of required offsets the Authority must achieve, funds to be paid, administrative fee, and the timing of the emissions reduction projects. Acceptance of this fee by the Air Districts will serve as an acknowledgment and commitment by Air Districts to: (1) implement an emissions reduction project(s) within a timeframe to be determined based on the type of project(s) selected after receipt of the mitigation fee designed to achieve the emission reduction objectives; and (2) provide documentation to the Authority or its designated representative describing the project(s) funded by the mitigation fee, including the amount of emissions reduced (tons per year) in the SVAB from the emissions reduction project(s). To qualify under this mitigation measure, the specific emissions reduction project(s) must result in emission reductions in the SVAB that are real, surplus, quantifiable, enforceable, and will not otherwise be achieved through compliance with existing regulatory requirements or any other legal requirement. Funding will need to be received prior to contracting with participants and should allow enough time to receive and process applications to fund and implement offsite reduction projects prior to commencement of Project activities being reduced. This will roughly equate to 1 year prior to the required mitigation; additional lead time may be necessary depending on the level of offsite emission reductions required for a specific year. Because all of the Air Districts where Project activities would occur are located in the SVAB, the offsets do not need to occur within the same Air District as the emissions exceedances. 						
Greenhouse Gas Emissions						
<p>GHG-1.1: Achieve Net-Zero Emissions Through a GHG Reduction Plan</p> <p>To achieve net-zero emissions, the Authority will develop a GHG Reduction Plan to reduce Project emissions from onsite and offsite sources. The Authority will retain a qualified consultant to develop a GHG Reduction Plan to reduce GHG emissions resulting from construction and operational activities to net zero. Net additional GHG emissions from the construction period and annual emissions from operations have been quantified as part of this analysis. Construction emissions total to 348,648 to 351,362 metric tons of CO₂e depending on the alternative and variant of the Project. Annual operational emissions could be a maximum of 72,736 metric tons CO₂e, which corresponds to Alternative 1A, but are expected to continually decrease in future years as the electric power sector transitions to more renewable sources of energy. This yields a reduction commitment of up to 351,362 metric tons CO₂e total for construction and up to 72,736 metric tons of CO₂e annually needed to meet the net-zero performance standard. These maximum values of 72,736 metric tons CO₂e and 351,362 metric tons CO₂e correspond to Alternatives 1A and 2, respectively. Table 21-6 summarizes the reduction by alternative.</p>	<p>Impact GHG-1: Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment or conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases</p>	<p>Preconstruction; construction; operations</p>	<p>Design; contract requirements; compliance reporting; design; monitoring; reporting; funding</p>	<p>At least quarterly during construction Annually during operations</p>	<p>Authority; Contractor; Mitigation Manager</p>	<p>Date: _____ Action Taken:</p>

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Table 21-6 Summary of Metric Ton Reduction (metric tons CO2e)														
	Alternatives 1A		Alternative 1B		Alternative 2		Alternative 3							
Year	Variant 1^a	Variant 2^b	Variant 1	Variant 2	Variant 1	Variant 2	Variant 1	Variant 2						
Total Construction Emissions Commitment	348,648	348,796	348,648	348,796	351,317	351,362	348,648	348,796						
Maximum Annual Operational Emissions Commitment (Long-Term Average)	60,610	60,610	59,573	59,573	59,003	59,003	56,613	56,613						
Maximum Annual Operational Emissions Commitment (Dry and Critically Dry)	72,736	72,736	72,070	72,070	71,056	71,056	67,778	67,778						
<p>Notes:</p> <p>CO₂e = carbon dioxide equivalent.</p> <p>^a Variant 1 assumes the Project would connect to existing Western Area Power Administration utility infrastructure.</p> <p>^b Variant 2 assumes the Project would connect to existing Pacific Gas and Electric utility infrastructure.</p> <p>As noted in the text of this measure, below, the net-zero performance standard may be achieved based on actual emission calculations, and thus the Authority's reduction commitment may differ from the values included in this analysis.</p> <p>The GHG Reduction Plan will include the following content and adhere to the following requirements.</p> <ol style="list-style-type: none"> <i>Emissions Quantities and Reduction Commitments:</i> GHG emissions from construction and operations must be reduced to net zero on a continual basis throughout construction and operations. Advanced planning for GHG reductions will be necessary to ensure that the net effect of Project emissions and this mitigation is that the Project will not result in any increase in GHG emissions relative to the No Project Alternative throughout the construction and operational period. The Authority will thus need to proactively assess upcoming construction activity and implement early investment in GHG reduction efforts prior to construction (to ensure that the emissions that are being mitigated through other measures are only those that are unavoidable). Since some of the planning will be reliant on the estimated GHG reduction value of future actions during construction and operation (as discussed below) there may be an emissions credit debt if emissions are higher than expected or if certain measures do not achieve the reductions that were anticipated. Conversely, if emissions are lower than expected or measures achieve higher reductions than expected, the Authority may bank credits for the next year of construction and/or operations. <i>Plan Development:</i> The GHG Reduction Plan will identify the amount of GHG emissions anticipated during each construction phase. Amendments to the GHG Reduction Plan may be made during the construction period for the purpose of giving the Authority flexibility to adapt to changing technologies that have increasing effectiveness at reducing emissions and/or changes in expected construction emissions or available mitigation approaches. For operations, the GHG Reduction Plan may be developed and implemented in 5-year increments and can be amended to include more cost effective or environmentally beneficial technologies. This analysis presents an estimate of 														

