

Kopta Slough Multi-Benefit Project



Draft Initial Study/ Proposed Mitigated Negative Declaration

Prepared by:
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December 2022

PROJECT TITLE: Kopta Slough Multi-Benefit Project (proposed project)

LEAD AGENCY: California Department of Water Resources (DWR)

PROJECT LOCATION: The project area is located on the Sacramento River between River Mile (RM) 219 and RM 222 near the City of Corning and the Town of Vina in Tehama County. The confluence of Deer Creek is located on the left bank of this reach of the river. The Woodson Bridge State Recreation Area, Kopta Slough, Tehama County River Park, Woodson Bridge, and the Sacramento River National Wildlife Refuge Rio Vista Unit are located in the downstream portion of this reach. The project area includes a 658-acre property known as the Kopta Slough property. The Kopta Slough property is located within the U.S. Geological Survey 7.5-minute Vina quadrangle at latitude/longitude 39°56'06.876N, 122°05'48.734W (Figure 1).

PROJECT DESCRIPTION: The proposed project consists of three elements: (1) full removal of approximately 5,600 linear feet of existing rock revetment along the Sacramento River bank bordering the Kopta Slough property to restore natural fluvial and geomorphic processes; (2) restoration of the 176-acre agricultural field to native floodplain habitat on the Kopta Slough property; and (3) transfer of the Kopta Slough property to U.S. Fish and Wildlife Service ownership to assure its long-term management and conservation, as well as facilitate the enhancement of public recreational opportunities (Figure 2).

FINDINGS: An initial study/proposed mitigated negative declaration (IS/MND) has been prepared to assess the proposed project's potential effects on the physical environment and the significance of those effects. Based on the analysis conducted in the IS, DWR has determined that the proposed project would not have any significant adverse effects on the environment because environmental commitments and mitigation measures would be implemented to reduce impacts to a less-than-significant level. This conclusion is supported by the following findings:

1. The proposed project would not impact energy, land use and planning, mineral resources, population and housing, public services, or recreation.
2. The proposed project would have a less-than-significant impact on aesthetics, agricultural and forest resources, greenhouse gas emissions, noise, transportation, and utilities and service systems.
3. The proposed project would have a less-than-significant impact on air quality, biological resources, cultural resources, geology and soils, hazards and hazardous materials, hydrology and water quality, tribal

cultural resources, and wildfire with the adoption and implementation of mitigation measures proposed in the IS.

4. The proposed project would not substantially degrade the quality of the environment, significantly reduce the habitat for fish and wildlife species, result in fish or wildlife populations below a self-sustaining level, reduce the number or restrict the range of a special-status species, or eliminate important examples of California history or prehistory.
5. The proposed project would not have the potential to achieve short-term environmental goals to the disadvantage of long-term environmental goals.
6. The proposed project would not have possible environmental effects that are individually limited but cumulatively considerable and contribute to a significant cumulative impact. "Cumulatively considerable" means that the incremental effects of an individual project are significant when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.
7. The environmental effects of the proposed project would not cause substantial adverse effects on human beings, either directly or indirectly.
8. The proposed project incorporates numerous protective environmental measures in its project description, as well as all mitigation measures listed below and described in the IS.

Figure 1 Map of the Kopta Slough Project Area and Vicinity

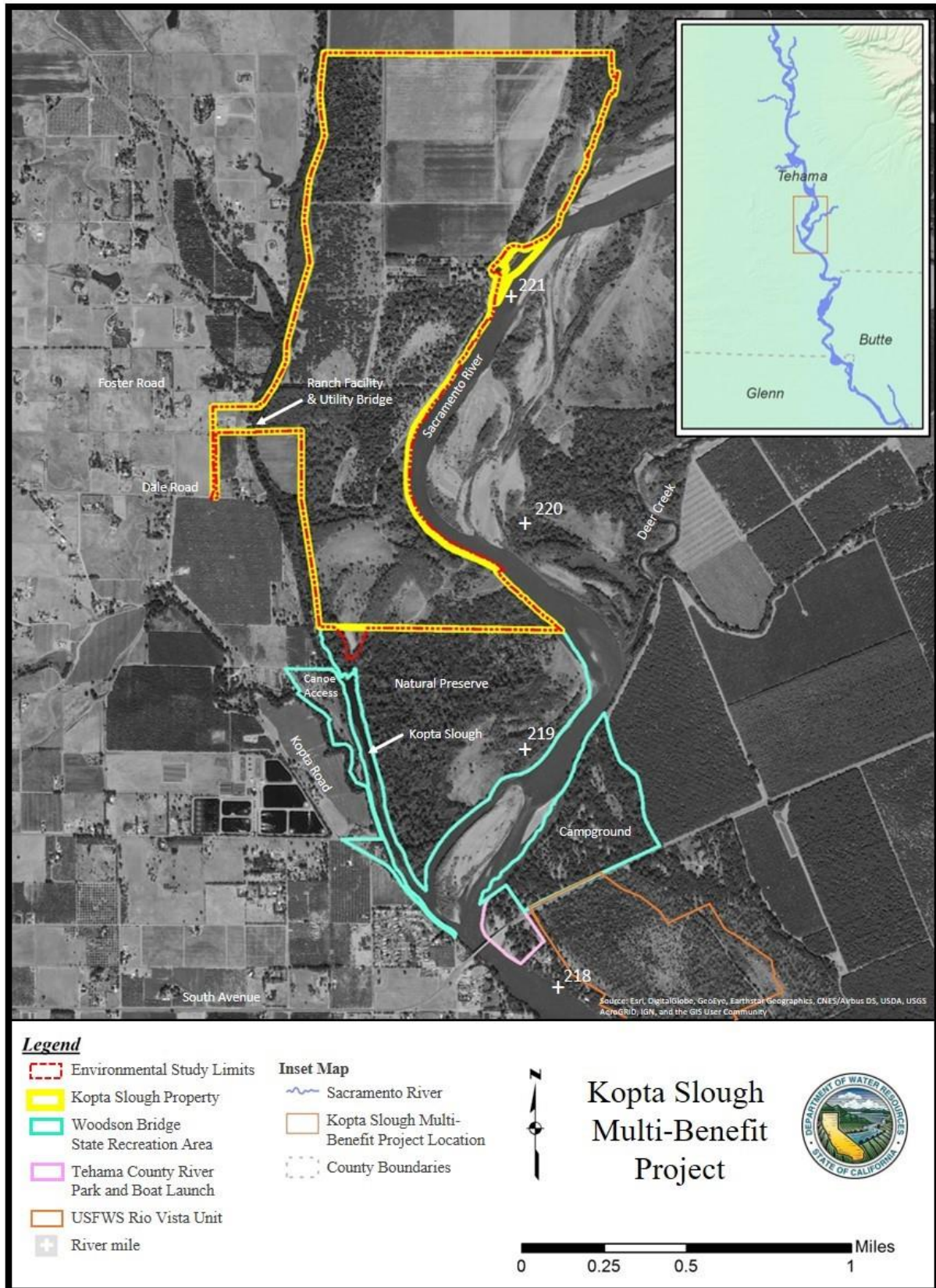
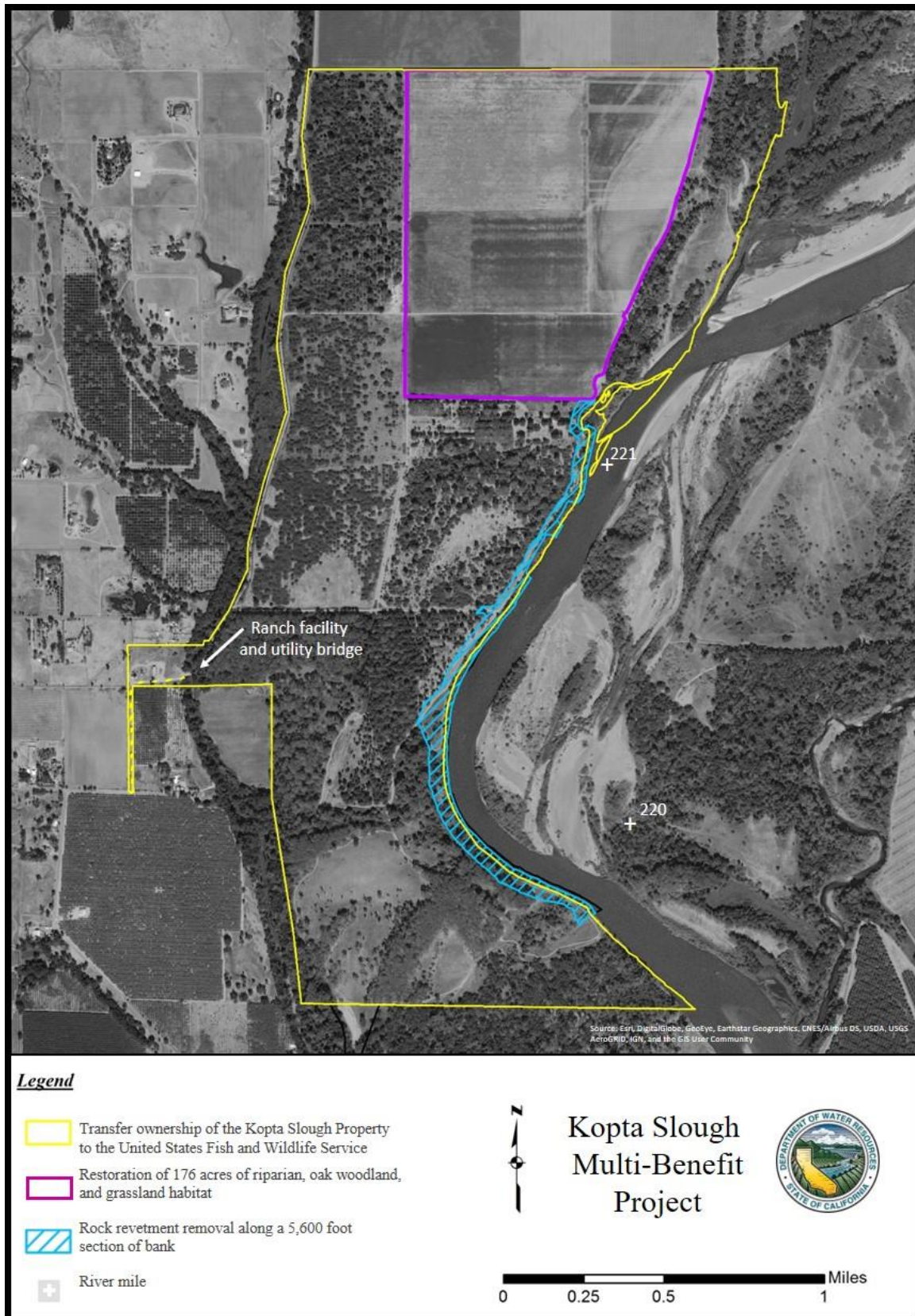


Figure 2 Map of the Kopta Slough Project Elements



Mitigation Measures

The following mitigation measures will be implemented by the Lead Agency to avoid, minimize and mitigate environmental impacts resulting from implementation of the proposed project. Implementation of these mitigation measures would reduce the environmental impacts of the proposed project to a less-than-significant level.

Air Quality

Mitigation Measure Air Quality-1: Implement Fugitive Dust Prevention and Control Measures

The construction contractor shall prepare an air quality control plan in compliance with the project's fugitive dust permit and implement fugitive dust prevention and control measures, which may include the following:

- All ground-disturbing operations shall be suspended when winds exceed 20 miles per hour (mph), or when winds carry dust beyond the property line despite implementation of all feasible dust control measures.
- An operational water truck should be available at all times. All areas subject to ground disturbance shall be watered as necessary to prevent fugitive dust violations.
- On-site dirt piles or other stockpiled particulate matter shall be covered, wind breaks installed, and water or soil stabilizers employed as necessary to reduce windblown dust emissions.
- All transfer processes involving a free-fall of soil or other particulate matter shall be operated in such a manner as to minimize the free-fall distance and fugitive dust emissions.
- Traffic and equipment speeds on all unpaved surfaces shall be reduced to 15 mph or less, and unnecessary vehicle traffic shall be reduced by restricting access.
- Measures shall be implemented to reduce or eliminate carryout and trackout of fugitive dust or soil on construction vehicles, such as sweeping and picking up any trackout on adjacent public streets as needed.

- A publicly visible sign shall be posted with the telephone number and contact person's name regarding dust complaints. This person shall respond and take corrective action within 24 hours. The telephone number of the Tehama County Air Pollution Control District (TCAPCD) shall also be provided to ensure compliance with District rules.
- Unpaved roads may be graveled to reduce dust emissions.

Mitigation Measure Air Quality-2: Implement Construction Equipment Exhaust Minimization Measures

The construction contractor shall implement construction equipment exhaust minimization measures, which may include the following:

- All construction equipment shall be maintained in proper tune according to manufacturer's specifications.
- To the extent practicable, the use of diesel construction equipment meeting current CARB certification standards for off-road heavy-duty diesel engines shall be maximized.
- Unnecessary vehicle idling shall be restricted to five minutes or less.
- Visible emissions from stationary diesel-powered equipment shall not exceed 40-percent opacity for more than three minutes in any one hour.
- Construction equipment shall be electrified where feasible.
- Gasoline-powered construction equipment shall be substituted for diesel-powered equipment, where feasible.
- All off-road heavy-duty diesel construction equipment greater than 50 horsepower shall be registered with CARB's Diesel Off-Road Online Reporting System and meet all applicable standards for replacement or retrofit.
- All portable construction equipment used, including generators and air compressors rated at more than 50 brake horsepower, shall be registered in the Portable Equipment Registration Program or permitted through the TCAPCD.

Biological Resources

Fisheries Resources

Mitigation Measure Fish-1: Implement Measures to Minimize Injury or Mortality to Adult or Juvenile Fish Species

To minimize injury or mortality to adult or juvenile fish species, the contractor shall implement the following measures:

- In-water construction activities shall be minimized to the greatest extent possible by restricting equipment to work from the river bank between August 1 and October 31.
- In-water activities shall start at the downstream end of the rock revetment at the beginning of the construction window and proceed upstream.
- Prior to beginning work within the river, the excavator bucket shall be operated to “tap” the surface of the water, or, where safe, a qualified biologist shall wade ahead of the equipment to scare fish away from the work area.
- Operation of the excavator bucket within the river shall be conducted slowly and deliberately to allow fish time to seek refuge outside the work area.
- In-river work shall occur for up to 12 hours per day to allow a 12-hour window of time for fish to migrate through without noise disturbance.
- If water is drafted from the Sacramento River or Kopta Slough for construction purposes, water pump intakes shall be screened in compliance with California Department of Fish and Wildlife (CDFW) and National Marine Fisheries Service salmonid-screening specifications.

Mitigation Measure Water Quality-1: Implement a Stormwater Pollution Prevention Plan

Refer to the “Hydrology and Water Quality” section.

Mitigation Measure Hazards-1: Prepare and Implement a Spill Prevention and Control Plan

Refer to the “Hazards and Hazardous Materials” section.

Wildlife Resources

Mitigation Measure Wildlife-1: Implement Bat Exclusion Measures Prior to Demolition of Existing Structures

Prior to structure demolition, structures shall be inspected by a qualified biologist to determine if bats are present. If present, surveys shall be conducted to determine if the structure is being used as a day, night, or maternity roost. If a roost is present, appropriate bat exclusion measures shall be implemented at least five to seven days prior to structure demolition outside of the maternity season, which can range from mid-April through August 31, and outside of the winter months when bats could be hibernating. Bat exclusion measures could include one-way devices, such as polypropylene netting, plastic sheeting, or tube-type excluders, that would be placed at all active entry points.

Mitigation Measure Wildlife-2: Implement Protective Measures During Removal of Trees that Provide Suitable Bat Roosting Habitat

All removal of trees that provide suitable bat roosting (such as trees with deep bark crevices, snags, or holes) shall be conducted between August 31 and October 30, or earlier than October 30 if evening temperatures fall below 45 degrees Fahrenheit or more than half inch of rainfall occurs within 24 hours during the month of October. These dates correspond to the time period when bats would not be caring for non-volant young and have not yet entered torpor. A qualified biologist shall monitor removal and trimming of trees that provide suitable bat roosting habitat. Tree removal and trimming shall occur over two consecutive days. On the first day in the afternoon, limbs and branches shall be removed using chainsaws only. Limbs with cavities, crevices, or deep bark fissures shall be avoided, and only branches or limbs without those features shall be removed. On the second day, the entire tree shall be removed. Prior to tree removal and trimming, each tree shall be shaken gently and several minutes shall pass before felling trees or limbs to allow bats time to arouse and leave the tree. The biologist shall search downed vegetation for dead or injured bat species and report any dead or injured special-status bat species to CDFW.

Mitigation Measure Wildlife-3: Implement an Avoidance Work Window and Conduct Pre-Construction Nesting Bird Surveys

Vegetation removal shall occur outside of the nesting season, which typically ranges from February 1 through August 31.

All other construction activities shall also occur outside of the nesting season. If construction activities must overlap with this period, a qualified biologist shall be retained to conduct preconstruction surveys for active bird nests. Nesting surveys shall be conducted in accordance with the recommended timing, methodology, or protocol for each bird species. Surveys shall also include a 0.25-mile radius outside of the project area for Swainson's hawk, and a 500-foot radius outside of the project area for other nesting birds. Surveys shall be conducted within 14 days prior to the start of construction or as prescribed by established survey protocols.

Mitigation Measure Wildlife-4: Establish Nest Protection Buffers for Active Bird Nests

If an active bird nest is located within the survey area, a qualified biologist shall establish an appropriate nest protection buffer based on the bird species, type of construction activities, and line of sight to the work area. Under this measure, nesting birds and offspring would not be disturbed or killed, and nests and eggs would not be destroyed. Work shall be conducted no less than 500 feet from an active raptor nest and 100 feet from an active migratory bird nest, although buffer distances for all nesting birds may differ based on consultation with CDFW and the U.S. Fish and Wildlife Service (USFWS). To prevent encroachment, the established buffer(s) shall be clearly marked by high-visibility material if the qualified biologist determines that high-visibility material would not attract predators to the nest site. No construction activities, including tree removal, shall occur within the buffer zone until the young have fledged or the nest is no longer active, as confirmed by the qualified biologist.

Mitigation Measure Wildlife-5: Monitor Active Nests Within the Nest Protection Buffer

If project activities must occur within established buffer zones, a qualified biologist shall establish monitoring measures, including frequency and duration, based on species, individual behavior, and type of construction activities. If birds are showing signs of distress within the established buffer(s), work activities shall be modified or the buffer(s) shall be expanded to prevent birds from abandoning their nests. At any time the biologist shall have the authority to halt work if there are any signs of distress or disturbance that may lead to nest abandonment. Work shall not resume until corrective measures have been taken or it is determined that continued activity would not adversely affect nest success.

Mitigation Measure Wildlife-6: Conduct Daily Searches for Western Pond Turtle During Instream Activities

On the day that instream activities commence, a qualified biologist (and/or a qualified person with permission from CDFW) will walk through the path of scheduled instream activity to assess the presence of turtles and herd them, if possible, into areas of lesser impact or moved by a permitted person to an area of safety out of harm's way.

Mitigation Measure Wildlife-7: Implement Protection Measures for Elderberry Shrubs

The contractor shall implement protection measures around elderberry shrubs with stems greater than 1-inch diameter at ground level that are to be preserved during construction activities. The protection measures shall be developed during formal consultation with USFWS and may include the following (U.S. Fish and Wildlife Service 2017):

- Fencing. Elderberry shrubs within and immediately adjacent to the construction footprint will be fenced or flagged as close to the construction limits as feasible.
- Avoidance area. Activities that may damage or kill an elderberry shrub (e.g., excavation, grading, etc.) may need an avoidance area of at least 10 feet from the dripline, depending on the type of activity.

