STATE OF CALIFORNIA
ENVIRONMENTAL PROTECTION AGENCY
STATE WATER RESOURCES CONTROL BOARD
DIVISION OF WATER RIGHTS

# [DRAFT] PERMIT TO DIVERT AND USE WATER

APPLICATION 33534 PERMIT 21487

Permittee: Sites Project Authority
P.O. Box 517
Maxwell, CA 95955

The State Water Resources Control Board (State Water Board or Board) authorizes the diversion and use of water by the Permittee in accordance with the limitations and conditions herein SUBJECT TO PRIOR RIGHTS. The priority of this Permit dates from **May 11, 2022.** This Permit is issued at the direction of the State Water Board pursuant to Decision XXXX.

The State Water Board finds that the State Water Board and/or the Applicant have met the following requirements for permit issuance: (a) demonstrated the availability of unappropriated water; (b) resolved protests in compliance with Water Code section 1330 et seq. and included appropriate permit conditions; (c) demonstrated that the water will be diverted and used without injury to any lawful user of water; (d) demonstrated that the intended use is beneficial; and (e) demonstrated that the requirements of the California Environmental Quality Act (CEQA) have been met or that the project is exempt from CEQA.

The State Water Board has complied with its independent obligation to consider the effect of the proposed project on public trust resources and to protect those resources where feasible. (*National Audubon Society v. Superior Court* (1983) 33 Cal.3d 419.)

No water shall be diverted or used under this Permit unless in compliance with the terms and conditions herein. The terms “diversion” and “rediversion” in this Permit refer only to diversions or rediversions of water under this Permit, unless otherwise specified.

1. The source of water under this Permit is:

   **(1) Sacramento River in Tehama County and (2) Sacramento River in Glenn County**

   tributary to **Suisun Bay.**

2. The **POINTS OF DIVERSION (POD), POINTS OF REDIVERSION,** AND **PLACES OF STORAGE** of such water are located at:

   POD 1, **Tehama-Colusa Canal, AKA Red Bluff POD (Sacramento River)**
   By California Coordinate System of 1983, Zone 1, North 1,940,053 feet and East 6,502,708 feet, being within Northeast quarter of Northwest quarter of Section 33, Township 27 North, Range 3 West, Mount Diablo Base and Meridian.

   POD 2, **Glenn-Colusa Main Canal, AKA Hamilton City POD (Sacramento River)**
   By California Coordinate System of 1983, Zone 1, North 2,413,589 feet and East 6,547,497 feet, being within Southeast quarter of Northeast quarter of Section 2, Township 22 North, Range 2 West, Mount Diablo Base and Meridian.

   Place of Storage, **Sites Reservoir**
   By California Coordinate System of 1983, Zone 2, North American Datum 1983, within portions of Townships 16, 17, and 18 North, Range 4 and 5 West, Mount Diablo Base and Meridian, as shown on map filed on May 11, 2022 with the State Water Board.

   Points of Rediversion and Restorage, **54 locations**
   As described in Attachment 2 of this Permit.

3. The appropriation is for the purposes of **Municipal, Domestic, Industrial, Irrigation, Recreational, Stockwatering, Frost Protection, Fish and Wildlife Preservation and Enhancement, and Incidental Power** uses.

4. The **PLACE OF USE** of such water is located:

   Municipal, Domestic, Industrial, Irrigation, Stockwatering, Recreational, Fish and Wildlife Preservation and Enhancement, and Incidental Power uses within a gross area of 32,691,036 acres within portions of Alameda, Colusa, Contra Costa, Fresno, Glenn, Imperial, Kern, Kings, Los Angeles, Madera, Merced, Monterey, Napa, Orange, Riverside, Sacramento, San Benito, San Bernadino, San Diego, San Joaquin, San Luis Obispo, Santa Barbara, Santa Clara, Santa Cruz, Solano, Stanislaus, Sutter, Tulare, Ventura, Yolo and Yuba counties.

Within the area described above, the place of use for the following beneficial use is as follows:

a. Fish and Wildlife Preservation and Enhancement is authorized in:

i. the Yolo Bypass,

ii. the Sacramento National Wildlife Refuge Complex and national wildlife refuges, state wildlife areas, and privately managed wetlands receiving Incremental Level 4 Refuge Water under the Central Valley Project Improvement Act.

The places of use are shown on a map filed on May 11, 2022 with the State Water Board.

5. The water appropriated shall be limited to the quantity which can be beneficially used and shall not exceed 986,000 acre-feet per year by storage to be collected from November 1 of each year to June 14 of the succeeding year.

(Term Code: 0000005C)

6. No water shall be collected to storage outside of the specified season to offset evaporation and seepage losses or for any other purpose.

(Term Code: 0000005I)

7. The maximum rate of diversion to offstream storage shall not exceed 2,120 cubic feet per second (cfs) at Tehama Colusa Canal POD and 2,070 cfs at Glenn-Colusa Main Canal POD. The maximum rate of diversion to offstream storage shall not exceed 4,190 cfs.

(Term Code: 0000005J)

8. The capacity of the reservoir where water is authorized to be stored under this Permit (Sites Reservoir) shall not exceed 1,500,000 acre-feet.

(Term Code: 0000005N)

9. Construction work shall be completed by December 31, 2050. Complete application of the water to the authorized use shall be prosecuted with reasonable diligence and completed by December 31, 2071.

(Term Code: 0000009)

10. If it is determined that the as-built conditions of the project are not correctly represented by the map(s) prepared to accompany the application, Permittee shall, at its expense, have the subject map(s) updated or replaced with equivalent as-built

map(s). Said revision(s) or new map(s) shall be prepared by a civil engineer or land surveyor licensed in the State of California and shall meet the requirements prescribed in California Code of Regulations, title 23, section 715 et seq. Said revision(s) or map(s) shall be furnished upon request of the Deputy Director for Water Rights (Deputy Director).

(Term Code: 0000030)

11. The reservoir shall be kept open to the public for recreational use, subject to a reasonable charge for any services or facilities that are provided by Permittee and required closure to protect human health and safety. Failure to allow public access may result in revocation of the permit or reduction in the amount of water that may be stored.

(Term Code: 0030045)

12. Unless otherwise specified, all annual submittals required by this Permit shall be included as an attachment to the Permittee's annual Progress Report of Permittee (herein, Annual Report) and due at the same time as the Annual Report.

(Term Code: 9990999)

13. In accordance with the requirements of Water Code Section 1393, Permittee shall clear the site of the proposed reservoir of all structures, trees, and other vegetation, which would interfere with recreation and water storage in the inundated area of the reservoir.

(Term Code: 0120050A)

14. Nothing in this water right authorizes or guarantees the use of, or makes a determination of necessity regarding access to, any lands or facilities not owned by the Permittee. Permittee is solely responsible for obtaining any necessary land rights or land access agreements. In addition, Permittee is solely responsible for obtaining any necessary facility use agreements with the owner of the facility intended for use.

(Term Code: 9990999)

15. No diversion is authorized that would adversely affect the operation of the Central Valley Project (CVP) or State Water Project (SWP) under the existing water rights for those projects in effect on the date of issuance of this Permit and as such existing water rights may be modified. No diversion is authorized at any time the United States Bureau of Reclamation (Reclamation) and the Department of Water Resources (DWR) have declared the Delta to be in balanced conditions under the Coordinated Operation Agreement. An adverse effect shall include but not be limited to any time that such diversion would directly or indirectly require the CVP or the SWP to release water from storage or to reduce their diversion or rediversion of water from the Delta to provide or assure flow in the Delta required to meet any

applicable provision of state or federal law. All diversions shall also comply with the provisions of any operations agreement among DWR, Reclamation, and the Permittee, as may be amended from time to time. Any amendments to the agreement shall be submitted to the Deputy Director with the next Annual Report.

(Term Code: 0350800)

16. All diversions shall be consistent with the provisions of the June 7, 2024, settlement agreement among the Sites Project Authority, the State Water Contractors, and DWR, and any amendments thereto. Any amendments to the agreement shall be submitted to the Deputy Director with the next Annual Report.

(Term Code: 0450300)

17. Diversions to storage under this Permit shall not include the diversion or rediversion of Trinity River water (water diverted by Reclamation from the Trinity River watershed into the Sacramento River watershed pursuant to its water rights). Furthermore, diversions to storage under this Permit shall not negatively impact current or future Trinity River obligations of Reclamation, including but not limited to those obligations specified in the 1959 Contract between the United States and Humboldt County, the Trinity River Mainstem Fishery Restoration Record of Decision, and the Long-Term Plan to Protect Adult Salmon in the Lower Klamath River, and related obligations in Reclamation's water right Permits 11966, 11967, 11968, 11969, 11970, 11971, 11972, and 11973.

(Term Code: 0570800)

18. All diversions shall be consistent with the provisions of the December 20, 2023 "Agreement Between the Sites Reservoir Joint Powers Authority and Contra Costa Water District to Coordinate in the Operations of the Sites Reservoir Project," and any amendments thereto. Any amendments to the agreement shall be submitted to the Deputy Director with the next Annual Report.

(Term Code: 0450300)

19. Permittee shall install and maintain outlet structures through or around Golden Gate Dam and Sites Dam of adequate capacity to release water entering the reservoir that is not authorized for appropriation under this Permit. Permittee shall develop operating criteria to ensure that any water entering the reservoir that is not authorized for appropriation under this Permit is released within a reasonable time, and any temporary impoundment will not injure other legal users of water or unreasonably impact fish and wildlife or other public trust resources. The operating criteria shall include criteria to prevent the release of harmful algal blooms (HABs) into Funks and Stone Corral Creek based on the results of monitoring required by Term 35. These operating criteria shall be submitted to the Deputy Director for approval. Permittee shall operate the reservoir and release water in accordance with the approved criteria. This term may be modified or removed by the Deputy Director

if Permittee obtains a water right permit that authorizes diversion to storage from Funks Creek at Golden Gate Dam and from Stone Corral Creek at Sites Dam.

(Term Code: 0050043)

20. To comply with section 5937 of the Fish and Game Code, Permittee shall allow sufficient water at all times to pass through a fishway or, in the absence of a fishway, allow sufficient water to pass over, around, or through the dams to keep in good condition any fish that may be planted or exist below the dams. If it is impracticable or detrimental to pass the water through a fishway during a period of low flow in the stream, this requirement will be satisfied if, with the concurrence of the California Department of Fish and Wildlife (CDFW), sufficient water is passed through a culvert, waste gate, or over or around the dam to keep in good condition any fish that may be planted or exist below the dam. This provision shall not require the passage or release of water at a greater rate than the unimpaired natural inflow into the reservoir.

    Permittee shall submit to the Deputy Director a Technical Studies Plan and Creeks Operations Plan, as described in Application 25517X01, that demonstrates Permittee will release water in a manner and rate that keeps fish in good condition below the dams to comply with Fish and Game Code section 5937. Permittee shall post the draft Technical Studies Plan and Creeks Operations Plan on its website and offer a 30-day period for public review and comment. Permittee shall consider and respond to any comments in writing, and shall submit the Plan, comments, and responses to the Division of Water Rights. No water may be stored in Sites Reservoir unless and until the Deputy Director approves these plans. Permittee shall operate the reservoir and release water in accordance with the approved plan.

    This term may be modified by the Deputy Director to be consistent with any water right permit issued to Permittee that authorizes diversion to storage from Funks Creek at Golden Gate Dam or from Stone Corral Creek at Sites Dam.

    (Term Code: 0140069)

21. No water shall be diverted under this right unless the operator of the Red Bluff Pumping Plant and Hamilton City Pump Station operates those water diversion facilities with fish screens that are in good condition and designed and maintained in accordance with the screening criteria of CDFW to protect species of fish listed as endangered or threatened under the California Endangered Species Act (Fish and Game Code sections 2050 to 2098) or the federal Endangered Species Act (16 U.S.C. sections 1531 to 1544), as determined by the Deputy Director. Permittee shall provide evidence that demonstrates that the fish screens are in good condition with the Annual Report and whenever requested by the Division of Water Rights.

    (Term Code: 0600300)

22. No diversion under this right is authorized unless Permittee is operating in compliance with Incidental Take Permit No. 2081-2023-051-00 for operation of the Sites Reservoir Project issued by CDFW on October 24, 2024 (2024 ITP). Permittee shall comply with all applicable diversion requirements specified in the 2024 ITP, including but not limited to Conditions of Approval 9.4, and 9.8 through 9.14, which are also listed in Attachment 1 of this Permit.

    Permittee shall continue to comply with the diversion requirements in the 2024 ITP unless and until this term is amended. Within 30 days of issuance of a new or modified ITP for operations of the Sites Reservoir Project, Permittee shall submit to the Executive Director the new or modified ITP and a summary of any changes relative to the 2024 ITP. The Executive Director may amend this term and Attachment 1 without a petition for change by the Permittee to be consistent with the new or modified ITP if, after notice and opportunity for public comment, the Executive Director determines and CDFW concurs in writing that the amendments to this Term and Attachment 1 would be equally or more protective of fish and wildlife.

    (Term Code: 0450300)

23. The following requirements shall apply to diversions at the Tehama-Colusa Canal POD (also referred to as the Red Bluff POD) and Glenn-Colusa Irrigation District POD (also referred to as the Hamilton City POD) in addition to the requirements of Term 22.

    a. The Flow-Dependent Diversion requirements for the Red Bluff POD specified in the 2024 ITP for the period from March 1 to June 14, as identified in Attachment 1, shall also apply to diversions at the Red Bluff POD from January 1 to February 28 of each year.

    b. No diversions are authorized during the first seven days of qualified precipitation-generated pulse flow events (pulse protection). The pulse protection shall be initiated when three-day forecasted average flow at Bend Bridge, as measured at USGS Gage No. USGS-11377100 (Sacramento R AB Bend Bridge NR Red Bluff CA), is greater than 8,000 cfs, and the three-day forecasted average combined tributary flow (as determined by summing the flow in Cow Creek near Millville, Cottonwood Creek near Cottonwood, and Battle Creek below Coleman Fish Hatchery) is greater than 2,500 cfs. The pulse protection shall remain in effect for seven consecutive days upon initiation. If the average daily flow at Bend Bridge exceeds 29,000 cfs, the pulse protection may be terminated before seven days and diversions may resume, provided that flow remains above 25,000 cfs at Bend Bridge during the remainder of the seven-day period. After completion of the pulse protection, resetting criteria must occur before another pulse protection may go into effect. The resetting criteria are met when the three-day moving average flow in the Sacramento River above Bend Bridge is below 7,500 cfs for

seven consecutive days and the above-referenced three-day moving average tributary flow is below 2,500 cfs for seven consecutive days.

c. No diversions shall occur if the flow in the Sacramento River at Wilkins Slough, as measured at USGS station 11390500, is below 14,125 cfs, or the diversion will cause the flow in the Sacramento River at Wilkins Slough, as measured at USGS station 11390500, to fall below 14,125 cfs, from December 1 to April 30, inclusive.

d. The Executive Director may amend this term at the request of Permittee based on new information if, after notice and opportunity for public comment, the Executive Director determines and CDFW concurs in writing that the amended term will prevent unreasonable effects on fish and wildlife, including listed species under the California Endangered Species Act (CESA) and non-CESA listed species.

(Term Code: 0560900)

24. Within five working days of determining that a streamflow measurement station used to establish diversion criteria is not in operation or data from that station is not available in real-time, Permittee shall: (1) report the flow monitoring station to the Deputy Director; and (2) submit to the Deputy Director for review and approval an alternative streamflow measurement method that enables measurement of the applicable diversion-related criteria. No diversions shall occur until the Deputy Director has approved the alternate measurement location or method.

(Term Code: 0350400)

25. The State Water Board adopts and incorporates into this Permit the mitigation measures in the Permittee's Monitoring, Measurement, and Reporting Plan of the Environmental Impact Report/Environmental Impact Statement (EIR/EIS) for construction and operation of the Sites Reservoir Project dated November 2023, as listed in Attachment 3. Permittee must implement these requirements to mitigate significant impacts to environmental and biological resources as identified in the EIR/EIS. Permittee shall submit to the Deputy Director a report describing the status and compliance with required mitigation and monitoring on an annual basis. Upon commencement of diversion, reports shall be included with Permittee's Annual Report.

(Term Code: 0450500)

26. This permit is subject to prior rights. During some years, water will not be available for diversion during portions or all of the season authorized herein. Permittee shall not divert under this Permit when available supplies are insufficient to satisfy the demands of water rights senior to the priority date of this Permit, including any federal reserved rights, whether or not those senior rights are adjudicated. Permittee

shall comply with any regulation or order issued by the Board that curtails diversions under this right.

(Term Code: 0350800)

27. Appropriation of water under this Permit for export from the Sacramento River or the Sacramento-San Joaquin River Delta is subject to the rights of water users within said systems to all of the water reasonably required to adequately supply the beneficial needs within said systems, regardless of when such use is initiated.

(Term Code: 0000095)

28. No diversion is authorized by this Permit when satisfaction of in-basin entitlements requires release of supplemental Project water by the Central Valley Project or the State Water Project (the Projects).

    a. In-basin entitlements are defined as all rights to divert water from streams tributary to the Sacramento-San Joaquin Delta or the Delta for use within the respective basins of origin or the Legal Delta, unavoidable natural requirements for riparian habitat and conveyance losses, and flows required by the State Water Resources Control Board for maintenance of water quality and fish and wildlife. Export diversions and Project carriage water are specifically excluded from the definition of in-basin entitlements.

    b. Supplemental Project water is defined as that water imported to the basin by the Projects plus water released from Project storage that is in excess of export diversions, Project carriage water, and Project in-basin deliveries.

    The State Water Resources Control Board shall notify Permittee of curtailment of diversion under this term after it finds that supplemental Project water has been released or will be released. The Board will advise Permittee of the probability of imminent curtailment of diversion as far in advance as practicable based on anticipated requirements for supplemental Project water provided by the Project operators.

(Term Code: 0000091)

29. No diversion is authorized when any of the numeric Sacramento River inflow, Sacramento River salinity, or Delta outflow, including salinity-based Delta outflow, objectives of the Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta (Bay-Delta Plan) and any future amendments thereto, are not being met.