Mitigation Text	Impact # and Impact Title	Phase	Implementation Action	Reporting Schedule	Implementation Responsibility	Record of Implementation
<p>annual GHG emissions generated by Project construction and operations. Although the emissions provided in this analysis could be used to inform the required mitigation commitment, the methods used to quantify emissions are conservative. This analysis does not account for any GHG reduction measures that may be implemented by the Authority pursuant to this measure. Accordingly, this EIR likely overestimates actual GHG emissions that would be generated by the Project. The Authority may therefore reanalyze GHG emissions for construction and/or operation of the Project to update the required reduction commitment to achieve net zero.</p> <p>Updated emissions analysis conducted for the GHG Reduction Plan will be performed using approved emissions models and methods available at the time of that analysis. Updated emissions analysis conducted for the GHG Reduction Plan will, at a minimum, consider the categories and types of emission sources included in this Final EIR/EIS; additional categories and types of emission sources should be considered for inclusion based on then-available scientific information. The analysis must use the latest available engineering data for the Project, inclusive of any required BMPs or GHG emissions reduction measures. Consistent with the methodology used in this analysis, emission factors may account for enacted regulations that will influence future year emissions intensities (e.g., fuel efficiency standards for on-road vehicles). Net emissions from changes in operations emissions will be quantified using approved methods at the time of analysis and applicable activity data for each component of operations (such as maintenance activities, recreational vehicle trips, recreational boating, public services and utilities, water conveyance, and land use, including water storage).</p> <p>3. <i>GHG Reduction Strategies:</i> The construction component and each operational increment in the GHG Reduction Plan will identify the GHG reduction measures that will be implemented during that period to achieve the net-zero performance standard. GHG reduction measures must be verifiable and feasible to implement. The GHG Reduction Plan will identify the entity responsible for implementing each measure and the estimated GHG reduction that will be achieved by implementation of the measure. If the selected measures are shown to result in reductions that exceed total net emissions of that period, the estimated surplus can be applied as a credit for future periods.</p> <p>The constituent measures in the GHG Reduction Plan are summarized in this section. Implementation of BMP-29 is a required Project design feature that must be incorporated into the GHG Reduction Plan. The Authority will prioritize strategies to reduce emissions in the following order (1) onsite measures for construction or operations that are not already part of BMP-29, (2) offsite measures, and (3) carbon credits. The order of priority for the location of selected measures will be (1) within the Project footprint, (2) within communities in the vicinity of the Project site, (3) in the Sacramento Valley Air Basin, (4) in the State of California, and (5) in the United States. If the GHG Reduction Plan proposes GHG reduction strategies that do not conform to the priorities outlined above, it must present substantial evidence to justify the deviation or explain why higher priority locations were deemed infeasible as defined under CEQA. In addition, the Authority will seek opportunities to implement GHG reduction measures in environmental justice communities (as defined in this Final EIR/EIS) in and near the Project site and report on the effort and outcomes in the annual reporting required in this measure.</p> <p>The Authority will be responsible for determining the measures necessary to ensure the performance standard to mitigate the significant GHG impact is met.</p>						

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<p>The list of measures presented in this section is not exclusive. The Authority may include additional measures to reduce GHG emissions to the extent that the measures become commercially available, have documented reliability in real-world conditions and become cost effective. This may include new equipment and vehicle systems (e.g., autonomous construction equipment, fuel-cells), new energy systems (e.g., battery storage), or other technologies (e.g., carbon capture and storage).</p> <p>a. <u>Construction Best Management Practices and Other Onsite Measures.</u> The Authority will reduce onsite GHG emissions as much as feasible through implementation of the measures identified below. These measures include a list of strategies to reduce GHG emissions from construction. Two measures that have a higher potential to reduce emissions include the use of electric equipment and vehicles instead of diesel-powered vehicles and the use of vehicles that use alternative fuels, such as compressed natural gas, liquified natural gas, propane, or biodiesel. These measures are not reflected in the emissions modeling results, because the future availability of electric-powered construction equipment and vehicles and alternative fuels in the California market is uncertain. As such, a mandate to use all-electric equipment and vehicles and alternative fuels cannot be made at this time. The Authority and its construction contractors will prioritize the use of electric or hybrid-electric off-road construction equipment and vehicles over diesel equipment. These measures, or other equivalent measures, will be implemented by the Authority and their construction contractors prior to or during construction. The Authority would review all designs and plans to ensure incorporation of these measures or the equivalent. In addition, the Authority will deploy a construction monitor during construction to monitor implementation of the required measures. Construction monitors will report regularly (at least quarterly) to the Authority on contractor compliance and will record inspection records in the Project file.</p> <p>1) Preconstruction and Final Design Considerations: Preconstruction and final design considerations would be designed to ensure unique characteristics of facility construction are taken into consideration when determining if specific equipment, procedures, or material requirements are feasible and efficacious for reducing GHG emissions. Examples of requirements and considerations are identified below.</p> <ul style="list-style-type: none"> • Consider 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. • Ensure that all economically feasible avenues have been explored for providing an electrical service drop to the construction site for temporary construction power. When generators must be used, consider use of alternative fuels, such as propane or solar, to power generators to the maximum extent feasible, as specified in construction contracts. • Minimize idling time by requiring that equipment be shut down after 3 minutes when not in use (5 minutes required by the State airborne toxics control measure [Title 13, Section 2485 of the California Code of Regulations]). Provide clear signage that posts this requirement for 						

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<p>workers at the entrances to the site and provide a plan for the enforcement of this requirement.</p> <ul style="list-style-type: none"> • Maintain all construction equipment in proper working condition and perform all preventive 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. • Implement a tire inflation program on each jobsite to ensure that equipment tires are correctly inflated. Check tire inflation when equipment arrives onsite and every 2 weeks for equipment that remains onsite. Check vehicles used for hauling materials offsite 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. • Develop a Project-specific ride share program to encourage carpools and shuttle vans. • 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 implement procedures for turning off computers, lights, air conditioners, heaters, and other equipment each day at close of business, wherever feasible. • For material 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 SmartWay26 certified truck will be used to the maximum extent feasible. • Develop a Project-specific construction debris recycling and diversion program to achieve a documented 50% diversion of construction waste. • During all activities, diesel-fueled portable equipment with maximum power greater than 25 horsepower shall be registered under the CARB’s Statewide Portable Equipment Registration Program. <p>b. <u>Offsite Measures</u>. For GHG emissions that cannot be reduced through the construction BMPs and other onsite measures discussed above, the Authority will reduce emissions as much as feasible through offsite measures. The GHG Reduction Plan will identify offsite measures that are suitable to reduce emissions. Offsite strategies include those that reduce emissions from an emissions source(s) that is not located in the Project area and may or may not be associated with the Project.</p> <p>1) For construction electricity and water conveyance–related energy, the Authority will increase the proportion of renewable energy purchases for the Project’s electricity needs to the highest amount that is feasible. The Authority is planning on purchasing 60% of the Project’s power needs from renewable, carbon-free sources starting in 2030. To fully reduce the emissions from construction electricity and water conveyance electricity, the Authority would need to purchase 100% of energy needs from carbon-free sources. If the Authority determines that it is infeasible to purchase 100% carbon-free energy</p>						