- Worker education. A qualified biologist will provide training for all contractors, work crews, and any on-site personnel on the status of the valley elderberry longhorn beetle (VELB), its host plant and habitat, the need to avoid damaging the elderberry shrubs, and the possible penalties for noncompliance.
- Construction monitoring. A qualified biologist will monitor the work area at project-appropriate intervals to assure that all avoidance and minimization measures are implemented. The amount and duration of monitoring will depend on the project specifics and should be discussed with the USFWS biologist.
- Timing. As much as feasible, all activities that could occur adjacent to elderberry shrubs will be conducted outside of the flight season of the VELB (March through July).
- Trimming. Trimming may remove or destroy VELB eggs or larvae and may reduce the health and vigor of the elderberry shrub. To avoid and minimize adverse effects to the VELB when trimming, trimming will occur between November and February and will avoid the removal of any branches or stems that are 1 inch or greater in diameter. Measures to address regular or large-scale maintenance (trimming) should be established in consultation with the USFWS.
- Chemical Usage. Herbicides will not be used within the dripline of the shrub. Insecticides will not be used within 98 feet of an elderberry shrub. All chemicals will be applied using a backpack sprayer or similar direct application method.
- Mowing. Mechanical weed removal within the dripline of the shrub will be limited to the season when adults are not active (August through February) and will avoid damaging the elderberry.
- Erosion Control and Revegetation. Erosion control will be implemented and the affected area will be revegetated with appropriate native plants.

Mitigation Measure Wildlife-8: Relocate Elderberry Shrubs that Must Be Removed

The lead agency shall identify measures to relocate or replace elderberry shrubs with stems measuring 1 inch or greater in diameter at ground level if an adequate buffer cannot be provided, or if a shrub cannot be avoided

during construction and must be removed. Transplantation procedures shall comply with USFWS's *Framework for Assessing Impacts to the Valley Elderberry Longhorn Beetle* (U.S. Fish and Wildlife Service 2017) and approved by USFWS during formal consultation. Elderberry shrubs that cannot be avoided will be identified and transplanted within the Kopta Slough property.

Botanical Resources

Mitigation Measure Botany-1: Develop and Implement a Weed Prevention and Control Plan

Prior to the start of construction, the contractor shall prepare a weed prevention and control plan in coordination with the appropriate agency. The plan may include the following avoidance and minimization measures:

- Construction equipment shall be made weed-free prior to entering the project area (e.g., washing construction equipment and trucks before entering the area).
- Equipment staging shall occur in areas that have been cleared of weeds.
- Straw bales and other vegetative materials used for erosion control shall also be certified weed-free.
- All revegetation materials (e.g., container plants, mulches, seed mixtures) shall be certified weed-free and come from locally adapted native plant materials to the extent practicable.
- If areas require additional weed control, herbicides may be used consistent with federal, State, and local requirements, under advisement of a department or interagency pesticide control advisor (PCA). All herbicides shall be applied by a licensed operator.
- Invasive plants removed during project construction (e.g., *Arundo donax*) shall be removed to an appropriate off-site disposal area or otherwise properly disposed of out of the floodplain, or buried appropriately beneath spoiled material at a depth sufficient to prevent reintroduction and floating debris.
- Construction practices shall comply with other recommendations of the PCA for invasive weed management.

Mitigation Measure Water Quality-1: Implement a Stormwater Pollution Prevention Plan

Refer to the “Hydrology and Water Quality” section.

Cultural Resources***Mitigation Measure Cultural-1: Protect Newly Discovered Archaeological, Prehistoric, Historic, or Tribal Cultural Resources***

Prior to the start of construction, DWR will provide an environmental tailgate training including an overview of the types of cultural resources, including tribal cultural resources (which could occur in the project area), a statement of confidentiality, and a review of the steps that must occur if any potential cultural resources are identified in the project area.

If any potential historical or archaeological materials are discovered during construction activities, work must be halted within 100 feet of the find until an archaeologist who meets U.S. Secretary of Interior’s Professional Qualification Standards for Archaeology or personnel working under their direction evaluates the find. If the discovered materials are potential tribal cultural resources, affiliated Native American tribes will be notified and provided an opportunity to participate in the evaluation of the find. Work may continue on other parts of the proposed project while evaluation and, if necessary, mitigation, take place (California Environmental Quality Act [CEQA] Guidelines Section 15064.5 [f]). After the assessment is completed, the archaeologist shall submit a report to DWR describing the significance of the discovery with management recommendations. If the find is determined by DWR to be an historical, unique archaeological, or tribal cultural resource, time allotment and funding sufficient to allow for implementation of avoidance measures, or appropriate mitigation, must be available.

Should significant archaeological resources be found, the resources shall be treated in compliance with PRC Section 21083.2. If the project can be modified to accommodate avoidance, preservation of the site is the preferred alternative. Data recovery of the damaged portion of the site also shall be performed pursuant to Public Resources Code (PRC) Section 20183.2(d).

Mitigation Measure Cultural-2: If Human Remains are Found, Cease Construction Activities and Implement Appropriate Procedures for the Treatment of Remains

If remains or potential human remains are discovered, all work in the vicinity of the find must stop immediately. DWR or their designated representative will immediately notify the Tehama County coroner. If the coroner determines the remains to be Native American, the coroner will notify the Native American Heritage Commission (NAHC) by phone within 24 hours. Pursuant to PRC Section 5097.98, DWR will open consultation with the individual(s) identified by the NAHC as the most likely descendants (MLDs). MLDs shall be provided the opportunity to inspect the site of discovery and make recommendations regarding the treatment of the remains and any items associated with the burial, including preservation and avoidance, relinquishment to MLDs, or dignified removal and reinterment in a location not subject to future disturbance. The professionally qualified archaeologist shall record the site, or the location of reburial, with the NAHC. DWR will direct work to recommence after the human remains have been investigated and recommendations have been made for the appropriate treatment and disposition of the remains.

Geology and Soils

Mitigation Measure Water Quality-1: Implement a Stormwater Pollution Prevention Plan

Refer to the "Hydrology and Water Quality" section.

Greenhouse Gas Emissions

As an environmental commitment, the proposed project will incorporate the following best management practices (BMPs) from DWR's Climate Action Plan-Phase I: Greenhouse Gas Emissions Reduction Plan, to avoid and minimize impacts related to greenhouse gas emissions.

BMP 1. Evaluate project characteristics, including location, project work flow, site conditions, and equipment performance requirements, to determine whether specifications of the use of equipment with repowered engines, electric drive trains, or other high efficiency technologies are appropriate and feasible for the project or specific elements of the project.

BMP 2. Evaluate the feasibility and efficacy of performing on-site material hauling with trucks equipped with on-road engines.

BMP 3. Ensure that all feasible avenues have been explored for providing an electrical service drop to the construction site for temporary construction power. When generators must be used, use alternative fuels, such as propane or solar, to power generators to the maximum extent feasible.

BMP 4. Evaluate the feasibility and efficacy of producing concrete on-site and specify that batch plants be set up on-site or as close to the site as possible. *This BMP is not applicable to the proposed project.*

BMP 5. Evaluate the performance requirements for concrete used on the project and specify concrete mix designs that minimize GHG emissions from cement production and curing while preserving all required performance characteristics. *This BMP is not applicable to the proposed project.*

BMP 6. Limit deliveries of materials and equipment to the site to off peak traffic congestion hours.

BMP 7. Minimize idling time by requiring that equipment be shut down after five minutes when not in use (as required by the State airborne toxics control measure Cal. Code of Regs., tit. 13, §2485). Provide clear signage that posts this requirement for workers at the entrances to the site and provide a plan for the enforcement of this requirement.

BMP 8. Maintain all construction equipment in proper working condition and perform all preventative maintenance. Required maintenance includes compliance with all manufacturer's recommendations, proper upkeep and replacement of filters and mufflers, and maintenance of all engine and emissions systems in proper operating condition. Maintenance schedules shall be detailed in an Air Quality Control Plan prior to commencement of construction.

BMP 9. Implement a tire inflation program on the jobsite to ensure that equipment tires are correctly inflated. Check tire inflation when equipment arrives on-site and every two weeks for equipment that remains on-site. Check vehicles used for hauling materials 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.

BMP 10. Develop a project specific ride share program to encourage carpools, shuttle vans, transit passes, and secure bicycle parking for construction worker commutes.

BMP 11. Reduce electricity use in temporary construction offices by using high efficiency lighting and requiring that heating and cooling units be Energy Star compliant. Require that all contractors develop and implement procedures for turning off computers, lights, air conditioners, heaters, and other equipment each day at close of business.

BMP 12. For deliveries to project sites where the haul distance exceeds 100 miles and a heavy-duty class 7 or class 8 semi-truck or 53-foot or longer box type trailer is used for hauling, a SmartWay2 certified truck will be used to the maximum extent feasible.

BMP 13. Minimize the amount of cement in concrete by specifying higher levels of cementitious material alternatives, larger aggregate, longer final set times, or lower maximum strength where appropriate. *This BMP is not applicable to the proposed project.*

BMP 14. Develop a project specific construction debris recycling and diversion program to achieve a documented 50 percent diversion of construction waste.

BMP 15. Evaluate the feasibility of restricting all material hauling on public roadways to off-peak traffic congestion hours. During construction scheduling and execution, minimize, to the extent possible, uses of public roadways that would increase traffic congestion.

Hazards and Hazardous Materials

Mitigation Measure Hazards-1: Prepare and Implement a Spill Prevention and Control Plan

The contractor shall be required to prepare and implement a spill prevention and control plan prior to construction, which will contain measures to avoid or minimize potential chemical contamination within the Sacramento River and its floodplain. The plan shall include the following construction BMPs:

- All personnel involved in use of hazardous materials shall be trained in emergency response and spill control.
- Contractors shall have oil-absorbent and spill-containment materials on site when mechanical equipment is in operation within 100 feet of the river or slough and shall adhere to all required State and federal standards. If a spill occurs, no additional work shall commence in-channel until (1) the mechanical equipment is inspected by the contractor and the leak has been repaired, (2) the spill has been contained, and (3) the appropriate agencies have been contacted and have evaluated the impacts of the spill.
- Staging, storage, servicing, and refueling of vehicles and equipment shall take place outside the river channel. Any equipment that may leak shall be stored over impermeable surfaces, if available, and drip pans (or any other type of impermeable containment measure) will be placed under parked machinery and checked and replaced when necessary, to prevent drips and leaks from entering the environment.
- Machinery that enters the river during work shall be steam cleaned, inspected daily, and properly maintained to avoid water quality contamination from the release of grease, oil, petroleum products, or other hazardous materials.
- Every reasonable precaution will be exercised to protect streams and other waters from pollution with fuels, oils, and other harmful materials. Safer alternative products (such as biodegradable hydraulic fluids) will be used where feasible.
- The use or storage of petroleum-powered equipment shall be accomplished in a manner to prevent the potential release of petroleum materials into the river or Kopta Slough.

- Any fuel stored within the project area shall be stored outside the channel in a double-walled contained vessel surrounded by a berm appropriately sized for the volume.
- Spill containment kits shall be on site at all times.

Mitigation Measure Hazards-2: Identify and Properly Dispose of Contaminated Soils

Soils in areas where hazardous materials storage could have resulted in leaks or spills shall be tested for contamination. If found, contaminated soils shall be excavated to a depth that when tested meets California Department of Toxic Substances Control and State Water Resources Control Board approvals as clean. Only a trained professional will remove the hazardous materials pursuant to the *Hazardous Waste Operations and Emergency Response* standards (Occupational Safety and Health Administration 2022). Any contaminated soils shall be disposed of at an approved facility.

Mitigation Measure Hazards-3: Implement DWR Standards for the Proper Abandonment or Destruction of Wells

DWR's Water Well Standards (California Department of Water Resources 2022) state that a well is considered "abandoned" or permanently inactive if it has not been used for one year, unless the owner demonstrates intention to use the well again. Inactive wells intended for future use must be properly maintained to meet well standard requirements, which include providing a secure cover, marking the location of the well, and clearing brush, debris and waste materials surrounding the well.

A well that is no longer useful must be destroyed to assure that the existing groundwater quality is protected and preserved for further use, and to eliminate any potential physical hazard. Destruction of a well shall consist of completely filling and sealing the well in accordance with the procedures described in DWR Water Well Standards, Section 23 (California Department of Water Resources 2022). Permits for well destruction shall also be obtained from the Tehama County Environmental Health Department.

Mitigation Measure Hazards-4: Develop a Fire Protection and Prevention Plan

The project contractor shall be required to develop a fire protection and prevention plan. The plan shall include the following requirements: fire safety training for all construction employees; proper maintenance (e.g., working spark arresters) and operation (e.g., restrictions on the use of gasoline-powered tools around flammable vegetation) of construction equipment; mowing of the parking areas to keep vegetation from coming in contact with the hot undercarriage of employee and construction vehicles; on-site fire suppression tools (e.g., shovels, fire extinguishers) for each construction vehicle; and proper disposal of flammable vegetative waste material during dry weather periods.

Hydrology and Water Quality***Mitigation Measure Water Quality-1: Implement a Stormwater Pollution Prevention Plan***

The contractor shall be required to prepare a stormwater pollution prevention plan (SWPPP) and receive approval from the lead agency prior to the start of construction. The BMPs specified by the SWPPP shall be implemented to monitor, minimize, and prevent construction dirt, debris, stormwater runoff, and miscellaneous by-products from entering the Sacramento River. BMPs may include the following:

- Disturbed areas shall be minimized to the extent practicable, and sensitive areas (e.g., steep slopes and natural watercourses) shall be avoided where construction activities are not required or could be avoided.
- Temporary stabilization of disturbed soils shall be provided whenever active construction is not occurring on a portion of the site.
- Temporary water pollution control measures, such as sandbags, silt fences, application of straw and seed, and other erosion control devices, shall be placed along the disturbed river bank to minimize sediment from entering the river. Erosion control materials, such as coir rolls or erosion control blankets, will not contain plastic netting that could entrain wildlife. Sediment shall be removed from sediment control materials once it has reached one-third of the exposed height of the control, and placed in an upland location where it cannot be

washed into the river. Spoils shall be hauled away from river as soon as possible to minimize sediment delivery to the river. Temporary stock piles shall be in areas a sufficient distance from watercourses, where it cannot enter the river or watercourse.

- Spoil areas containing erodible material shall be stabilized at the end of the construction season or when rain is possible.
- Silt curtains or other methods may be utilized to minimize turbidity within the Sacramento River when performing any in-water work or work immediately adjacent to the river.
- Water quality monitoring, which shall be conducted during all periods of in-water work, may include observations of visible sediment plumes in surface waters, and turbidity measurement, settleable solids measurement, and visual observations for construction related pollutants, both upstream from construction activities and downstream of the active work area pursuant to permit requirements. Water quality monitoring shall inform construction activities, and temporary cessation of in-water work shall be implemented when the project's issued Clean Water Act Section 401 or Section 1600 permit thresholds are exceeded. In-water work may resume when water quality parameters decrease to levels below permit requirements.
- Following construction and prior to the onset of winter rains, the disturbed areas along the river bank shall be reseeded with a mix of native grasses and forbs to control soil erosion.

Mitigation Measure Hazards-1: Prepare and Implement a Spill Prevention and Control Plan

Refer to the "Hazards and Hazardous Materials" section.

Mitigation Measure Hazards-3: Implement DWR Standards for the Proper Abandonment or Destruction of Wells

Refer to the "Hazards and Hazardous Materials" section.

Noise

Mitigation Measure Noise-1: Implement BMPs to Minimize Construction-Related Noise Effects on Sensitive Receptors

The contractor shall implement BMPs to minimize construction-related noise in the vicinity of sensitive receptors. BMPs shall include the following:

- All construction equipment shall be equipped with manufacturer's specified noise-muffling devices that are properly operated and maintained.
- All construction equipment shall be stored in a designated staging area during the construction phase to eliminate daily heavy-duty truck trips on local roadways.
- All stationary noise-generating equipment shall be placed as far away as feasibly possible from sensitive noise receptors and in an orientation that minimizes noise impacts, such as behind existing barriers, storage piles, or unused equipment.
- Speed limits shall be established and enforced for construction vehicle traffic on Dale Road to minimize traffic noise.

All construction activities shall be limited to the daytime weekday hours of 7:00 a.m. to 7:00 p.m. and daytime Saturday hours of 8:00 a.m. to 5:00 p.m. to the extent feasible. Construction outside of normal construction hours shall be minimized or avoided completely when located adjacent to sensitive receptors. The contractor shall notify Tehama County and immediate residents when work is scheduled to extend outside of normal construction times.

Tribal Cultural Resources

Mitigation Measure Cultural-1: Protect Newly Discovered Archaeological, Prehistoric, Historic, or Tribal Cultural Resources

Refer to the "Cultural Resources" section.

Mitigation Measure Cultural-2: If Human Remains are Found, Cease Construction Activities and Implement Appropriate Procedures for the Treatment of Remains

Refer to the "Cultural Resources" section.

Adoption of Mitigation Negative Declaration

DWR, as lead agency, was responsible for preparation of this proposed MND and the incorporated IS. I believe this document meets the requirements of CEQA and provides an accurate description of the Kopta Slough Multi-Benefit Project (proposed project), and that DWR has the means and commitment to implement the mitigation measures to assure that the proposed project would not cause any significant impacts on the environment. In accordance with CEQA Guidelines Section 21082.1, DWR staff, including myself, have independently reviewed and analyzed the IS and proposed MND for the proposed project and find that the IS and proposed MND reflect the independent judgment of DWR staff.

Furthermore, as the DWR decision-making body for this project, I have reviewed and considered the information contained in the Final MND, which includes the IS, proposed MND, and comments received during the public review process, prior to approval of the project.

Therefore, on the basis of the whole record before DWR, I find that there is no substantial evidence that the project will have a significant effect on the environment. For these reasons, I adopt this MND pursuant to CEQA Guidelines Section 15074.

Teresa Connor

Northern Region Office Manager

California Department of Water Resources

Date

(To be signed on completion of the public review process and consideration of all public comments and the whole of the administrative record.)

Kopta Slough Multi-Benefit Project

Initial Study

December 2022



**Kopta Slough Multi-Benefit Project
Initial Study – December 2022**

Project Information

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|---------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Project Title | Kopta Slough Multi-Benefit Project |
| Lead Agency Name and Address | California Department of Water Resources Division of Regional Assistance Northern Region Office 2440 Main Street Red Bluff, CA 96080 |
| Contact Person and Phone Number | Amy Lyons Senior Environmental Scientist (Supervisory) Northern Region Office Environmental Services Section (530) 528-7439 Amy.Lyons@water.ca.gov |
| Project Sponsor's Name | California Department of Water Resources |
| Project Location | The project area is located on the right bank of the Sacramento River between River Mile (RM) 219 and RM 222 near the City of Corning and the Town of Vina in Tehama County. The project area includes the Kopta Slough property, which is located within the U.S. Geological Survey 7.5-minute Vina Quadrangle. |
| General Plan Designation | Valley Floor Agriculture |
| Zoning | Primary Floodplain |
| Description of Project | The proposed project consists of three elements: (1) full removal of 5,200 linear feet of rock revetment along the Kopta Slough property to restore natural fluvial |

Project Information

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| | <p>and geomorphic processes; (2) restoration of the 176-acre agricultural field on the Kopta Slough property to floodplain habitat; and (3) transfer of the Kopta Slough property to United States Fish and Wildlife Service ownership to assure its long-term management and conservation, as well as facilitate the enhancement of public recreational opportunities.</p> |
| Surrounding Land Uses and Setting | <p>Surrounding land uses include rural residences, agriculture, recreation, and conservation.</p> |
| Other Public Agencies Whose Approval is Required | <p>The proposed project may require permits or approvals from the following agencies:</p> <ul style="list-style-type: none">• U.S. Army Corps of Engineers• National Marine Fisheries Service• U.S. Fish and Wildlife Service• Central Valley Flood Protection Board• California State Lands Commission• California Department of Fish and Wildlife• California Office of Historic Preservation• Tehama County Air Pollution Control District• Central Valley Regional Water Quality Control Board |

Project Information

Have California Native American tribes traditionally and culturally affiliated with the project area requested consultation pursuant to Public Resources Code section 21080.3.1? If so, is there a plan for consultation that includes, for example, the determination of significance of impacts to tribal cultural resources, procedures regarding confidentiality, etc?