(Term Code: 9990800)

30. The following requirements apply to diversions under this Permit:

    a. Except as provided in part (d), diversions are not authorized when Delta outflow is less than 55 percent of unimpaired Delta outflow calculated as a

seven-day running average or if diversion would reduce Delta outflow below 55 percent of unimpaired Delta outflow calculated as a seven-day running average.

b. The methodology and data sources in Attachment 4 shall be used to calculate the requirements of part (a) of this term. The Executive Director may amend Attachment 4 either at their election or upon request of the Permittee or any interested party to improve accuracy of the methodology or data sources. Notice of any change to Attachment 4 will be provided by the Board's email distribution list for Bay-Delta-related matters and to the Permittee and posted on the State Water Board's website at least 60 days in advance of any decision to amend Attachment 4 by the Executive Director.

c. If the Board updates the Bay-Delta Plan to include Sacramento River inflow and inflow-based Delta outflow requirements based on a percentage of unimpaired flow applicable to this Permit, and the Board takes regulatory actions to implement those requirements, then Permittee shall comply with those regulatory requirements in lieu of the requirements of parts (a) and (b). Applicable Sacramento River inflow and Delta outflow requirements do not include water supply adjustments unless this Permit is identified as qualifying for water supply adjustments in the Bay-Delta Plan or this term is modified pursuant to the Board's reservation of authority in Term 57.

d. The conditions on diversion in this Term shall be subject to the following exception:

    i. If Term 23 prohibits or limits diversions when all other conditions for diversion are met, the Permittee may quantify the additional volume of water it would have been able to divert absent the requirements of Term 23. The methodology for quantifying the volume shall take into consideration all relevant factors, including infrastructure capacity, and must be approved by the Executive Director.

    ii. If, in the same water year, Term 30(a) prohibits or limits diversions but all other conditions for diversion are met, including but not limited to Term 23, the Permittee may divert up to the additional volume of water quantified under part (i). The Executive Director may suspend application of this part upon finding that the diversions authorized by this part would have an unreasonable effect on fish or other instream beneficial uses.

iii. If the Bay-Delta Plan is updated to include adaptive implementation provisions such as flow shaping, and the Board takes regulatory actions applicable to this Permit to implement Delta outflow requirements, then the procedures described in the Bay-Delta Plan shall apply in lieu of part (ii).

iv. Annually, the Permittee shall report to the Board the volume of water quantified under part (i) of this Term, the dates water was diverted under part (ii) of this Term, and the volume of water diverted under part (ii) of this Term.

(Term Code: 0350800)

31. If the Board updates the Bay-Delta Plan to include a VA Pathway, diversions under this Permit shall not interfere with the intended benefits to fish and wildlife beneficial uses of flow and non-flow commitments provided pursuant to the VA Pathway. At a minimum, the following conditions apply:

    a. No diversion is authorized on any day when flow commitments provided pursuant to the VA Pathway are present in the mainstem of the Sacramento River.

    b. No diversion is authorized on any day in which flow commitments provided pursuant to the VA Pathway are contributing to Delta outflow and Delta outflow remains below the sum of the Delta outflow requirement for diversion under Term 30 and the amount of VA Pathway flow commitments contributing to Delta outflow.

    c. The accounting methodology in the Bay-Delta Plan shall be used to determine when flow commitments are present in the mainstem of the Sacramento River, and the presence and amount of flow commitments contributing to Delta outflow. During those years when flow commitments are provided pursuant to the VA Pathway, Permittee shall provide reports to the Deputy Director to substantiate Permittee's compliance with this term on a schedule that the Deputy Director determines is consistent with other reporting requirements in the Bay-Delta Plan.

    d. The Board reserves the authority to modify this term, following notice and opportunity for public comment, to ensure consistency with the Bay-Delta Plan and approved VAs.

(Term Code: 0350800)

32. Prior to construction of Sites Reservoir, Permittee shall prepare and submit to the Executive Director, in consultation with the State Water Board and the Central Valley

Regional Water Quality Control Board, a feasibility assessment of actions that may be taken prior to construction and technologies that may be installed during and after construction to (1) control cyanobacteria or cyanotoxins production in Sites Reservoir and (2) prevent or mitigate elevated levels of methylmercury in Sites Reservoir and in water released from Sites Reservoir that will be conveyed in the Colusa Basin Drain, Yolo Bypass, or Sacramento River. The feasibility assessment should include consideration of pilot programs to evaluate the feasibility of innovative techniques or technologies.

(Term Code: 0390800)

33. Prior to construction of Sites Reservoir, Permittee shall conduct pre-construction total mercury sediment screening, sediment coring, and other actions to identify areas that may have higher concentrations of mercury within the inundation area. Permittee shall identify to the Executive Director any actions that will be taken prior to construction to address any areas that may have increased concentrations of mercury.

(Term Code: 0390800)

34. Permittee shall consolidate the applicable requirements of Terms 35 through 43 into a Water Quality Portfolio for review and approval by the State Water Board. The Water Quality Portfolio shall include the Reservoir Management Plan (Sites RMP) described in Appendix 2D of the EIS/EIR, and any additional actions or plans under Terms 35 through 43. No diversions or rediversions shall occur unless the Water Quality Portfolio is approved and the actions described by the approved Water Quality Portfolio are conducted in accordance with the deadlines described in the Water Quality Portfolio.

    Permittee shall post a draft of the Water Quality Portfolio and drafts of any subsequent updates to the Water Quality Portfolio on its website and offer a 30-day period for public review and comment. Permittee shall consider and respond to any comments in writing, and shall submit the Portfolio, comments, and responses to the State Water Board.

    Permittee shall consult with the Central Valley Water Quality Control Board, CDFW, and any California Native American Tribe requesting consultation prior to submitting the initial Water Quality Portfolio to the State Water Board for its consideration and prior to submitting any update to the Water Quality Portfolio. Permittee shall develop a notification list of representatives of California Native American Tribes by submitting requests to the Native American Heritage Commission (NAHC) for a search of the Sacred Lands Inventory and the NAHC Contact List for Tribal Consultation, to identify Tribes with current or ancestral lands in any county that overlies either the Delta, as defined by Water Code section 12220, or the Sacramento River watershed. The notification list of Tribes shall also include all Tribes that have requested, in writing, notification of the opportunity to consult and

all Tribes that participated as parties in the hearing for Decision XXXX. Permittee shall update this list and notify Tribal representatives on the list of the opportunity to consult at least 180 days prior to submission of the Water Quality Portfolio to the State Water Board and 180 days prior to submission of updates to the Water Quality Portfolio.

Permittee shall submit updates to the Water Quality Portfolio at least every five years following initial approval by the State Water Board. Updates to the Water Quality Portfolio shall identify actions implemented during the prior five years, the impact of those actions on water quality in waterbodies affected by project operations, and any proposed changes or additions to actions in the Water Quality Portfolio. Proposed updates to the Water Quality Portfolio may include revised criteria for prohibitions of releases to the Colusa Basin Drain, Yolo Bypass, or the Sacramento River based on changes to applicable water quality control plans, including changes to water quality objectives or programs of implementation provisions, or other new information relevant to the protection of beneficial uses or public health. Approval of the Water Quality Portfolio and subsequent updates shall expire six years after their respective approval dates. Updates to the Water Quality Portfolio shall become effective upon approval by the Executive Director and may include unchanged components of prior Water Quality Portfolios.

(Term Code: 9990800)

35. Permittee shall include a monitoring plan for cyanobacteria and cyanotoxins in the Water Quality Portfolio. The plan shall include:

    a. Locations and frequency of monitoring for cyanobacteria and cyanotoxins in Sites Reservoir.

    b. Locations and frequency of monitoring for cyanobacteria and cyanotoxins in the Colusa Basin Drain, Yolo Bypass, Sacramento River, and Delta that is coordinated with and supplements existing monitoring for harmful algal blooms (HABs) under other programs, including the Bay-Delta Monitoring and Evaluation Program.

    The five-year updates to the Water Quality Portfolio shall include the following information:

    c. Whether HABs increased or decreased in duration, intensity, or frequency at any of the monitoring locations;

    d. Whether detections of cyanobacteria or cyanotoxins occurred, and the timing of these occurrences in relation to diversions under this Permit and HABs drivers such as flow, temperature, or nutrient conditions in the water body where cyanobacteria or cyanotoxins occurred;

e. The varieties of cyanobacteria or cyanotoxins that were detected using methods consistent with the Bay Delta Monitoring and Evaluation Program, including monitoring discrete physical and chemical water quality parameters, conducting discrete phytoplankton and algal pigment analysis, using visual indices, and cyanotoxin analysis, and whether varieties detected downstream of the reservoir were of the same variety as those occurring in the reservoir.

(Term Code: 0390500)

36. Permittee may include a HABs Prevention and Mitigation Strategy (HABs Strategy) in the Water Quality Portfolio to prevent or reduce HABs in Sites Reservoir and limit the release of cyanobacteria or cyanotoxins from the reservoir. The plan should address the results of the feasibility assessment required by Term 32 and incorporate appropriate technology or other actions identified by that assessment. Upon approval of the Water Quality Portfolio, the requirements in the HABs Strategy shall supersede the requirements of Term 37. The HABs Strategy shall include:

a. Any technology to be installed and other actions to be taken to prevent or reduce HABs in Sites Reservoir and limit the release of cyanobacteria or cyanotoxins from the reservoir.

b. Cyanobacteria or cyanotoxin levels at each monitoring location that trigger operational changes or other actions to prevent or reduce HABs in the reservoir and limit the release of cyanobacteria or cyanotoxins from the reservoir to protect human health and other beneficial uses.

c. Operational changes and other actions to be taken by Permittee if monitoring indicates the presence or threat of HABs in the reservoir or a threat of release of cyanobacteria or cyanotoxins from the reservoir.

d. Pilot studies or other ongoing feasibility assessment of technology, methods, and actions to prevent or mitigate the production or release of cyanobacteria and cyanotoxins.

(Term Code: 0400800)

37. If an approved Water Quality Portfolio does not include a HABs Strategy developed pursuant to Term 36, then no water shall be released from Sites Reservoir when cyanobacteria or cyanotoxin levels in the released water are above California's Cyanobacteria and Harmful Algal Bloom Network Caution Level as demonstrated by the monitoring procedures described in the Sites RMP. If an applicable water quality objective for cyanobacteria or cyanotoxin is adopted, that objective will be substituted for the Cyanobacteria and Harmful Algal Bloom Network Caution Level in this term. Permittee shall describe the effectiveness of any HABs management practices used within the reservoir as part of each five-year update to the Water Quality Portfolio.

(Term Code: 0400800)

38. Permittee shall include in the Water Quality Portfolio a plan to prevent or mitigate elevated levels of methylmercury in Sites Reservoir and in water released from Sites Reservoir to be conveyed in the Colusa Basin Drain, Yolo Bypass, or the Sacramento River (Methylmercury Mitigation Plan). The plan shall be developed in consultation with the Central Valley Regional Water Quality Control Board, Office of Environmental Health Hazard Assessment, and State Water Board, and shall be consistent with applicable methylmercury water quality objectives in the Water Quality Control Plan for Inland Surface Waters, Enclosed Bays, and Estuaries of California (ISWBE) and the Water Quality Control Plans for the Sacramento River and San Joaquin River Basins (Central Valley Basin Plans). The plan shall include the following components:

    a. A description of how Mitigation Measure WQ-1.1 will be implemented, including the specific sampling locations, frequency, and procedures, and actions to be taken.

    b. Monitoring and sampling of the sediment, water column, and fish tissues within the reservoir to determine the extent of methylmercury in the reservoir and the quantity of methylmercury being released from Sites Reservoir.

    c. Actions that will be taken to reduce to the maximum feasible extent the methylation of mercury during the initial filling of the reservoir, such as installation of hypolimnetic oxygenation systems, oxidant addition, or in-reservoir sediment removal or encapsulation.

    d. A load allocation for methylmercury discharges from the reservoir that is consistent with the methylmercury objectives and Delta Mercury Control Program in the Central Valley Basin Plans and the ISWBE sport fishing objectives.

e. Actions, including operational changes and other actions that will be taken to mitigate methylmercury in the reservoir and ensure releases are within the identified methylmercury load allocation.

f. Thresholds at monitoring locations that will trigger the identified operational changes or other actions.

g. Alternative compliance actions the Permittee shall take if reservoir releases cannot meet the identified methylmercury load allocation through mitigation measures and operational changes, as determined by the Executive Director. Alternative compliance might include mitigating or offsetting existing contributors of mercury outside of the reservoir footprint.

h. Pilot studies or other ongoing feasibility assessments of technology, methods, and management actions to reduce methylmercury production and bioaccumulation in the reservoir and concentrations of methylmercury in releases from the reservoir.

(Term Code: 0390500)

39. Releases from Sites Reservoir shall comply with the load allocation for methylmercury discharges from the reservoir identified in the Methylmercury Mitigation Plan, except that the Executive Director may approve an alternate method of compliance by implementation of the alternative compliance actions identified by the Permittee in the Methylmercury Mitigation Plan.

(Term Code: 0300800)

40. Temperature monitoring shall be continuous starting at least one week prior to the release of water from Sites Reservoir for conveyance in the Sacramento River (Sacramento River Conveyance Water) and continuing until at least one week after releases cease. Monitoring locations shall include: (1) the point of release from Sites Reservoir, (2) the point of release from Funks Reservoir, (3) the point of release from the Dunnigan Pipeline, (4) the point of release from the Colusa Basin Drain to the Sacramento River, (5) upstream of the confluence with the Colusa Basin Drain in the Sacramento River, and (6) downstream of the confluence with the Colusa Basin Drain in the Sacramento River. Amendment or removal of points (1) through (3) may be modified by the Executive Director as part of updating the Water Quality Portfolio.

(Term Code: 0300800)

41. Permittee may develop a Sacramento River Temperature Strategy (Temperature Strategy) to address impacts to fisheries from temperature changes in the Sacramento River caused by release of Sacramento River Conveyance Water to be included in the Water Quality Portfolio. Permittee shall receive concurrence from CDFW that the Temperature Strategy will avoid temperature-related detrimental

effects on fisheries in the Sacramento River prior to submitting the Temperature Strategy to the State Water Board. Upon approval of the Water Quality Portfolio, the requirements in the Temperature Strategy shall supersede the numeric requirements of Term 42. The Temperature Strategy must include:

a. Monitoring sufficient to support development and validation of modeling to accurately quantify and forecast temperature changes in the Colusa Basin Drain and the Sacramento River that will be caused by releases of water from Sites Reservoir.

b. Integration of the operation of Sites Reservoir with other reservoir operations affecting temperature in the Sacramento River downstream of Shasta Dam to avoid temperature impacts to fisheries. Specific actions to be evaluated include exchanges between Sites Reservoir and Shasta Reservoir to increase cold-water pool available in Shasta Reservoir for temperature management, or other actions to offset temperature increases that may result from the release of Sacramento River Conveyance Water.

c. Temperature thresholds at which releases of Sacramento River Conveyance Water will cease or be reduced to avoid detrimental impacts to fisheries, and the conditions under which each threshold applies.

d. If the temperature thresholds would allow releases of Sacramento River Conveyance Water when such releases may cause or contribute to temperature increases in the Sacramento River above 68 degrees Fahrenheit (F), a description and supporting documentation of conditions under which temperature increases above 68 degrees F between Hamilton City and the I Street Bridge will not be detrimental to fisheries. For salmonids, the determination of whether a temperature impact would be detrimental may take into account the broader condition of the fishery.

(Term Code: 0390800)

42. If an approved Water Quality Portfolio does not include a Temperature Strategy developed pursuant to Term 41, then no water shall be released from Sites Reservoir and conveyed in the Sacramento River unless the water, when released from the Colusa Basin Drain into the Sacramento River, is (a) cooler than the Sacramento River or (b) less than 68 degrees F. Temperatures shall be measured and compared on an instantaneous basis.

(Term Code: 0390500)

43. All monitoring data and applicable laboratory reports resulting from the Water Quality Portfolio shall be submitted electronically at least annually to the California Environmental Data Exchange Network (CEDEN), if currently accepted by CEDEN.

Submittals shall use the applicable current CEDEN templates and conform to the template instructions for each parameter. Continuous temperature data collected by the Permittee shall be made available at a 15-minute resolution on the California Data Exchange Center (CDEC) on a real-time basis. Any other data and reports not currently accepted by CEDEN, unless otherwise specified by the Deputy Director, shall be submitted in a machine-readable format as an attachment to the Annual Report for the Permit. Data shall be collected in conformance with current best practices for quality assurance, which shall be documented in a Quality Assurance Project Plan. Monitoring data resulting from the Water Quality Portfolio shall be made available to the Deputy Director upon request. The Deputy Director may adjust the frequency of submittals to CEDEN or CDEC under this term.

(Term Code: 0300800)

44. No water shall be released from Sites Reservoir in exchange for water to be diverted or rediverted through the Clifton Court Forebay or the Jones Pumping Plant (collectively, the Export Facilities) unless the diversion or rediversion of the exchanged water at the Export Facilities complies with Terms 45, 46, 48, 49, and 50.

(Term Code: 0350999)

45. Rediversion of water at the Export Facilities shall only occur from July 1 through November 30 of each year.

(Term Code: 0350700)

46. No rediversion of water at the Export Facilities shall occur unless the numeric water quality objectives in the Bay-Delta Plan, as it may be amended, are met.

(Term Code: 0350800)

47. Rediversion at the Export Facilities of water stored under this Permit shall not exceed the amounts released from Sites Reservoir into the Sacramento River, after accounting for travel time, channel depletions, and carriage losses.

(Term Code: 0350900)

48. No rediversion of water at the Export Facilities shall occur unless all regulatory requirements for the protection of fish, wildlife, and other instream beneficial uses that apply at or to operations of the Export Facilities are being met, including but not limited to biological opinions; court orders; and incidental take permits.