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<p>for construction and/or operations, carbon credits would be required to reduce the remaining emissions.</p> <p>2) The GHG Reduction Plan may identify other strategies that reduce emissions from sources that are not affiliated with the Project. The Authority can take credit for reductions that result from projects it sponsors, to achieve the net-zero goal. For example, the Authority could directly sponsor emissions-reducing projects, such as the following.</p> <ul style="list-style-type: none"> • replacing diesel school buses with electric buses. • planting trees in local communities. • providing support to local businesses or homeowners to install solar photovoltaic systems, other renewable energy projects, or energy efficiency improvements. Energy efficient improvements could include installing energy efficient appliances and cool roofs on buildings. • working with local communities to implement transportation-related emissions-reducing projects. These may include sponsoring bike- or car-share programs, providing support to public transit systems, or contributing to infrastructure and streetscape improvements for pedestrians and bicycles. <p>c. <u>Carbon Credits</u>. For all emissions that cannot otherwise be reduced through onsite or offsite measures, the purchase and retirement of carbon credits would be required. A carbon credit enables development projects to compensate for their GHG emissions and associated environmental impacts by financing reductions in GHG emissions elsewhere. GHG credits derived from completed prior actions are referred to as “GHG offsets” or “carbon offsets.” GHG credits derived from future contracted actions are referred to as “GHG future credits” or GHG (future mitigation units [FMUs]). Carbon credits are classified as either compliance or voluntary. Compliance credits can be purchased by covered entities subject to the cap-and-trade regulation to meet predetermined regulatory targets. Voluntary credits are not associated with the cap-and-trade regulation and are purchased with the intent to voluntarily meet carbon-neutral or other environmental obligations.</p> <p>The Authority may purchase carbon credits from a voluntary GHG credit provider that has an established protocol that requires projects generating GHG credits to demonstrate that the reduction of GHG emissions is real, permanent, quantifiable, verified, enforceable, and additional (per the definition in California Health & Saf. Code §§ 38562(d)(1) and (2)). Definitions for these terms are as follows.</p> <p>1) Real. Estimated GHG reductions should not be an artifact of incomplete or inaccurate emissions accounting. Methods for quantifying emission reductions should be conservative to avoid overstating a project’s effects. The effects of a project on GHG emissions must be comprehensively accounted for, including unintended effects (often referred to as “leakage”).⁵</p> <p>2) Additional. GHG reductions must be additional to any that would have occurred in the absence of the Climate Action Reserve or of a market for GHG reductions generally. “Business as usual” reductions (i.e., those that would</p>						

⁵ To ensure that GHG reductions are real, CARB requires the reduction be "a direct reduction within a confined project boundary."

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<p>occur in the absence of a GHG reduction market) should not be eligible for registration.</p> <p>3) Permanent. To function as GHG credits, GHG reductions must effectively be “permanent.” This means, in general, that any net reversal in GHG reductions must be fully accounted for and compensated through the achievement of additional reductions.</p> <p>4) Quantifiable. The ability to accurately measure and calculate GHG reductions or GHG removal enhancements relative to a project baseline in a reliable and replicable manner for all GHG emission sources, GHG sinks, or GHG reservoirs included within the credit project boundary, while accounting for uncertainty, activity-shifting leakage, and market-shifting leakage.</p> <p>5) Verified. GHG reductions must result from activities that have been verified. Verification requires third-party review of monitoring data for a project to ensure the data are complete and accurate.</p> <p>6) Enforceable. The emission reductions from credits must be backed by a legal instrument or contract that defines exclusive ownership, and the legal instrument can be enforced within the legal system in the country in which the credit project occurs or through other compulsory means. Please note that per this mitigation measure, only credits originating within the United States are allowed.</p> <p>Carbon credits must also meet the following requirements:</p> <p>1) Carbon credits may be in the form of GHG offsets for prior reductions of GHG emissions verified through protocols or forecasted mitigation units for future committed GHG emissions meeting protocols.</p> <p>2) All credits will be documented per protocols functionally equivalent in terms of stringency to CARB’s protocol for offsets in the cap-and-trade program. If using credits not from CARB protocols, the Authority must provide the protocols from the credit provider and must document why the protocols are functionally equivalent in terms of stringency to CARB protocols.</p> <p>3) The Authority will identify carbon credits in geographies closest to the Project first and only go to larger geographies (i.e., California, United States) if adequate credits cannot be found in closer geographies or the procurement of such credits would create an undue financial burden. The Authority will provide the following justification for not using credits in closer geographies in terms of either availability or cost prohibition.</p> <ul style="list-style-type: none"> • Lack of enough credits available in closer geographies (e.g., Northern Sacramento Valley). • Prohibitively costly credits in closer geographies defined as credits costing more than 300% the amount of the current costs of credits in the regulated CARB offset market or of the current costs of credits in the Compliance Offset Program, which is part of CARB’s broader cap-and-trade program. <p>4) Documentation submitted supporting carbon credit proposals will be prepared by individuals qualified in GHG credit development and verification, and such individuals will certify the following:</p>						

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<ul style="list-style-type: none"> • Proposed credits meet the criteria in California Health and Safety Code Sections 38562(d)(1) and (d)(2). • Proposed credits meet the definitions for the criteria provided in this measure. • The protocols used for the credits meet or exceed the standards for stringency used in CARB protocols for offsets under the California cap-and-trade system. <p>Monitoring, reporting, and enforcement requirements for implementation of the GHG Reduction Plan will include the following components.</p> <ol style="list-style-type: none"> 1. <i>Phased Analysis and Plan Amendments:</i> As described above, the GHG Reduction Plan may be developed and implemented over five-year increments for Project operations. Prior to the start of each five-year increment, the Authority will update the GHG Reduction Plan to calculate the amount of GHG emissions anticipated in the upcoming five-year period, as well as emissions from prior periods (if needed to cover any deficits) and the projected total net emissions of the Project. The GHG Reduction Plan will identify the specific GHG reduction measures that will be implemented to meet the net-zero performance standard for the upcoming five-year period and include quantification of the expected reductions that will be achieved by each measure. All emissions and reductions will be quantified in accordance with the requirements outlined in <i>Plan Development</i> above. The Authority will retain a third-party expert to assist with the review and approval of the GHG Reduction Plan. Subsequent amendments to the GHG Reduction Plan will identify reductions that have been achieved during prior phases and determine if those reductions exceed emissions generated by the Project. If the GHG reduction measures implemented by the Authority result in a surplus of reductions above the net-zero performance standard, the balance of those reductions may be credited to subsequent phases. 2. <i>Timing and Execution:</i> The Authority will prepare the GHG Reduction Plan prior to issuance of the first construction or grading permit for the Project. For Project operations, the GHG Reduction Plan will be prepared prior to the end of construction and prior to the start of the next five-year phase of operations. The Authority Board of Directors will formally adopt the completed GHG Reduction Plan and make it publicly available on its website prior to its adoption. BMPs and selected onsite construction measures will be included in construction-permits and contractor bid packages and/or agreements. Offsite measures that the Authority chooses to implement will be completed or in progress before completion of construction or before the end of the calendar year (for Project operations) in which the measure(s) are intended to reduce emissions. If GHG credits are purchased, the Authority will enter the necessary contract(s) to purchase credits prior to the start of construction or prior to the start of the calendar year (for Project operations). All credits must be retired before completion of construction or the calendar year (for Project operations). 3. <i>Monitoring and Reporting:</i> The Authority will retain a third-party expert to assist with review and approval of annual reports. Through the third-party expert, the Authority will conduct annual monitoring and reporting to ensure that the reduction measures included in the plan achieve sufficient emission reductions to reduce Project emissions to net zero. Each annual report should describe the GHG reduction strategies that were implemented over the prior year; summarize past, current, and anticipated Project 						