No requests for consultation pursuant to Public Resources Code section 21080.3.1 were received by the California Environmental Quality Act lead agency.

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Appendices

Appendix A

Kopta Slough Riparian Habitat Restoration Plan

Appendix B

Farmland Conversion Impact Rating

Appendix C

DWR Greenhouse Gas Emission Reduction Plan Consistency Determination Checklist

Appendix D

Hydraulic Analysis, Conceptual Design, and Preliminary Cost Estimate for The Kopta Slough Flood Damage Reduction And Habitat Restoration Study on The Sacramento River, RM 216 to RM 224, Tehama County, California

Appendix E

Meander Modeling for the Kopta Slough Flood Damage Reduction and Habitat Restoration Project

Appendix F

Kopta Slough Multi-Benefit Project — Hydraulic Analysis Addendum

Appendix G

Mitigation Monitoring and Reporting Program under the California Environmental Quality Act

Acronyms and Abbreviations

| | |
|---------|-----------------------------------------------------|
| AB | Assembly Bill |
| BA | biological assessment |
| BLM | Bureau of Land Management |
| BMPs | best management practices |
| CARB | California Air Resources Board |
| CDFW | California Department of Fish and Wildlife |
| CEQA | California Environmental Quality Act |
| cfs | cubic feet per second |
| CGS | California Geological Survey |
| CHRIS | California Historical Resources Information System |
| CNDDDB | California Natural Diversity Database |
| CNPS | California Native Plant Society |
| CPA | conservation planning area |
| CRHR | California Register of Historical Resources |
| CVFPB | Central Valley Flood Protection Board |
| CVFPP | Central Valley Flood Protection Plan |
| CVRWQCB | Central Valley Regional Water Quality Control Board |
| CWA | Clean Water Act |
| CWHR | California Wildlife Habitat Relationship |
| cy | cubic yards |
| dB | decibel |

| | |
|-------|---------------------------------------------------|
| DPS | distinct population segment |
| DTSC | California Department of Toxic Substances Control |
| DWR | California Department of Water Resources |
| EC | electrical conductivity |
| EFH | essential fish habitat |
| EIR | environmental impact report |
| ESA | Environmental Services Association |
| FEMA | Federal Emergency Management Agency |
| GGERP | Greenhouse Gas Emissions Reduction Plan |
| GHG | greenhouse gas |
| GLO | General Land Office |
| I-5 | Interstate 5 |
| IWM | instream woody material |
| MCL | maximum contaminant level |
| MLD | most likely descendant |
| mph | miles per hour |
| NAHC | Native American Heritage Commission |
| NAWQC | National Ambient Water Quality Criteria |
| NEIC | Northeast Information Center |
| NOAA | National Oceanic and Atmospheric Administration |
| NRHP | National Register of Historic Places |
| NWR | National Wildlife Refuge |
| PCA | pest control advisor |

| | |
|---------------------|----------------------------------------------------------------|
| PG&E | Pacific Gas and Electric Company |
| PM | particulate matter |
| PM _{2.5} | particulate matter 2.5 micrometers or smaller |
| PM ₁₀ | particulate matter 10 micrometers or smaller |
| PRC | California Public Resources Code |
| project area | Kopta Slough project area |
| project | Kopta Slough Multi-Benefit Project |
| RBDD | Red Bluff Diversion Dam |
| RFMP | Regional Flood Management Plan |
| RM | river mile |
| SPFC | State Plan of Flood Control |
| SR | State Route |
| SRA | shaded riverine aquatic |
| SRCAF | Sacramento River Conservation Area Forum |
| SRFCP | Sacramento River Flood Control Project |
| SWPPP | stormwater pollution prevention plan |
| SWRCB | State Water Resources Control Board |
| TCAPCD | Tehama County Air Pollution Control District |
| TCFCWCD District | Tehama County Flood Control and Water Conservation District |
| TCR | tribal cultural resource |
| TNC | The Nature Conservancy |

| | |
|-------------------|--------------------------------------|
| USACE | U.S. Army Corps of Engineers |
| USFWS | U.S. Fish and Wildlife Service |
| USGS | U.S. Geological Survey |
| VELB | valley elderberry longhorn beetle |
| VMT | vehicle miles traveled |
| Water Action Plan | California Water Action Plan |
| WBSRA | Woodson Bridge State Recreation Area |
| WCRs | well completion reports |
| °C | degrees Celsius |

Chapter 1. Introduction

This initial study was prepared by the California Department of Water Resources (DWR) to assess the potential environmental effects of implementing the proposed Kopta Slough Multi-Benefit Project (project). This document was prepared in compliance with the California Environmental Quality Act (CEQA) and serves to identify and prevent environmental damage that may be caused by the proposed project; provide information for lead, responsible, and trustee agency decision makers; enhance public participation; and foster intergovernmental coordination.

California Public Resources Code (PRC) Sections 21000–21177 and CEQA Guidelines provide the statutory requirements for evaluating the environmental impacts of proposed projects. DWR is serving as the State lead agency for CEQA compliance. DWR was created in 1956 to manage the water resources of California in cooperation with other agencies, to benefit the State’s people, and to protect, restore, and enhance the natural and human environments. DWR proposes implementing the project to restore Sacramento River floodplain habitat and hydrologic and geomorphic function while providing multiple environmental benefits.

1.1 Project Overview

The proposed project consists of rock revetment removal along the Sacramento River’s right bank at the Kopta Slough property to restore natural fluvial and floodplain processes; restoration of the agricultural portion of the Kopta Slough property to establish native floodplain habitat; and transfer of ownership of the Kopta Slough property to the U.S. Fish and Wildlife Service (USFWS) to facilitate its long-term conservation and management, as well as facilitate the enhancement of public recreational opportunities.

1.2 Project Area

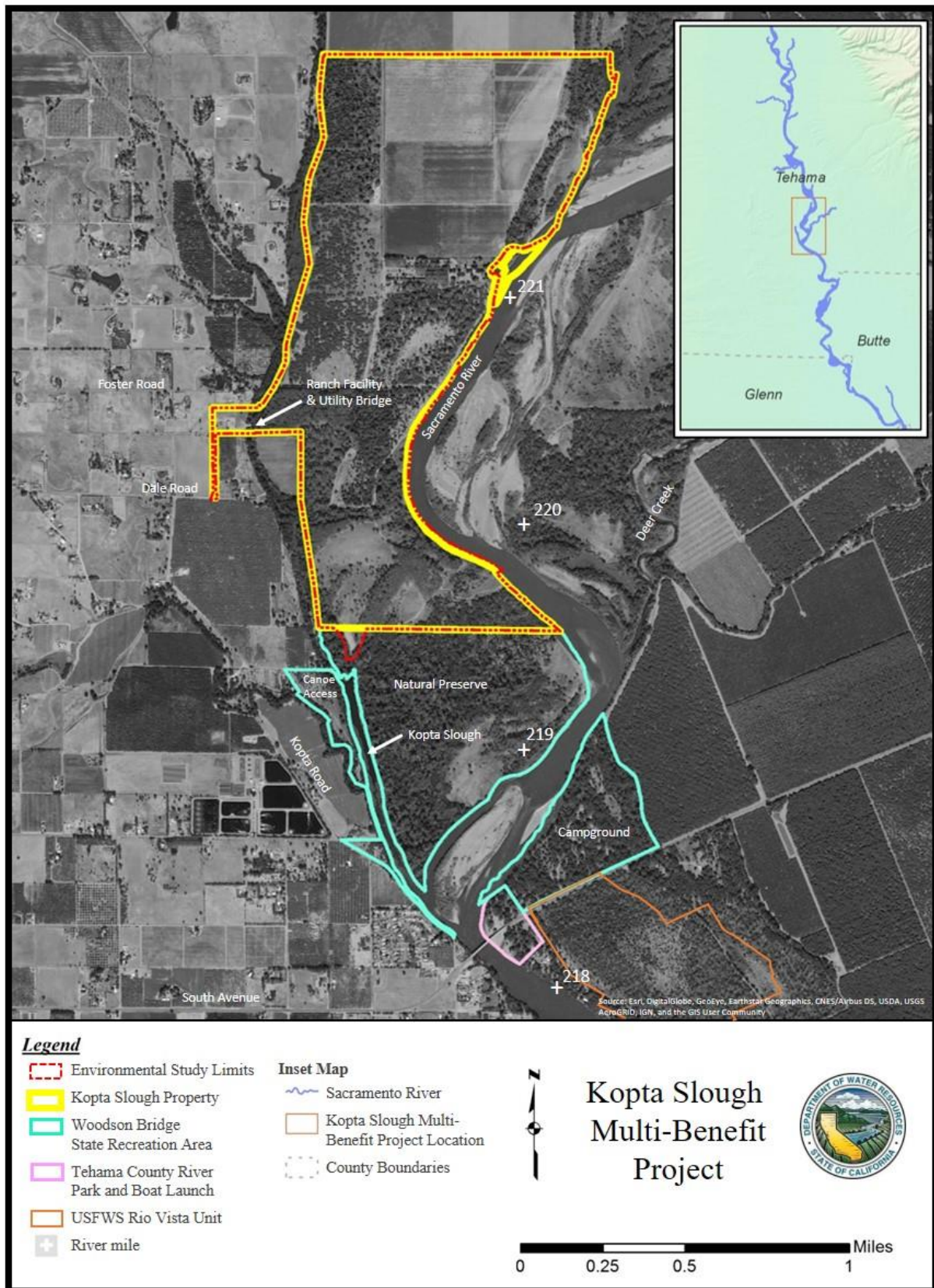
The Kopta Slough project area (project area) is located on the right bank of the Sacramento River between river mile (RM) 219 and RM 222 near the city of Corning and the town of Vina in Tehama County. The confluence of Deer Creek, one of the primary streams in California supporting natural runs of fall-run and spring-run Chinook salmon (*Oncorhynchus tshawytscha*) and

Central Valley steelhead (*Oncorhynchus mykiss*), is located downstream of the project area on the left bank of the river. The Woodson Bridge State Recreation Area (WBSRA), Kopta Slough, Tehama County River Park, Tehama County Highway A9 Bridge (Woodson Bridge), and the Sacramento River National Wildlife Refuge (NWR) Rio Vista Unit are also located downstream of the project area. The project area is shown on Figure 1 and includes a 658-acre property known as the Kopta Slough property (acreage represents the existing footprint of the property; the property title document describes a 691-acre property that included portions of land that have since been lost to erosion).

The Kopta Slough property is owned by the California State Controller's Environmental Trust and is managed by The Nature Conservancy (TNC) under a long-term lease. Since 1988, TNC has restored approximately 332 acres of the property by planting native riparian vegetation. A 176-acre portion of the Kopta Slough property is in field crop agriculture under a lease through TNC that renews annually. The Kopta Slough property also includes a westernmost upland parcel at its entrance that consists of ranch facilities to store and service equipment, and a small utility bridge over Kopta Slough for property access.

Bank protection in the form of rock revetment was installed on the Kopta Slough property in 1963 by the U.S. Army Corps of Engineers (USACE) and the Central Valley Flood Protection Board (CVFPB, formerly the Reclamation Board) under the authority of the Chico Landing to Red Bluff Project. The Chico Landing to Red Bluff Project is a modification of the Sacramento River Flood Control Project, which is included in the State Plan of Flood Control (SPFC). SPFC facilities within the Sacramento River flood control and management system are those for which DWR and the CVFPB have provided assurance of non-federal cooperation to the United States. The Tehama County Flood Control and Water Conservation District (TCFCWCD) is the local maintaining agency for the rock revetment, which extends along the Sacramento River right bank from RM 221 to approximately RM 220.

Figure 1 Map of the Kopta Slough Project Area and Vicinity



1.3 Project Objectives

CEQA requires a statement of project objectives. The purpose of the proposed project is to restore Sacramento River floodplain habitat and hydrologic and geomorphic function in the vicinity of Kopta Slough (between RM 219 and RM 222). The objectives of the proposed project are to:

- Restore, enhance, and conserve floodplain habitat.
- Restore hydrologic and geomorphic function.
- Improve fish and wildlife habitat.
- Reduce flood management system operation and maintenance costs and responsibilities.
- Facilitate the enhancement of recreational opportunities.

The proposed project uses a multi-objective approach to reduce flood maintenance responsibility, restore floodplain habitat, and enhance recreation. The proposed project also serves as a pilot for future projects that seek to restore hydrologic and fluvial geomorphic function through removal of rock revetment that is no longer required to provide erosion protection. Project objectives support multiple system-wide planning efforts, including the *Central Valley Flood Protection Plan (CVFPP)*, *California Water Action Plan (Water Action Plan)*, *Water Resilience Portfolio*, *Central Valley Project Improvement Act (CVPIA)*, and *Framework of Voluntary Agreements*, and are consistent with DWR's Environmental Stewardship Policy, as described below.

The Central Valley Flood Protection Act of 2008 (California Water Code Section 9600–9603) required DWR to develop the CVFPP (California Department of Water Resources 2012). The CVFPP is a sustainable, integrated flood management plan that proposes a long-term, system-wide investment approach in areas of the Central Valley currently receiving protection from SPFC facilities. The Act identifies three environmental objectives, and the CVFPP has one primary goal and four supporting goals. The CVFPP's *Conservation Strategy* (California Department of Water Resources 2016) is an integral component of the CVFPP and provides guidance on how to achieve the environmental objectives of the Act in support of all the CVFPP's goals. The *Conservation Strategy* was developed as a long-term strategic plan focused on contributing to the recovery of at-risk species by improving ecosystem functions through the integration of

ecological restoration with flood risk reduction projects, where feasible. The *Conservation Strategy* divides the CVFPP's systemwide planning area into five distinct conservation planning areas (CPAs) and identifies measurable objectives for each CPA related to improving dynamic hydrologic and geomorphic processes; increasing the quantity, quality, and connectivity of riverine and floodplain habitats; and reducing stressors to at-risk species.

The proposed project is located within the Upper Sacramento River CPA of the *Conservation Strategy*. The proposed project objectives of reducing operations and maintenance costs, promoting ecosystem function, promoting a multi-benefit project, and improving institutional support are consistent with the goals of the 2012 CVFPP and the 2017 CVFPP Update (California Department of Water Resources 2012, 2017). The proposed project is also consistent with the *Conservation Strategy* objectives of improving natural dynamic hydrologic and geomorphic processes, increasing riverine and floodplain habitats, contributing to the recovery and sustainability of native species, and reducing stressors.

Following adoption of the 2012 CVFPP (California Department of Water Resources 2012), DWR launched an effort to help local agencies develop comprehensive regional flood management plans that describe local flood management priorities, challenges, and potential funding mechanisms, as well as define site-specific improvement needs. This resulted in the creation of six distinct regional flood management plan (RFMP) areas that largely align with the five CPAs identified in the *Conservation Strategy* (note that the Lower San Joaquin River CPA is comprised of the Lower San Joaquin/Delta South RFMP and the Mid-San Joaquin River RFMP). The RFMPs present local agencies' perspectives of flood management with a prioritized list of projects that need to be implemented to reduce flood risks in each region. Each plan presents an assessment of the costs and benefits for proposed projects and considers their potential contribution to an integrated multi-benefit and basin-wide solution. The proposed project is a multi-benefit project identified in the *Mid and Upper Sacramento River Regional Flood Management Plan*.

The *Water Action Plan* was released in January 2014 by the California Natural Resources Agency, the California Department of Food and Agriculture, and the California Environmental Protection Agency (California Natural Resources Agency 2016). The Water Action Plan identifies key

actions that address urgent needs and provide the foundation for the sustainable management of California's water resources. The objectives of the proposed project address two Water Action Plan actions, including protecting and restoring important ecosystems and increasing operational and regulatory efficiency.

Governor Newsom's *Water Resilience Portfolio*, finalized in 2020, presents a portfolio of actions to ensure the State's long-term water resilience and ecosystem health (California Natural Resources Agency 2020a). Proposed project objectives support the Portfolio actions calling for expansion of multi-benefit floodplain projects throughout the Central Valley, including projects that reduce flood risk and restore or mimic historical river and floodplain processes.

The Bureau of Reclamation's CVPIA, signed into law by Congress in 1992, mandates changes in management of the federal Central Valley Project, particularly for the protection, restoration, and enhancement of fish and wildlife. The proposed project would contribute to juvenile rearing habitat restoration in the mainstem upper Sacramento River, which is a recommended restoration action in the Near-Term Restoration Strategy for the CVPIA Fish Resource Area FY2021-FY2025. The proposed project also aligns with objectives of CVPIA Section 3406 (b)(13), which states the "program shall include preventive measures, such as re-establishment of meander belts and limitations on future bank protection activities, in order to avoid further losses of instream and riparian habitat."

The California Natural Resources Agency and the California Environmental Protection Agency developed a Framework of Voluntary Agreements in 2020 to improve river flows and habitat to help recover salmon and other native fish species in the Sacramento-San Joaquin Delta and its key watersheds (California Natural Resources Agency 2020b). The Framework identifies actions to update and implement the *Bay-Delta Water Quality Control Plan*, including actions to restore floodplain habitat in the Sacramento Valley. The State Water Resource Control Board (SWRCB) must update its *Bay-Delta Water Quality Control Plan* to protect beneficial uses in the Sacramento and San Joaquin rivers and Bay-Delta. In recent years, salmon and other fish species that rely on these waterways have experienced dramatic declines and several native species are now threatened with extinction. SWRCB determined that voluntary commitments of flows and habitat can help

recover these fish populations more quickly and holistically than regulatory requirements, and with less negative social and economic impacts. The proposed project's objective to restore, enhance, and conserve floodplain habitat is consistent with the Framework's goal of restoring floodplain habitat.

DWR's Environmental Stewardship Policy states that DWR shall work toward the sustainability of public trust resources as it relates to water resources projects and the environment (California Department of Water Resources 2010). The Policy also acknowledges that when human-designed systems for water supply and flood management are consistent with natural systems, they are both more sustainable and economical over time. Proposed project objectives are consistent with the Policy, incorporate the environmental stewardship objectives of the Plan, and incorporate objectives for the conservation, restoration, enhancement, and maintenance of the biological diversity and natural physical processes of aquatic and related terrestrial ecosystems.

1.4 Problems, Needs, and Opportunities

The Kopta Slough property lies within the meander belt of the Sacramento River in the Red Bluff to Chico Landing reach of the Sacramento River Conservation Area (Sacramento River Conservation Area Forum 2003). The earliest maps available of the project area date back to 1896 and show that the location of the main channel of the Sacramento River has varied and moved across what is currently the lower portion of the Kopta Slough property. The resulting meander belt is a dynamic environment rich in plant, animal, and habitat diversity. Because the project area is located within the active floodplain, it is well situated to improve the quality, diversity, and connectivity of riverine habitats in the flood management system.