(Term Code:0350900)

49. No rediversion of water at the Export Facilities shall occur when water depths in Delta channels are not adequate to support diversions by reasonable methods pursuant to any valid water right with a priority date senior to this Permit. The Executive Director may approve, after notice and opportunity for public comment:

a. Water depths at specific measurement locations developed by the Permittee in consultation with South Delta Water Agency (SDWA) that demonstrate adequate water depths to prevent injury to senior right holders; or

b. A physical solution to prevent injury to senior right holders that is submitted by the Permittee with written concurrence from SDWA.

Upon approval by the Executive Director, water may be rediverted at the Export Facilities if (a) the approved water depths are met, or (b) the physical solution is implemented to prevent injury.

In the alternative to the above conditions on rediversion, the Executive Director may approve, after notice and opportunity for public comment, a regulatory program that comprehensively manages operation of the Export Facilities to prevent injury to right holders from inadequate water depths in Delta channels. Such a regulatory program may include but is not limited to a regulation implementing the Bay-Delta Plan or an approved comprehensive plan to address water depths in the southern Delta pursuant to a federal or state-issued permit, license, or other approval. The Executive Director shall find that the regulatory method applies to rediversions under this Permit or amend this term to require Permittee to comply with the regulatory program. Upon approval by the Executive Director, water may be rediverted at the Export Facilities in compliance with the approved regulatory program.

(Term Code: 0350999)

50. Permittee shall maintain and post on a publicly available website in a machine-readable format, a list of the amounts of water exchanged between the Permittee and other water right holders. An exchange shall include any water released or delivered by the Permittee pursuant to an agreement between the right holders, in lieu of water being released or delivered pursuant to another water right or bypassed to satisfy downstream demands. Permittee shall not start releases pursuant to an exchange until the following information about the exchange has been listed on the website, disaggregated for each water right involved in the exchange: the water right permit, license, or statement number; the amounts to be exchanged; and, if applicable, where water involved in the exchange will be stored. The website shall be updated to reflect the cumulative volume of exchanged water remaining in storage following release of exchanged water and the dates when those releases occurred. A list of all exchanges that occurred during the water year, along with the above information, shall be included with the Annual Report.

(Term Code: 9990999)

51. No water shall be released from Sites Reservoir in exchange for water diverted by either DWR as part of the SWP or Reclamation as part of the CVP, if that exchange

results in DWR or Reclamation violating any law, regulation, biological opinion, incidental take permit, or court order applicable to the operation of the SWP or CVP.

(Term Code: 9990999)

52. Prior to commencing diversions, Permittee shall develop and submit to the Deputy Director for approval a groundwater monitoring program prepared by a professional hydrogeologist to identify whether diversions under this Permit are causing or threatening to cause injury to groundwater right holders. The Permittee may rely on and incorporate existing monitoring locations, protocols, and thresholds being implemented pursuant to the Sustainable Groundwater Management Act. The program shall identify monitoring locations, sampling frequencies, and explanation of how the monitoring will be sufficient to identify changes in groundwater conditions potentially caused by the diversions. For each monitoring location, the program shall identify water elevation thresholds at which the Permittee shall conduct analyses to determine whether diversions under the Permit are contributing to groundwater level declines or other adverse effects to groundwater conditions that may injure groundwater right holders. In the absence of existing monitoring activities that are sufficient to monitor the potential effects of diversions, Permittee shall conduct its own groundwater elevation monitoring. Any data collected by the Permittee pursuant to this term shall be submitted to DWR's Water Data Library or another publicly accessible data system approved by the Deputy Director.

    If a groundwater level reaches a monitoring threshold at any location identified in the program, Permittee shall consult with the relevant groundwater sustainability agency and shall analyze the extent to which diversions under the Permit, either during that year or as a cumulative effect, have contributed to groundwater elevation declines. The analysis and any supporting information, including any actions by the Permittee to address the effects of diversions on groundwater conditions, shall be included in the Permittee's next Annual Report. Upon receipt of evidence that diversions authorized by this Permit may cause or threaten to cause injury to groundwater right holders in subbasins adjacent to the Sacramento River downstream of the points of diversion, the State Water Board reserves the authority to modify the terms and conditions of this Permit if, after notice to interested parties and opportunity for a hearing, the Permittee fails to demonstrate that operations under this Permit will not cause injury.

    (Term Code: 0350500)

53. Permittee shall meet the requirements in Mitigation Measure GHG 1.1 in Attachment 3 of this Permit. Every five years after issuance of this Permit, the Permittee shall review and update its accounting of Greenhouse Gas (GHG) emissions using best available science and tools, to ensure the Authority achieves its goal of net-zero GHG emissions. Permittee shall submit any update to its accounting of GHG emissions to the Deputy Director as an attachment to the Annual Report for the year when the review and update occurred. This term may be modified or removed by the

Deputy Director upon request by the Permittee if GHG emissions resulting from operation of the Project are subject to the regulatory authority of another state agency.

(Term Code: 0400500)

54. Permittee shall submit a report to the Deputy Director describing any changes to the contracts with the Permittee to receive delivery of water under this Permit (Storage Partners). The report shall be submitted within 30 days of any changes to the contractual allocations of storage space and shall include any associated changes to the intended purposes and places of use by each Storage Partner and the percentages of Sites Reservoir storage space allocated among the Storage Partners. If the Deputy Director determines based on the report that there is a significant and material change to the Storage Partners and associated beneficial uses that was not anticipated by the State Water Board in the Decision approving the application for this Permit, then the Board shall reconsider whether the water authorized for diversion under this Permit will be put to reasonable beneficial use in the public interest. The requirements in this term shall no longer apply upon completion of actual beneficial use of water under this Permit.

(Term Code: 9990999)

55. No water shall be diverted under this Permit unless Permittee is operating in accordance with a compliance plan approved by the Deputy Director. The compliance plan shall specify how the right holder will comply with the Terms 5, 7, 22, 23, 30, 31, 47, Term F, and Term G of this Permit. The compliance plan shall identify the data to be submitted with the Annual Reports to demonstrate compliance, including, where applicable, stream gauge flow data. The Deputy Director may require amendments of the compliance plan to address any additional terms and conditions of this Permit. Permittee shall be allowed at least 90 days to submit required amendments to the compliance plan. The compliance plan may incorporate by reference other submittals by the Permittee to the State Water Board, such as methodologies submitted pursuant to the reporting requirements of chapter 2.7, title 23, California Code of Regulations.

(Term Code: 0360999)

56. Any approval by the Board, Executive Director, or Deputy Director of a plan or other submission required by a term or condition in this Permit, may be approved in whole or in part, denied in whole or in part, or approved with conditions deemed necessary and appropriate to achieve the intended purposes.

(Term Code:9990999)

57. The State Water Board reserves the authority, following notice to interested parties and opportunity for a hearing, to add, amend, revise, supplement, or delete terms and conditions in this Permit to protect vested rights, fish, wildlife, and other instream beneficial uses and public trust resources, and to otherwise best develop, conserve,

and utilize the state's water resources in the public interest. The circumstances under which this reservation of authority may be exercised include but are not limited to the following:

a. Upon receipt of new information demonstrating a reasonable likelihood that operations authorized by this Permit have caused or may cause unreasonable harm to fish, wildlife, or other instream beneficial uses, including Tribal beneficial uses, or injury to senior right holders.

b. Relevant water quality control plans are amended such that the terms and conditions of this Permit are no longer consistent with the plan or sufficient to achieve water quality objectives or reasonably protect beneficial uses. Such changes may include new or revised water quality objectives or implementation plans for HABs, methylmercury, temperature, flow, or other water quality objectives or implementation plans to protect designated Tribal Beneficial Uses.

c. Upon receipt of new information concerning the amount of water available for diversion under the Permit, to ensure the terms and conditions of this Permit best develop and utilize the state's water resources in the public interest while reasonably protecting fish, wildlife, and other instream beneficial uses and public trust resources.

d. To change the season of diversion to conform to later findings of the State Water Board concerning availability of water and instream flows necessary for the reasonable protection of beneficial uses of water in the Sacramento-San Joaquin Delta.

(Term Code: 9990600)

**THIS PERMIT IS ALSO SUBJECT TO THE FOLLOWING TERMS AND CONDITIONS:**

A. Permittee is on notice that: (1) failure to timely commence or complete construction work or beneficial use of water with due diligence, (2) cessation or partial cessation of beneficial use of water, or (3) failure to observe any of the terms or conditions of this Permit, may be cause for the State Water Board to consider revocation (including partial revocation) of this Permit. (Cal. Code Regs., tit. 23, § 850.)

(Term Code: 0000016)

B. Permittee is on notice that when the State Water Board determines that any person is violating, or threatening to violate, any term or condition of a water right, the State Water Board may issue an order to that person to cease and desist from that violation. (Wat. Code, § 1831.) Civil liability may be imposed administratively by the State Water Board pursuant to Wat. Code, § 1055, or may be imposed by the superior court. The Attorney General, upon the request of the Board, shall petition the superior court to impose, assess, and recover those sums. (Wat. Code, § 1846.)

(Term Code: 0000017)

C. Permittee is not authorized to make any modifications to the location of diversion facilities, place of use or purposes of use, or make other changes to the project that do not conform with the terms and conditions of this Permit, prior to submitting a change petition and obtaining approval of the State Water Board.

(Term Code: 0000018)

D. Once the time to develop beneficial use of water ends under this Permit, Permittee is not authorized to increase diversions beyond the maximum annual amount diverted or used during the authorized development schedule prior to submitting a time extension petition and obtaining approval of the State Water Board.

(Term Code: 0000019)

E. The amount of water for consideration when issuing a license shall be limited to only the amount of water diverted and applied to beneficial use in compliance with the terms and conditions of this Permit, as determined by the State Water Board. (Wat. Code, § 1610.)

(Term Code: 0000006)

F. Permittee shall measure the amount of water beneficially used under this Permit using devices and/or methods satisfactory to the Deputy Director. In order to demonstrate compliance with the beneficial use monitoring requirements of this Permit, Permittee shall provide evidence that the devices and/or methods are functioning properly, in a manner satisfactory to the Deputy Director, within 30 days of first use of the device and/or method, with the reports required by chapter 2.7, title 23, California Code of Regulations, and whenever requested by the Division of Water Rights.

(Term Code: 0000015)

G. Permittee shall comply with the reporting requirements as specified in the terms of this Permit or any reporting requirements by statute, order, policy, regulation, decision, judgment or probationary designation. The more stringent requirement shall control in each instance where there is conflict or inconsistency between the requirements.

Permittee shall comply with the reporting requirements of chapter 2.7, title 23, California Code of Regulations.

Permittee shall promptly submit any reports, data, or other information that may reasonably be required by the State Water Board, including but not limited to documentation of water diversion and beneficial use under this Permit.

(Term Code: 0000010)

H. Permittee shall grant, or secure authorization through Permittee's right of access to property owned by another party, the staff of the State Water Board, and any other authorized representatives of the State Water Board the following:

1. Entry upon property where water is being diverted, stored or used under a right issued by the State Water Board or where monitoring, samples and/or records must be collected under the conditions of this Permit;

2. Access to copy any records at reasonable times that are kept under the terms and conditions of a right or other order issued by State Water Board;

3. Access to inspect at reasonable times any project covered by a right issued by the State Water Board, equipment (including monitoring and control equipment), practices, or operations regulated by or required under this Permit; and,

4. Access to photograph, sample, measure, and monitor at reasonable times for the purpose of ensuring compliance with a right or other order issued by State Water Board, or as otherwise authorized by the Water Code.

(Term Code: 0000011)

I. This Permit shall not be construed as conferring a right of access to any lands or facilities not owned by Permittee.

(Term Code: 0000022)

J. All rights are issued subject to available flows. Inasmuch as the source contains treated wastewater, imported water from another stream system, or return flow from other projects, there is no guarantee that such supply will continue.

(Term Code: 0000025)

K. This Permit does not authorize diversion of water dedicated by other right holders under a senior right for purposes of preserving or enhancing wetlands, habitat, fish and wildlife resources, or recreation in, or on, the water. (Wat. Code, § 1707.) The Division of Water Rights maintains information about these dedications. It is the Permittee's responsibility to be aware of any dedications that may preclude diversion under this Permit.

(Term Code: 0000212)

L. No water shall be diverted or used under this Permit, and no construction related to such diversion shall commence, unless Permittee has obtained and is in compliance with all necessary permits or other approvals required by other agencies. If an amended Permit is issued, no new facilities shall be utilized, nor shall the amount of water diverted or used increase beyond the maximum amount diverted or used during the previously authorized development schedule, unless Permittee has obtained and is in compliance with all necessary requirements, including but not limited to the permits and approvals listed in this term.

Within 90 days of the issuance of this Permit or any subsequent amendment, Permittee shall prepare and submit to the Division of Water Rights a list of, or provide information that shows proof of attempts to solicit information regarding the need for, permits or approvals that may be required for the project. At a minimum, Permittee shall provide a list or other information pertaining to whether any of the following permits or approvals are required: (1) lake or streambed alteration agreement with the Department of Fish and Wildlife (Fish & G. Code, § 1600 et seq.); (2) Department of Water Resources, Division of Safety of Dams approval (Wat. Code, § 6002); (3) Regional Water Quality Control Board Waste

Discharge Requirements (Wat. Code, § 13260 et seq.); (4) U.S. Army Corps of Engineers Clean Water Act section 404 permit (33 U.S.C. § 1344); and (5) local grading permits.

Permittee shall, within 30 days of issuance of any permits, approvals or waivers, transmit copies to the Division of Water Rights.

(Term Code: 0000203)

M. Urban water suppliers shall comply with the Urban Water Management Planning Act (Wat. Code, § 10610 et seq.). All Urban Retail Water Suppliers shall comply with the provisions of Division 6, Part 2.55 (commencing with Chapter 9, section 10609.20) and Part 2.6 (commencing with Chapter 3, section 10608.34) of the Water Code. An “urban retail water supplier” means a water supplier, either publicly or privately owned, that directly provides potable municipal water to more than 3,000 end users or that supplies more than 3,000 acre-feet of potable water annually at retail for municipal purposes.

Agricultural water users and suppliers shall comply with the provision of Division 6, Part 2.55 of the Water Code and the Agricultural Water Management Planning Act (Water Code, § 10800 et seq.). An “agricultural water supplier” means a supplier, either publicly or privately owned, providing water (excluding recycled water) to 10,000 or more irrigated acres, including a supplier or contractor for water, regardless of the basis of right, which distributes or sells for ultimate resale to customers.

(Term Code: 0000029D)

N. Pursuant to Water Code sections 100 and 275 and the common law public trust doctrine, all rights and privileges under this Permit, including method of diversion, method of use, and quantity of water diverted, are subject to the continuing authority of the State Water Board in accordance with law and in the interest of the public welfare to protect public trust uses and to prevent waste, unreasonable use, unreasonable method of use, or unreasonable method of diversion of said water.

The continuing authority of the State Water Board may be exercised by imposing specific requirements over and above those contained in this Permit with a view to eliminating waste of water and to meeting the reasonable water requirements of Permittee without unreasonable draft on the source. Permittee may be required to implement a water conservation plan, features of which may include but not necessarily be limited to (1) reusing or reclaiming the water allocated; (2) using water reclaimed by another entity instead of all or part of the water allocated; (3) restricting diversions so as to eliminate agricultural tailwater or to reduce return flow; (4) suppressing evaporation losses from water surfaces; (5)

controlling phreatophytic growth; and (6) installing, maintaining, and operating efficient water measuring devices to assure compliance with the quantity limitations of this Permit and to determine accurately water use as against reasonable water requirements for the authorized project. No action will be taken pursuant to this paragraph unless the State Water Board determines, after notice to affected parties and opportunity for hearing, that such specific requirements are physically and financially feasible and are appropriate to the particular situation.

The continuing authority of the State Water Board also may be exercised by imposing further limitations on the diversion and use of water by Permittee in order to protect public trust uses. No action will be taken pursuant to this paragraph unless the State Water Board determines, after notice to affected parties and opportunity for hearing, that such action is consistent with California Constitution, article X, section 2; is consistent with the public interest; and is necessary to preserve or restore the uses protected by the public trust.

(Term Code: 0000012)

O. The quantity of water diverted under this Permit is subject to modification by the State Water Board if, after notice to Permittee and an opportunity for hearing, the State Water Board finds that such modification is necessary to meet water quality objectives in water quality control plans which have been or hereafter may be established or modified pursuant to Division 7 of the Water Code. No action will be taken pursuant to this paragraph unless the State Water Board finds that (1) adequate waste discharge requirements have been prescribed and are in effect with respect to all waste discharges which have any substantial effect upon water quality in the area involved, and (2) the water quality objectives cannot be achieved solely through the control of waste discharges.

(Term Code: 0000013)

P. This Permit does not authorize any act which results in the taking of a candidate, threatened or endangered species or any act which is now prohibited, or becomes prohibited in the future, under either the California Endangered Species Act (Fish & G. Code, § 2050 et seq.) or the federal Endangered Species Act (16 U.S.C. § 1531 et seq.). If a "take" will result from any act authorized under this Permit, Permittee shall obtain any required authorization for an incidental take prior to construction or operation of the project. Permittee shall be responsible for meeting all requirements of the applicable Endangered Species Act for the project authorized under this Permit.