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<p>phasing; document compliance with GHG Reduction Plan requirements; and identify corrective actions needed to ensure that the GHG Reduction Plan achieves the net-zero performance standard. If GHG credits have been purchased to reduce emissions for the reporting year, the annual report must include copies of the credit retirement verification.</p> <p>The reports will be finalized and posted in a publicly accessible location online by December 31st of the following year.</p>						
Cultural Resources						
<p>CUL-1.1: Identify NRHP/CRHR-Eligible Built Resources</p> <p>The Authority will implement NRHP/CRHR-eligible built resources identification in the study area. The work will be conducted by an SOI-qualified architectural historian, and the actions listed below will be completed prior to construction. The Authority will document the results in a confidential technical study.</p> <ul style="list-style-type: none"> Relocate and map previously recorded potentially NRHP-/CRHR-eligible historic built resources. Locate and map potentially NRHP-/CRHR-eligible historic built resources in areas that have not been accessible previously. Evaluate the NRHP/CRHR eligibility of recorded historic built resources. Assess resource-specific impacts on significant historic built resources for resources that are NRHP/CRHR eligible and would be affected. 	<p>Impact CUL-1: Cause a substantial adverse change in the significance of a historic built resource</p>	Preconstruction	Compliance reporting; surveying; remedial action	Following built resources study	Authority; SOI-Qualified Architectural Historian	Date: _____ Action Taken:
<p>CUL-1.2: Avoid NRHP/CRHR-Eligible Built Resources</p> <p>The Authority will avoid NRHP/CRHR-eligible built resources in the study area by performing the tasks listed below. The work will be conducted in consultation with an SOI-qualified architectural historian.</p> <ul style="list-style-type: none"> The Authority will develop feasible Project design specifications to avoid NRHP-/CRHR-eligible historic built resources. The Authority will develop and implement feasible Project construction protocols to avoid NRHP-/CRHR-eligible historic built resources, including workers' cultural resources sensitivity training, prior to and during construction activities. The Authority will develop and implement feasible Project operations protocols that avoid NRHP-/CRHR-eligible historic built resources during operation activities. 	<p>Impact CUL-1: Cause a substantial adverse change in the significance of a historic built resource</p>	Preconstruction; construction	Contract requirements; design	None	Authority; SOI-Qualified Architectural Historian	Date: _____ Action Taken:
<p>CUL-1.3: Protect NRHP/CRHR-Eligible Built Resources</p> <p>The Authority will develop and implement protocols to protect NRHP/CRHR-eligible built resources in the study area. The work will be conducted in consultation with an SOI-qualified architectural historian.</p> <ul style="list-style-type: none"> The Authority will develop feasible protection measures for NRHP-/CRHR-eligible historic built resources prior to and during construction activities and during operation activities. The Authority will develop resource-specific protection plans that involve measures such as designating NRHP/CRHR-eligible built resources to be protected as Environmentally Sensitive Areas, installing exclusion fencing, conducting historic built resource monitoring where construction or operations would be in the vicinity of a known NRHP/CRHR-eligible built resource, and treating impairments that may be identified through monitoring. 	<p>Impact CUL-1: Cause a substantial adverse change in the significance of a historic built resource</p>	Preconstruction; construction; operations	Contract requirements; design	None	Authority; SOI-Qualified Architectural Historian	Date: _____ Action Taken:

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<p>CUL-1.4: NRHP/CRHR-Eligible Built Resources Treatment</p> <p>The Authority will develop and implement NRHP/CRHR-eligible built resources treatments in the study area. Prior to construction, the Authority will develop resource-specific treatment plans in consultation with interested parties who are associated with or identify with the NRHP-/CRHR-eligible historic built resources and with an SOI-qualified architectural historian. These resource-specific treatment plans may be Historic American Buildings Survey recordation, interpretive exhibits at recreation areas, educational modules for public schools, NRHP/CRHR nominations, or relocation of historic structures.</p> <p>The Authority will implement the treatment plans prior to and during construction, and following construction, depending on the details of the resource-specific treatment, in consultation with an SOI-qualified architectural historian. Resource-specific treatments may require ongoing work during and after construction.</p>	<p>Impact CUL-1: Cause a substantial adverse change in the significance of a historic built resource</p>	<p>Preconstruction; construction; postconstruction</p>	<p>Contract requirements; design</p>	<p>None</p>	<p>Authority; SOI-Qualified Architectural Historian</p>	<p>Date: _____ Action Taken:</p>
<p>CUL-2.1: Identify NRHP/CRHR-Eligible Archaeological Resources</p> <p>The Authority will identify NRHP-/CRHR-eligible archaeological resources in the study area. The work will be conducted by a Registered Professional Archaeologist. The following will occur as part of the identification.</p> <ul style="list-style-type: none"> Relocate and map previously recorded archaeological resources that are potentially NRHP/CRHR-eligible. Upon access to previously inaccessible areas, all previously recorded archaeological resources will be located and their boundaries mapped with sub-meter accuracy Global Positioning System (GPS) units to identify their exact location in relation to Project components that have the potential to affect the resources. Locate and map archaeological resources that are potentially NRHP/CRHR-eligible in areas that have not been accessible previously. Upon access to previously inaccessible areas, pedestrian surveys will be conducted to identify archaeological resources that are potentially NRHP/CRHR-eligible. The surveys will be conducted using transects spaced no greater than 94 feet (30 meters) apart. All newly identified archaeological resources will be recorded on applicable DPR 523-series forms and resource boundaries, features, and diagnostic artifacts outside of features or concentrations will be recorded using sub-meter accuracy GPS units to identify their exact location in relation to Project components that have the potential to impact the resources. Evaluate the NRHP/CRHR eligibility of recorded archaeological resources. Once all previously and newly recorded archaeological resources have been documented, each resource will be evaluated for NRHP and CRHR eligibility. As discussed in Appendix 4A, <i>Regulatory Requirements</i>, cultural resources are eligible for the NRHP and CRHR if they have integrity and meet one or more of the four criteria as defined in the regulations for the NRHP (Section 4A.18.1.3, <i>National Register of Historic Places</i>) and CRHR (Section 4A.18.2.2, <i>California Register of Historical Resources</i>). Eligibility will be assessed using a combination of (but not limited to) archival, ethnographic, and tribal research, including tribal coordination and assistance, resource condition assessment, subsurface testing, and laboratory analysis. If the resource is evaluated as not eligible, no further action is required, and avoidance is preferred. Assess impacts on NRHP-/CRHR-eligible archaeological resources. NRHP-/CRHR-eligible archaeological resources will be individually analyzed in relation to the Project components within or near those NRHP-/CRHR-eligible resources. Thresholds of significance identified in Section 22.3.1 will be applied. 	<p>Impact CUL-2: Cause a substantial adverse change in the significance of an archaeological resource</p> <p>Impact TCR-1: Substantial adverse change in the significance of a tribal cultural resource that is listed or eligible for listing in the California Register of Historical Resources or other local register or that the Authority has determined to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1.</p>	<p>Preconstruction; construction; postconstruction</p>	<p>Contract requirements; compliance reporting; surveying</p>	<p>As needed</p>	<p>Authority; Registered Professional Archaeologist</p>	<p>Date: _____ Action Taken:</p>