Within the project area, there is a need and opportunity to remove approximately 5,200 linear feet of rock revetment along the Kopta Slough property (California Department of Water Resources 2015). The rock revetment was installed by USACE in 1963 under the Chico Landing to Red Bluff Project authority to protect the orchards on the property from flooding, reduce erosion along that bank, stabilize the main river channel, and reduce sediment in the river (United States Army Corps of Engineers 1981). Land use has since changed; the orchard lands have been restored to riparian forest that does not require bank protection and thrives with periodic flooding. Removal of this rock revetment that no longer serves its intended

purpose would provide an opportunity to restore natural Sacramento River fluvial and floodplain processes, which in turn would restore and enhance riparian habitat with no adverse impacts to the flood risk reduction system.

The rock revetment has required several critical maintenance repairs and extensions since its original placement nearly 60 years ago. Rock revetment removal is in the mutual interest of the State and the local maintaining agency, as removal would enable the TCFCWCD to discontinue required maintenance of rock revetment that no longer serves its intended purpose (United States Army Corps of Engineers 1981). Operation and maintenance activities within the flood management system, and the associated environmental impacts and costs, consequently, would be reduced.

Within the project area, there is an opportunity to restore the existing agricultural field on the Kopta Slough property to native floodplain habitat, and a need to conserve the Kopta Slough property in perpetuity. Despite having restored riparian habitat on site from earlier TNC restoration efforts, there are no conservation easements on the Kopta Slough property protecting its ecological values. Transfer of the Kopta Slough property to the USFWS ownership would assure its long-term management and conservation. Restoration of the agricultural field, which is located within the floodplain and adjacent to TNC's riparian habitat restoration areas, would restore floodplain habitat and habitat connectivity.

The WBSRA and the Sacramento River NWR are located within and adjacent to the project area. The 325-acre WBSRA is managed by California Department of Parks and Recreation for habitat and recreation. The USFWS operates the Sacramento River NWR and manages a large area of floodplain adjacent to the project area, including 1,149 acres of floodplain and restored riparian habitat on the Rio Vista Unit. The location of the WBSRA and the Sacramento River NWR in relation to the project area provides the opportunity to enhance recreational opportunities by expanding public lands and enhancing natural areas that are available for recreation.

1.4.1 Background

In 2001, the TCFCWCD requested that USACE initiate development of a restoration plan within the Kopta Slough area under the Continuing Authorities Program Section 1135 (Section 1135) (Tehama County Flood Control and Water Conservation District 2001). In 2003, USACE developed a

preliminary restoration plan under Section 1135 for the WBSRA and the adjoining Kopta Slough Property. The USACE plan proposed modification of existing USACE bank protection along the Kopta Slough property to potentially reduce downstream erosion impacts to the WBSRA and Woodson Bridge, and to restore habitat and ecosystem function.

USACE was able to complete a reconnaissance-level study before funding ceased in early 2004. TCFCWCD, the Sacramento River Conservation Area Forum (SRCAF), California Department of Parks and Recreation, and TNC were involved with the 2003 to 2004 USACE reconnaissance-level study. TCFCWCD served as the local sponsor for the Section 1135 plan. In 2007, TCFCWCD, SRCAF, and TNC approached DWR with the proposal to continue the USACE feasibility study. DWR agreed to continue the study in 2007, began work in 2008, and completed the feasibility study in 2015 (California Department of Water Resources 2015). The project elements included in the proposed project were evaluated in the 2015 feasibility study. DWR is requesting Section 408 permission from USACE under Section 14 of the Rivers and Harbors Act of 1899 to implement the proposed project.

1.5 Purpose and Intended Use of this Document

Under CEQA, the purpose of an initial study is to determine if a project may have a significant impact on the environment and to identify measures to incorporate into the project to reduce or avoid significant impacts. The resulting level of significance of impacts helps the lead agency determine whether a negative declaration, mitigated negative declaration, or environmental impact report should be prepared.

1.6 Agency Consultation and Coordination

Several agencies and organizations were contacted during development of the project description and preparation of this initial study. Persons consulted included representatives from the following agencies and organizations:

- U.S. Fish and Wildlife Service
- California Department of Fish and Wildlife
- U.S. Army Corps of Engineers
- National Marine Fisheries Service
- California Department of Parks and Recreation
- The Nature Conservancy

- Central Valley Flood Protection Board
- Central Valley Regional Water Quality Control Board
- Tehama County Flood Control and Water Conservation District
- Tehama County Public Works

1.7 Federal, State, Regional, and Local Requirements

Several federal, State, regional, and local agencies, as well as decision-making bodies, have jurisdiction over resources that may be affected by the proposed project, or have other permitting or regulatory authority over certain aspects of the proposed project. These agencies and decision-makers will review and consider the information provided in this environmental document during their decision-making process. Table 1 describes key consultation requirements that are anticipated for the proposed project.

Table 1 Anticipated Permits and Approvals for the Kopta Slough Project

| Approving Agency | Permit/Approval | Required For |
|--------------------------------------|--------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <i>Federal Agencies</i> | | |
| U.S. Army Corps of Engineers (USACE) | Federal Clean Water Act Section 404 Permit | Discharges of dredged or fill material into waters of the United States. |
| | Federal Rivers and Harbors Act of 1899 Section 10 Permit | Proposed activities in, under, or over navigable waters of the United States, or that could affect the course, location, condition, or capacity of such waters. |
| | Federal Rivers and Harbors Act Section 14 (Title 33, United States Code, Section 408) Permission | Modifications to USACE projects designed to protect river banks. Proposed alterations must not be injurious to the public interest or impair the usefulness of the USACE project. |

| Approving Agency | Permit/Approval | Required For |
|--------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Federal Emergency Management Agency | National Flood Insurance Program Letter of Map Revision | Modifications to an effective flood insurance rate map to reflect physical modifications of the existing regulatory floodway. |
| National Marine Fisheries Service | Magnuson-Stevens Fishery Conservation and Management Act Compliance Federal Endangered Species Act Section 7 Consultation | Potential impacts to essential fish habitat of species covered by the Act. Potential impacts on federally listed anadromous fish species. |
| U.S. Fish and Wildlife Service | Federal Endangered Species Act Section 7 Consultation Federal Fish and Wildlife Coordination Act Report Migratory Bird Treaty Act Compliance | Potential impacts on federally listed species or designated critical habitat. Federal actions that may control or modify a natural stream or other body of water. Prohibits take of protected migratory bird species. |
| <i>State Agencies</i> | | |
| California Department of Water Resources | Project Approval and California Environmental Quality Act Compliance | Funding and project implementation. |
| Central Valley Flood Protection Board | Encroachment permit | Activities that may affect a regulated floodway. |
| California State Lands Commission | Lease | Activities on State sovereign lands underlying navigable waters. |
| California Department of Fish and Wildlife | California Endangered Species Act Consultation (Section 2081) Lake and Streambed Alteration Agreement (Section 1602 of the Fish and Game Code) | Incidental take or otherwise lawful activities that will take State-listed species. Any activity that may substantially divert or obstruct the natural flow or substantially change the |

| Approving Agency | Permit/Approval | Required For |
|-----------------------------------------------------|------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| | | bed, channel, or bank of any river, stream, or lake. |
| California Office of Historic Preservation | National Historic Preservation Act Section 106 Authorization | Any actions that may have an adverse impact on historical or archaeological resources. |
| Central Valley Regional Water Quality Control Board | Clean Water Act Section 401 Certification Federal Clean Water Act Section 402 Construction General Permit | Discharges of dredged or fill material into waters of the United States. Stormwater discharges to surface waters associated with construction activity for greater than 1 acre of land disturbance. |
| | Waste Discharge Requirements Permit or Waiver | Construction dewatering discharges to land, including irrigation and dust control. |
| <i>Regional and Local Agencies</i> | | |
| Tehama County Air Pollution Control District | Clean Air Act Permit Fugitive Dust Plan | Construction activities that have the potential to degrade air quality. Construction activities that have the potential to emit uncontrolled particulate matter. |
| Tehama County Department of Environmental Health | Well Construction Permit | Well construction, rehabilitation, repair, or destruction. |

Chapter 2. Description of the Proposed Project

The proposed project (Figure 2) focuses on the restoration of habitat and ecosystem function. The elements included in the proposed project were chosen based on the findings of a feasibility study and continued evaluation of the elements and options that were recommended for further evaluation in the feasibility study (California Department of Water Resources 2015a).

The proposed project also facilitates the enhancement of recreational opportunities within the project area. Detailed descriptions of each of the proposed project elements are provided below. The construction and maintenance activities associated with each of these elements are described in Section 2.4, "Construction Activities," and Section 2.5, "Post-Construction and Maintenance Activities," respectively.

2.1 Full Removal of Rock Revetment along the Kopta Slough Property

Element 1 includes full removal of existing rock revetment vertically and longitudinally along the slope of the approximately 5,600-linear-foot section of Sacramento River bank bordering the Kopta Slough property (Figure 3). The goal of this element is to restore natural fluvial and geomorphic processes, which would allow the establishment of riparian habitat, facilitate the meander process, and reduce flood facility operation and maintenance responsibilities for the TCFCWCD. This element includes:

- Removing the rock revetment from the landside of the bank.
- Sorting excavated material and, where necessary, crushing rock to spoil on site.
- Excavating and recontouring the existing natural berm behind the rock revetment to match the existing floodplain elevation.
- Improving and widening existing roads on the Kopta Slough property.
- Improving drainage along the lower crossroad.
- Installing a temporary construction bridge for heavy equipment access across Kopta Slough, if necessary.

Figure 2 Map of the Kopta Slough Project Elements

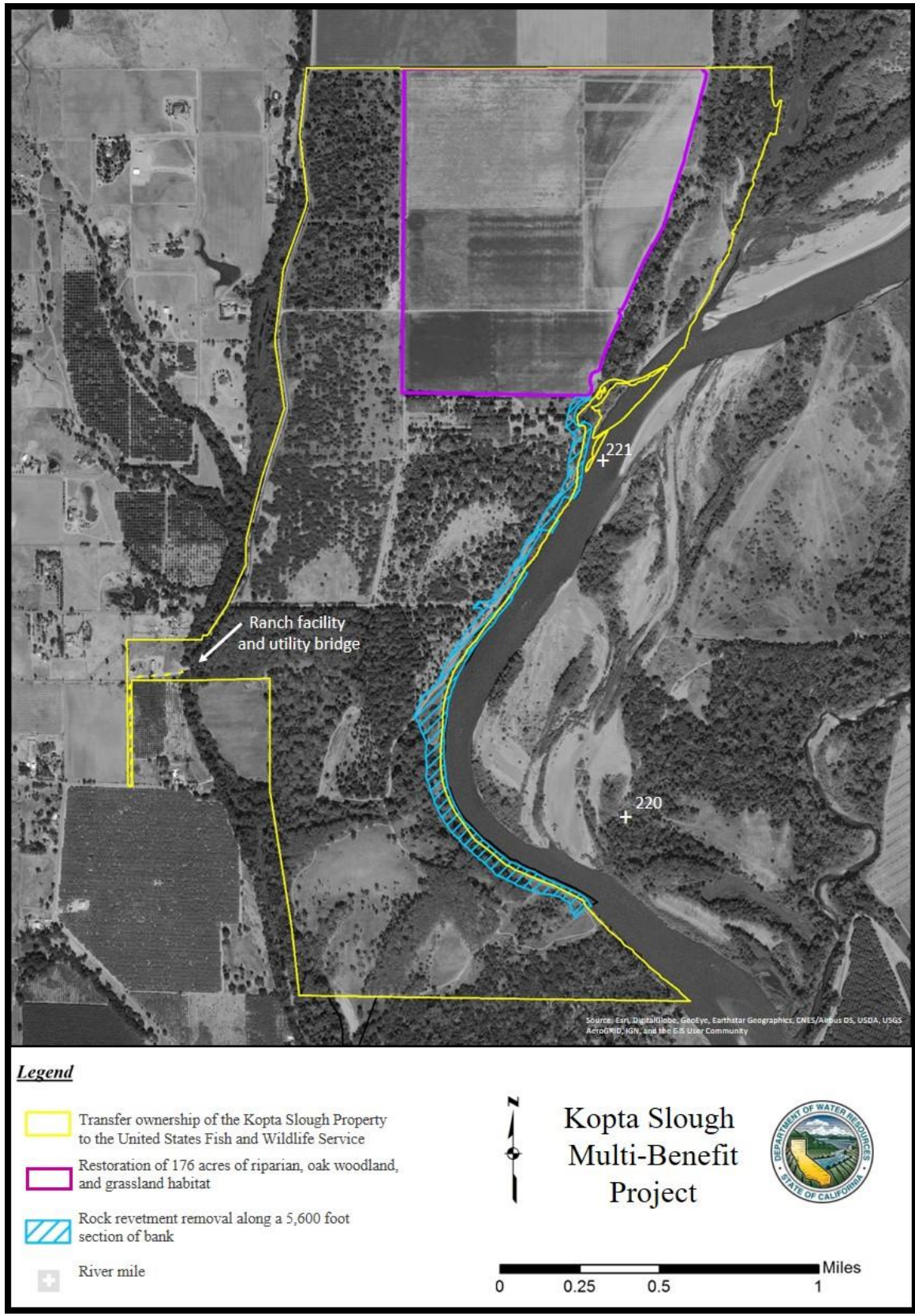
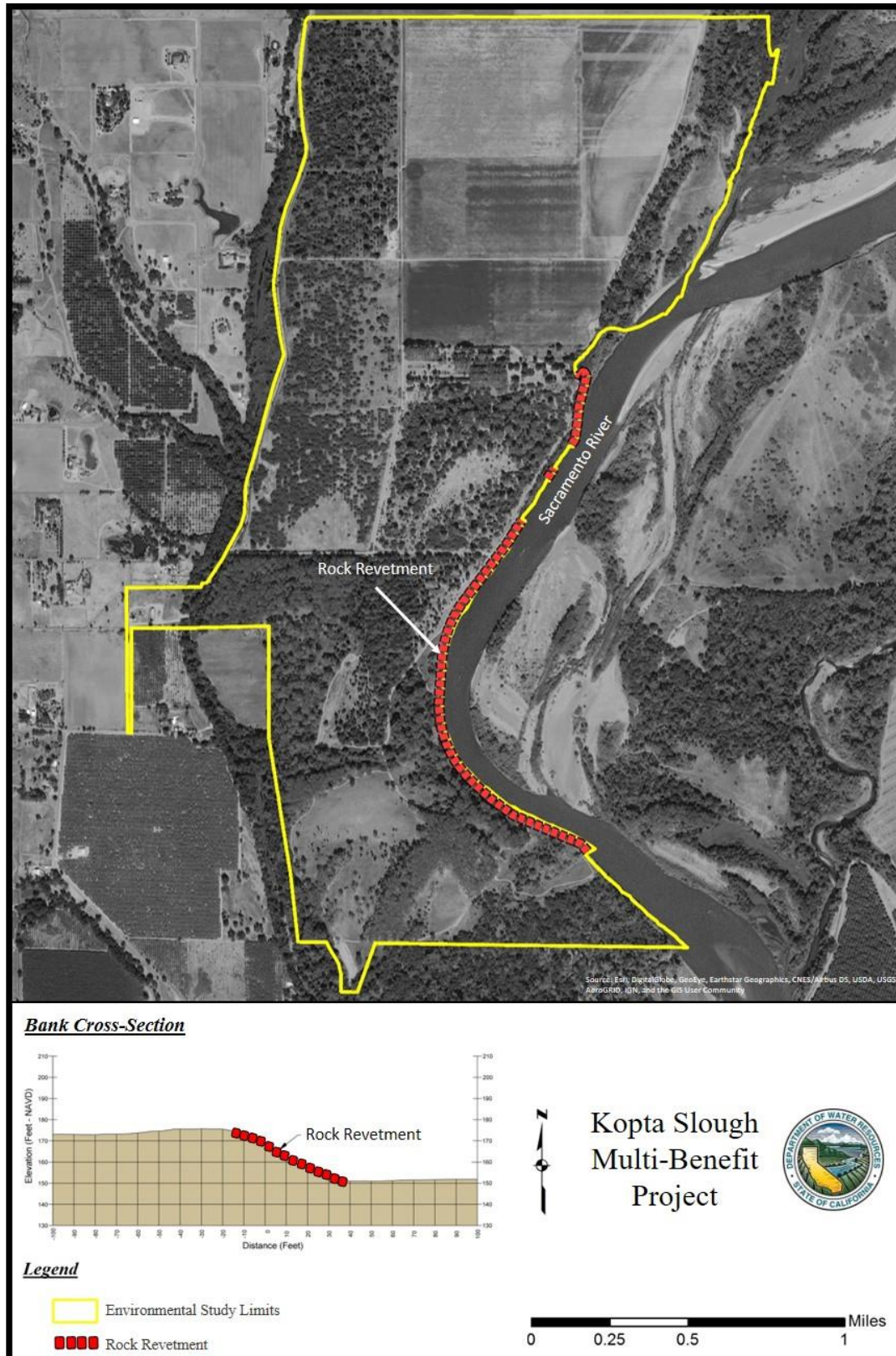


Figure 3 Plan and Cross-Section View of Proposed Rock Revetment Removal



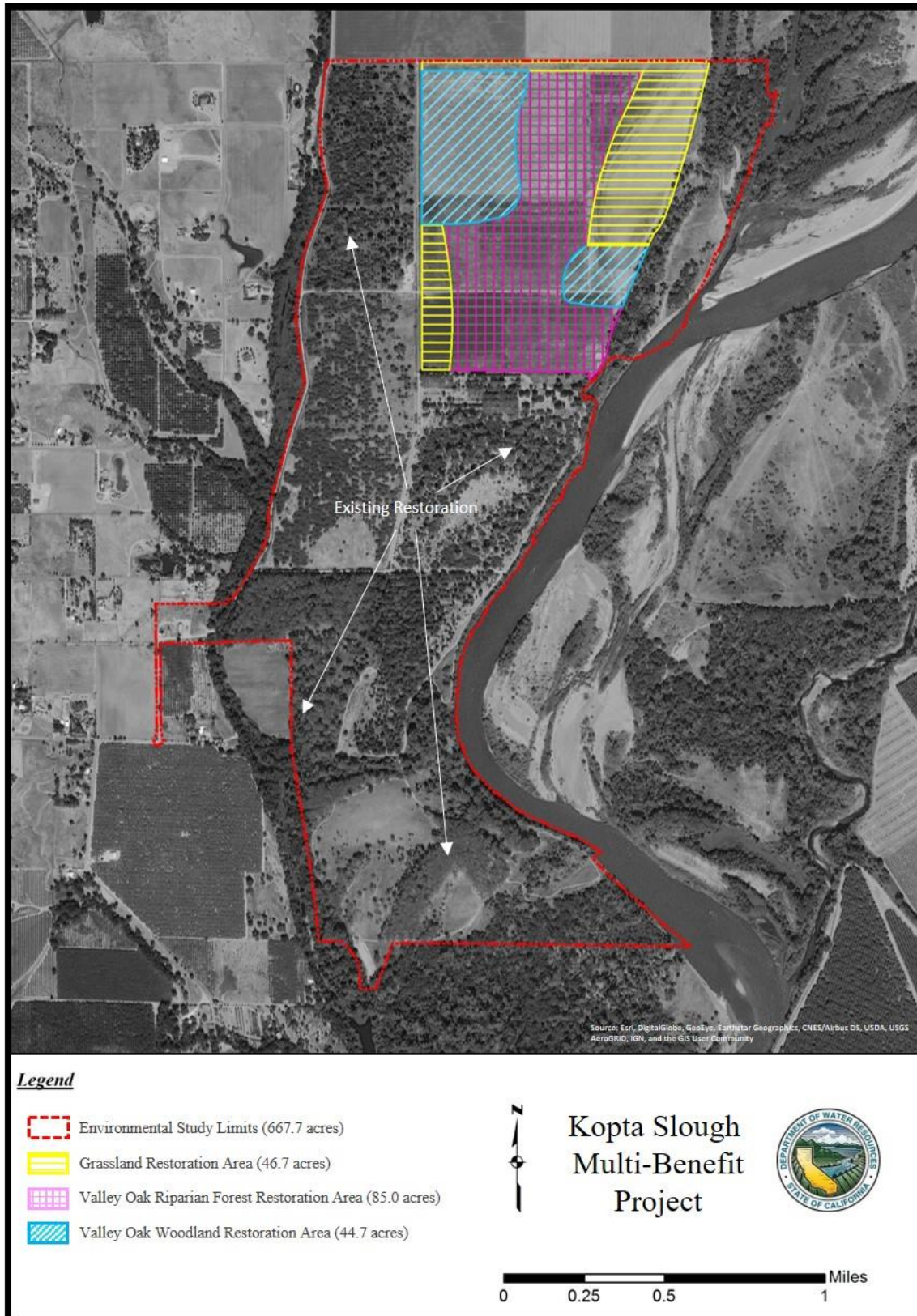
2.2 Restore 176 Acres of Floodplain Habitat

Element 2 includes the restoration of 176 acres of agriculture to native floodplain habitat on the Kopta Slough property (Figure 4). The goal of this element is to restore an agricultural field within the floodplain to riparian, oak woodland, and grassland habitat. The land supports field crop agriculture (typically alfalfa) through a lease with TNC. To facilitate impact analysis, a restoration plan was developed that includes conversion of the agricultural land to 46 acres of native grassland, 45 acres of valley oak woodland, and 85 acres of valley oak riparian forest (Figure 4; Appendix A, “Kopta Slough Riparian Habitat Restoration Plan”).