(Term Code: 0000014)

*This Permit is issued and Permittee is subject to the following provisions of the Water Code:*

*Section 1390. A permit shall be effective for such time as the water actually appropriated under it is used for a useful and beneficial purpose in conformity with this division (of the Water Code), but no longer.*

*Section 1392. Every permittee, if he accepts a permit, does so under the conditions precedent that no value whatsoever in excess of the actual amount paid to the State therefor shall at any time be assigned to or claimed for any permit granted or issued under the provisions of this division (of the Water Code), or for any rights granted or acquired under the provisions of this division (of the Water Code), in respect to the regulation by any competent public authority of the services or the price of the services to be rendered by any permittee or by the holder of any rights granted or acquired under the provisions of this division (of the Water Code) or in respect to any valuation for purposes of sale to or purchase, whether through condemnation proceedings or otherwise, by the State or any city, city and county, municipal water district, irrigation district, lighting district, or any political subdivision of the State, of the rights and property of any permittee, or the possessor of any rights granted, issued, or acquired under the provisions of this division (of the Water Code).*

STATE WATER RESOURCES CONTROL BOARD

*Juliet Christian-Smith, Deputy Director*
*Division of Water Rights*

Dated:

# Attachment 1

2024 Incidental Take Permit Requirements

| Condition Number | Condition of Approval |
|---|---|
| **9.4: Maximum Total Diversions** | Permittee shall not exceed the maximum total annual diversion of 986 TAF combined at the Red Bluff POD and Hamilton City POD diversion facilities. The Permittee shall not divert water at the Red Bluff POD and Hamilton City POD above the maximum annual diversion volumes of 660 TAF and 421 TAF, respectively, for each location, while still remaining below the maximum total annual diversion of 986 TAF at the diversion facilities for the Project. |
| **9.8: Diversions During Excess Conditions** | Permittee shall only divert when the Delta has been determined by DWR and Reclamation to be in excess conditions and in initiating diversions, Net Delta Outflow Index has increased by an additional 3,000 cfs after the determination of the excess conditions. |
| **9.9: Temporary Urgency Change Order for Delta Water Quality Objectives** | Permittee shall not divert water to storage during times when Bay-Delta Water Quality Control Plan requirements for Delta Outflow, X2 (Spring), Rio Vista, Emmaton, Jersey Point, and Delta Export to Inflow (E:I) ratio are modified by a Temporary Urgency Change Petition/Order and the CVP or SWP are operating to the modified conditions. |
| **9.10: Sacramento River Bypass Flow Criteria at Red Bluff Pumping Plant** | Permittee shall not divert water until the Sacramento River flow at Red Bluff POD is at or above 3,250 cfs. Diversions shall not result in Sacramento River flow at Red Bluff POD to be less than 3,250 cfs at all times. Diversions shall cease once Sacramento River flow at Red Bluff POD drop below 3,250 cfs. Sacramento River flow shall be determined by California Data Exchange (CDEC) Station at Bend Bridge (BND) minus Permittee and non-Permittee diversions at the Red Bluff POD diversion facility. |
| **9.11: Sacramento River Bypass Flow Criteria at Hamilton City Pump Station** | Permittee shall not divert water until the Sacramento River flow at Hamilton City POD is at or above 4,000 cfs. Diversions shall not result in Sacramento River flow at Hamilton City POD to be less than 4,000 cfs at all times. Diversions shall cease once Sacramento River flow at Hamilton City POD drops below 4,000 cfs. Sacramento River flow shall be determined by CDEC Station at Hamilton City (HMC). |
| **9.12: Sacramento River Bypass Flow Criteria at Wilkins Slough.** | Permittee shall not divert water if the flow in the Sacramento River at Wilkins Slough will decline below 10,930 cfs as indicated by United States Geological Survey (USGS) Station 11390500 - Sacramento R BL Wilkins Slough NR Grimes CA. This will be determined using the following criteria:<br>• The Real-Time flow at USGS Station 11390500 exceeds 10,930 cubic feet per second (cfs).<br>• The California Nevada River Forecast Center (CNRFC) forecasted flow at station WLKC1 exceeds 10,930 cfs for the subsequent seventy-two hours following the estimated start time of any diversion event.<br>• The forecasted flow continues to exceed 10,930 cfs at CNRFC station WLKC1 for seventy-two hours after the diversion event is scheduled to end. |

| | |
|---|---|
| | • The forecasted flow at CNRFC station WLKC1 shall be re-evaluated for the duration of the diversion event, a minimum of every twenty-four hours by the Permittee to ensure the projected forecast has not changed and the forecasted flow continues to exceed 10,930 cfs.<br>• Forecasting of the seventy-two-hour travel time between the diversions facilities and Wilkins Slough may be modified based on best available science and with approval from CDFW. |
| **9.13: Allowable Diversions During Simultaneous Use at Red Bluff Pumping Plant and Hamilton City Pump Station** | If Permittee and non-Permittee diversions occur simultaneously at the Red Bluff POD or Hamilton City POD, the Permittee shall continue to maintain USGS Station 11390500 and CNRFC Station WLKC1 above 10,930 cfs while accounting for the additional non-Permittee diversions. The total allowable diversions shall be determined by the following equation:<br><br>*Available Flow for Permittee Diversion(cfs) = WLK(72hrforecast)-[10,930 + RB(NonPermitteeDiv) + HC(NonPermitteeDiv)]*<br><br>Where:<br>• *WLK(72hrforecast)* is the CNRFC 72-hour forecast<br>• *RB(NonPermitteeDiv)* is non-Permittee diversions at Red Bluff to the extent these diversions are not already accounted for in *WLK(72hrforecast).*<br>• *HC(NonPermitteeDiv)* is non-Permittee diversions at Hamilton City to the extent these diversions are not already accounted for in *WLK(72hrforecast).* |
| **9.14: Flow Dependent Diversion.** | Permittee shall divert no more than a specified amount of Sacramento River flow at the Red Bluff POD and Hamilton City POD under the following criteria for Flow Dependent Diversion (FDD) to minimize impacts to CHNWR, CHNSR, and WS from near-field effects at the Red Bluff POD and Hamilton City POD fish screens and to minimize the effects of reduced flow in the Sacramento River. The requirements specified in this Condition of Approval shall be adhered to in addition to all other applicable diversion requirements specified in this ITP. Permittee shall not initiate diversions at the Red Bluff POD from January 1 to February 28 (Feb. 29 in leap years) until Sacramento River flow at Bend Bridge exceeds 4,800 cfs. Permittee shall not initiate diversions at the Red Bluff POD from September 1 to December 31 and March 1 to June 14 until Sacramento River flow at Bend Bridge exceeds 6,295 cfs. Permittee shall not initiate diversions at Hamilton City POD from September 1 to June 14 until Sacramento River flow at Hamilton City POD exceeds 10,500 cfs. Permittee shall determine river flow at Red Bluff POD utilizing real-time observations at CDEC Station Bend Bridge (BND). Permittee shall determine river flow at Hamilton City POD by adding the real-time observations at CDEC Station Hamilton City (HMC) to the current Hamilton City POD diversion rate for Permittee and non-Permittee diversions, as CDEC Station HMC is downstream of Hamilton City POD. Adjustments to diversions shall be required once |

<table>
<tr><td></td><td>per day as needed. However, Permittee may elect to adjust diversions more frequently than once per day.</td></tr>
<tr><td>9.14.1: Flow Dependent Diversion Requirements at the Red Bluff Pumping Plant</td><td>Permittee shall divert no more than the maximum allowable diversion rate (cfs) from January 1 to February 28 (Feb. 29 in leap years) as specified in Table 2 for the Red Bluff POD. From January 1 to February 28, if real-time flow at Bend Bridge (BND) is within the range given in Table 2 but is other than the values given in Table 2, Permittee shall determine the maximum allowable diversion rate at Red Bluff POD by linear interpolation between the values in Table 2.<br><br>Table 2. Flow Dependent Diversion Requirements at Red Bluff POD (Jan. 1 to Feb 28/29).
<table>
<tr><th>Real Time Flow at Bend Bridge (BND) in (cfs)</th><th>Maximum Diversion (cfs)</th></tr>
<tr><td>4,800</td><td>0</td></tr>
<tr><td>5,000</td><td>130</td></tr>
<tr><td>6,000</td><td>230</td></tr>
<tr><td>7,000</td><td>360</td></tr>
<tr><td>8,000</td><td>520</td></tr>
<tr><td>9,000</td><td>710</td></tr>
<tr><td>10,000</td><td>930</td></tr>
<tr><td>11,000</td><td>1,180</td></tr>
<tr><td>12,000</td><td>1,450</td></tr>
<tr><td>13,000</td><td>1,760</td></tr>
<tr><td>14,000</td><td>2,100</td></tr>
<tr><td>14,100</td><td>2,120</td></tr>
<tr><td>>14,000</td><td>2,120</td></tr>
</table>
Permittee shall divert no more than the maximum allowable diversion rate (cfs) from March 1 to June 14 and September 1 to December 31 as specified in Table 3 for the Red Bluff POD. From March 1 to June 14 and from September 1 to December 31, if real-time flow at Bend Bridge (BND) is within the range given in Table 3 but is other than the values given in Table 3, Permittee shall determine the maximum allowable diversion rate at Red Bluff POD by linear interpolation between the values in Table 3.</td></tr>
</table>

***Table 3. Flow Dependent Diversion Requirements at Red Bluff Pumping Plant (March 1 to June 14 and Sep.1 to Dec. 31)***

| Real Time Flow at Bend Bridge (BND) in (cfs) | Maximum Diversion (cfs) |
|---|---|
| 6,300 | 0 |
| 7,000 | 120 |
| 8,000 | 220 |
| 9,000 | 340 |
| 10,000 | 480 |
| 11,000 | 640 |
| 12,000 | 810 |
| 13,000 | 1,010 |
| 14,000 | 1,220 |
| 15,000 | 1,460 |
| 16,000 | 1,710 |
| 17,000 | 1,980 |
| 17,500 | 2,120 |

**9.14.2: Flow Dependent Diversion Requirements at the Hamilton City Pump Station**

Permittee shall divert no more than the maximum allowable diversion rate (cfs) from September 1 to June 14 as specified in Table 4 at the Hamilton City POD. From September 1 to June 14, if real-time flow at Hamilton City (HMC) is within the range given in Table 4 but is other than the values given in Table 4, Permittee shall determine the maximum allowable diversion rate at Red Bluff POD by linear interpolation between the values in Table 4.

***Table 4. Flow Dependent Diversion Requirements at Hamilton City POD (Full Diversion Period: Sep. 1 to June 14).***

| Real Time Flow at Hamilton City (HMS) in (cfs) | Maximum Diversion (cfs) |
|---|---|
| 10,500 | 0 |
| 11,500 | 280 |
| 12,500 | 370 |
| 13,500 | 480 |
| 14,500 | 590 |
| 15,500 | 720 |
| 16,500 | 850 |
| 17,500 | 980 |
| 18,500 | 1,130 |
| 19,500 | 1,290 |
| 20,500 | 1,450 |
| 21,500 | 1,620 |
| 22,500 | 1,800 |
| 23,500 | 1,990 |
| 24,500 | 2,200 |
| >24,500 | 2,200 |

## Attachment 2

Points of Rediversion and Restorage

The authorized **POINTS OF REDIVERSION (PORD)** and **Places of Restorage (PORS)** for Permit 21487 are located at:

(PORD 1, **Golden Gate Dam**)
By California Coordinate System of 1983, Zone 2, North 2,250,718 feet and East 6,471,642 feet, being within Northeast quarter of Southeast quarter of Section 9, Township 17 North, Range 4 West, Mount Diablo Base and Meridian.

(PORD 2, **Sites Dam**)
By California Coordinate System of 1983, Zone 2, North 2,238,160 feet and East 6,468,808 feet, being within Southeast quarter of Southeast quarter of Section 20, Township 17 North, Range 4 West, Mount Diablo Base and Meridian.

(PORD 3, **Riggs Ranch Diversion**)
By California Coordinate System of 1983, Zone 2, North 2,119,966 feet and East 6,576,831 feet, being within Northeast quarter of Northwest quarter of Section 14, Township 13 North, Range 1 West, Mount Diablo Base and Meridian.

(PORD 4, **Jacobs Point Diversion**)
By California Coordinate System of 1983, Zone 2, North 2,061,521 feet and East 6,619,459 feet, being within Northeast quarter of Northwest quarter of Section 7, Township 11 North, Range 3 East, Mount Diablo Base and Meridian.

(PORD 5, **Woodland-Davis Clean Water Agency**)
By California Coordinate System of 1983, Zone 2, North 2,008,200 feet and East 6,667,300 feet, being within Northeast quarter of Northwest quarter of Section 34, Township 10 North, Range 3 East, Mount Diablo Base and Meridian.

(PORD 6, **City of Sacramento Water Treatment Plant**)
By California Coordinate System of 1983, Zone 2, North 1,978,388 feet and East 6,702,598 feet, being within Southeast quarter of Northeast quarter of Section 35, Township 9 North, Range 4 East, Mount Diablo Base and Meridian.

(PORD 7, **Freeport Regional Water Intake**)
By California Coordinate System of 1983, Zone 2, North 1,934,251 feet and East 6,702,930 feet, being within Northwest quarter of Southeast quarter of Section 11, Township 7 North, Range 4 East, Mount Diablo Base and Meridian.

(PORD 8, **Barker Slough Pumping Plant**)
By California Coordinate System of 1983, Zone 2, North 1,862,472 feet and East 6,619,931 feet, being within Northeast quarter of Southwest quarter of Section 18, Township 5 North, Range 2 East, Mount Diablo Base and Meridian.

(PORD 9, **Delta Cross Channel**)
By California Coordinate System of 1983, Zone 2, North 1,852,089 feet and East 6,702,158 feet, being within Northwest quarter of Northeast quarter of Section 35, Township 5 North, Range 4 East, Mount Diablo Base and Meridian.

(PORD 10, **Contra Costa Canal**)
By California Coordinate System of 1983, Zone 3, North 2,179,898 feet and East 6,232,805 feet, being within Southeast quarter of Northeast quarter of Section 33, Township 2 North, Range 3 East, Mount Diablo Base and Meridian.

(PORD 11, **Contra Costa Water District Old River Intake**)
By California Coordinate System of 1983, Zone 3, North 2,147,455 feet and East 6,250,918 feet, being within Northwest quarter of Southeast quarter of Section 31, Township 1 North, Range 4 East, Mount Diablo Base and Meridian.

(PORD 12, **Contra Costa Water District Victoria Canal Intake**)
By California Coordinate System of 1983, Zone 3, North 2,139,610 feet and East 6,259,970 feet, being within Northeast quarter of Northwest quarter of Section 9, Township 1South, Range 4 East, Mount Diablo Base and Meridian.

(PORD 13, **California Aqueduct Intake**)
By California Coordinate System of 1983, Zone 3, North 2,129,435 feet and East 6,245,773 feet, being within Northwest quarter of Northeast quarter of Section 24, Township 1 South, Range 3 East, Mount Diablo Base and Meridian.

(PORD 14, **Clifton Court Forebay**)

By California Coordinate System of 1983, Zone 3, North 2,126,440 feet and East 6,256,425 feet, being within Northwest quarter of Southwest quarter of Section 20, Township 1 South, Range 4 East, Mount Diablo Base and Meridian.

(PORD 15, **Delta-Mendota Canal (Pilot Canal Intake)**)

By California Coordinate System of 1983, Zone 3, North 2,121,619 feet and East 6,256,083 feet, being within Northeast quarter of Southwest quarter of Section 29, Township 1 South, Range 4 East, Mount Diablo Base and Meridian.

(PORD 16, **State Water Project Banks Pumping Plant**)

By California Coordinate System of 1983, Zone 3, North 2,115,990 feet and East 6,237,838 feet, being within Southwest quarter of Section 35, Township 1 South, Range 3 East, Mount Diablo Base and Meridian.

(PORD 17, **Central Valley Project Jones Pumping Plant**)

By California Coordinate System of 1983, Zone 3, North 2,114,400 feet and East 6,248,073 feet, being within Southwest quarter of Southwest quarter of Section 31, Township 1 South, Range 4 East, Mount Diablo Base and Meridian.

(PORD 18, **Delta-Mendota Canal (Lined Canal)**)

By California Coordinate System of 1983, Zone 3, North 2,109,504 feet and East 6,246,391 feet, being within Southeast quarter of Southeast quarter of Section 1, Township 2 South, Range 3 East, Mount Diablo Base and Meridian.

(PORD 19 and PORS, **Los Vaqueros Dam**)

By California Coordinate System of 1983, Zone 3, North 2,129,590 feet and East 6,207,073 feet, being within Northwest quarter of Northwest quarter of Section 23, Township 1 South, Range 2 East, Mount Diablo Base and Meridian.

(PORD 20, **Arroyo del Valle Diversion Structure**)

By California Coordinate System of 1983, Zone 3, North 2,060,458 feet and East 6,187,996 feet, being within Township 3 South, Range 2 East, Mount Diablo Base and Meridian.

(PORD 21 and PORS, **Del Valle Dam**)

By California Coordinate System of 1983, Zone 3, North 2,048,842 feet and East 6,200,731 feet, being within Northeast quarter of Southwest quarter of Section 3, Township 4 South, Range 2 East, Mount Diablo Base and Meridian.

(PORD 22, **Eastside Bypass at East Bear Creek**)
By California Coordinate System of 1983, Zone 3, North 1,914,452 feet and East 6,480,299 feet, being within Northeast quarter of Section 8, Township 8 South, Range 11 East, Mount Diablo Base and Meridian.

(PORD 23, **Intake at Mariposa Bypass Control Structure**)
By California Coordinate System of 1983, Zone 3, North 1,895,936 feet and East 6,505,198 feet, being within Southeast quarter of Section 30, Township 8 South, Range 12 East, Mount Diablo Base and Meridian.

(PORD 24, **Eastside Bypass at Lone Tree Unit**)
By California Coordinate System of 1983, Zone 3, North 1,883,703 feet and East 6,523,784 feet, being within Northwest quarter of Section 11, Township 9 South, Range 12 East, Mount Diablo Base and Meridian.

(PORD 25, **Sand Slough Control Structure**)
By California Coordinate System of 1983, Zone 3, North 1,863,358 feet and East 6,535,858 feet, being within Northeast quarter of Section 31, Township 9 South, Range 13 East, Mount Diablo Base and Meridian.

(PORD 26 and PORS, **San Luis Forebay Dam**)
By California Coordinate System of 1983, Zone 3, North 1,857,203 feet and East 6,402,469 feet, being within Southeast quarter of Northwest quarter of Section 1, Township 10 South, Range 8 East, Mount Diablo Base and Meridian.

(PORD 27 and PORS, **San Luis Dam**)
By California Coordinate System of 1983, Zone 3, North 1,844,598 feet and East 6,394,093 feet, being within Southwest quarter of Southeast quarter of Section 15, Township 10 South, Range 8 East, Mount Diablo Base and Meridian.