Mitigation Text	Impact # and Impact Title	Phase	Implementation Action	Reporting Schedule	Implementation Responsibility	Record of Implementation
<p>CUL-2.2: Avoid NRHP/CRHR-Eligible Archaeological Resources</p> <p>The Authority will avoid NRHP/CRHR-eligible archaeological resources in the study area by performing the tasks listed below. The work will be conducted by a Registered Professional Archaeologist.</p> <ul style="list-style-type: none"> The Authority will develop feasible Project design specifications to avoid NRHP/CRHR-eligible archaeological resources. If Project design allows modification, design changes will be implemented to avoid NRHP-/CRHR-eligible archaeological resources or avoid impacts on significant values of the resources (features, artifacts, or any other elements of the resource which make the resource NRHP-/CRHR-eligible). The Authority will develop and implement feasible Project construction protocols to avoid NRHP-/CRHR-eligible archaeological resources, including workers' cultural resources sensitivity training. Prior to construction activities in the vicinity of NRHP-/CRHR-eligible archaeological resources, the Authority will require a qualified archaeologist to provide a cultural resources sensitivity training tailboard to all construction personnel working in the vicinity of the resources. The training will identify the sensitivity, nature, and components of the resource, and inform the construction personnel of necessary protocol in the case of an unanticipated discovery. Tribes will also be invited to participate in and lead part of the workers' cultural resources sensitivity training. The Authority will develop and implement feasible Project operations protocols that avoid NRHP-/CRHR-eligible archaeological resources. Similar to the workers' cultural resources sensitivity training during construction activities, all personnel in charge of managing the operations will be required to have cultural resources sensitivity training for the resources near Project facilities and have a familiarity with the resource locations and identifications so that future operations or changes in operations can avoid those resources. Tribes will also be invited to participate in and lead part of the cultural resources sensitivity training. 	<p>Impact CUL-2: Cause a substantial adverse change in the significance of an archaeological resource</p> <p>Impact TCR-1: Substantial adverse change in the significance of a tribal cultural resource that is listed or eligible for listing in the California Register of Historical Resources or other local register or that the Authority has determined to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1.</p>	Preconstruction; construction; operations	Contract requirements; design	None	Authority; Registered Professional Archaeologist	Date: _____ Action Taken:
<p>CUL-2.3: Protect NRHP/CRHR-Eligible Archaeological Resources</p> <p>The Authority will develop feasible Project protection of NRHP/CRHR-eligible archaeological resources during construction and operations.</p> <ul style="list-style-type: none"> The Authority will develop protections protocols to ensure that qualified staff perform monitoring during Project-related ground disturbance to protect known resources, to identify any unanticipated discoveries, and to implement the Post-Review Discovery Procedure. The Authority will develop resource-specific protection plans considering at a minimum Environmentally Sensitive Area delineation and physical fencing, and requiring archaeological monitoring where construction or operation would be in the vicinity of a known NRHP-/CRHR-eligible archaeological resource. The resource-specific protection plans will establish the methods and standards for when and how Environmentally Sensitive Area delineations will be required and when archaeological monitoring activities will be conducted for specific types of sites that will need to be protected. The resource-specific protection plans will establish the methods and standards for when Tribal monitoring activities will be invited and conducted for specific activities and/or types of sites that will need to be protected. The plans will also identify the roles and responsibilities of monitors and construction crews and specify communication protocols and reporting requirements. 	<p>Impact CUL-2: Cause a substantial adverse change in the significance of an archaeological resource</p> <p>Impact TCR-1: Substantial adverse change in the significance of a tribal cultural resource that is listed or eligible for listing in the California Register of Historical Resources or other local register or that the Authority has determined to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1.</p>	Preconstruction; construction; operations	Contract requirements; design	None	Authority	Date: _____ Action Taken:

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<p>CUL-2.4: NRHP/CRHR-Eligible Archaeological Resources Treatment</p> <p>The Authority will develop and implement resource-specific treatment plans in consultation with Tribes and other interested parties who are associated with or identify with the resource. The resource-specific archaeological treatment plans will ensure that all NRHP-/CRHR-eligible archaeological resources potentially affected by the Project will be treated according to best practices and professional standards, in a traditionally and culturally sensitive manner, and that treatment options will include a range of interventions from avoidance and minimization of impacts to mitigation for the loss of the physical resource. Treatment may include, but would not be limited to, data recovery, site capping, analysis of existing artifact collections, or interpretive displays, among other things. Appropriate treatment will be determined based on resource type, resource location, types of impacts on the resource, and results of consultation with Tribes, interested parties, and agencies.</p>	<p>Impact CUL-2: Cause a substantial adverse change in the significance of an archaeological resource</p> <p>Impact TCR-1: Substantial adverse change in the significance of a tribal cultural resource that is listed or eligible for listing in the California Register of Historical Resources or other local register or that the Authority has determined to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1.</p>	Preconstruction; construction; operations	Contract requirements; design	None	Authority	Date: _____ Action Taken:
<p>CUL-3.1: Cemetery Relocation Plan</p> <p>The Authority will develop a Cemetery Relocation Plan for relocating two known, dedicated cemeteries located in the inundation area. This will be part of Reclamation’s Programmatic Historic Properties Management Plan that would be prepared in consultation with SHPO. Avoidance of the disturbance and/or inundation of two known cemeteries is not expected to be feasible except under the No Project Alternative. The Cemetery Relocation Plan will ensure that all remains in these two cemeteries are treated with respect and in accordance with the wishes of identifiable descendants. The Cemetery Relocation Plan will also ensure that state and county health and safety codes are followed for those interments that are relocated.</p> <p>Two dedicated cemeteries in the inundation area will be relocated to a site or sites approved for interment of human remains per requirements of the California Health and Safety Code (Sections 7500–7527). This procedure will be developed through consultation and coordination with descendants and other parties with demonstrated interest in the occupants of the cemeteries. The procedure will outline legal requirements, such as acquiring a written order from the local health department or county superior court before human remains may be moved, and other rules and regulations adopted by the board of health or health officer of the county.</p>	<p>Impact CUL-3: Disturb any human remains, including those interred outside of formal cemeteries</p> <p>Impact TCR-1: Substantial adverse change in the significance of a tribal cultural resource that is listed or eligible for listing in the California Register of Historical Resources or other local register or that the Authority has determined to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1.</p>	Preconstruction; construction; operations	Contract requirements; design	As needed	Authority	Date: _____ Action Taken:
<p>CUL-3.2: Avoid, Protect, and Treat Human Remains</p> <p>The Authority will avoid and protect any human remains encountered during pre-construction, construction, post-construction, operations, and maintenance. The Authority will follow appropriate state guidelines for halting Project activities at the discovery location, contacting the appropriate county coroner to report the discovery, and proceeding with implementation of Project policies regarding Native American consultation or implementation of a burial treatment plan. See Appendix 4A, <i>Regulatory Resources</i>, Sections 4A.18.1, <i>Federal Policies and Regulations</i>, and 4A.18.2, <i>State Policies and Regulations</i>.</p> <p>The Authority and its qualified contractors will prepare a plan for treating human remains and/or grave goods encountered during archaeological investigations, Project construction, or Project operations. The Burial Treatment Plan will identify ways to avoid or reduce the likelihood of encountering as yet unidentified remains.</p> <p>The Burial Treatment Plan will ensure that the Authority and its contractors respond to unanticipated discovery of human remains with respect and in accordance with the wishes of identifiable descendants. The Burial Treatment Plan will also ensure that state and county health and safety codes are followed for those interments that are relocated.</p>	<p>Impact CUL-3: Disturb any human remains, including those interred outside of formal cemeteries</p> <p>Impact TCR-1: Substantial adverse change in the significance of a tribal cultural resource that is listed or eligible for listing in the California Register of Historical Resources or other local register or that the Authority has determined to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1.</p>	Preconstruction; construction; operations	Contract requirements; design	None	Authority; Contractor	Date: _____ Action Taken:

Mitigation Text	Impact # and Impact Title	Phase	Implementation Action	Reporting Schedule	Implementation Responsibility	Record of Implementation
<p>This procedure will identify legal requirements and best practices for treating Native American and non-Native American remains encountered outside of a dedicated cemetery. The Native American portion of the Burial Treatment Plan will be developed in consultation with consulting Tribes and may include individual Tribes' burial treatment plans.</p> <p>The Authority and its qualified contractors will complete preparation of the Burial Treatment Plan within 6 months of issuance of the NOD/ROD, adopt the plan prior to selection of the construction contractor, and fully implement the plan prior to any soil disturbance within 500 feet of remains.</p>						
Tribal Cultural Resources						
<p>TCR-1.1: Implement Mitigation Measures Recommended in Public Resources Code Section 21084.3 to Avoid Damaging Effects on Tribal Cultural Resources</p> <ol style="list-style-type: none"> 1. Avoidance and preservation of the resources in place, including, but not limited to, planning and construction to avoid the resources and protect the cultural and natural context, or planning greenspace, parks, or other open space, to incorporate the resources with culturally appropriate protection and management criteria. 2. Treating the resource with culturally appropriate dignity, taking into account the tribal cultural values and meaning of the resource, including, but not limited to, the following: <ol style="list-style-type: none"> a. Protecting the cultural character and integrity of the resource. b. Protecting the traditional use of the resource. c. Protecting the confidentiality of the resource. 3. Permanent conservation easements or other interests in real property, with culturally appropriate management criteria for the purposes of preserving or utilizing the resources or places. 	<p>Impact TCR-1: Substantial adverse change in the significance of a tribal cultural resource that is listed or eligible for listing in the California Register of Historical Resources or other local register or that the Authority has determined to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1.</p>	Preconstruction; construction; operations	Contract requirements; design; funding/ acquisition	None	Authority; Contractor	Date: _____ Action Taken:
<p>TCR-1.2: Tribal Monitoring</p> <p>Tribal monitors will be permitted to observe all ground-disturbing activities.</p>	<p>Impact TCR-1: Substantial adverse change in the significance of a tribal cultural resource that is listed or eligible for listing in the California Register of Historical Resources or other local register or that the Authority has determined to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1.</p>	Preconstruction; construction; postconstruction; operations	Contract requirements; monitoring	None	Authority; Contractor; Tribal Monitor	Date: _____ Action Taken:
<p>TCR-1.3: Implement Agreed-Upon Protocol for the Treatment of Human Remains and Cultural Items</p> <p>If unanticipated discoveries of National Register of Historic Places (NRHP)/CRHR-eligible resources occur on federal land, the federal land manager will be immediately contacted, and the federal agency will follow its own process for complying with the federal Native American Graves Protection and Repatriation Act and other federal obligations, as directed under Title 43 of Code of Federal Regulations, Part 10.</p> <p>If NRHP/CRHR-eligible sites or cultural items, other than human remains, are discovered on non-federal land, the Authority will work with the consulting Tribes to determine affiliation and develop appropriate treatment.</p> <p>If human remains or associated grave goods are discovered during or after environmental review, the Authority will provide for the following actions:</p>	<p>Impact TCR-1: Substantial adverse change in the significance of a tribal cultural resource that is listed or eligible for listing in the California Register of Historical Resources or other local register or that the Authority has determined to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1.</p>	Preconstruction; construction; operations	Contract requirements; compliance reporting	As needed	Authority; Contractor; Tribal Monitor	Date: _____ Action Taken:

Mitigation Text	Impact # and Impact Title	Phase	Implementation Action	Reporting Schedule	Implementation Responsibility	Record of Implementation
<ul style="list-style-type: none"> Immediately notify the County coroner and cease ground-disturbing activities in that location. If the County coroner determines the remains are those of a Native American, the coroner will notify the NAHC to establish the most likely descendant and contact the culturally affiliated Tribe. Allow the designated Tribal member(s) to inspect the site of the discovery and determine how the human remains and grave goods should be treated with appropriate dignity and respect. The location of a reburial will be recorded with the California Historic Resources Inventory System. The Authority, its contractors and consultants, and the coroner will not disclose the location of the original burial or reburial site. Treatment of all cultural items, including ceremonial items and archaeological items will reflect the religious beliefs, customs, and practices of the culturally affiliated Tribe. All cultural items, including ceremonial items and archaeological items, discovered during Project construction and operation will be turned over to the Tribe for appropriate treatment, unless otherwise ordered by a court or agency of competent jurisdiction. The Authority will waive any and all claims to ownership of Tribal cultural items, including ceremonial items and archaeological items that may be found. Work of Tribal monitors and treatment of human remains will proceed in accordance with treatment plans developed in consultation with the most likely descendant of the culturally affiliated Tribe as identified by the NAHC. 						

2012 Staff Report	<i>2012 Staff Report on Burrowing Owl Mitigation</i>	GCAPCD	Glenn County Air Pollution Control District	ROD	Record of Decision
Authority	Sites Project Authority	GHG	greenhouse gas	ROG	reactive organic gas
BMP	best management practice	GIS	geographic information system	RWQCB	Regional Water Quality Control Board
CARB	California Air Resources Board	GPS	Global Positioning System	SHPO	State Historic Preservation Officer
CBD	Colusa Basin Drain	HOS	hypolimnetic oxygenation system	SOI	Secretary of the Interior
CCAPCD	Colusa County Air Pollution Control District	LMP	land management plan	SRA	shaded riverine aquatic
CDFW	California Department of Fish and Wildlife	mg/kg	milligram per kilogram	State Water Board	State Water Resources Control Board
CEQA	California Environmental Quality Act	mm	millimeter	SVAB	Sacramento Valley Air Basin
CESA	California Endangered Species Act	MOU	memorandum of understanding	SVP	Society of Vertebrate Paleontology
CNDDDB	California Natural Diversity Database	NAHC	Native American Heritage Commission	TCAPCD	Tehama County Air Pollution Control District
CO ₂ e	carbon dioxide equivalent	NMFS	National Marine Fisheries Service	TMDL	total maximum daily load
CRHR	California Register of Historical Resources	NOD	Notice of Decision	USACE	U.S. Army Corps of Engineers
CWA	Clean Water Act	NO _x	nitrogen oxides	USFWS	U.S. Fish and Wildlife Service
DO	dissolved oxygen	NRHP	National Register of Historic Places	WCG	wildlife crossing species guild
DOC	California Department of Conservation	NZE	near zero emission	WSIP	Water Storage Investment Program
DPR	California Department of Parks and Recreation	PM10	particulate matter less than or equal to 10 microns in diameter	ww	wet weight
DWR	California Department of Water Resources	PRMMP	paleontological resources monitoring and mitigation plan	YSAQMD	Yolo-Solano Air Quality Management District
EIR	environmental impact report	Project	Sites Reservoir Project	ZE	zero emission
ESA	Endangered Species Act	Reclamation	Bureau of Reclamation	ZEV	zero-emission vehicle
FMU	future mitigation unit	RMP	Reservoir Management Plan		

4.0 REFERENCES

4.1 Table 1 References

- Avian Power Line Interaction Committee. 2012. *Reducing Avian Collisions with Power Lines: The State of the Art in 2012*. Edison Electric Institute and APLIC. Washington, D.C.
- California Department of Fish and Game. 2012. *Staff Report on Burrowing Owl Mitigation*. Sacramento, CA. Prepared by the State of California Natural Resources Agency Department of Fish and Game. Sacramento, CA.
- California Department of Fish and Wildlife. 2017. *Survey and Monitoring Protocols and Guidelines, Bald Eagle Breeding Survey Instructions*. Available: <https://wildlife.ca.gov/Conservation/Survey-Protocols#377281284-birds>. Accessed: March 24, 2021.
- California Department of Fish and Wildlife. 2018. *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities*. March 20. Available: <https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=18959&inline>.
- California Department of Water Resources. 2019d. *Incidental Take Permit Application for Long-Term Operation of the California State Water Project*. December 13. Available: https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/State-Water-Project/Files/1_DWR_LTO_ITP_Application_2019-12-13_a_y19.pdf. Accessed: February 24, 2020.
- Clevenger, A. P., and M. P. Huijser. 2011. *Wildlife Crossing Structure Handbook: Design and Evaluation in North America* (No. FHWA-CFL-TD-11-003). United States. Federal Highway Administration. Central Federal Lands Highway Division.
- Hall, B. D., V. L. St. Louis, K. R. Rolffhus, R. A. Bodaly, K. G. Beaty, M. J. Paterson, and K. A. Peech Cherewyk. 2005. Impacts of Reservoir Creation on the Biogeochemical Cycling of Methyl Mercury and Total Mercury in Boreal Upland Forests. *Ecosystems* 8:248–266.
- Jackman, R. E., and J. M. Jenkins. 2004. *Protocol for Evaluating Bald Eagle Habitat and Populations in California*. Prepared for: U.S. Fish and Wildlife Service Endangered Species Division, Sacramento, CA. Garcia and Associates, San Anselmo and Pacific Gas & Electric Company, San Ramon, CA.
- Kelly, C. A., J. W. M. Rudd, R. A. Bodaly, N. P. Roulet, V. L. St. Louis, A. Heyes, T. R. Moore, S. Schiff, R. Aravena, K. J. Scott, B. Dyck, R. Harris, B. Warner, and G. Edwards. 1997. Increases in Fluxes of Greenhouse Gases and Methyl Mercury Following Flooding of an Experimental Reservoir. *Environmental Science and Technology* 31:1334–1344. Available: <http://cybrary.fomb.org/FOSL/Research/Greenhouse%20Gases/Kelly%20et%20al%201997-Increases%20in%20Fluxes%20of%20Greenhouse%20Gases%20and%20Methyl%20Mercury%20following%20Flooding%20of%20an%20Experimental%20Reservoir.pdf>. Accessed: May 12, 2023.
- Kintsch, J., S. Jacobson, and P. Cramer. 2015. *The Wildlife Crossing Guilds Decision Framework: A Behavior-based Approach to Designing Effective Wildlife Crossing Structures*. Available: <https://arc-solutions.org/wp-content/uploads/2021/03/08.-ICOET-WildlifeCrossingGuilds-paper.pdf>.