2.3 Transfer Ownership of the Kopta Slough Property

Element 3 involves the transfer of ownership of the Kopta Slough property to the USFWS through property acquisition. At no time would the environmental benefits of the proposed project be at risk during transfer of ownership. The goal of this element is to assure the long-term management and conservation of the property, as well as facilitate the enhancement of public recreational opportunities. The USFWS would develop a management plan that would describe potential recreational uses and opportunities for the Kopta Slough property. The Kopta Slough property would include restoration areas and wildlife habitats of high conservation value; accordingly, the extent and type of recreational uses would be designed in such a way that they would not conflict with the ecological objectives for these areas.

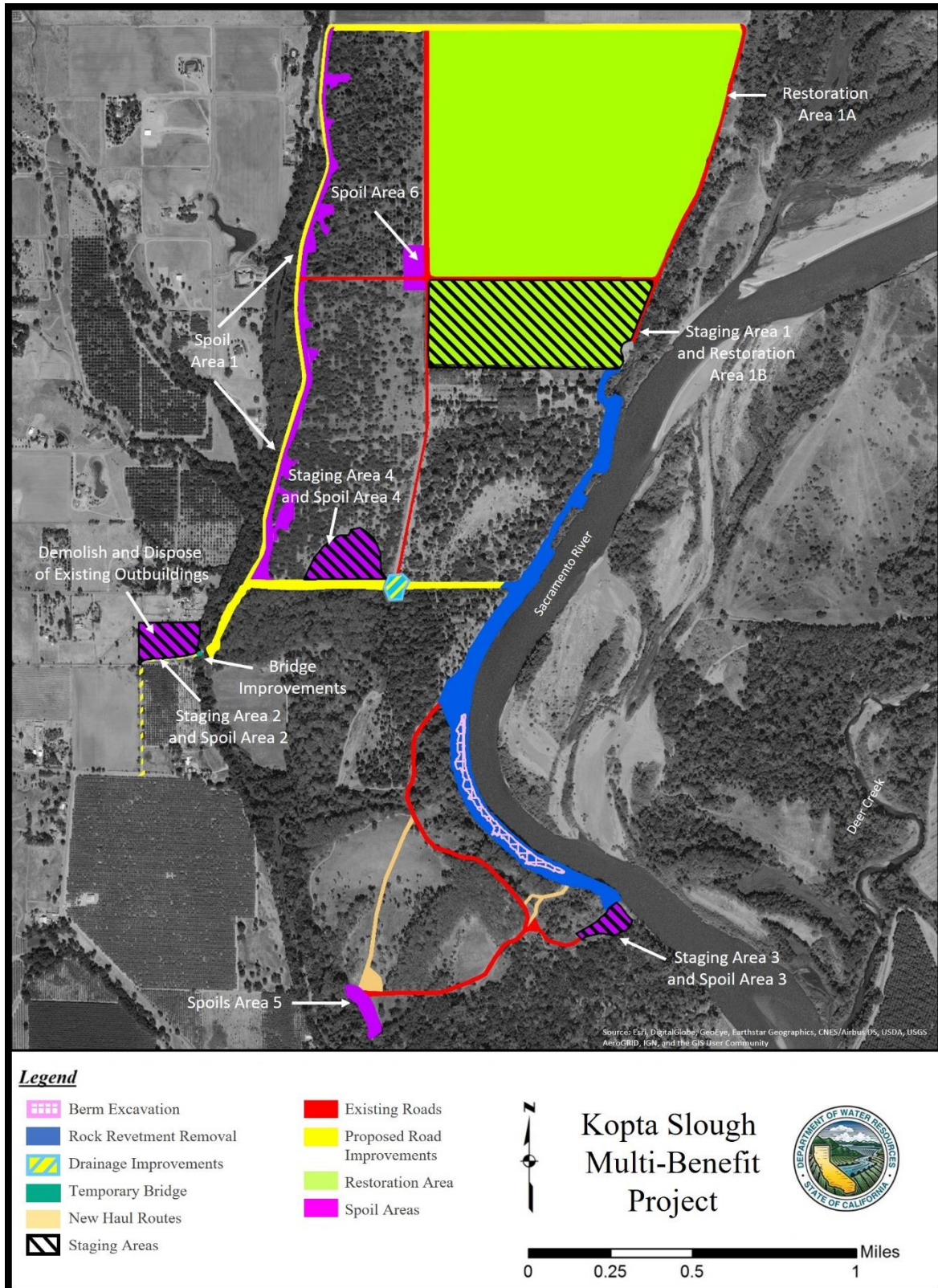
Figure 4 Map of 176-acre Restoration Area and Proposed Vegetation Communities



2.4 Construction Activities

The construction footprint and staging areas for the proposed project are shown in Figure 5. The designated construction disturbance areas are associated with structure demolition on the upland parcel, road widening and improvement, staging area preparation, placement of a temporary construction bridge over the existing utility bridge across Kopta Slough (if needed), restoration of the 176-acre agricultural field, rock revetment removal, materials sorting and rock crushing, drainage improvement along the lower crossroad, berm excavation on the Kopta Slough property, and materials spoiling. The majority of proposed construction activities likely would take place between August and November, outside of the flood season. The anticipated construction work windows may be modified because of environmental constraints, inclement weather, or hazardous river conditions. Construction is anticipated to take place between 7:00 a.m. to 7:00 p.m., Monday through Friday, to minimize disruptions to adjacent land uses. These work times may be extended into Saturdays from 8:00 a.m. to 5:00 p.m. during key points of the construction phase, as needed. Adjacent landowners and Tehama County would be notified prior to the start of construction activities. In the event that construction needs to continue beyond these work times, it would be conducted for short durations during weekdays. Adjacent landowners and Tehama County would be notified of any potential extension of work hours. Although the use of private land is not anticipated, any necessary easement agreements would be finalized prior to accessing private land. The construction methods for the proposed project are described below.

Figure 5 Proposed Construction Footprint, Staging Areas, Haul Routes, and Spoil Areas



2.4.1 Site Preparation and Vegetation Removal

Site preparation would include removing asphalt on Finnell Avenue and relocating the entrance gate, utility box near the entrance gate, and low-hanging power lines at the end of Finnell Avenue (if necessary). These activities are further described in Section 2.4.2, "Construction Access." Site preparation would also include removing the existing inactive septic system and demolishing existing facilities (e.g., pumps, piping, fences, and outbuildings) on the upland parcel, clearing and grading roads and staging areas, removing a concrete pad adjacent to the agricultural field, removing trees and removing or transplanting elderberry shrubs, and ensuring that abandoned wells are properly capped and sealed.

Solid waste resulting from structure demolition and septic system removal on the upland parcel, removal of the concrete pad within Staging Area 1, and removal of the metal irrigation well platform and two poles (described below) would be handled appropriately by the contractor for recycling, reuse, or proper disposal at the Tehama County-Red Bluff Sanitary Landfill, located within 30 miles of the project area.

Vegetation would be removed within the footprint of roads and staging areas and within the northwest corner of Spoil Area 5 (refer to Section 2.4.4, "Spoil Areas"). Trees within the rock revetment removal area would be removed (with the exception of those marked for avoidance), and elderberry shrubs would be protected in place where feasible. Elderberry shrubs that cannot be protected in place would be removed and transplanted to an appropriate location on the Kopta Slough property or replaced at a location agreed upon by the USFWS. Invasive plants would be removed using mechanical or chemical treatment as appropriate for the specific plant species. Cleared woody vegetation would be stockpiled then burned, chipped, properly reused, or hauled off site as appropriate and in compliance with project permits and approvals. Signs and fencing would be used to delineate the construction area and any protected areas, including any trees identified for avoidance within the rock revetment removal area and associated access roads and staging areas, where feasible.

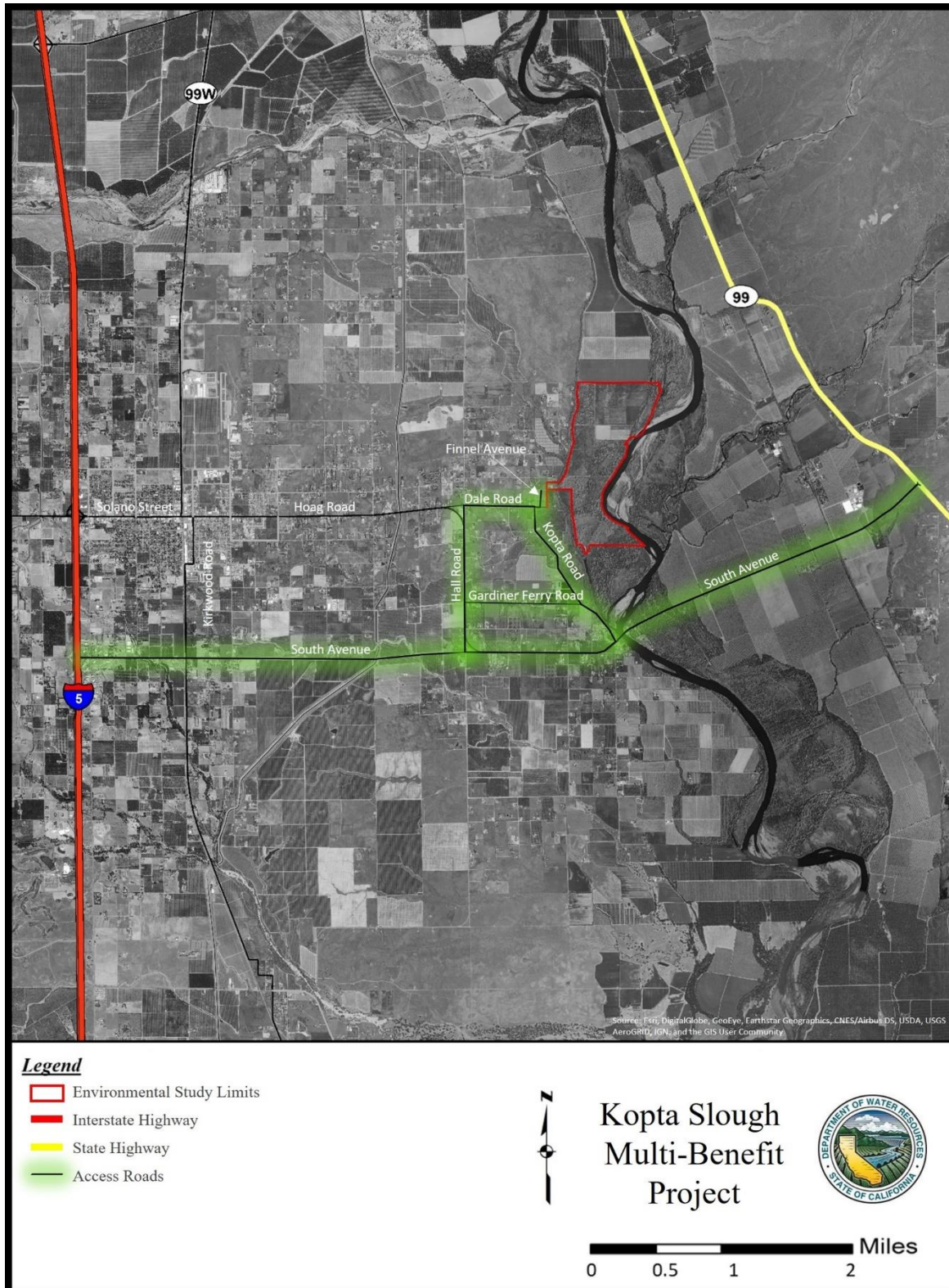
One domestic well on the upland parcel and three irrigation wells on the floodplain would continue to be used as a water source for proposed construction activities (i.e., fugitive dust control) and for irrigation of the restoration area. Two of these irrigation wells would be properly abandoned

once construction is complete and the restoration is established. One of the irrigation wells would remain active for future uses by USFWS (i.e., providing water for grazing animals). One domestic well on the floodplain would be properly destroyed. The domestic well on the floodplain is associated with the concrete pad and located near an existing scour hole along the river bank. This well may be destroyed by TNC prior to project construction if the scour hole continues to erode toward it. Two additional wells in the lower floodplain that are not threatened by erosion would be left in place and inspected to ensure that they are properly abandoned in accordance with DWR's Water Well Standards (California Department of Water Resources 2022), but the previously mentioned metal irrigation platform structure and two remnant utility poles associated with one of the wells would be removed.

2.4.2 Construction Access

Construction equipment and materials would be transported to the Kopta Slough property at the beginning of construction and transported off site at the completion of construction, unless otherwise needed. The access roads to be used include Interstate 5 (I-5), State Route (SR) 99, South Avenue, Hall Road, Dale Road, and Finnell Avenue (Figure 6). Additional roads that

Figure 6 Construction Access Routes for the Kopta Slough Project



may be used include Gardiner Ferry Road and Kopta Road. The conditions of all County roads proposed for use would be documented in coordination with Tehama County prior to the start of construction.

Several improvements are needed for construction equipment to access the Kopta Slough property. Remnant asphalt along Finnell Avenue would be removed and disposed of at the local landfill, and the entire road would be graded and graveled. An existing gate at the intersection of Dale Road and Finnell Avenue would be relocated further onto the Kopta Slough property, and a utility box located adjacent to the entrance gate would be relocated (in consultation with the appropriate service provider) to accommodate the turning radius and length of large construction equipment. The existing roadway at the east end of the bridge spanning Kopta Slough would also require vegetation clearing and fill placement to allow for an adequate turning radius. If a temporary construction bridge is needed, temporary bridge abutments would be constructed and the approaches would be graded. The material for the bridge approaches and fill would be borrowed from Staging Area 2 (Section 2.4.3, "Staging Areas," discusses staging area locations).

A temporary access route would be constructed along the top of bank within the berm removal area and would extend to Staging Area 3. The alignment of this route would fall within the rock revetment removal construction disturbance area and would not require additional clearing and grubbing. The alignment would parallel the river bank and provide an efficient loading and haul route. An additional temporary access route may be constructed to create a loop from the lower end of Staging Area 3 to the access route along the bank. The additional route would extend approximately 0.3 mile through a relatively flat open area and would require grading and removal of vegetation consisting primarily of herbaceous vegetation.

In some areas along existing dirt and gravel roads on the Kopta Slough property, vegetation would be trimmed or removed completely and the resulting debris would be removed from the floodplain prior to the start of flood season. After the start of construction, road improvements along the north and lower crossroads would occur using the fill material from berm excavation and rock revetment removal. The north crossroad would be widened to ensure a minimum 12-foot road width from the property line, and a fence may be installed along the property line. The lower crossroad would be improved by creating more gentle side slopes. Lower crossroad drainage improvements would involve removing the three existing culverts

and headgate structure and replacing them with an arch culvert. The existing culverts and headgate structure would be handled appropriately by the contractor for recycling, reuse, or proper disposal at the Tehama County-Red Bluff Sanitary Landfill, located within 30 miles of the project area.

The new arch culvert would consist of a pre-fabricated, bottomless aluminum box culvert that would be delivered in pieces and constructed onsite. The arch culvert would have a headwall and wingwalls and a 10-foot, 6-inch span, a rise of 5 feet 7 inches, and a load rating capable of supporting heavy trucks and equipment. A section of the lower crossroad would be excavated and a concrete footing with a channel guide would be poured if the bearing capacity of the ground does not meet the culvert manufacturer's specifications. The culvert would be placed on the footing that would be buried 1 foot deep. The channel would be lined with rock that would extend 10 feet on both ends of the culvert. The surrounding excavated area would then be backfilled, and the culvert would be covered with approximately 2 feet of road base.

2.4.3 Staging Areas

Staging areas would be used for access, equipment storage, parking, materials stockpiling and dry-sorting, and rock crushing. Four staging areas have been identified on the Kopta Slough property where vegetation is naturally sparse or dominated by non-native weed species. Staging Areas 1 and 3 would be located at each end of the rock revetment removal site. These staging areas would have a combined area of approximately 40 acres. Staging Area 2 would comprise the 5 acres on the upland parcel in an area outside the floodplain of the Sacramento River. Staging Area 4 would be located in an open area north of the lower crossroad and would also be approximately 5 acres.

2.4.4 Spoil Areas

Spoil material generated during berm excavation and rock revetment removal would be beneficially reused (refer to Section 2.4.2, "Construction Access" and Section 2.4.5, "Habitat Restoration") or spoiled on the Kopta Slough property. Six potential spoil areas have been identified where vegetation is naturally sparse or dominated by non-native weed species. Spoil Area 1 consists of open areas adjacent to the access road that runs parallel to Kopta Slough on the western boundary of the property. Spoil Area 1 covers approximately 9 acres. Spoil Areas 2, 3, and 4 are designated in the same locations as Staging Areas 2, 3, and 4, respectively. Spoil Area 5

consists of a remnant gravel quarry in the southwest corner of the Kopta Slough property that extends onto the WBSRA Natural Preserve. Spoil Area 5 covers approximately 2 acres. Spoil Area 6 is located in the northwest corner of Staging Area 1 and is currently used to stage farm equipment. Spoil Area 6 covers approximately 2 acres.