(PORD 28, **Temple Slough (Arroyo Canal) Intake**)
By California Coordinate System of 1983, Zone 4, North 1,816,307 feet and East 6,561,446 feet, being within Southwest quarter of Section 12, Township 11 South, Range 13 East, Mount Diablo Base and Meridian.

(PORD 29, **Mendota Pool Dam**)

By California Coordinate System of 1983, Zone 3, North 1,745,375 feet and East 6,598,943 feet, being within Southeast quarter of Northeast quarter of Section 19, Township 13 South, Range 15 East, Mount Diablo Base and Meridian.

(PORD 30, **Helm Ditch**)

By California Coordinate System of 1983, Zone 3, North 1,745,022 feet and East 6,589,787 feet, being within Northeast quarter of Section 19, Township 13 South, Range 15 East, Mount Diablo Base and Meridian.

(PORD 31, **Main Canal**)

By California Coordinate System of 1983, Zone 3, North 1,744,396 feet and East 6,598,937 feet, being within Northeast quarter of Section 19, Township 13 South, Range 15East, Mount Diablo Base and Meridian.

(PORD 32, **Firebaugh Water District Canal**)

By California Coordinate System of 1983, Zone 3, North 1,741,821 feet and East 6,599,844feet, being within Southeast quarter of Section 19, Township 13 South, Range 15 East, Mount Diablo Base and Meridian.

(PORD 33, **Outside Canal**)

By California Coordinate System of 1983, Zone 3, North 1,741,896 feet and East 6,599,689 feet, being within Southeast quarter of Section 19, Township 13 South, Range 15 East, Mount Diablo Base and Meridian.

(PORD 34, **Columbia Canal**)

By California Coordinate System of 1983, Zone 3, North 1,746,420 feet and East 6,605,595 feet, being within Northeast quarter of Section 20, Township 13 South, Range 15 East, Mount Diablo Base and Meridian.

(PORD 35, **Mowry Inlet**)

By California Coordinate System of 1983, Zone 4, North 2,171,207 feet and East 6,167,526 feet, being within Southwest quarter of Section 21, Township 13 South, Range 15 East, Mount Diablo Base and Meridian.

(PORD 36, **Kern River Canal Headworks**)
By California Coordinate System of 1983, Zone 5, North 2,320,300 feet and East 6,236,461 feet, being within Southwest quarter of Northwest quarter of Section 33, Township 29 South, Range 27 East, Mount Diablo Base and Meridian.

(PORD 37, **Rosedale-Rio Bravo Water Storage District Kern River Headworks**)
By California Coordinate System of 1983, Zone 5, North 2,317,022 feet and East 6,224,713 feet, being within Northeast quarter of Northeast quarter of Section 1, Township 30 South, Range 26 East, Mount Diablo Base and Meridian.

(PORD 38, **Kern River Pioneer Inlet to Cross Valley Canal**)
By California Coordinate System of 1983, Zone 5, North 2,316,855 feet and East 6,224,653 feet, being within Northeast quarter of Northeast quarter of Section 1, Township 30 South, Range 26 East, Mount Diablo Base and Meridian.

(PORD 39, **Berrenda Mesa Headworks – Kern River**)
By California Coordinate System of 1983, Zone 5, North 2,316,823 feet and East 6,224,709 feet, being within Northeast quarter of Northeast quarter of Section 1, Township 30 South, Range 26 East, Mount Diablo Base and Meridian.

(PORD 40, **City of Bakersfield – 2800 Acres Basin 8 Turnout**)
By California Coordinate System of 1983, Zone 5, North 2,314,255 feet and East 6,213,406 feet, being within Northwest quarter of Southeast quarter of Section 3, Township 30 South, Range 26 East, Mount Diablo Base and Meridian.

(PORD 41, **City of Bakersfield – 2800 Acres Basin 9 Turnout**)
By California Coordinate System of 1983, Zone 5, North 2,311,578 feet and East 6,208,788 feet, being within Northeast quarter of Northeast quarter of Section 9, Township 30 South, Range 26 East, Mount Diablo Base and Meridian.

(PORD 42, **City of Bakersfield – 2800 Acres Basin 10 Turnout**)
By California Coordinate System of 1983, Zone 5, North 2,310,759 feet and East 6,207,771 feet, being within Southwest quarter of Northeast quarter of Section 9, Township 30 South, Range 26 East, Mount Diablo Base and Meridian.

(PORD 43, **City of Bakersfield – 2800 Acres Basin 11 Turnout**)
By California Coordinate System of 1983, Zone 5, North 2,310,138 feet and East 6,207,883 feet, being within Southwest quarter of Northeast quarter of Section 9, Township 30 South, Range 26 East, Mount Diablo Base and Meridian.

(PORD 44, **City of Bakersfield – 2800 Acres Basin 2 Turnout**)
By California Coordinate System of 1983, Zone 5, North 2,309,264 feet and East 6,208,729 feet, being within Northeast quarter of Southeast quarter of Section 9, Township 30 South, Range 26 East, Mount Diablo Base and Meridian.

(PORD 45, **City of Bakersfield – 2800 Acres Basin 1 Turnout**)
By California Coordinate System of 1983, Zone 5, North 2,309,422 feet and East 6,210,652 feet, being within Southwest quarter of Northwest quarter of Section 10, Township 30 South, Range 26 East, Mount Diablo Base and Meridian.

(PORD 46, **Kern Water Bank Headworks – Kern River**)
By California Coordinate System of 1983, Zone 5, North 2,300,049 feet and East 6,189,544 feet, being within Southeast quarter of Northwest quarter of Section 24, Township 30 South, Range 25 East, Mount Diablo Base and Meridian.

(PORD 47, **Terminus – Kern River**)
By California Coordinate System of 1983, Zone 5, North 2,299,728 feet and East 6,189,866 feet, being within Southeast quarter of Northwest quarter of Section 24, Township 30 South, Range 25 East, Mount Diablo Base and Meridian.

(PORD 48, **Main Canal Intake – Kern River**)
By California Coordinate System of 1983, Zone 5, North 2,298,695 feet and East 6,185,781 feet, being within Northwest quarter of Southeast quarter of Section 23, Township 30 South, Range 25 East, Mount Diablo Base and Meridian.

(PORD 49, **B1 Intake – Kern River**)
By California Coordinate System of 1983, Zone 5, North 2,298,924 feet and East 6,184,174 feet, being within Northeast quarter of Southwest quarter of Section 23, Township 30 South, Range 25 East, Mount Diablo Base and Meridian.

(PORD 50, **L1 Intake – Kern River**)

By California Coordinate System of 1983, Zone 5, North 2,298,274 feet and East 6,184,781 feet, being within Northeast quarter of Southwest quarter of Section 23, Township 30 South, Range 25 East, Mount Diablo Base and Meridian.

(PORD 51 and PORS, **Pyramid Dam**)

By California Coordinate System of 1983, Zone 5, North 2,057,610 feet and East 6,331,915 feet, being within Southwest quarter of Northwest quarter of Section 2, Township 6 North, Range 18 West, San Bernadino Base and Meridian.

(PORD 52 and PORS, **Castaic Dam**)

By California Coordinate System of 1983, Zone 5, North 2,012,136 feet and East 6,379,087 feet, being within Southwest quarter of Northwest quarter of Section 18, Township 5 North, Range 16 West, Mount Diablo Base and Meridian.

(PORD 53 and PORS, **Cedar Springs Dam**)

By California Coordinate System of 1983, Zone 5, North 1,933,945 feet and East 6,768,922 feet, being within Southeast quarter of Northeast quarter of Section 32, Township 3 North, Range 4 West, San Bernadino Base and Meridian.

(PORD 54 and PORS, **Perris Dam**)

By California Coordinate System of 1983, Zone 6, North 2,255,077 feet and East 6,275,414 feet, being within the North half of the Southeast quarter of Section 4, Township 4 South, Range 3 West, San Bernadino Base and Meridian.

# Attachment 3

Mitigation Monitoring and Reporting Program

# Contents



## Tables

# 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.] § 1505[2]) 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** | | | | | | |
| **WQ-1.1: Methylmercury Management**<br>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 objective[3]. 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 *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* (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.<br>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).<br>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.<br>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.<br>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 objective[4]. 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 | **Impact WQ-1:** Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface water quality during construction<br>**Impact WQ-2:** Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface water quality during operation<br>**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 | Preconstruction; construction; operations | Contract requirements; compliance reporting; monitoring | As needed | Authority; Contractor | Date: _____<br>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.

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| 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.<br>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.<br>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.<br>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.<br>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 | | | | | | |

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| and effective at other mercury-impaired reservoirs in the state. Fisheries management actions could include the following.<br>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.<br>b. Stocking the reservoir with low-methylmercury prey fish for stocked predator fish to consume.<br>c. Stocking more or different sport fish species, including lower trophic level sport fish.<br>d. Stocking large, old predator fish from hatcheries that supply fish with low methylmercury concentrations.<br>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.<br>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. | | | | | | |
| **WQ-2.1: Prevent Metal Impacts in Stone Corral Creek Associated with Sites Reservoir Discharge**<br>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).<br>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 | **Impact WQ-2:** Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface water quality during operation | Preconstruction; postconstruction; operations | Compliance reporting; monitoring | Every other month | Authority; Contractor | Date: _____<br>Action Taken: |

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| to Sites Reservoir storage, whichever is later, and run through November or until the commencement of diversions to storage, whichever is earlier.<br>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.<br>• 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.<br>• 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.<br>• 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.<br>• 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.<br>•<br>• 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. | | | | | | |
| **WQ-2.2: Prevent Net Detrimental Metal and Pesticide Effects Associated with Moving Colusa Basin Drain Water Through the Yolo Bypass**<br>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.<br>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.<br>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 | **Impact WQ-2:** Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface water quality during operation<br>**Impact FISH-8:** Operations effects on delta smelt | Operations | Compliance reporting; monitoring | As needed | Authority | Date: _____<br>Action Taken: |

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| 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. | | | | | | |
| **Vegetation and Wetland Resources** | | | | | | |
| **VEG-1.1: Conduct Appropriately Timed Surveys for Special-Status Plant Species Prior to Construction Activities**<br>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 *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities* (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.<br>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. | **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 | Preconstruction | Contract requirements; compliance reporting; surveys | No less than 1 year prior to the start of ground-disturbing activities | Authority; Contractor; Qualified Botanist | Date: _____<br>Action Taken: |
| **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**<br>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.<br>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 | **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<br>**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 | Preconstruction; construction; operations | Contract requirements; compliance reporting; surveying; monitoring; exclusion fencing | Annually | Authority; Contractor; Mitigation Manager; Qualified Biologist | Date: _____<br>Action Taken: |

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| 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.<br>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.<br>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. | | | | | | |
| **VEG-1.3: Establish Activity Exclusion Zones Around Special-Status Plants Prior to Vegetation Maintenance Activities**<br>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. | **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 | Operations | Surveys; exclusion fencing | None | Authority; Contractor; Qualified Botanist | Date: _____<br>Action Taken: |
| **VEG-2.1: Conduct Surveys for Sensitive Natural Communities and Oak Woodlands in the Project Area Prior to Construction Activities**<br>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 *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities* | **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 | Preconstruction; construction | Compliance reporting; surveys | No less than 90 days prior to the start of ground-disturbing activities | Authority; Contractor; Qualified Botanist | Date: _____<br>Action Taken: |

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| (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.<br>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. | **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<br>**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<br>**Impact FISH-1:** Construction effects on special-status fish | | | | | |
| **VEG-2.2: Avoid and Compensate for Adverse Effects on Sensitive Natural Communities**<br>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.<br>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).<br>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 | **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<br>**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<br>**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<br>**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.<br>**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 | Preconstruction; construction; postconstruction | Surveys; contract requirements; compliance reporting; exclusion fencing; monitoring; acquisition/ funding | Annually | Authority; Contractor; Mitigation Manager; Qualified Biologist | Date: _____<br>Action Taken: |

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| by the Authority. If credits are purchased from a certified bank, no further monitoring will be required.<br>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. | **Impact WILD-3:** Conflict with any local policies or ordinances protecting wildlife resources<br>**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<br>**Impact FISH-1:** Construction effects on special-status fish | | | | | |
| **VEG-2.3: Establish Activity Exclusion Zones Around Sensitive Natural Communities Prior to Vegetation Maintenance Activities**<br>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. | **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 | Operations | Contract requirements; compliance reporting; exclusion fencing; acquisition/ funding | As needed | Authority; Contractor; Mitigation Manager; Qualified Botanist | Date: _____<br>Action Taken: |
| **VEG-3.1: Avoid and Minimize Disturbance of Wetlands and Non-Wetland Waters During Construction Activities**<br>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.<br>• 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. | **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<br>**Impact VEG-4:** Conflict with any local policies or ordinances protecting vegetation resources (including wetlands | Construction | Contract requirements; compliance reporting; design; monitoring; exclusion fencing; funding/ acquisition | As needed | Authority; Contractor; Mitigation Manager; Qualified Biologist | Date: _____<br>Action Taken: |

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| • 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.<br>• 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.<br>• 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.<br>• 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).<br>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. | and non-wetland waters), such as a tree preservation policy or ordinance<br>**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<br>**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.<br>**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<br>**Impact WILD-3:** Conflict with any local policies or ordinances protecting wildlife resources<br>**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 | | | | | |
| **VEG-3.2: Compensate for Temporary and Permanent Impacts on State- or Federally Protected Wetlands**<br>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 *Regional Compensatory Mitigation and Monitoring Guidelines for South Pacific Division* (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 | **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<br>**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<br>**Impact VEG-5:** Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved | Construction; postconstruction | Compliance reporting; funding/ acquisition; design | At the completion of each monitoring period | Authority; Mitigation Manager; Qualified Biologist | Date: _____<br>Action Taken: |

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| 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.<br><br>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.<br><br>• 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.<br><br>• 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 | local, regional, or state habitat conservation plan<br><br>**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.<br><br>**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<br><br>**Impact WILD-3:** Conflict with any local policies or ordinances protecting wildlife resources<br><br>**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<br><br>**Impact FISH-1:** Construction effects on special-status fish | | | | | |

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| monitoring years for all plantings. Mitigation sites will be protected in perpetuity in a conservation easement or through deed restriction. | | | | | | |
| **VEG-3.3: Compensate for Temporary and Permanent Impacts on State- or Federally Protected Non-Wetland Waters**<br>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 *Regional Compensatory Mitigation and Monitoring Guidelines for South Pacific Division* (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.<br>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.<br>• 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.<br>• 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 | **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<br>**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<br>**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<br>**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.<br>**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<br>**Impact WILD-3:** Conflict with any local policies or ordinances protecting wildlife resources<br>**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<br>**Impact FISH-1:** Construction effects on special-status fish | Construction; postconstruction | Compliance reporting; funding/ acquisition; monitoring | At the completion of each monitoring period | Authority; Mitigation Manager | Date: _____<br>Action Taken: |

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| 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. | | | | | | |
| **VEG-3.4: Establish Activity Exclusion Zones Around Wetlands and Non-Wetland Waters Prior to Vegetation Maintenance Activities**<br>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. | **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 | 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: _____<br>Action Taken: |
| **VEG-4.1: Avoid and Minimize Potential Adverse Effects on Oak Woodlands During Construction**<br>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.<br>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.<br>• 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 | **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<br>**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<br>**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. | Construction | Contract requirements; exclusion fencing | None | Authority; Contractor | Date: _____<br>Action Taken: |

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| 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.<br>• 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.<br>• Any offsite drainage will be directed in such a way as to prevent drainage into adjacent oak woodlands. | **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<br>**Impact WILD-3:** Conflict with any local policies or ordinances protecting wildlife resources<br>**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 | | | | | |
| **VEG-4.2: Compensate for Adverse Effects on Oak Woodlands**<br>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:<br>• 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;<br>• In-lieu fee payment to the Oak Woodlands Conservation Fund;<br>• Replacement planting onsite in an area subject to deed restriction or conservation easement;<br>• Replacement planting off site in an area subject to a conservation easement; or<br>• A combination of these options.<br>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. | **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<br>**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<br>**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.<br>**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<br>**Impact WILD-3:** Conflict with any local policies or ordinances protecting wildlife resources<br>**Impact WILD-4:** Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved | Construction; postconstruction | Contract requirements; compliance reporting; design; acquisition/ funding | Annually | Authority; Mitigation Manager | Date: _____<br>Action Taken: |

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| 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. | local, regional, or state habitat conservation plan | | | | | |
| **VEG-4.3: Establish Activity Exclusion Zones Around Blue Oak Woodlands Prior to Vegetation Maintenance Activities**<br>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. | **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 | Operations | Contract requirements; compliance reporting; exclusion fencing; acquisition/ funding | Annually, if required | Authority; Qualified Botanists | Date: _____<br>Action Taken: |
| **Wildlife Resources** | | | | | | |
| **WILD-1.1: Assess Habitat Suitability and Survey Suitable Habitat for Vernal Pool Branchiopods**<br>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 *Survey Guidelines for the Listed Large Branchiopods*, 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. | **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.<br>**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<br>**Impact WILD-3:** Conflict with any local policies or ordinances protecting wildlife resources | Preconstruction | Compliance reporting; surveying | Following completion of survey | Authority; Qualified Biologist | Date: _____<br>Action Taken: |

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| | **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 | | | | | |
| **WILD-1.2: Avoid and Minimize Potential Effects on Vernal Pool Branchiopods and Western Spadefoot**<br>The following steps will be taken to avoid or minimize potential effects on vernal pool branchiopods and western spadefoot.<br>• 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).<br>• 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.<br>• 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. | **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.<br>**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<br>**Impact WILD-3:** Conflict with any local policies or ordinances protecting wildlife resources<br>**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 | Construction | Contract requirements; compliance reporting; monitoring; exclusion fencing; acquisition/ funding | As needed | Authority; Mitigation Manager; Qualified Biologist | Date: _____<br>Action Taken: |
| **WILD-1.3: Compensate for Impacts on Occupied Vernal Pool Branchiopod Habitat**<br>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.<br>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. | **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.<br>**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 | Construction; postconstruction | Compliance reporting; surveying; acquisition/ funding | As needed | Authority; Mitigation Manager; Qualified Biologist | Date: _____<br>Action Taken: |