- Langton, T. E. S., and A. P. Clevenger. 2020. *Measures to Reduce Road Impacts on Amphibians and Reptiles in California*. Best Management Practices and Technical Guidance. Prepared by Western Transportation Institute for California Department of Transportation, Division of Research, Innovation and System Information.
- McCord, S. A., M. W. Beutel, S. R. Dent, and S. G. Schladow. 2016. Evaluation of Mercury Cycling and Hypolimnetic Oxygenation in Mercury-Impacted Seasonally Stratified Reservoirs in the Guadalupe River Watershed, California. *Water Resources Research* 52:7726–7743. Available: <https://agupubs.onlinelibrary.wiley.com/doi/full/10.1002/2016WR019061>. Accessed: May 23, 2023.
- Ontario Ministry of Natural Resources and Forestry. 2016. *Best Management Practices for Mitigating the Effects of Roads on Amphibians and Reptile Species at Risk in Ontario*. April. Queen’s Printer for Ontario. 112 pp.
- Orlando, J. L., M. De Parsia, C. Sanders, M. Hladik, and J. Frantzich. 2020. *Pesticide Concentrations Associated with Augmented Flow Pulses in the Yolo Bypass and Cache Slough Complex, California*. U.S. Geological Survey Open-File Report 2020–1076. Available: <https://doi.org/10.3133/ofr20201076>.
- Pagel, J. E., D. M. Whittington, and G. T. Allen. 2010. *Interim Golden Eagle Inventory and Monitoring Protocols; and Other Recommendations*. Division of Migratory Bird Management, U.S. Fish and Wildlife Service, Carlsbad, CA and Arlington, VA.
- Seelos, M., M. Beutel, C. M. Austin, E. Wilkinson, and C. Leal. 2021. Effects of Hypolimnetic Oxygenation on Fish Tissue Mercury in Reservoirs near the New Almaden Mining District, California, USA. *Environmental Pollution* 268(2021):115759.
- Society of Vertebrate Paleontology. 2010. *Standard Procedures for the Assessment and Mitigation of Adverse Impacts to Paleontological Resources*. Last revised: unknown. Available: http://vertpaleo.org/The-Society/Governance-Documents/SVP_Impact_Mitigation_Guidelines.aspx. Accessed: October 15, 2020.
- State Water Resources Control Board. 2017b. *Draft Staff Report for Scientific Peer Review for the Amendment to the Water Quality Control Plan for Inland Surface Waters, Enclosed Bays, and Estuaries of California, Mercury Reservoir Provisions – Mercury TMDL and Implementation Program for Reservoirs*. April. Available: https://www.waterboards.ca.gov/water_issues/programs/mercury/reservoirs/docs/peer_review/02_staff_report_scientific_peer_review.pdf. Accessed: February 9, 2021.
- State Water Resources Control Board. 2021c. *Quality Assurance Project Plan—Long-Term Monitoring of Bass Lakes and Reservoirs in California*. Version 3. Bioaccumulation Monitoring Program and Surface Water Ambient Monitoring Program. October. Available: https://www.waterboards.ca.gov/water_issues/programs/swamp/docs/2022/bioaccumulation_monitoringprogram-lakes-2021-qapp-final.pdf. Accessed: June 16, 2022.

- State Water Resources Control Board. 2022b. *Monitoring and Analysis Plan—Long-term Monitoring of Bass Lakes and Reservoirs in California*. Version 1. Bioaccumulation Monitoring Program and Surface Water Ambient Monitoring Program. November. Available: https://www.waterboards.ca.gov/water_issues/programs/swamp/docs/2022/bioaccumulation_monitoringprogram-lakes-2023-monitoringplan.pdf. Accessed: November 20, 2022.
- Swainson's Hawk Technical Advisory Committee. 2000. *Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley*. May 31.
- U.S. Army Corps of Engineers. 2015. *Final 2015 Regional Compensatory Mitigation and Monitoring Guidelines for South Pacific Division USACE*. Final January 12, 2015. Available: <https://www.spd.usace.army.mil/Portals/13/docs/regulatory/mitigation/MitMon.pdf>. Accessed: June 21, 2021.
- U.S. Environmental Protection Agency. 1998b. *Method 1630: Methyl Mercury in Water by Distillation, Aqueous Ethylation, Purge and Trap, and Cold Vapor Atomic Fluorescence Spectrometry*. August. Available: https://www.epa.gov/sites/default/files/2015-08/documents/method_1630_1998.pdf. Accessed: April 12, 2023.
- U.S. Fish and Wildlife Service. 2005b. *Revised Guidance on Site Assessments and Field Surveys for the California Red-legged Frog*. August. Sacramento, CA: Ecological Services, Sacramento Field Office.
- U.S. Fish and Wildlife Service. 2015b. *Survey Guidelines for the Listed Large Branchiopods*. May 31. U.S. Fish and Wildlife Service, Pacific Southwest Region, Region 8. Sacramento, CA.
- U.S. Fish and Wildlife Service. 2017a. *Framework for Assessing Impacts to the Valley Elderberry Longhorn Beetle (Desmocerus californicus dimorphus)*. U.S. Fish and Wildlife Service; Sacramento, CA. May 2017. Available: https://www.fws.gov/sacramento/documents/VELB_Framework.pdf.
- U.S. Fish and Wildlife Service. 2017c. *Recommended Buffer Zones for Human Activities around Nesting Sites of Bald Eagles in California and Nevada*. December. Great Basin Region Migratory Birds Program. Available: https://www.fws.gov/cno/conservation/MigratoryBirds/pdf-files/USFWS_PacificSouthwestRegion_BaldEagle_NestBuffer.pdf.
- U.S. Fish and Wildlife Service. 2020b. *Updated Eagle Nest Survey Guidance*. Available: <https://www.fws.gov/migratorybirds/pdf/management/EagleNestSurveyGuidanceUpdated.pdf>. Accessed: March 24, 2021.
- U.S. Fish and Wildlife Service. 2020c. *Recommended Buffer Zones for Ground-based Human Activities around Nesting Sites of Golden Eagles in California and Nevada*. October. Great Basin Region Migratory Birds Program. Available: https://www.fws.gov/cno/conservation/MigratoryBirds/pdf-files/USFWS_PacificSouthwestRegion_GoldenEagle_NestBuffers_Oct_2020.pdf.