2.4.5 Habitat Restoration

Restoration of the 176-acre agricultural field on the Kopta Slough property would include plant propagation, removing the existing field crop, clearing debris, disking, implementing weed control (as necessary), installing irrigation, and laying out the planting rows parallel to the direction of overbank flow. Restoration may also include spreading a thin layer of soil for beneficial reuse of the material from berm excavation. Eradication of non-native species may begin prior to construction. The area would be disked and floated to smooth the surface for irrigation and tractor operations. Prior to planting, a micro-drip, hard-hose irrigation system would be installed in trenches 8 to 12 inches deep and connected to the existing well. Vegetation would be planted between 2 and 8 inches deep depending on the species. Nursery stock plants (seedlings) would be planted by hand or using an auger to dig holes, and willow and cottonwood cuttings would be planted by hand. The herbaceous understory would be drill-seeded between the rows of woody trees and shrub species (Appendix A). The portion of the restoration area that comprises Staging Area 1 would be restored following completion of rock revetment removal and berm degrading activities.

2.4.6 Rock Revetment Removal and Berm Degrading

Prior to the start of rock revetment removal, the remaining understory vegetation within the construction footprint would be removed. Most of the vegetation along the 5,600-foot length of bank would have to be removed, but bank vegetation in areas where there are known gaps in the rock revetment would be avoided. Large trees or stands of trees identified by a qualified environmental scientist to be avoided would be flagged and left in place where feasible. Rock revetment removal would occur from the landside because of limited access and high-water velocities within the work area. A combination of long-reach hydraulic excavators and crawler excavators would be used to remove an estimated 34,000 cubic yards (cy) of material, consisting of approximately 21,000 cy of rock, 9,000 cy of sediment, and 4,000 cy of overburden (soil and organic material) along the river bank and beneath the water line. The cap within the overbank, which overlaps with

the existing access road, would be left in place. When excavating the rock revetment, incidental material, such as soil that overlays and is embedded between the rocks, would also be excavated and temporarily staged.

The excavated rock material would be hauled to one of the spoil or staging areas identified in Figure 5 and dry sorted through a large-scale screen to sort rocks based on size. Excavated soil would be stockpiled for beneficial reuse. Rock material would be beneficially reused (refer to Section 2.4.2, "Construction Access") or spoiled in areas that would not adversely affect floodplain elevation, flood conveyance, riverine geomorphic processes, or the establishment of vegetation (refer to Section 2.4.4, "Spoil Areas"). Some rock would be used as is and other rock would be crushed. Some of the uncrushed rock would be used for drainage improvements along the lower crossroad or spoiled in the designated spoil areas. Some of the rock would be processed through a rock crusher machine, which crushes rock to specified sizes ranging from 4-inch diameter to 24-inch diameter. This crushed rock would be used to widen roads and improve drainage or would be placed in designated spoil areas. Some of the 4-inch-diameter rock would be crushed to reduce rock size to a diameter of 1 inch or less for use in widening and improving existing roads.

Based on test pit results conducted in 2015 (California Department of Water Resources 2015b), a minimal amount of larger (greater than 24-inch diameter) rock material is anticipated. Rock greater than 24-inch diameter would be placed around the culvert and downstream of the lower crossroad; this area is not subject to the effects of fluvial transport. If necessary, rock greater than 24-inch diameter would be spoiled in Spoil Area 5 or stockpiled in Spoil Area 2 for future use.

The existing berm located behind the downstream section of rock revetment would be degraded to match the existing floodplain elevation. Approximately 9,000 cy of material would be removed or re-graded to match existing terrain. Berm material that is not re-graded locally would be spoiled in one or more of the designated spoil areas.

2.5 Post-Construction and Maintenance Activities

Following completion of construction, soil stabilization techniques would be implemented in areas of temporary ground disturbance. Disturbed areas adjacent to the improved access roads and within staging and spoil areas

would be stabilized and planted with native ground cover. The exposed bank would also be planted with a native grass seed mix. Willow poles would be planted in specific areas along the bank at the river's edge to ensure access to water, as the bank would not be irrigated. Willow poles would be planted at a density that would not prevent the natural river processes that are part of the project objectives and would be in compliance with permit requirements.

If used, the temporary construction bridge would be decommissioned and the approaches would be degraded to the elevation of the existing utility bridge. The expanded area east of the bridge would remain for future management of the property, but the adjacent disturbed areas would be stabilized and vegetation would be restored.

The irrigation well within the floodplain that is currently used for irrigation would be properly abandoned; one irrigation well within the restoration area would remain active.

Although little to no damage to roads is anticipated, upon completion of project implementation, local roads that sustained project-related damage would be restored to pre-project condition. Minor road repairs would be implemented pursuant to the requirements included in an agreement with Tehama County to prepare the roads for chip sealing.

Irrigation and weed control (including mowing, disking, and herbicide application, as appropriate) are anticipated to continue on the proposed 176-acre restoration site for three years following restoration planting. Plantings would be monitored on a weekly basis and at the end of the growing season for three years, and trees and other species would be replanted if survival is less than 80 percent of the original planting. The surface irrigation lines would be removed, and, depending on the needs of the USFWS, the well may be properly abandoned once the restoration area is self-supporting on rain and overbank flows. Maintenance of the restoration area would continue in perpetuity and could include activities, such as herbicide application, pest management, debris and trash removal, grazing, and mowing.

2.6 Anticipated Construction and Maintenance Equipment

During construction and maintenance, a variety of equipment would be used. Backhoes, dozers, water trucks, excavators, cranes, chainsaws,

chippers, graders, and truck transport may be required for site preparation, vegetation removal, bridge construction (if needed), and the associated solid waste disposal. Long-reach hydraulic excavators, crawler excavators, dozers, loaders, semi-trucks, articulated off-highway dump trucks, a rock crusher (primary and secondary), and an adjustable riprap screen may be required for rock revetment removal and berm excavation. A tractor, 10-inch disk, land plane, trencher, rangeland drill-seeder, auger, and pickup trucks may be required for restoration of the agricultural field. Pickup trucks, all-terrain vehicles, and mowers may be required for the long-term maintenance of the restoration area.

2.7 Environmental Commitments

Preventative measures, plans, and best management practices (BMPs) were incorporated into the proposed project's design, and project design refinements were made accordingly, to avoid or minimize potential adverse effects to the environment during construction.

The original footprint for the proposed access road along the river bank was revised to avoid a large stand of mature riparian vegetation. Similarly, the size of Staging Area 3 was greatly reduced based on vegetation surveys to avoid impacts to elderberry shrubs. In addition, mature cottonwoods and elderberry shrubs along the river bank, access roads, and staging areas were identified for possible avoidance during rock revetment removal.

A dragline was originally considered as the preferred method for rock revetment removal. But, following discussions with the Central Valley Regional Water Quality Control Board (CVRWQCB), it was decided that excavators would be a better choice to minimize turbidity impacts to the Sacramento River. In addition, two types of excavators were included in the project description to enable the avoidance of identified large trees and elderberry shrubs, where feasible.

Construction activities originally included hauling excavated rock material off site. To greatly reduce GHG emissions from the associated truck trips, avoid the environmental impacts associated with reconstructing local roads that would be damaged by the weight of the haul trucks, and avoid the need to import material for road improvements, the project was redesigned to accommodate beneficial reuse and spoiling of rock material on site.

Additional environmental commitments to be implemented are described below.

Construction Management Plan

A construction management plan shall be developed to avoid or minimize potentially adverse environmental impacts and impacts to public health and safety during proposed project construction. The management plan shall include construction information, such as work hours and schedule, phasing of construction, locations of transportation and parking for construction workers, location of potential hazards within the construction area, haul routes, stockpiling and staging procedures, waste management procedures, the terms and conditions of all project permits and approvals, and emergency response contact information.

The management plan shall also include the implementation of public safety for river recreationists during rock revetment removal activities, such as posting signs at the Tehama County River Park and Mill Creek Park boat ramps to alert boaters of construction activities.

In addition, the management plan shall include BMPs for construction traffic safety, including the use of signs and flaggers, when necessary, to inform commuters of large trucks and equipment in the area and to inform construction workers of students walking in the area to and from bus stops.

Worker Environmental Awareness Training

Before any construction begins, a qualified biologist shall conduct mandatory worker environmental awareness training for all construction personnel. The training shall include a discussion of sensitive biological resources within the project area, including special-status species and their associated habitat, and the protection measures required during project implementation.

Greenhouse Gas Emission Reduction Plan

The proposed project will incorporate applicable BMPs from DWR's *Climate Action Plan-Phase I: Greenhouse Gas Emissions Reduction Plan* (GGERP) to avoid and minimize impacts related to greenhouse gas (GHG) emissions (California Department of Water Resources 2012a, 2012b). The complete list of BMPs are provided below.

BMP 1. Evaluate project characteristics, including location, project work flow, site conditions, and equipment performance requirements, to determine whether specifications of the use of equipment with repowered engines, electric drivetrains, or other high-efficiency technologies are appropriate and feasible for the project or specific elements of the project.

BMP 2. Evaluate the feasibility and efficacy of performing on-site material hauling with trucks equipped with on-road engines.

BMP 3. Ensure that all feasible avenues have been explored for providing an electrical service drop to the construction site for temporary construction power. When generators must be used, use alternative fuels, such as propane or solar, to power generators to the maximum extent feasible.

BMP 4. Evaluate the feasibility and efficacy of producing concrete on site and specify that batch plants be set up on site or as close to the site as possible. This BMP is not applicable to the proposed project.

BMP 5. Evaluate the performance requirements for concrete used on the project and specify concrete mix designs that minimize GHG emissions from cement production and curing while preserving all required performance characteristics. This BMP is not applicable to the proposed project.

BMP 6. Limit deliveries of materials and equipment to the site to off-peak traffic congestion hours.

BMP 7. Minimize idling time by requiring that equipment be shut down after five minutes when not in use (as required by the State airborne toxics control measure California Code of Regulations, Title 13, Section 2485). Provide clear signage that posts this requirement for workers at the entrances to the site and provide a plan for the enforcement of this requirement.

BMP 8. Maintain all construction equipment in proper working condition and perform all preventative maintenance. Required maintenance includes compliance with all manufacturer's recommendations, proper upkeep and replacement of filters and mufflers, and maintenance of all engine and emissions systems in proper operating condition. Maintenance schedules shall be detailed in an air quality control plan prior to commencement of construction.

BMP 9. Implement a tire inflation program on the jobsite to ensure that equipment tires are correctly inflated. Check tire inflation when equipment arrives on site and every two weeks for equipment that remains on site. Check vehicles used for hauling materials off site weekly for correct tire inflation. Procedures for the tire inflation program shall be documented in an air quality management plan prior to commencement of construction.

BMP 10. Develop a project-specific rideshare program to encourage carpools, shuttle vans, transit passes, and secure bicycle parking for construction worker commutes.

BMP 11. Reduce electricity use in temporary construction offices by using high-efficiency lighting and requiring that heating and cooling units be Energy Star compliant. Require that all contractors develop and implement procedures for turning off computers, lights, air conditioners, heaters, and other equipment each day at close of business.

BMP 12. For deliveries to project sites where the haul distance exceeds 100 miles and a heavy-duty class 7 or class 8 semi-truck or 53-foot or longer box-type trailer is used for hauling, a SmartWay2-certified truck will be used to the maximum extent feasible.

BMP 13. Minimize the amount of cement in concrete by specifying higher levels of cementitious material alternatives, larger aggregate, longer final set times, or lower maximum strength where appropriate. This BMP is not applicable to the proposed project.

BMP 14. Develop a project-specific construction debris recycling and diversion program to achieve a documented 50-percent diversion of construction waste.

BMP 15. Evaluate the feasibility of restricting all material hauling on public roadways to off-peak traffic congestion hours. During construction scheduling and execution, minimize, to the extent possible, uses of public roadways that would increase traffic congestion.

2.8 Construction Schedule

The start of construction is dependent on funding, the permitting process, and the construction bid process. Transfer of ownership of the Kopta Slough property may occur during any project year. If all necessary funding were

secured at the start of construction, implementation of the proposed project would occur over six years, as follows.

Project Year 1 – Site Preparation

Site preparation, including structure demolition, utility relocation, vegetation removal, elderberry shrub removal or transplanting, clearing and grading of staging areas and roads, removal of the septic system, proper abandonment of identified wells, and, if still present, removal of the domestic well would occur during Project Year 1. If restoration activities are anticipated to occur in Restoration Area 1A in Project Year 2, plant propagation would also occur during Project Year 1.

Project Year 2 – Rock Revetment Removal

Installation of the temporary construction bridge (if needed), road widening, lower crossroad drainage improvement, berm excavation, rock revetment removal, rock sorting and crushing, materials spoiling, soil stabilization, removal of the temporary construction bridge (if needed), and proper abandonment of the well used for construction activities would occur during Project Year 2. If elderberry shrubs are transplanted during Project Year 1, maintenance of transplanted elderberry shrubs would also occur. Restoration activities within Restoration Area 1A could occur during Project Year 2 (see description under Project Year 3). Plant propagation would also occur during Project Year 2.

Project Year 3 – Habitat Restoration

Restoration activities within Restoration Area 1B, including disking, land planing, installing irrigation, and overstory and understory planting would occur during Project Year 3. Restoration activities within Restoration Area 1A would also occur during Project Year 3 if not already restored during Project Year 2. If Restoration Area 1A is restored during Project Year 2, understory drill seeding would occur during Project Year 3. If elderberry shrubs are transplanted during Project Year 1, maintenance of transplanted elderberry shrubs would also occur.

Project Years 4 through 6 – Plant Establishment

If elderberry shrubs were transplanted during Project Year 1, maintenance of transplanted elderberry shrubs would continue to occur. Portions of the restoration area planted in Project Year 3 would be drill-seeded. Replanting,

irrigation, and weed control would continue within the restoration area through Project Year 5, at which time the plants should be established. During Project Year 6 (once plants can survive on rain and overland flow), irrigation lines would be removed and one additional irrigation well would be properly abandoned. If still present, the remaining transmission lines within the floodplain may also be properly decommissioned depending on landowner preference. Maintenance of the restoration area would then continue in perpetuity, and could include activities, such as herbicide application, invasive pest management and removal, debris and trash removal, sheep or goat grazing, and mowing. These maintenance activities would be included in a long-term management plan for the Kopta Slough property, which would be written under consultation with the CVFPB and the landowner in compliance with an encroachment permit.

Alternate Construction Schedule

If full funding is not available at the start of construction, restoration of the agricultural field could occur within the 140-acre Restoration Area 1A during any project year. However, this scenario would preclude the potential for spoiling of soil within Restoration Area 1A during rock revetment removal. Restoration could not occur within Restoration Area 1B until the completion of rock revetment removal activities, as it is a planned staging area for the proposed rock revetment removal.

Chapter 3. Environmental Setting, Discussion of Impacts, and Mitigation Measures

This chapter describes the affected environment within the Kopta Slough project area (project area) and discusses the anticipated environmental consequences associated with implementation of the proposed project (described in Chapter 2 *Description of the Proposed Project*). CEQA Guidelines Appendix G was used as the basis for assessing the significance of potential environmental effects, taking into account the whole of the action as required by CEQA. Agency standards, regulatory requirements, and professional judgement were also used, where appropriate.

Each of the CEQA Guidelines Appendix G environmental factors was evaluated and one of the following four determinations was made:

- No Impact: No impact on the environment would occur as a result of implementing the project.
- Less-than-Significant Impact: Implementation of the project would not result in a substantial and adverse change to the environment and no mitigation is required.
- Less than Significant with Mitigation Incorporated: Implementation of the project could result in a “potentially significant impact,” as described below, except that identified project-specific mitigation measures would reduce the effect to a less-than-significant level.
- Potentially Significant Impact: Implementation of the project could result in an impact that has a “substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project” (CEQA Guidelines section 15382).

If a potentially significant impact was identified, mitigation measures were provided to reduce the impact to a less-than-significant level.

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

| | | |
|-------------------------------------------------------------|-------------------------------------------------------------|------------------------------------------------------------------------|
| <input type="checkbox"/> Aesthetics | <input type="checkbox"/> Agriculture and Forestry Resources | <input checked="" type="checkbox"/> Air Quality |
| <input checked="" type="checkbox"/> Biological Resources | <input checked="" type="checkbox"/> Cultural Resources | <input type="checkbox"/> Energy |
| <input checked="" type="checkbox"/> Geology/Soils | <input type="checkbox"/> Greenhouse Gas Emissions | <input checked="" type="checkbox"/> Hazards & Hazardous Materials |
| <input checked="" type="checkbox"/> Hydrology/Water Quality | <input type="checkbox"/> Land Use/Planning | <input type="checkbox"/> Mineral Resources |
| <input type="checkbox"/> Noise | <input type="checkbox"/> Population/Housing | <input type="checkbox"/> Public Services |
| <input type="checkbox"/> Recreation | <input type="checkbox"/> Transportation | <input checked="" type="checkbox"/> Tribal Cultural Resources |
| <input type="checkbox"/> Utilities/Service Systems | <input checked="" type="checkbox"/> Wildfire | <input checked="" type="checkbox"/> Mandatory Findings of Significance |

Determination

On the basis of this initial evaluation:

- I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.
- I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.
- I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.
- I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect (1) has been adequately analyzed

in an earlier document pursuant to applicable legal standards, and (2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

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



December 14, 2022

Teresa Connor
Northern Region Office Manager
California Department of Water Resources

Date

3.1 Resources Eliminated from Further Discussion

During the environmental analysis conducted for the proposed project, several resources were eliminated from detailed analysis because no impacts from project implementation are anticipated. A description of the resources and an explanation for eliminating them from further analysis are provided below.

3.1.1 Energy

The proposed project is a restoration project that would not create new permanent sources of energy demand. Construction activities would not result in energy consumption that is wasteful, inefficient, or unnecessary. Energy consumption during construction would be short-term and would not conflict with or obstruct implementation of a State or local plan for renewable energy or energy efficiency. Therefore, there would be no energy-related impact.

3.1.2 Land Use and Planning

The project area is located in an unincorporated area designated as Valley Floor Agriculture and zoned as Primary Floodplain by Tehama County. Project-related construction and restoration activities would occur on public lands within the floodplain of the Sacramento River and would not have the potential to physically divide any housing or other developed communities. The proposed project does not seek to change a land use or zoning designation. Activities associated with floodplain habitat restoration and rock revetment removal to restore natural floodplain processes on the Kopta Slough property, as well as the future provision of recreational opportunities, would be compatible with the secondary uses described for the Valley Floor Agriculture land use designation, and would be compatible land uses within the Primary Floodplain zone. For these reasons, the proposed project would not conflict with Tehama County General Plan land use designations or the Tehama County Zoning Ordinance and no impact on land use and planning would occur.

3.1.3 Mineral Resources

The Kopta Slough property is located within a geographical region associated with alluvial construction aggregate resources. The mineral rights to the Kopta Slough property are severed from the fee ownership, but there are no

surface mining operations within or adjacent to the Kopta Slough property, and the soil types identified within the Kopta Slough property are not suitable as an engineering commodity to be utilized elsewhere as road fill, gravel, or sand sources (refer to Section 3.7, "Geology and Soils"). Consequently, implementation of the proposed project would not result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the State and would not result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan. For these reasons, there would be no impact on mineral resources.

3.1.4 Population and Housing

The proposed restoration project would occur in an unincorporated area that consists of large tracts of agricultural land. There are 10 houses located immediately adjacent to the western boundary of the Kopta Slough property and Kopta Slough; the proposed project would not displace these existing houses or residents and would not necessitate construction of replacement housing. The proposed project does not propose new housing, public roads, or other growth-inducing infrastructure. For these reasons, there would be no impact on population and housing.