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| 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.<br>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.<br>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. | **Impact WILD-3:** Conflict with any local policies or ordinances protecting wildlife resources<br>**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 | | | | | |
| **WILD-1.4: Evaluate and Survey Potential Habitat for Antioch Dunes Anthicid and Sacramento Anthicid Beetles and Implement Protective Measures**<br>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 CNDDB. 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. | Alternative 2 only:<br>**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.<br>**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<br>**Impact WILD-3:** Conflict with any local policies or ordinances protecting wildlife resources<br>**Impact WILD-4:** Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved | Preconstruction; construction; postconstruction | Contract requirements; compliance reporting; surveying; remedial action; exclusion fencing | As needed | Authority; Contractor; Qualified Entomologist | Date: _____<br>Action Taken: |

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| | local, regional, or state habitat conservation plan | | | | | |
| **WILD-1.5: Compensate for the Loss of Occupied Antioch Dunes Anthicid and Sacramento Anthicid Beetle Habitat**<br>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 CNDDB. | Alternative 2 only:<br>**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.<br>**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<br>**Impact WILD-3:** Conflict with any local policies or ordinances protecting wildlife resources<br>**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 | Construction; postconstruction | Contract requirements; compliance reporting; surveying; monitoring; acquisition | Annually | Authority; Qualified Entomologist | Date: _____<br>Action Taken: |
| **WILD-1.6: Conduct Surveys for Suitable Valley Elderberry Longhorn Beetle Habitat**<br>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 *Framework for Assessing Impacts to the Valley Elderberry Longhorn Beetle (Desmocerus californicus dimorphus)* (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. | **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.<br>**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<br>**Impact WILD-3:** Conflict with any local policies or ordinances protecting wildlife resources<br>**Impact WILD-4:** Conflict with the provisions of an adopted Habitat | Preconstruction; construction | Contract requirements; compliance reporting; surveying; exclusion fencing | As needed | Authority; Qualified Biologist/Botanist/ Entomologist | Date: _____<br>Action Taken: |

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| | Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan | | | | | |
| **WILD-1.7: Fence Elderberry Shrubs to be Protected**<br>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.<br>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. | **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.<br>**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<br>**Impact WILD-3:** Conflict with any local policies or ordinances protecting wildlife resources<br>**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 | Preconstruction; construction; postconstruction | Contract requirements; compliance reporting; monitoring; exclusion fencing | As needed | Authority; Contractor; Qualified Biologist | Date: _____<br>Action Taken: |
| **WILD-1.8: Transplant Permanently Affected Elderberry Shrubs and Compensate for Loss of Valley Elderberry Longhorn Beetle and its Habitat**<br>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 *Framework for Assessing Impacts to the Valley Elderberry Longhorn Beetle (Desmocerus californicus dimorphus)* (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. | **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.<br>**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<br>**Impact WILD-3:** Conflict with any local policies or ordinances protecting wildlife resources | Preconstruction; construction; postconstruction | Contract requirements; compliance reporting; acquisition/ funding; remedial action; monitoring | As needed | Authority; Contractor; Mitigation Manager; Qualified Biologist | Date: _____<br>Action Taken: |

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| 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.<br>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.<br>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.<br>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. | **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 | | | | | |
| **WILD-1.9: Protect Special-Status Invertebrates and Their Host and Food Plants from Herbicide and Pesticide Use**<br>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. | **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.<br>**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<br>**Impact WILD-3:** Conflict with any local policies or ordinances protecting wildlife resources | Operations | Compliance requirements | None | Authority | Date: _____<br>Action Taken: |

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| | **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 | | | | | |
| **WILD-1.10: Assess Habitat Suitability and Survey for Presence of Monarch Butterfly Nectar and Larval Host Plants**<br>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. | **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.<br>**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<br>**Impact WILD-3:** Conflict with any local policies or ordinances protecting wildlife resources<br>**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 | Preconstruction; construction | Compliance reporting; surveying | Following completion of assessment | Authority; Qualified Biologist | Date: _____<br>Action Taken: |
| **WILD-1.11: Compensate for Loss of Monarch Butterfly Nectar and Larval Host Plants**<br>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.<br>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. | **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.<br>**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 | Construction; postconstruction | Compliance reporting; surveys; monitoring; acquisition/ funding | Annually | Authority; Qualified Botanist | Date: _____<br>Action Taken: |

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| 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.<br>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.<br>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. | **Impact WILD-3:** Conflict with any local policies or ordinances protecting wildlife resources<br>**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 | | | | | |
| **WILD-1.12: Assess Habitat Suitability and Survey for Presence of Crotch Bumble Bee and Western Bumble Bee Food Plants**<br>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: *Antirrhinum, Asclepias, Phacelia, Chaenactis, Clarkia, Dendromecon, Eriogonum, Eschscholzia, Lupinus, Medicago, and Salvia. Native plants of the following taxa are appropriate for western bumble bee: Asteraceae, Ceanothus, Centaurea, Chrysothamnus, Cirsium, Eriogonum, Geranium, Grindelia, Lupinus, Melilotus, Monardella, Rubus, Penstemon, Solidago*, and *Trifolium*. | **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.<br>**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<br>**Impact WILD-3:** Conflict with any local policies or ordinances protecting wildlife resources<br>**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 | Preconstruction; construction | Compliance reporting; surveys; monitoring | Following completion of assessment | Authority; Qualified Botanist | Date: _____<br>Action Taken: |

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| **WILD-1.13: Compensate for Loss of Crotch Bumble Bee and Western Bumble Bee Habitat**<br>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.<br>Native plants of the following genera are appropriate for Crotch bumble bee: *Antirrhinum, Asclepias, Phacelia, Chaenactis, Clarkia, Dendromecon, Eriogonum, Eschscholzia, Lupinus, Medicago, and Salvia. Native plants of the following taxa are appropriate for western bumble bee: Asteraceae, Ceanothus, Centaurea, Chrysothamnus, Cirsium, Eriogonum, Geranium, Grindelia, Lupinus, Melilotus, Monardella, Rubus, Penstemon, Solidago*, and *Trifolium*. 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.<br>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.<br>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.<br>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. | **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.<br>**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<br>**Impact WILD-3:** Conflict with any local policies or ordinances protecting wildlife resources<br>**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 | Construction; postconstruction | Contract requirements; compliance reporting; acquisition/ funding surveying; monitoring | Annually | Authority; Mitigation Manager; Qualified Botanist | Date: _____<br>Action Taken: |

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| **WILD-1.14: Assess Habitat Suitability and Survey Suitable Habitat for Western Spadefoot, California Red-legged Frog, and Western Pond Turtle**<br>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.<br>• 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).<br>• Habitat assessment and surveys for California red-legged frog will be conducted in accordance with the *Revised Guidance on Site Assessments and Field Surveys for the California Red-legged Frog*, 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.<br>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. | **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.<br>**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<br>**Impact WILD-3:** Conflict with any local policies or ordinances protecting wildlife resources<br>**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 | Preconstruction | Compliance reporting; surveying | As needed | Authority; Qualified Biologist | Date: _____<br>Action Taken: |
| **WILD-1.15: Design and Construct Wildlife Crossings for New Roadways at Suitable Locations**<br>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.<br>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 | **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.<br>**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<br>**Impact WILD-3:** Conflict with any local policies or ordinances protecting wildlife resources<br>**Impact WILD-4:** Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved | Preconstruction | Contract requirements; compliance reporting; surveying; design | As needed | Authority; Qualified Biologist | Date: _____<br>Action Taken: |

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| 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.<br>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.<br>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.<br>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.<br>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.<br>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. | local, regional, or state habitat conservation plan | | | | | |
| **WILD-1.16: Monitor and Maintain Wildlife Crossings**<br>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 | **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.<br>**Impact WILD-2:** Substantial interference with the movement of a native resident | Operations | Contract requirements; monitoring; design | As needed | Authority; Qualified Biologist | Date: _____<br>Action Taken: |

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| standards, reporting requirements, and adaptive management actions to ensure long-term success of crossing structure function. | or migratory wildlife species or with established native resident or migratory wildlife corridors, or impediment of the use of native wildlife nursery sites<br>**Impact WILD-3:** Conflict with any local policies or ordinances protecting wildlife resources<br>**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 | | | | | |
| **WILD-1.17: Implement California Red-legged Frog Protective Measures**<br>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.<br>• 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.<br>• 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.<br>• 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.<br>• 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 | **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.<br>**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<br>**Impact WILD-3:** Conflict with any local policies or ordinances protecting wildlife resources<br>**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 | Construction | Contract requirements; compliance reporting; exclusion fencing, remedial action | As needed | Authority; Qualified Biologist | Date: _____<br>Action Taken: |

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| methods, relocation sites, and post-relocation monitoring. Only USFWS-approved biologists will be allowed to relocate listed species to outside of the construction area.<br>• 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.<br>• 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.<br>• 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.<br>• 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. | | | | | | |
| **WILD-1.18: Compensate for Permanent and Temporary Losses of Occupied California Red-legged Frog Aquatic and Upland Habitats**<br>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.<br>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.<br>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 | **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.<br>**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<br>**Impact WILD-3:** Conflict with any local policies or ordinances protecting wildlife resources<br>**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 | Construction; postconstruction | Contract requirements; compliance reporting; acquisition/ funding | As needed | Authority; Mitigation Manager | Date: _____<br>Action Taken: |

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| reference ponds/habitat should be located within proximity to the conservation area and exhibit characteristics similar to the preserved and created/restored habitat.<br>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.<br>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. | | | | | | |
| **WILD-1.19: Conduct Preconstruction Surveys for Western Pond Turtle and Monitor Initial In-Water Work**<br>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. | **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.<br>**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<br>**Impact WILD-3:** Conflict with any local policies or ordinances protecting wildlife resources<br>**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 | Preconstruction; construction | Contract requirements; compliance reporting; surveying; monitoring; remedial action | Within 24 hours of relocating any turtle | Authority; Qualified Biologist | Date: _____<br>Action Taken: |
| **WILD-1.20: Implement Protective Measures for Giant Gartersnake**<br>The Authority will implement the following protective measures when working in or near giant gartersnake habitat.<br>• 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 | **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 | Preconstruction; construction | Contract requirements; compliance reporting; surveying; monitoring; exclusion | As needed | Authority; Qualified Biologist | Date: _____<br>Action Taken: |

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| 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.<br>• 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.<br>• 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.<br>• 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.<br>• 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.<br>• 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.<br>• 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.<br>• 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. | Department of Fish and Wildlife or U.S. Fish and Wildlife Service.<br>**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<br>**Impact WILD-3:** Conflict with any local policies or ordinances protecting wildlife resources<br>**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 | | fencing; remedial action; design | | | |
| **WILD-1.21: Compensate for Permanent and Temporary Losses of Giant Gartersnake Aquatic and Upland Habitats**<br>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 | **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. | Construction; postconstruction | Contract requirements; compliance reporting; acquisition/ funding | As needed | Authority; Mitigation Manager; Qualified Biologist | Date: _____<br>Action Taken: |

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| 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.<br>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.<br>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.<br>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.<br>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. | **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<br>**Impact WILD-3:** Conflict with any local policies or ordinances protecting wildlife resources<br>**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 | | | | | |
| **WILD-1.22: Conduct Vegetation Removal During the Non-Breeding Season of Nesting Migratory Birds**<br>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 | **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 | Preconstruction; construction | Contract requirements; compliance reporting; surveying | None | Authority; Contractor | Date: _____<br>Action Taken: |

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| vegetation has been removed, the affected area will be surveyed for nesting birds, as discussed in Mitigation Measure WILD-1.23. | Department of Fish and Wildlife or U.S. Fish and Wildlife Service.<br>**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<br>**Impact WILD-3:** Conflict with any local policies or ordinances protecting wildlife resources<br>**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 | | | | | |
| **WILD-1.23: Conduct Preconstruction Surveys for Non-Raptor Nesting Migratory Birds and Implement Protective Measures if Found**<br>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.<br>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. | **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.<br>**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<br>**Impact WILD-3:** Conflict with any local policies or ordinances protecting wildlife resources<br>**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 | Preconstruction; construction | Contract requirements; compliance reporting; surveying; monitoring | As needed | Authority; Qualified Biologist | Date: _____<br>Action Taken: |

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| 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. | | | | | | |
| **WILD-1.24: Conduct Surveys for Western Burrowing Owl Prior to Construction and Implement Avoidance and Minimization Measures if Found**<br>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.<br>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.<br>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.<br>• Occupied burrows will not be disturbed during the breeding season (February 1–August 31).<br>• 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.<br>• To the maximum extent possible, burrows occupied during the non-breeding season by migratory or non-migratory resident burrowing owls will be avoided.<br>• 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.<br>• 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. | **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.<br>**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<br>**Impact WILD-3:** Conflict with any local policies or ordinances protecting wildlife resources<br>**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 | Preconstruction; construction | Contract requirements; compliance reporting; surveying; monitoring; remedial action | Within 30 days of completing the surveys | Authority; Qualified Biologist | Date: _____<br>Action Taken: |

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| • Qualified biologists will conduct additional take avoidance surveys, as described above.<br>• Qualified biologists will monitor the Project site for burrowing owls during Project construction activities.<br>• 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. | | | | | | |
| **WILD-1.25: Restore Temporarily Disturbed Habitat and Compensate for the Permanent Loss of Occupied Burrowing Owl Habitat**<br>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).<br>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.<br>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.<br>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.<br>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.<br>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 | **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.<br>**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<br>**Impact WILD-3:** Conflict with any local policies or ordinances protecting wildlife resources<br>**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 | Construction; postconstruction | Contract requirements; compliance reporting; monitoring; acquisition/ funding | As needed | Authority; Mitigation Manager; Qualified Biologist | Date: _____<br>Action Taken: |

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| 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.<br>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. | | | | | | |
| **WILD-1.26: Protect Special-Status Wildlife from Rodenticide Use**<br>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.<br>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 CNDDB to provide species-specific use restrictions that are not on pesticide labels, including use of modified bait stations and what those modifications must be. | **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.<br>**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<br>**Impact WILD-3:** Conflict with any local policies or ordinances protecting wildlife resources<br>**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 | Operations | Compliance requirements | None | Authority; Contractor | Date: _____<br>Action Taken: |

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| **WILD-1.27: Construct Overhead Power Lines and Associated Equipment Following Suggested Practices to Reduce Bird Collisions with Power Lines**<br>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 *Reducing Avian Collisions with Power Lines: The State of the Art* (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. | **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.<br>**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<br>**Impact WILD-3:** Conflict with any local policies or ordinances protecting wildlife resources<br>**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 | Preconstruction; construction; operations | Contract requirements | None | Authority; Contractor | Date: _____<br>Action Taken: |
| **WILD-1.28: Conduct Focused Surveys for Golden Eagle and Bald Eagle and Implement Protective Measures if Found**<br>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.<br>The surveys will be conducted in accordance with *the Interim Golden Eagle Inventory and Monitoring Protocols; and other Recommendations* (Pagel et al. 2010), *Protocol for Evaluating Bald Eagle Habitat and Populations in California* (Jackman and Jenkins 2004), *Bald Eagle Breeding Survey Instructions* (California Department of Fish and Wildlife 2017) and *Updated Eagle Nest Survey Protocol* (U.S. Fish and Wildlife Service 2020b).<br>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.<br>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. | **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.<br>**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<br>**Impact WILD-3:** Conflict with any local policies or ordinances protecting wildlife resources<br>**Impact WILD-4:** Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved | Preconstruction; construction | Contract requirements; compliance reporting; surveying; monitoring | As needed | Authority; Qualified Biologist | Date: _____<br>Action Taken: |

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| 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.<br>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.<br>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 *Recommended Buffer Zones for Human Activities around Nesting Sites of Bald Eagles in California and Nevada* and the USFWS *Recommended Buffer Zones for Ground-based Human Activities around Nesting Sites of Golden Eagles in California and Nevada* (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. | local, regional, or state habitat conservation plan | | | | | |
| **WILD-1.29: Compensate for the Loss of Eagle Nest Trees**<br>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 Electrocution 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. | **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.<br>**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<br>**Impact WILD-3:** Conflict with any local policies or ordinances protecting wildlife resources<br>**Impact WILD-4:** Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved | Preconstruction | Compliance reporting; design; acquisition/ funding | As needed | Authority; Mitigation Manager | Date: _____<br>Action Taken: |

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| | local, regional, or state habitat conservation plan | | | | | |
| **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**<br>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.<br>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.<br>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.<br>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. | **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.<br>**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<br>**Impact WILD-3:** Conflict with any local policies or ordinances protecting wildlife resources<br>**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 | Preconstruction; construction | Contract requirements; compliance reporting; surveying | Within 30 days of completion of surveys | Authority; Qualified Biologist | Date: _____<br>Action Taken: |
| **WILD-1.31: Compensate for the Permanent Loss of Foraging Habitat for Swainson's Hawk and White-tailed Kite**<br>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 | **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 | Preconstruction; construction | Contract requirements; compliance reporting; acquisition/ funding | As needed | Authority; Mitigation Manager; Qualified Biologist | Date: _____<br>Action Taken: |

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| 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. | Department of Fish and Wildlife or U.S. Fish and Wildlife Service.<br>**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<br>**Impact WILD-3:** Conflict with any local policies or ordinances protecting wildlife resources<br>**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 | | | | | |
| **WILD-1.32: Conduct Surveys and Implement Protection Measures for Special-Status Bat Species Prior to Building/Structure Demolition**<br>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:<br>• 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.<br>• 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 | **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.<br>**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<br>**Impact WILD-3:** Conflict with any local policies or ordinances protecting wildlife resources<br>**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 | Preconstruction; construction | Contract requirements; compliance reporting; surveying; design; remedial action; exclusion fencing | As needed | Authority; Qualified Biologist | Date: _____<br>Action Taken: |