3.1.5 Public Services

Implementation of the proposed project would not involve the construction of new housing or contribute to growth in the project area and would not require the construction, modification, or expansion of governmental facilities to maintain service ratios or response times or other performance measures. The recreational opportunities and new public access that would be provided on the Kopta Slough property would result in an increase in recreation users in the project area, but recreation use levels are expected to be low and any potential recreational activities (such as docent-led tours) would not substantially increase the number of incidents that the Tehama County Fire Department, California Department of Forestry and Fire Protection, Tehama County Sheriff's Office, or local medical clinics and hospitals would need to respond to in the area. For these reasons, there would be no project-related impact on public services.

3.1.6 Recreation

The Kopta Slough property is held in trust by the California State Controller’s Environmental Trust. Although it is considered to be public land, there is no existing public access and no recreation facilities. The surrounding area consists of private properties, several parks, and public lands. Implementation of the proposed project would not involve construction of housing or the closure of existing recreation facilities and would not result in an increase in recreational use of existing parks or other recreation facilities. Following transfer of ownership of the Kopta Slough property, the adjacent WBSRA Natural Preserve may be more publicly accessible, but recreation use levels on the Kopta Slough property are anticipated to be low and there are no recreational facilities on the WBSRA Natural Preserve, so no deterioration of facilities would occur. For these reasons, there would be no recreation-related impacts.

3.2 Aesthetics

| I. AESTHETICS — Except as provided in Public Resources Code Section 21099, would the project: | Level of Significance |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|
| a) Have a substantial adverse effect on a scenic vista? | Less than Significant |
| b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway? | No Impact |
| c) Substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage points.) If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality? | Less than Significant |
| d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area? | Less than Significant |

3.2.1 Environmental Setting

Aesthetic resources are described as the visual setting and character of an area. The aesthetic value of an area is a measure of the visual or scenic character of its natural and artificial features combined with the viewer’s response to, or perception of, these conditions. Factors considered when characterizing the aesthetics of the project area include the overall visual quality or attractiveness of the area, the types and number of viewers within the area, the viewing conditions, and the visual sensitivity of the area.

Visual features in the project area include the Sacramento River and its banks and associated riparian vegetation. The Sacramento River is a visually dominant feature of the project area; this reach of the river is not designated as a California or National Wild and Scenic River.

The visual character of the Kopta Slough property right bank includes a relatively narrow corridor of riparian vegetation with intermittent grassland openings and rock revetment along the water's edge of the Sacramento River that is visible along much of the bank's length (Photo 1). The riparian corridor widens and becomes more dense at the downstream end of the rock revetment (where Staging Area 3 is proposed), where it transitions into a large grassland opening that consists of non-native plant species that dry out during the summer season (Photo 2). This bank is viewable only by recreationists boating, kayaking, or floating by on the Sacramento River, and the duration of the views tend to be short. The riparian vegetation has high visual quality, and the grassland opening has low visual quality.

Photo 1 View of the riparian vegetation and rock revetment on the Sacramento River right bank along the Kopta Slough property, taken from a boat in the river channel (July 7, 2020).



Photo 2 View of the grassland opening (proposed lower staging area) on the Sacramento River right bank along the Kopta Slough property, taken from a boat in the river channel (July 7, 2020).



The visual character of the upland parcel at the entrance to the Kopta Slough property includes annual grassland interspersed with barren areas of land surrounding metal maintenance and storage buildings, a gravel pad, and various farming equipment (Photo 3). Although the parcel is visually similar to other farmland in the area, its weedy vegetation and buildings that are in various states of disrepair contrast greatly with the surrounding orchard, residences, and Kopta Slough. The three residences located immediately north of the parcel have unobstructed views. A fourth residence to the northwest of the parcel has partial views. This upland parcel has an overall low visual quality.

Photo 3 View of the upland parcel at the entrance to the Kopta Slough property, looking south from the northern property boundary (July 7, 2020).



The utility bridge that connects the upland parcel to the floodplain portion of the Kopta Slough property crosses Kopta Slough. The visual character of the utility bridge is typical of a riparian crossing, with riparian vegetation lining both banks of Kopta Slough. The utility bridge is a railcar bridge situated on concrete abutments. The bridge crossing has moderate visual quality, but is not visible from the adjacent residences and is not visible from most areas of the upland parcel because of an elevational difference.

The visual character of the agricultural field, surrounding dirt roads, and riparian vegetation on the Kopta Slough property is typical of other large agricultural fields in Tehama County. The agricultural field has moderate visual quality where planted with crops and low visual quality where it consists of exposed soil or weedy vegetation. However, the interior of the Kopta Slough property is not viewable by the public. To the west of the agricultural field, dense riparian vegetation along the banks of Kopta Slough obstructs the views of adjacent residences. To the east of the agricultural

field, riparian vegetation along the Sacramento River combined with the elevational difference and distance from the river obstructs the views of recreationists on the river. Only workers involved with agricultural operations on the field located immediately north of the Kopta Slough property are able to view this area.

There are no highways in the vicinity of the project area designated as a Scenic Highway or eligible for designation.

3.2.2 Discussion of Impacts

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

–and–

d) Substantially degrade the existing visual character or quality of public views of the site and its surroundings?

Less than Significant. Taking into consideration the deteriorated condition of the existing structures on the upland parcel and the small number of viewers within the area, the upland parcel has low visual sensitivity. Because of this, demolition of the existing structures would have a less-than-significant impact on the visual character or quality of the site.

Some of the material from berm excavation and rock revetment removal may be spoiled and graded on the upland parcel. These activities have the potential to affect the visual quality of this area, but the upland parcel has low visual quality (e.g., annual grassland and barren areas) and low visual sensitivity. In addition, any disturbed areas on the upland parcel would be restored with native groundcover. Therefore, the temporary impact on the visual character or quality of the upland parcel would be less than significant.

The lower portion of the agricultural field and the grassland opening at the downstream end of the rock revetment would be cleared and grubbed and potentially graded for staging area preparation. These areas would be denuded of vegetation for the duration of the construction season. Because the grassland opening has low visual quality and is only partially viewable by the public, and because the agricultural field is not viewable by the public, these two areas have low visual sensitivity. Clearing of the agricultural field would be consistent with the existing agricultural practices on and surrounding

the Kopta Slough property. Clearing of the grassland opening and the presence of construction vehicles and equipment may adversely affect the visual character of this area. But, recreationists on the Sacramento River would have only partial views of the area because of elevational differences, and views would be short term. The agricultural field would be restored to a mix of native riparian, oak woodland, and grassland vegetation under the habitat restoration element of the proposed project. The grassland opening, which consists of non-native invasive vegetation, would be restored with native vegetation following completion of construction. For these reasons, the temporary impact on the visual character or quality of these proposed disturbance areas would be less than significant.

Rock revetment removal would require the removal of most of the riparian vegetation along the bank. Although the riparian corridor along the upstream section of rock revetment is narrow, the loss of approximately 5,600 linear feet of mature riparian vegetation along the Sacramento River that has high visual quality would be a potentially significant impact. But, views from passing recreationists tend to be short term, and vegetation (including mature trees) would still be visible on the top of the bank. Riparian vegetation located on the slope of the bank where there is a gap in rock revetment would not be removed. In addition, the disturbed bank would be seeded with native ground cover and willow poles would be planted along the edge of the river following completion of construction. Measures would be taken to avoid removal of elderberry shrubs, large cottonwood trees, or stands of trees where possible. The visual quality of the bank would be changed, but native vegetation would remain and the bank would be planted, making it consistent with views available in other areas along the Sacramento River. In addition, views would continue to be short term and, over time, natural recruitment of native vegetation would occur. The impact on the visual character or quality of the bank would not be substantial and would be less than significant.

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

No Impact. The project area is not visible from a designated Scenic Highway or highway eligible for designation. As such, there would be no impact on scenic resources within a state scenic highway.

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

Less than Significant. Project construction would occur during daylight hours. In the event that early morning or early evening activities would be necessary and would require artificial lighting, the additional source of light may affect the residences adjacent to the upland parcel at the entrance to the Kopta Slough property. Construction equipment and vehicles could create sources of daytime glare, potentially affecting passing recreationists in the vicinity of the proposed staging and construction areas on the river bank. If needed, construction traffic signs could also produce daytime glare. But, glare or headlights from construction equipment and vehicles would be similar to that created by farming equipment traveling over local roads and onto the Kopta Slough property and would not be substantial. In addition, construction activities and the potential light or glare associated with those activities would be temporary, and implementation of construction BMPs (such as the use of shielded and directional lighting and signs made of non-glare materials) would minimize these effects. Demolition of the existing metal storage buildings would reduce the existing amount of daytime glare on the upland parcel at the entrance to the Kopta Slough property. Therefore, potential sources of light or glare during construction would not be substantial and the impact would be less than significant.

3.2.3 Mitigation Measures

None required. Potentially significant impacts were not identified for this resource.

3.3 Agriculture and Forest Resources

| II. AGRICULTURAL AND FOREST RESOURCES — Would the project: | Level of Significance |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|
| a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use? | Less than Significant |
| b) Conflict with existing zoning for agricultural use, or a Williamson Act contract? | No Impact |
| c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))? | No Impact |
| d) Result in the loss of forest land or conversion of forest land to non-forest use? | No Impact |
| e) Involve other changes in the existing environment, which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use? | Less than Significant |

3.3.1 Environmental Setting

Farmland on the Kopta Slough property consists of a 176-acre parcel. The Farmland Mapping and Monitoring Program classifies the 176-acre parcel as mostly prime farmland with small areas of unique farmland. The 176-acre field represented approximately 0.27 percent of the County's total prime farmland in 2018 (California Department of Conservation 2019). The parcel is not under a Williamson Act contract or protected by a conservation easement.

The Kopta Slough property is located on land that is zoned as Primary Floodplain. Primary Floodplain zoning is applied to properties that lie within a primary floodway on which special regulations are necessary for the protection of public health and safety from hazards and damage resulting from floodwaters. Compatible uses on Primary Floodplain lands include crop and tree farming, viticulture, livestock grazing, and other agricultural uses which are of the same or similar nature. Public utility wires and pipelines for transmission and local distribution purposes are permitted on these lands. Recreation areas and facilities are permitted upon securing a use permit from the County (Tehama County 2009).

3.3.2 Discussion of Impacts

In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the State's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board (CARB).

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

Less than Significant. Although the 176-acre parcel on the Kopta Slough property consists of both prime farmland and unique farmland, the Farmland Conversion Impact Rating performed by the Natural Resources Conservation Service concluded that all 176 acres should be considered prime farmland because the field has been leveled and filled to accommodate flood irrigation and has consequently reduced the flooding frequency of the field (Appendix B, "Farmland Conversion Impact Rating").

Tehama County General Plan Policy OS-12.1 states that the County "shall recognize the need to protect and conserve areas where soils have high resource values, especially in terms of potential agricultural productivity" (Tehama County 2009). Prime farmland acreage within Tehama County varies annually as a result of farmland conversion. From 2014 to 2016, a total of 1,187 acres of Prime Farmland were converted to lesser value farmland types or non-agricultural land, and 2,185 acres of other farmland types or non-agricultural land were converted to Prime Farmland, resulting in a net increase in Prime Farmland (California Department of Conservation 2017). Similarly, from 2016 to 2018, a total of 579 acres of prime farmland were converted to lesser value farmland types or non-agricultural land, and 1,413 acres of other farmland types or non-agricultural land were converted to Prime Farmland, resulting in a net increase in Prime Farmland (California Department of Conservation 2019).

The farmland conversion that would result from implementation of the proposed project would restore native riparian forest and grassland on land that was previously converted to agriculture. The Prime Farmland classification for this 176-acre parcel is based on the high value of the soil resulting from natural processes that existed before agricultural development of the land. Restoration of the parcel to native riparian forest and grassland would protect and conserve the agricultural value of the soil. The conversion would not be irreversible, and agricultural use of the restoration area could continue with the use of grazing as a maintenance activity.

The conversion of the 176-acre parcel on the Kopta Slough property to native floodplain vegetation would have a relatively small impact (a loss of 0.27 percent) on existing Prime Farmland acreage in Tehama County, be consistent with the existing rate of farmland conversion in the County, protect and conserve the agricultural value of the soil, and support grazing activity. The impact on prime farmland would be less than significant.

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

No Impact. Activities associated with floodplain habitat restoration and rock revetment removal to restore natural floodplain processes on the Kopta Slough property, as well as the future provision of recreational opportunities, would be compatible with the Primary Floodplain zoning designation. The Kopta Slough property is not under a Williamson Act contract. Because there would not be a conflict with existing zoning or with a Williamson Act contract, there would be no impact.

c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?

–and–

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

No Impact. There are no forest land or timberland zones within or adjacent to the Kopta Slough property. Therefore, there would be no impact.

e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?

Less than significant. The proposed project would not hinder or stop agricultural operations on adjacent properties. It is possible, however, that restoration of the agricultural field on the Kopta Slough property may influence neighboring landowners to convert their agricultural lands to native vegetation. The owners of the agricultural field immediately adjacent to and north of the Kopta Slough property could decide to stop agricultural operations, especially if wildlife damage to the field or crops were to increase as a result of the adjacent native habitat. However, the adjacent agricultural field is bordered on the west by riparian vegetation along Kopta Slough and on the east by a large expanse of riparian vegetation along the Sacramento River. A portion of its southern border along the Kopta Slough property was

previously restored to native riparian vegetation. It is reasonable to assume that rates of crop damage from wildlife would not be expected to increase substantially from existing conditions. Finally, the adjacent agricultural field is part of a contiguous area of agricultural lands totaling approximately 820 acres. Therefore, it is unlikely that habitat restoration along its southern boundary would influence the conversion of those lands. For the reasons described above, the potential for the proposed project to influence additional conversion of farmland on adjacent properties is low and would be less than significant.

3.3.3 Mitigation Measures

None required. Potentially significant impacts were not identified for this resource.

3.4 Air Quality

| III. AIR QUALITY — Would the Project: | Level of Significance |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------|
| a) Conflict with or obstruct implementation of the applicable air quality plan? | No Impact |
| b) Result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is non-attainment under an applicable federal or state ambient air quality standard? | Less than Significant with Mitigation Incorporated |
| c) Expose sensitive receptors to substantial pollutant concentrations? | Less than Significant with Mitigation Incorporated |
| d) Result in other emissions (such as those leading to odors), adversely affecting a substantial number of people? | Less than Significant |

3.4.1 Environmental Setting

Tehama County lies within the Northern Sacramento Valley Air Basin. The basin's climate consists of hot, dry, summers and cool, wet, winters. The valley is bordered to the north by the Cascade Range, to the east by the Sierra Nevada, and to the west by the Coast Ranges. These mountain ranges create a barrier for air pollution, restricting air movement through and out of the basin. Consequently, the basin experiences frequent temperature inversions and has a high potential for pollutant accumulation.

Criteria Pollutants

The U.S. Environmental Protection Agency and CARB have established ambient air quality standards for “criteria pollutants,” pursuant to the federal Clean Air Act of 1970 and the California Clean Air Act, respectively. State standards tend to be more stringent than national standards. These standards were established to protect human health and environmental values such as plant and animal life. The criteria pollutants are ozone, carbon monoxide, nitrogen oxides, particulate matter (PM_{2.5} and PM₁₀), sulfur oxides, and lead (California Air Resources Board 2020a). PM_{2.5} and PM₁₀ refer to particulate matter less than 2.5 and 10 microns in aerodynamic diameter, respectively.

Ambient air quality standards in the project area and vicinity are monitored and regulated by the Tehama County Air Pollution Control District (TCAPCD). Pollutants of primary concern in the County are ozone and its precursors, as well as particulate matter. The nearest continuous monitoring station to the project area is located in the City of Red Bluff on Walnut Street. Table 2 lists the number of days that ozone and particulate matter in Red Bluff exceeded the adopted ambient air quality standards, resulting in unhealthy conditions, in the years 2015 through 2018.

Table 2 Ozone and Particulate Matter Monitoring in Red Bluff, Tehama County, California: Number of Days Above Standard (Per Year)

| Air Quality Standard | 2015 | 2016 | 2017 | 2018 |
|-----------------------------------------------|------|------|------|------|
| Ozone 1-hour standard (State) | 0 | 0 | 0 | 0 |
| Ozone 8-hour standard (State) | 0 | 3.0 | 5.0 | 11.0 |
| Ozone 8-hour standard (National 2015) | 0 | 3.0 | 4.0 | 8.0 |
| PM _{2.5} 24-hour standard (National) | NA | NA | 5.4 | 24.0 |
| PM ₁₀ 24-hour standard (State) | NA | 0.0 | 12.2 | 33.1 |
| PM ₁₀ 24-hour standard (National) | 0 | 0 | 0 | 0 |

Notes: PM_{2.5} = particulate matter 2.5 micrometers or smaller; PM₁₀ = particulate matter 10 micrometers or smaller, NA = no data available.

Source: California Air Resources Board 2020b.

By national standards, Tehama County is designated as unclassified or in attainment for all criteria pollutants. Tehama County is designated by the State as nonattainment (has not met California ambient air quality standards) for ozone and PM₁₀, is unclassified for PM_{2.5}, and is unclassified or in attainment for the remaining criteria pollutants (California Air Resources Board 2018). Ozone and particulate matter are respiratory irritants that can cause serious health problems. Ozone is created when heat and sunlight trigger chemical reactions between nitrogen oxides and volatile organic compounds. Vehicle emissions from South Avenue traffic and from agricultural equipment are the primary contributor of these ozone precursors within the vicinity of the project area. Particulate matter consists of fine particles suspended in the air. The primary contributors of PM₁₀ within the vicinity of the project area are wind-blown dust from dirt roads and agricultural activities, open burning of burn piles, and vehicle emissions. Diesel particulate matter is a component of inadequately filtered diesel exhaust and is considered to be a toxic air contaminant.

Sensitive Receptors

A sensitive receptor is a location where human populations (particularly children, seniors, or sick persons) are present and where there is a reasonable expectation of continuous human exposure to air pollutants of concern. Examples of sensitive receptors include residences, hospitals, child-care facilities, and schools. The project area is rural in nature and not heavily populated. But, for the purposes of this analysis, the rural residents and Sacramento River recreationists in the vicinity of the project area are considered sensitive receptors.

Ten residences are located immediately adjacent to Kopta Slough along the length of the Kopta Slough property. Five of these residences are located in a reach that extends from the northern access road to just below the middle access road of the Kopta Slough property. These residences are situated 300 to 600 feet west of the access road that runs parallel to the slough, and 1,300 to 1,800 feet west of the Kopta Slough property's agricultural field. Tall, dense, riparian vegetation separates these residences from the Kopta Slough property boundary. There are also three residences located immediately adjacent to northern boundary of the upland parcel. A wooden fence separates these residences from the upland parcel. An additional residence is located approximately 1,000 feet southwest of the utility bridge across Kopta Slough. This residence is separated from the bridge crossing by tall, dense, riparian vegetation and an orchard. There is also a single residence located approximately 600 feet west of the gravel quarry (Spoil Area 5). Dense riparian vegetation separates these residences from the slough and the quarry. Several additional residences are located along the County roads that would provide access to the project area (Figure 6). Many of these homes are associated with the agricultural activities in the surrounding area.

3.4.2 Discussion of Impacts

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

No Impact. Proposed project construction would be temporary and would not conflict with or obstruct implementation of any applicable air quality plan. Therefore, there would be no impact.

b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?