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| buildings and structures will be conducted within 24 hours of demolition to confirm that no bats are present.<br>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:<br>• 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.<br>• 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.<br>• 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.<br>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:<br>• 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.<br>• 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. | | | | | | |
| **WILD-1.33: Conduct Surveys and Implement Protection Measures for Special-Status Bat Species Prior to Tree Trimming and Removal**<br>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 | **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. | Preconstruction; construction | Contract requirements; compliance reporting; surveying; remedial action | As needed (observation of injured or dead special-status bats will be reported) | Authority; Qualified Biologist | Date: _____<br>Action Taken: |

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| 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.<br>• 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).<br>• 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).<br>• If a maternity roost is found, the roost will be protected until July 31or 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.<br>• 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. | **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<br>**Impact WILD-3:** Conflict with any local policies or ordinances protecting wildlife resources<br>**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 | | | | | |
| **WILD-1.34: Compensate for Permanent Impacts on Occupied Roosting Habitat**<br>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. | **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.<br>**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<br>**Impact WILD-3:** Conflict with any local policies or ordinances protecting wildlife resources<br>**Impact WILD-4:** Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved | Preconstruction; construction; postconstruction | Contract requirements; compliance reporting; acquisition/ funding | Annually | Authority; Mitigation Manager | Date: _____<br>Action Taken: |

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| | local, regional, or state habitat conservation plan | | | | | |
| **WILD-1.35: Implement Protective Measures to Avoid and Minimize Potential Impacts on American Badger**<br>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.<br>• 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.<br>• To the maximum extent feasible, disturbance or destruction of suitable dens for American badger in temporary impact areas will be avoided.<br>• 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.<br>• 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. | **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.<br>**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<br>**Impact WILD-3:** Conflict with any local policies or ordinances protecting wildlife resources<br>**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 | Preconstruction; construction | Contract requirements; compliance reporting; surveying; exclusion fencing; acquisition/ funding | As needed | Authority; Qualified Biologist | Date: _____<br>Action Taken: |
| **Aquatic Biological Resources** | | | | | | |
| **FISH-8.1: Prevent Detrimental Dissolved Oxygen and Water Temperature Effects on Fish Associated with Moving Colusa Basin Drain Water Through the Yolo Bypass**<br>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.<br>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 | **Impact FISH-8:** Operations effects on delta smelt | Operations | Contract requirements; compliance reporting; monitoring | As needed | Authority | Date: _____<br>Action Taken: |

<table>
<tr><th>Mitigation Text</th><th>Impact # and Impact Title</th><th>Phase</th><th>Implementation Action</th><th>Reporting Schedule</th><th>Implementation Responsibility</th><th>Record of Implementation</th></tr>
<tr><td>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:<br>• Use of engineered actions (e.g., installation of aerators) to prevent exceedance of critical physiological thresholds for delta smelt.<br>• Cessation of releases of flow to the Yolo Bypass until temperature and DO concentration do not exceed critical physiological thresholds for delta smelt.</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>FISH-9.1: Tidal Habitat Restoration for Longfin Smelt<br>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, Tidal Habitat Restoration Mitigation Calculations for Longfin Smelt. 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.<br>Table 11-89. Tidal Habitat Restoration Mitigation for Longfin Smelt (Acres).
<table>
<tr><th>Alt 1A</th><th>Alt 1B</th><th>Alt 2</th><th>Alt 3</th></tr>
<tr><td>5.1</td><td>8.3</td><td>5.1</td><td>9.7</td></tr>
</table></td><td>Impact FISH-9: Operations effects on longfin smelt</td><td>Construction</td><td>Contract requirements; compliance reporting; funding</td><td>As needed</td><td>Authority</td><td>Date: _____<br>Action Taken:</td></tr>
<tr><td>Geology and Soils</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>GEO-7.1: Retain a Qualified Paleontological Resource Specialist Prior to the Start of Construction<br>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).<br>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:<br>• Bachelor of Science or Bachelor of Arts degree in geology or paleontology and 1 year of experience monitoring in California<br>• Associate of Science or Associate of Arts degree in geology, paleontology, or biology and 4 years of experience monitoring in California<br>• Enrollment in upper-division classes pursuing a degree in the fields of geology or paleontology and 2 years of monitoring experience in California.</td><td>Impact GEO-7: Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature</td><td>Preconstruction; construction</td><td>Contract requirements; monitoring</td><td>None</td><td>Authority; Qualified Paleontological Resources Monitor</td><td>Date: _____<br>Action Taken:</td></tr>
</table>

| Mitigation Text | Impact # and Impact Title | Phase | Implementation Action | Reporting Schedule | Implementation Responsibility | Record of Implementation |
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| **GEO-7.2: Consultation with the Paleontological Resource Specialist Prior to and During Project Construction**<br>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. | **Impact GEO-7:** Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature | Preconstruction; construction | Contract requirements | None | Authority; Qualified Paleontological Resources Specialist | Date: _____<br>Action Taken: |
| **GEO-7.3: Prepare and Implement a Paleontological Resources Monitoring and Mitigation Plan**<br>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.<br>The PRMMP will be developed in accordance with professional guidelines and be consistent with those issued by SVP (2010) and will include the following:<br>• 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:<br>  • 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<br>  • A discussion of the locations of where the monitoring of construction activities is deemed necessary, and a proposed plan for monitoring and sampling<br>  • 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<br>  • 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<br>  • 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 | **Impact GEO-7:** Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature | Preconstruction; construction | Contract requirements; compliance reporting; design; surveying; monitoring, remedial action | As needed | Authority; Qualified Paleontological Resources Specialist | Date: _____<br>Action Taken: |

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| • 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<br>• 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<br>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. | | | | | | |
| **GEO-7.4: Conduct Monitoring During Project Construction and Prepare Monthly Reports**<br>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.<br>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.<br>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. | **Impact GEO-7:** Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature | Construction | Contract requirements; compliance reporting; monitoring | Monthly | Authority; Paleontological Resources Specialist; Qualified Paleontological Resources Monitor | Date: _____<br>Action Taken: |
| **GEO-7.5: Ensure Implementation of the Paleontological Resources Monitoring and Mitigation Plan**<br>The Authority, through the designated Paleontological Resource Specialist, will ensure that all components of the PRMMP are performed during construction. | **Impact GEO-7:** Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature | Construction | Contract requirements; compliance reporting | As needed | Authority; Paleontological Resources Specialist | Date: _____<br>Action Taken: |
| **Agriculture and Forestry Resources** | | | | | | |
| **AG-1.1: Purchase Agricultural Conservation Easements to Preserve Regional Important Farmland**<br>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 | **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, | Preconstruction; construction; operations | Contract requirements; acquisition/ funding | None | Authority; Mitigation Manager | Date: _____<br>Action Taken: |

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| 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. | or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.<br>**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<br>**Impact WILD-3:** Conflict with any local policies or ordinances protecting wildlife resources<br>**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<br>**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.<br>**Impact AG-2:** Conflict with existing zoning for agricultural use or a Williamson Act contract<br>**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 | | | | | |
| **AG-2.1: Minimize Impacts on Williamson Act–Contracted Lands, Comply with Government Code Sections 51290–51293, and Coordinate with Landowners and Agricultural Operators**<br>To reduce impacts on lands under Williamson Act contract, the Authority will implement the measures below.<br>• The Authority will comply with Government Code Sections 51290–51293 with respect to acquiring lands under Williamson Act contract.<br>  • 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. | **Impact AG-2:** Conflict with existing zoning for agricultural use or a Williamson Act contract | Construction; operations | Contract requirements; compliance reporting; acquisition/ funding | 1. Within 10 working days upon completion of land acquisition;<br>2. Before completion of any proposed substantial changes to the public improvement; and<br>3. Before acquired land is returned to private ownership. | Authority | Date: _____<br>Action Taken: |

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| • 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)).<br>• 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)).<br>• 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)).<br>• The contract will be terminated when land is acquired by eminent domain or in lieu of eminent domain (Section 51295).<br>• The Authority will notify DOC within 10 working days upon completion of the acquisition (Section 51291(c)).<br>• The Authority will notify DOC and the local jurisdiction before completion of any proposed substantial changes to the public improvement (Section 51291(d)).<br>• 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).<br>• 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** | | | | | | |
| **AQ-1.1: Zero Emission and/or Near Zero Emission Vehicles and Off-Road Equipment**<br>This mitigation measure will reduce the impact of Project construction emissions from on-road vehicles and off-road equipment through the following commitments.<br>• 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.<br>• 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.<br>• 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.<br>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 | **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<br>**Effect EJ-1:** Disproportionate and adverse effects on minority populations<br>**Effect EJ-2:** Disproportionate and adverse effects on low-income populations | Construction | Contract requirements; compliance reporting | Annually (at minimum) | Authority; Contractor | Date: _____<br>Action Taken: |

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| 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:<br>• Light duty and passenger car sales be 100% zero-emission vehicles (ZEV) by 2035<br>• Full transition to ZEV short haul/drayage trucks by 2035<br>• Full transition to ZEV heavy-duty long-haul trucks, where feasible, by 2045<br>• Full transition to ZE off-road equipment by 2035, where feasible. | | | | | | |
| **AQ-1.2: Offset Construction-Generated Criteria Pollutants in CCAPCD, GCAPCD, and YSAQMD**<br>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:<br>• 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.<br>  • 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.<br>  • Lack of enough offsets available in closer geographies.<br>  • Prohibitively costly offsets in closer geographies as defined by the Authority.<br>  • 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).<br>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.<br>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 | **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<br>**Effect EJ-1:** Disproportionate and adverse effects on minority populations<br>**Effect EJ-2:** Disproportionate and adverse effects on low-income populations | Preconstruction | Contract requirements; compliance reporting; design; funding | Annually | Authority | Date: _____<br>Action Taken: |

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| 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. | | | | | | |
| **AQ-2.1: Recreational Boat Emissions Minimization Plan**<br>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.<br>• Provide free or reduced launch fees for low-emitting or electric boats, to incentivize boats that are alternatively fueled.<br>• Post signage near launch areas encouraging users to turn off the boat engines when not in use.<br>• 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. | **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<br>**Effect EJ-1:** Disproportionate and adverse effects on minority populations<br>**Effect EJ-2:** Disproportionate and adverse effects on low-income populations | Operations | Design; compliance reporting | As needed | Authority | Date: _____<br>Action Taken: |
| **AQ-2.2: Offset Operation-Generated Criteria Pollutants in CCAPCD and GCAPCD**<br>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.<br>• 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.<br>• 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. | **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<br>**Effect EJ-1:** Disproportionate and adverse effects on minority populations<br>**Effect EJ-2:** Disproportionate and adverse effects on low-income populations | Operations | Compliance reporting; funding | Annually | Authority | Date: _____<br>Action Taken: |

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| • Lack of enough offsets available in closer geographies.<br>• Prohibitively costly offsets in closer geographies as defined by the Authority.<br>• 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).<br>• 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.<br>• 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** | | | | | | |
| **GHG-1.1: Achieve Net-Zero Emissions Through a GHG Reduction Plan**<br>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. | **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 | Preconstruction; construction; operations | Design; contract requirements; compliance reporting; design; monitoring; reporting; funding | At least quarterly during construction<br>Annually during operations | Authority; Contractor; Mitigation Manager | Date: _____<br>Action Taken: |

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**Table 21-6 Summary of Metric Ton Reduction (metric tons CO2e)**

| Year | Alternatives 1A | | Alternative 1B | | Alternative 2 | | Alternative 3 | |
|---|---|---|---|---|---|---|---|---|
| | 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 |

Notes:
$CO_2e$ = carbon dioxide equivalent.
[a] Variant 1 assumes the Project would connect to existing Western Area Power Administration utility infrastructure.
[b] Variant 2 assumes the Project would connect to existing Pacific Gas and Electric utility infrastructure.

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.

The GHG Reduction Plan will include the following content and adhere to the following requirements.

1. *Emissions Quantities and Reduction Commitments*: 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.
2. *Plan Development:* 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

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| 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.<br>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).<br>3. *GHG Reduction Strategies*: 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.<br>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.<br>The Authority will be responsible for determining the measures necessary to ensure the performance standard to mitigate the significant GHG impact is met. | | | | | | |

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| 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).<br>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.<br>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.<br>• 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.<br>• 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.<br>• 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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| workers at the entrances to the site and provide a plan for the enforcement of this requirement.<br>• 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.<br>• 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.<br>• Develop a Project-specific ride share program to encourage carpools and shuttle vans.<br>• 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.<br>• 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.<br>• Develop a Project-specific construction debris recycling and diversion program to achieve a documented 50% diversion of construction waste.<br>• 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.<br>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.<br>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 | | | | | | |

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| for construction and/or operations, carbon credits would be required to reduce the remaining emissions.<br>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.<br>• replacing diesel school buses with electric buses.<br>• planting trees in local communities.<br>• 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.<br>• 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.<br>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.<br>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.<br>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]<br>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 | | | | | | |

[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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| occur in the absence of a GHG reduction market) should not be eligible for registration.<br>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.<br>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.<br>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.<br>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.<br>Carbon credits must also meet the following requirements:<br>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.<br>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.<br>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.<br>• Lack of enough credits available in closer geographies (e.g., Northern Sacramento Valley).<br>• 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.<br>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: | | | | | | |

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| • Proposed credits meet the criteria in California Health and Safety Code Sections 38562(d)(1) and (d)(2).<br>• Proposed credits meet the definitions for the criteria provided in this measure.<br>• 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.<br>Monitoring, reporting, and enforcement requirements for implementation of the GHG Reduction Plan will include the following components.<br>1. *Phased Analysis and Plan Amendments:* 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 *Plan Development* above.<br>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.<br>2. *Timing and Execution:* 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.<br>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).<br>3. *Monitoring and Reporting:* 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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| 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.<br>The reports will be finalized and posted in a publicly accessible location online by December 31st of the following year. | | | | | | |
| **Cultural Resources** | | | | | | |
| **CUL-1.1: Identify NRHP/CRHR-Eligible Built Resources**<br>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.<br>• Relocate and map previously recorded potentially NRHP-/CRHR-eligible historic built resources.<br>• Locate and map potentially NRHP-/CRHR-eligible historic built resources in areas that have not been accessible previously.<br>• Evaluate the NRHP/CRHR eligibility of recorded historic built resources.<br>• Assess resource-specific impacts on significant historic built resources for resources that are NRHP/CRHR eligible and would be affected. | **Impact CUL-1:** Cause a substantial adverse change in the significance of a historic built resource | Preconstruction | Compliance reporting; surveying; remedial action | Following built resources study | Authority; SOI-Qualified Architectural Historian | Date: _____<br>Action Taken: |
| **CUL-1.2: Avoid NRHP/CRHR-Eligible Built Resources**<br>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.<br>• The Authority will develop feasible Project design specifications to avoid NRHP-/CRHR-eligible historic built resources.<br>• 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.<br>• The Authority will develop and implement feasible Project operations protocols that avoid NRHP-/CRHR-eligible historic built resources during operation activities. | **Impact CUL-1:** Cause a substantial adverse change in the significance of a historic built resource | Preconstruction; construction | Contract requirements; design | None | Authority; SOI-Qualified Architectural Historian | Date: _____<br>Action Taken: |
| **CUL-1.3: Protect NRHP/CRHR-Eligible Built Resources**<br>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.<br>• The Authority will develop feasible protection measures for NRHP-/CRHR-eligible historic built resources prior to and during construction activities and during operation activities.<br>• 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. | **Impact CUL-1:** Cause a substantial adverse change in the significance of a historic built resource | Preconstruction; construction; operations | Contract requirements; design | None | Authority; SOI-Qualified Architectural Historian | Date: _____<br>Action Taken: |

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| **CUL-1.4: NRHP/CRHR-Eligible Built Resources Treatment**<br>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.<br>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. | **Impact CUL-1:** Cause a substantial adverse change in the significance of a historic built resource | Preconstruction; construction; postconstruction | Contract requirements; design | None | Authority; SOI-Qualified Architectural Historian | Date: _____<br>Action Taken: |
| **CUL-2.1: Identify NRHP/CRHR-Eligible Archaeological Resources**<br>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.<br>• 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.<br>• 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.<br>• 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, *Regulatory Requirements*, 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, *National Register of Historic Places*) and CRHR (Section 4A.18.2.2, *California Register of Historical Resources*). 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.<br>• 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. | **Impact CUL-2:** Cause a substantial adverse change in the significance of an archaeological resource<br>**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. | Preconstruction; construction; postconstruction | Contract requirements; compliance reporting; surveying | As needed | Authority; Registered Professional Archaeologist | Date: _____<br>Action Taken: |

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| **CUL-2.2: Avoid NRHP/CRHR-Eligible Archaeological Resources**<br>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.<br>• 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).<br>• 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.<br>• 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. | **Impact CUL-2:** Cause a substantial adverse change in the significance of an archaeological resource<br>**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. | Preconstruction; construction; operations | Contract requirements; design | None | Authority; Registered Professional Archaeologist | Date: _____<br>Action Taken: |
| **CUL-2.3: Protect NRHP/CRHR-Eligible Archaeological Resources**<br>The Authority will develop feasible Project protection of NRHP/CRHR-eligible archaeological resources during construction and operations.<br>• 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.<br>• 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. | **Impact CUL-2:** Cause a substantial adverse change in the significance of an archaeological resource<br>**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. | Preconstruction; construction; operations | Contract requirements; design | None | Authority | Date: _____<br>Action Taken: |

| Mitigation Text | Impact # and Impact Title | Phase | Implementation Action | Reporting Schedule | Implementation Responsibility | Record of Implementation |
|---|---|---|---|---|---|---|
| **CUL-2.4: NRHP/CRHR-Eligible Archaeological Resources Treatment**<br>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. | **Impact CUL-2:** Cause a substantial adverse change in the significance of an archaeological resource<br>**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. | Preconstruction; construction; operations | Contract requirements; design | None | Authority | Date: _____<br>Action Taken: |
| **CUL-3.1: Cemetery Relocation Plan**<br>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.<br>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.<br>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. | **Impact CUL-3:** Disturb any human remains, including those interred outside of formal cemeteries<br>**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. | Preconstruction; construction; operations | Contract requirements; design | As needed | Authority | Date: _____<br>Action Taken: |
| **CUL-3.2: Avoid, Protect, and Treat Human Remains**<br>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, *Regulatory Resources*, Sections 4A.18.1, *Federal Policies and Regulations*, and 4A.18.2, *State Policies and Regulations*.<br>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.<br>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. | **Impact CUL-3:** Disturb any human remains, including those interred outside of formal cemeteries<br>**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. | Preconstruction; construction; operations | Contract requirements; design | None | Authority; Contractor | Date: _____<br>Action Taken: |

| Mitigation Text | Impact # and Impact Title | Phase | Implementation Action | Reporting Schedule | Implementation Responsibility | Record of Implementation |
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| 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.<br>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. | | | | | | |
| **Tribal Cultural Resources** | | | | | | |
| **TCR-1.1: Implement Mitigation Measures Recommended in Public Resources Code Section 21084.3 to Avoid Damaging Effects on Tribal Cultural Resources**<br>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.<br>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:<br>a. Protecting the cultural character and integrity of the resource.<br>b. Protecting the traditional use of the resource.<br>c. Protecting the confidentiality of the resource.<br>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. | **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. | Preconstruction; construction; operations | Contract requirements; design; funding/ acquisition | None | Authority; Contractor | Date: _____<br>Action Taken: |
| **TCR-1.2: Tribal Monitoring**<br>Tribal monitors will be permitted to observe all ground-disturbing activities. | **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. | Preconstruction; construction; postconstruction; operations | Contract requirements; monitoring | None | Authority; Contractor; Tribal Monitor | Date: _____<br>Action Taken: |
| **TCR-1.3: Implement Agreed-Upon Protocol for the Treatment of Human Remains and Cultural Items**<br>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.<br>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.<br>If human remains or associated grave goods are discovered during or after environmental review, the Authority will provide for the following actions: | **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. | Preconstruction; construction; operations | Contract requirements; compliance reporting | As needed | Authority; Contractor; Tribal Monitor | Date: _____<br>Action Taken: |

| Mitigation Text | Impact # and Impact Title | Phase | Implementation Action | Reporting Schedule | Implementation Responsibility | Record of Implementation |
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| • Immediately notify the County coroner and cease ground-disturbing activities in that location.<br>• 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.<br>• 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.<br>• The location of a reburial will be recorded with the California Historic Resources Inventory System.<br>• The Authority, its contractors and consultants, and the coroner will not disclose the location of the original burial or reburial site.<br>• 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.<br>• 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. | | | | | | |

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|---|---|---|---|---|---|
| 2012 Staff Report | *2012 Staff Report on Burrowing Owl Mitigation* | 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 |
| CNDDB | California Natural Diversity Database | NAHC | Native American Heritage Commission | TCAPCD | Tehama County Air Pollution Control District |
| $CO_2e$ | 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 | | |

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# Attachment 4

Calculation of Daily Unimpaired Delta Outflow, Daily Delta Outflow, and Percent of Unimpaired Delta Outflow

Methods and data sources that shall be used to calculate compliance with term 30(a) are described in this Attachment. The following sections describe methods and data sources for calculating (1) daily unimpaired Sacramento-San Joaquin Delta watershed outflow (daily Unimpaired Delta Outflow), (2) impaired daily Delta Outflow (daily Delta Outflow), and (3) the percentage of daily Unimpaired Delta Outflow that is present in the system.

## *A.4.1.* Daily Unimpaired Delta Outflow

Daily Unimpaired Delta Outflow shall be calculated using the sum of daily unimpaired flows of tributaries to the Delta, as set forth below. Daily Unimpaired Delta Outflow estimates are summed over seven days and averaged to produce a seven-day average. A three-day lag shall be applied to the seven-day average calculation of daily Unimpaired Delta Outflow (seven-day average daily Unimpaired Delta Outflow$_{\text{3-day lag}}$) to ensure that all daily unimpaired Delta outflow data are available to complete the necessary calculations. The three-day lag is applied retrospectively such that a seven-day average flow calculation completed on the current day includes flows values that range from four through 10 days prior to the current day. The seven-day average daily Unimpaired Delta Outflow$_{\text{3-day lag}}$ shall be updated daily to produce a “running” average.

### *A.4.1.1.* Equation

Unimpaired Delta Outflow (UDO) is the sum of unimpaired Delta inflow (UDI) plus in-Delta accretions (IDA), calculated as follows:

UDO = UDI + IDA, where:

- UDO = Unimpaired Delta Outflow;
- UDI = Unimpaired Delta Inflow; and
- IDA = In-Delta Accretions

Unimpaired Delta Inflow (UDI) is equal to the sum of unimpaired flow, as reported by the California Data Exchange Center (CDEC) and the California Nevada River Forecast Center (CNRFC), for stations on Sacramento River tributaries (Sac UF), major eastside Delta tributaries (East UF), and San Joaquin River tributaries (SJR UF), plus additional unimpaired flows that are calculated for accretions downstream of and not included at other unimpaired flow stations (MISC UF), using the following equation.

UDI = (Sac UF + East UF + SJR UF) + Misc UF, where each value is the sum of flows at the following locations:

- Sac UF = Sacramento River above Bend Bridge + Feather River at Oroville + Yuba River at Smartsville + American River at Nimbus;

- East UF = Consumnes River at Michigan Bar + Mokelumne River at Pardee Dam + Calaveras River at New Hogan Reservoir;

- SJR UF = Stanislaus River at Goodwin + Tuolumne River at La Grange Dam + Merced River near Merced Falls + San Joaquin River below Friant Dam; and

- Misc UF = Fresno River at Hensley Lake + Chowchilla River at Buchanan Reservoir + Mariposa Creek at Mariposa Reservoir + Owens Creek at Owens Reservoir + Stony Creek at Black Butte + Cache Creek above Rumsey + Bear River near Wheatland + Putah Creek near Winters + Sacramento Valley West Side Minor Streams + Sacramento Valley East Side Minor Streams + San Joaquin Valley West Side Minor Streams + San Joaquin Valley East Side Minor Streams

Specific data sources and calculations for the unimpaired flow locations listed above are described in the next section. In-Delta Accretions (IDA) are equal to the PREC term, as defined in the Bay Delta Plan Figure 3: “Real-time Delta precipitation runoff for the previous day estimated from stations within the Delta.” In-Delta accretions are calculated by multiplying the area of the Delta, 682,230 acres, by precipitation recorded at the Stockton Fire Station No. 4 precipitation gage (STK), available at: https://cdec.water.ca.gov/dynamicapp/QueryMonthly?s=STK

### *A.4.1.2.* Data Sources

Table 1 identifies data sources of daily unimpaired flow for each river tributary location in the Delta watershed. Daily unimpaired flows from these data sources represent flows that occurred at least one day prior to the current day. CNRFC estimates of daily unimpaired flow are immediately published to the CNRFC website, while Department of Water Resources (DWR) methods for estimating daily unimpaired flow may include an availability lag of one to three days, assuming flow gage instruments are operating properly. Some river or tributary locations in Table 1 do not have an estimate of daily unimpaired flow from CNRFC or DWR. For these river and tributary locations, Table 1 identifies a data source on a different tributary and a flow coefficient from Table 3 that, when multiplied by the daily unimpaired flow source data, reasonably approximates daily unimpaired flow on that tributary. Certain locations require an adjustment factor to estimate the unimpaired flows at that location; Table 1 identifies which locations require an adjustment factor and Table 2 provides the factor. When summing flows from river and tributary locations identified in Table 1, include any negative values as reported and use the greater of the seven-day average or zero.

**Table 1.**
Sources of unimpaired flow data

| River/Tributary Location (Station ID) | Data Source and Adjustment (if applicable) |
|---|---|
| Sacramento River above Bend Bridge (SBB)<br>Feather River at Oroville (FTO)<br>Yuba River near Smartsville (YRS)<br>American River at Nimbus Dam (AMF)<br>Cosumnes River at Michigan Bar (CSN)<br>Mokelumne River at Pardee Dam (MKM) | Daily full natural flow (FNF), in cfs, reported with 1-3 day lag in availability at:<br>https://cdec.water.ca.gov/reportapp/javareports?name=FNF |

| River/Tributary Location (Station ID) | Data Source and Adjustment (if applicable) |
|---|---|
| Stanislaus River at Goodwin (SNS)<br>Tuolumne River at La Grange Dam (TLG)<br>Merced River near Merced Falls (MRC)<br>San Joaquin River below Friant Dam (SJF) | |
| Calaveras River a New Hogan Reservoir (NHGC1)<br>Fresno River at Hensley Lake (HIDC1)<br>Chowchilla River at Buchanan Reservoir (BHNC1)<br>Mariposa Creek at Mariposa Reservoir (MPAC1)<br>Owens Creek at Owens Reservoir (OWCC1) | Daily FNF, reported as "Raw Daily Observation (kaf)", on same day at:<br>https://www.cnrfc.noaa.gov/ensembleProductTabular.php?id=[station]&prodID=9<br>Replace [station] with the 5-digit Station ID associated with each river or creek, listed to the left. Select appropriate Water Year and convert values from thousand acre-feet (kaf) to cfs. When summing, include negative values as reported and use the greater of the 7-day average or zero. |
| Stony Creek at Black Butte | Estimated based on Stony Creek at East Park Reservoir (EPRC1) daily FNF, reported as "Raw Daily Observation (kaf)," on same day at:<br>https://www.cnrfc.noaa.gov/ensembleProductTabular.php?id=EPRC1&prodID=9<br>Select appropriate Water Year and convert values from thousand acre-feet to cfs. When summing, include negative values as reported and use the greater of the 7-day average or zero.<br>Multiply 7-day average EPRC1 value by the Stony Increase Factor (SIF) in<br>Table **2** for the appropriate time period. |
| Cache Creek above Rumsey | Estimated based on Stony Creek at Black Butte (EPRC1*SIF) value. |

| River/Tributary Location (Station ID) | Data Source and Adjustment (if applicable) |
|---|---|
| | Multiply 7-day average Stony Creek value by the Cache-Stony Ratio (CSR) in<br><br>Table 3 for the appropriate time period. |
| Bear River near Wheatland | Estimated based on Yuba River near Smartsville (YRS) value.<br><br>Multiply 7-day average Yuba River value by the Bear-Yuba Ratio (BYR) in<br><br>Table 3 for the appropriate time period. |
| Putah Creek near Winters | Estimated based on Stony Creek at Black Butte (EPRC1*SIF) value.<br><br>Multiply 7-day average Stony Creek value by the Putah-Stony Ratio (PSR) in<br><br>Table 3 for the appropriate time period. |
| Sacramento Valley West Side Minor Streams | Estimated based on Elder Creek at Paskenta (EDCC1) and Thomes Creek at Paskenta (TCRC1) daily FNF, reported as “Raw Daily Observation (kaf),” on same day at:<br><br>https://www.cnrfc.noaa.gov/ensembleProductTabular.php?id=[station]&prodID=9<br><br>Replace [station] with the 5-digit Station ID associated with each creek, listed above. Select appropriate Water Year and convert values from thousand acre-feet to cfs. When summing, include negative values as reported and use the greater of the 7-day average or zero.<br><br>Multiply 7-day average (EDCC1 + TCRC1) value by the Elder-Thomes Increase Factor (ETIF) in<br><br>Table 2 for the appropriate time period. |
| Sacramento Valley East Side Minor Streams | Estimated based on Mill Creek at Los Molinos (MLMC1), Deer Creek at Vina (DCVC1), and Butte Creek at Chico (BKCC1) daily FNF, reported as “Raw Daily Observation (kaf),” on same day at:<br><br>https://www.cnrfc.noaa.gov/ensembleProductTabular.php?id=[station]&prodID=9<br><br>Replace [station] with the 5-digit Station ID associated with each creek, listed above. Select appropriate Water Year and convert values from thousand acre-feet to cfs. When |

| River/Tributary Location (Station ID) | Data Source and Adjustment (if applicable) |
|---|---|
| | summing, include negative values as reported and use the greater of the 7-day average or zero.<br>Multiply 7-day average (MLMC1 + DCVC1 + BKCC1) value by the Mill-Deer-Butte Increase Factor (MDBIF) in<br>Table 2 for the appropriate time period. |
| San Joaquin Valley West Side Minor Streams | Estimated based on Stanislaus River at Goodwin (SNS), Tuolumne River at La Grange Dam (TLG), Merced River near Merced Falls (MRC), and San Joaquin River below Friant Dam (SBF) values.<br>Multiply 7-day average (SNS + TLG + MRC + SBF) value by the San Joaquin Valley Ratio (SJVR) in<br>Table 3 for the appropriate time period. |
| San Joaquin Valley East Side Minor Streams | Estimated based on Mokelumne River at Pardee Dam (MKM) and Cosumnes River at Michigan Bar (CSN) values.<br>Multiply 7-day average (MKM + CSN) value by the San Joaquin-Mokelumne-Cosumnes Ratio (SJMCR) in<br>Table 3 for the appropriate time period. |

## Table 2.

Factors used to estimate small tributary unimpaired flows by increasing existing gage values

| Month | Stony Increase Factor (SIF) | Elder-Thomes Increase Factor (ETIF) | Mill-Deer-Butte Increase Factor (MDBIF) |
|---|---|---|---|
| Jan | 4.412 | 1.078 | 1.458 |
| Feb | 2.315 | 2.833 | 1.524 |
| Mar | 4.290 | 1.212 | 1.573 |
| Apr | 3.089 | 1.270 | 1.572 |
| May | 1.282 | 1.483 | 1.714 |
| Jun | 1.000 | 5.252 | 1.639 |
| Jul | 1.000 | 9.216 | 1.530 |
| Aug | 1.000 | 22.222 | 1.515 |
| Sep | 1.000 | 1.000 | 1.587 |
| Oct | 1.000 | 3.227 | 1.635 |
| Nov | 3.831 | 1.714 | 1.495 |
| Dec | 3.631 | 1.320 | 1.506 |

**Table 3.**

Factors used to estimate small tributary unimpaired flows based on other streams

| Month | Cache-Stony Ratio (CSR) | Bear-Yuba Ratio (BYR) | Putah-Stony Ratio (PSR) | San Joaquin Valley Ratio (SJVR) | San Joaquin-Mokelumne-Cosumnes Ratio (SJMCR) |
|---|---|---|---|---|---|
| Jan | 1.085 | 0.222 | 0.926 | 0.004 | 0.516 |
| Feb | 1.351 | 0.225 | 1.044 | 0.003 | 0.605 |
| Mar | 1.347 | 0.180 | 0.840 | 0.002 | 0.447 |
| Apr | 1.449 | 0.094 | 0.592 | 0.001 | 0.207 |
| May | 1.998 | 0.043 | 0.559 | 0.000 | 0.061 |
| Jun | 3.377 | 0.047 | 0.584 | 0.000 | 0.035 |
| Jul | 5.479 | 0.076 | 0.565 | 0.000 | 0.035 |
| Aug | 4.250 | 0.066 | 0.700 | 0.000 | 0.051 |
| Sep | 6.258 | 0.089 | 0.359 | 0.000 | 0.073 |
| Oct | 3.971 | 0.117 | 0.362 | 0.001 | 0.072 |
| Nov | 1.413 | 0.135 | 0.656 | 0.001 | 0.179 |
| Dec | 1.031 | 0.211 | 0.838 | 0.002 | 0.317 |

In the event that data sources identified in Table 1 are unavailable, Table 4 identifies alternative sources of unimpaired flow data.

**Table 4.**

Alternate sources of unimpaired flow data

| River/Tributary Location (Station ID) | Alternate Data Source |
|---|---|
| Sacramento River - Bend Bridge (BDBC1)<br>Feather River - Lake Oroville (ORDC1)<br>Yuba River - Englebright Reservoir (HLEC1)<br>American River - Folsom Lake (FOLC1)<br>Cosumnes River - Michigan Bar (MHBC1)<br>Mokelumne River - Pardee Dam (CMPC1)<br>Stanislaus River - New Melones Reservoir (NMSC1)<br>Tuolumne River - New Don Pedro Reservoir (NDPC1)<br>Merced River - Exchequer Reservoir (EXQC1)<br>San Joaquin River - Millerton Reservoir (FRAC1) | Daily FNF, reported as "Raw Daily Observation (kaf)," on same day at:<br>https://www.cnrfc.noaa.gov/ensembleProductTabular.php?id=[station]&prodID=9<br>Replace [station] with the 5-digit Station ID associated with each river or creek, listed to the left. Select appropriate Water Year and convert values from thousand acre-feet to cfs. When summing, include negative values as reported and use the greater of the 7-day average or zero. |

### *A.4.2.* Daily Delta Outflow

Daily Delta Outflow shall be calculated as the Net Delta Outflow Index (NDOI), as set forth in State Water Board Revised Water Right Decision 1641, Figure 3. Daily Delta Outflow estimates are summed over seven days and averaged to produce a seven-day average. A three-day lag shall be applied to the seven-day average calculation of daily

Delta Outflow (seven-day average daily Delta Outflow$_{3\text{-day lag}}$) to ensure that all daily Delta Outflow data are available to complete the necessary calculations. The seven-day average daily Delta Outflow$_{3\text{-day lag}}$ is updated daily to produce a "running" average.

### *A.4.3.* Delta Outflow as a Percent of Unimpaired Flow

The percentage of daily Unimpaired Delta Outflow shall be calculated using the following equation:

*Percent of Daily Unimpaired Delta Outflow = (7-day average daily Delta Outflow$_{3\text{-day lag}}$ / 7-day average daily Unimpaired Delta Outflow$_{3\text{-day lag}}$) * 100*

Percent of Daily Unimpaired Delta Outflow = (seven-day average daily Delta Outflow$_{3\text{-day lag}}$ / seven-day average daily Unimpaired Delta Outflow$_{3\text{-day lag}}$) * 100

The percent of daily unimpaired Delta outflow as a seven-day average, with a three-day lag, shall be calculated as a running average that is updated daily.