Less Than Significant with Mitigation Incorporated. Site preparation, rock revetment and berm removal, and vegetation restoration would require the use of gasoline and diesel-fueled vehicles and equipment, which would result in fuel combustion emissions (including the toxic air contaminant diesel particulate matter). The ground disturbance associated with these activities, as well as demolition of the existing structures, would generate fugitive dust. These fuel combustion emissions and the generation of fugitive dust would contribute to the region's ozone precursor and PM₁₀ levels, for which the region is in nonattainment.

Construction activities would be temporary, occurring during a three- to four-month work window in each project year over a three-year period. Activities associated with site preparation (including potential vegetation burning) and restoration area planting would be similar to surrounding agricultural practices and would not contribute substantially to criteria pollutant levels, but could generate substantial levels of fugitive dust, resulting in a potentially significant impact. Implementation of the TCAPCD's recommended fugitive dust prevention and control measures that are included in Mitigation Measure Air Quality-1 would reduce these levels to less than significant.

Maintenance activities associated with the restoration area would result in fewer air-borne pollutants than the existing agricultural activities on the Kopta Slough property. In addition, habitat restoration would improve air quality in the project area by establishing permanent vegetation in an area that under existing conditions exposes soils annually. Maintenance activities would have a less-than-significant impact on air quality.

Trucks transporting rock revetment material would travel short distances within the boundary of the Kopta Slough property. Despite the anticipated short haul distances, the frequency and duration of haul trucks traveling in the vicinity of the project area has the potential to temporarily affect ambient air quality. Potential project-related emissions include PM₁₀ and ozone precursors. Fugitive dust emissions from ground-disturbing activities and driving on unpaved roads could also contribute to increases of PM₁₀. Project-related increases of these pollutants could be potentially significant

because Tehama County is in nonattainment for these pollutants by State standards. But, the TCAPCD has not established quantitative thresholds of significance for the purposes of CEQA with respect to short-term construction emissions of criteria air pollutant or precursor emissions. Rather, the agency emphasizes control measures. In addition, construction-related emissions would be temporary and consequently would not contribute to a cumulatively considerable net increase, resulting in a less-than-significant impact. Implementation of the emission and dust control measures included in Mitigation Measures Air Quality-1 and Air Quality 2, respectively, would further reduce potential air quality impacts by assuring that the use of fueled equipment in connection with project construction and maintenance would not generate excessive amounts of particulate matter in the form of equipment exhaust or dust.

c) Expose sensitive receptors to substantial pollutant concentrations?

Less Than Significant with Mitigation Incorporated. No sensitive receptors, such as schools, hospitals, or child-care facilities, are located in the vicinity of the project area, but nearby residences and river recreationists could be considered sensitive receptors. Construction activities could generate levels of fugitive dust and vehicle or equipment emissions that could have a potentially significant effect on these sensitive receptors. But, construction activities would be temporary, and implementation of the fugitive dust prevention and control measures included in Mitigation Measure Air Quality-1, as well as the construction equipment exhaust minimization measures included in Mitigation Measure Air Quality-2, would minimize these potential impacts and effectively reduce the level of impacts to less than significant.

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

Less than Significant. Potential sources of odor during implementation of the proposed project would be the potential burning of vegetation during site preparation and the equipment exhaust associated with construction activities. But, these odor sources would be localized, would have the potential to affect a small number of people, and would be temporary. Long-term maintenance of the restoration area would not result in other emissions or create objectionable odors. Therefore, impacts would be less than significant.

3.4.3 Mitigation Measures

Mitigation Measure Air Quality-1: Implement Fugitive Dust Prevention and Control Measures

The construction contractor shall prepare an air quality control plan in compliance with the project's fugitive dust permit and implement fugitive dust prevention and control measures, which may include the following:

- All ground-disturbing operations shall be suspended when winds exceed 20 miles per hour (mph), or when winds carry dust beyond the property line despite implementation of all feasible dust control measures.
- An operational water truck should be available at all times. All areas subject to ground disturbance shall be watered as necessary to prevent fugitive dust violations.
- On-site dirt piles or other stockpiled particulate matter shall be covered, wind breaks installed, and water or soil stabilizers employed as necessary to reduce windblown dust emissions.
- All transfer processes involving a free-fall of soil or other particulate matter shall be operated in such a manner as to minimize the free-fall distance and fugitive dust emissions.
- Traffic and equipment speeds on all unpaved surfaces shall be reduced to 15 mph or less, and unnecessary vehicle traffic shall be reduced by restricting access.
- Measures shall be implemented to reduce or eliminate carryout and trackout of fugitive dust or soil on construction vehicles, such as sweeping and picking up any trackout on adjacent public streets as needed.
- A publicly visible sign shall be posted with the telephone number and contact person's name regarding dust complaints. This person shall respond and take corrective action within 24 hours. The telephone number of the TCAPCD shall also be provided to ensure compliance with District rules.
- Unpaved roads may be graveled to reduce dust emissions.

***Mitigation Measure Air Quality-2: Implement Construction
Equipment Exhaust Minimization Measures***

The construction contractor shall implement construction equipment exhaust minimization measures, which may include the following:

- All construction equipment shall be maintained in proper tune according to manufacturer's specifications.
- To the extent practicable, the use of diesel construction equipment meeting current CARB certification standards for off-road heavy-duty diesel engines shall be maximized.
- Unnecessary vehicle idling shall be restricted to five minutes or less.
- Visible emissions from stationary diesel-powered equipment shall not exceed 40-percent opacity for more than three minutes in any one hour.
- Construction equipment shall be electrified where feasible.
- Gasoline-powered construction equipment shall be substituted for diesel-powered equipment, where feasible.
- All off-road heavy-duty diesel construction equipment greater than 50 horsepower shall be registered with CARB's Diesel Off-Road Online Reporting System and meet all applicable standards for replacement or retrofit.
- All portable construction equipment used, including generators and air compressors rated at more than 50 brake horsepower, shall be registered in the Portable Equipment Registration Program or permitted through the TCAPCD.

3.5 Biological Resources

| IV. BIOLOGICAL RESOURCES — Would the Project: | Level of Significance |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------|
| a) Have a substantial adverse effect, either directly or through habitat modifications, on any 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? | Less than Significant with Mitigation Incorporated |
| b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service? | Less than Significant with Mitigation Incorporated |
| c) Have a substantial adverse effect on federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) or other waters of the U.S. through direct removal, filling, hydrological interruption, or other means? | Less than Significant with Mitigation Incorporated |
| d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites? | Less than Significant with Mitigation Incorporated |
| e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance? | No Impact |
| f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan? | No Impact |

3.5.1 Environmental Setting

Fisheries Resources

Aquatic Habitat

The aquatic habitats adjacent to the Kopta Slough property are common to the main channel of the Sacramento River, consisting of riffles, runs, and deep pools. These main channel aquatic habitats provide both adult upstream and juvenile downstream migration habitat for anadromous fish species, but aquatic habitat along the armored bank of the Kopta Slough property is marginal because of the lack of cover and refuge from high-water velocities.

Streamside habitats with slower water velocities provide potential habitat for juvenile life stages throughout the year. A deep pool located at the downstream end of the Kopta Slough property rock revetment provides both holding and potential spawning habitat for anadromous fish species. Another pool, approximately 2,500 feet downstream of the Kopta Slough property near the confluence with Deer Creek, also provides holding and potential spawning habitat. During typical summer flows, the wetted channel in this section of the Sacramento River (excluding braided sections and side channels) ranges between approximately 250 and 375 feet in width. The U.S. Bureau of Reclamation manages Sacramento River water temperatures for anadromous salmonids with cold-water releases from Shasta and Keswick dams.

Although no construction activities are proposed within Deer Creek or Kopta Slough, the proximity of these waterways to the Kopta Slough property have the potential to influence the presence of fish species found within this reach of the Sacramento River.

Deer Creek enters the Sacramento River from the left bank approximately 2,000 feet downstream of the Kopta Slough property and is considered one of the primary streams in California supporting natural runs of fall-run and spring-run Chinook salmon (*Oncorhynchus tshawytscha*) and Central Valley steelhead (*Oncorhynchus mykiss*). Juvenile winter-run Chinook salmon may also utilize lower Deer Creek for non-natal rearing habitat in late summer (Phillis et al. 2018).

An access bridge on the upland parcel of the Kopta Slough property crosses over Kopta Slough. Kopta Slough enters the Sacramento River from the right bank approximately 1.25 miles downstream of the proposed rock revetment removal location. Kopta Slough receives water from small ephemeral and agricultural drainages, as well as Sacramento River flood flows over the Kopta Slough property. Kopta Slough provides backwater habitat with uniform depth, little to no water current, and relatively warm water temperatures.

Riparian Habitat

The placement of levees and rock revetment in attempt to channelize the Sacramento River has degraded the condition of riparian habitat along the majority of the Sacramento River. The reach of the Sacramento River

adjacent to the Kopta Slough property is bordered by floodplain riparian forest and agricultural lands. Past restoration efforts have created patches of floodplain riparian habitat within the Kopta Slough property between the Sacramento River channel and Kopta Slough. The riparian vegetation immediately adjacent to the Sacramento River along the bank of the Kopta Slough property is a relatively narrow corridor consisting of valley foothill riparian habitat (as described in "Wildlife Resources," below).

Shaded riverine aquatic (SRA) cover is important to the survival of many aquatic organisms, including fish. The USFWS defines SRA cover as "the near shore aquatic area occurring at the interface between a river and adjacent woody riparian habitat."

Principal attributes of SRA cover include: (a) the adjacent bank being composed of natural, eroding substrates supporting riparian vegetation that either overhangs or protrudes into the water, and (b) the water containing variable amounts of woody debris, such as leaves, logs, branches, and roots, often substantial detritus, and variable water velocities, depths, and flows" (United States Fish and Wildlife Service 1992).

SRA cover along the Sacramento River and its major tributaries has been lost over the years, primarily as a result of riparian forest conversion and the placement of rock revetment along the riverbanks in the Sacramento River system. Because the bank along the Kopta Slough property is armored, it does not meet the definition of SRA cover. Much of the riparian vegetation along the existing rock revetment hangs over the river channel and provides some shade and cover to the channel immediately adjacent to the bank. But, the exposed rock along the wetted edge of the river contributes to increases in velocity along the riverbank, providing very little fish habitat (such as cover, food, or instream habitat complexity). The armored bank minimizes the potential recruitment of instream woody material (IWM), organic material, overhanging vegetation, undulated banks, protruding roots, and other habitat elements important to fish species.

Fish Species

During all or a portion of the year, several native and non-native fish species have the potential to be present within this reach of the Sacramento River. This reach of the river provides habitat for multiple life stages of many species, including rearing and spawning habitat.

Kopta Slough provides potential habitat for several native resident fish species, including Sacramento black fish (*Orthodon microlepidotus*), California roach (*Hesperoleucus symmetricus*), hardhead (*Mylopharodon conocephalus*), hitch (*Lavinia exilicauda*), Sacramento pikeminnow (*Ptychocheilus grandis*), speckled dace (*Rhinichthys osculus*), tule perch (*Hysterocarpus traski pomom*), Sacramento sucker (*Catostomus occidentalis*), three-spine stickleback (*Gasterosteus aculeatus*), prickly sculpin (*Cottus asper*), and riffle sculpin (*Cottus gulosus*) (Moyle 2002). Kopta Slough could also serve as foraging habitat for the Sacramento splittail (*Pogonichthys macrolepidotus*) (Moyle 2002). Although once found as far north as Redding, Sacramento splittail are now seen only rarely in the upper Sacramento River (United States Fish and Wildlife Service 2003) and are more commonly found in the Sacramento-San Joaquin Delta and lower Sacramento River. During outmigration, Kopta Slough provides potential cover, rearing, and migration habitat for juvenile Chinook salmon, as well as other anadromous fish species.

The relatively warm water and non-native aquatic plants in Kopta Slough could also attract non-native resident fish species such as largemouth bass (*Micropterus salmoides*), smallmouth bass (*Micropterus dolomieu*), spotted bass (*Micropterus punctulatus*), crappie (*Pomoxis* sp.), pumpkinseed (*Lepomis gibbosus*), redear sunfish (*Lepomis microlophus*), green sunfish (*Lepomis cyanellus*), bluegill (*Lepomis macrochirus*), goldfish (*Carassius auratus*), golden shiner (*Notemigonus crysoleucas*), mosquitofish (*Gambusia affinis*), channel catfish (*Ictalurus punctatus*), white catfish (*Ameiurus catus*), brown bullhead (*Ameiurus nebulosus*), black bullhead (*Ameiurus melas*), threadfin shad (*Dorosoma petenense*), and common carp (*Cyprinus carpio*). The presence of these non-native fish species degrades conditions for special-status and other native fish species.

Some of the fish species with the potential to occur in Kopta Slough may also occur in areas of slow-moving water within this reach of the Sacramento River. This reach of the Sacramento River also provides potential habitat for rainbow trout (*Oncorhynchus mykiss*) and several native and non-native anadromous species. Native anadromous fish species include four runs of Chinook salmon (winter, spring, fall, and late-fall), steelhead, green sturgeon (*Acipenser medirostris*), white sturgeon (*Acipenser transmontanus*), Pacific lamprey (*Lampetra tridentate*), and river lamprey (*Lampetra ayresi*). Non-native anadromous fish species include striped bass (*Morone saxatilis*) and American shad (*Alosa sapidissima*).

Special-status Fish Species

A list of special-status fish species with the potential to occur within the reach of the Sacramento River adjacent to the project area was compiled based on CDFW's California Natural Diversity Database (CNDDDB), CDFW's Special Animals List (California Department of Fish and Wildlife 2020) and a species list obtained from the Sacramento USFWS Office for the project area, Kopta Slough, and the upstream and downstream reaches of the Sacramento River (United States Fish and Wildlife Service 2022) (Table 3).

Table 3 Special-status Fish Species with the Potential to Occur in the Sacramento River adjacent to and downstream of the Kopta Slough Project Area

| Common Name (<i>Scientific Name</i>) | Federal Status | State Status | Habitat | Comments |
|----------------------------------------------------------------------------------|----------------|--------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| North American green sturgeon – Southern DPS (<i>Acipenser medirostris</i>) | T | SSC | Typically spawns in deep pools within the main stem of the Sacramento and Feather rivers from March through July when water temperatures are between 46 and 60 °F. Juveniles rear in freshwater for one to two years before entering the ocean. | Adults documented adjacent to and downstream of the project area. Adult holding, migration, rearing, and potential spawning habitat exists adjacent to and downstream of project area. Designated critical habitat occurs within this river reach. |
| White sturgeon (<i>Acipenser transmontanus</i>) | NA | SSC | Age at first reproduction is approximately 10 to 16 years old, with males maturing earlier and at a smaller size than females. Males may spawn every two years, whereas females spawn every two to four years. Adults migrate from the estuary into the river in winter, spawn from February to June, and return to the Delta after spawning. The early life of white sturgeon in the wild is still not well understood and in need of continued research. | Adults documented adjacent to and downstream of the project area. Adult holding, migration, rearing, and potential spawning habitat exists adjacent to and downstream of project area. |
| Pacific lamprey (<i>Entosphenus tridentatus</i>) | SC | SSC | Adults migrate to freshwater between February and June and spawn in gravelly swift areas of | The Sacramento River reach adjacent to the project area provides potential spawning |

| Common Name (Scientific Name) | Federal Status | State Status | Habitat | Comments |
|------------------------------------------------------------|---------------------------|-------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| | | | the river between March and June. Larvae (ammocoetes) are found in silt and sand substrates with slow-moving currents for three to seven years before migrating downstream in high-flow events in winter and spring. | habitat and a migration corridor for upstream migrating adults and downstream migrating juveniles. |
| River lamprey (<i>Lampetra ayresi</i>) | NA | SSC | The biology of river lamprey has not been well studied in California. Adult migration is believed to take place during winter months, with spawning taking place in tributaries during February and May (Moyle 2002). | Abundance and distribution is unknown. The Sacramento River reach adjacent to the project area provides suitable migration habitat for upstream migrating adults and downstream migrating juveniles (no spawning habitat). |
| Hardhead (<i>Mylopharodon conocephalus</i>) | NA | SSC | Spawns between April and May. Adults prefer clear, deep pools and runs with slow velocities and water temperatures ranging from 62 to 70 °F. Found in the Sacramento River and its tributaries. Juveniles prefer stream edges with dense cover (Moyle 2002). | Documented in Deer Creek (Moyle 2002). Kopta Slough and pools and backwater habitats within the Sacramento River adjacent to or downstream of project area provide potential habitat for all life stages throughout the year. |
| Central Valley steelhead (<i>Oncorhynchus mykiss</i>) | T | NA | Requires cold, well-oxygenated water with clean spawning gravel and diverse aquatic habitat for rearing. Adults migrate upstream during fall and winter and spawn | The Sacramento River reach adjacent to the project area provides potential rearing habitat and a migration corridor for upstream migrating adults |

| Common Name (Scientific Name) | Federal Status | State Status | Habitat | Comments |
|-----------------------------------------------------------------------------------------------|----------------|--------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| | | | in small tributaries from December through June. Juveniles rear in freshwater for one to two years before migrating to the ocean. | and downstream migrating juveniles (no spawning habitat). Designated critical habitat occurs within this river reach. |
| Central Valley spring-run Chinook salmon (<i>Oncorhynchus tshawytscha</i>) | T | T | Requires cold, well-oxygenated water with clean spawning gravel and diverse aquatic habitat for rearing. Adults migrate upstream during spring and summer and spawn in tributaries and the mainstem of the Sacramento River upstream of Red Bluff between August and November. Juveniles begin to outmigrate from December through February, but some remain and wait until the next fall. | The Sacramento River reach adjacent to the project area provides potential rearing habitat and a migration corridor for upstream migrating adults and downstream migrating juveniles (no spawning habitat). Designated critical habitat occurs within this river reach. |
| Sacramento River fall and late fall-run Chinook salmon (<i>Oncorhynchus tshawytscha</i>) | SC | SSC | Requires cold, well-oxygenated water with clean spawning gravel and diverse aquatic habitat for rearing. Adults migrate upstream during summer and fall and typically spawn in the upper Sacramento River from September through April. Juveniles begin migrating downstream from December through July. | The Sacramento River reach adjacent to the project area provides potential spawning and rearing habitat and a migration corridor for upstream migrating adults and downstream migrating juveniles. |

| Common Name (Scientific Name) | Federal Status | State Status | Habitat | Comments |
|-----------------------------------------------------------------------------------|-----------------------|---------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Sacramento River winter-run Chinook salmon (<i>Oncorhynchus tshawytscha</i>) | E | E | Requires cold, well-oxygenated water with clean spawning gravel and diverse aquatic habitat for rearing. Adults migrate upstream during winter and spring and spawn in Battle Creek and the Sacramento River (near Redding) from April through August. Juveniles begin moving downstream as early as mid-July through March. | The Sacramento River reach adjacent to the project area provides potential rearing habitat and a migration corridor for upstream migrating adults and downstream migrating juveniles (no spawning habitat). Designated critical habitat occurs within this river reach. |
| Sacramento splittail (<i>Pogonichthys macrolepidotus</i>) | NA | SSC | Inhabit lakes and backwater and pool habitats in rivers and streams. Spawning primarily occurs in March and April in flooded areas among submerged vegetation in sloughs and lower reaches of rivers (Moyle 2002). During trapping operations at the Red Bluff Diversion Dam from July 1994 through June 2000, only two of the species were captured. | The Sacramento River reach adjacent to the project area provides a migratory corridor for both adult and juveniles migrating upstream and downstream, although these fish likely are not present in this area. |

Notes: Delta = Sacramento-San Joaquin River Delta; DPS = distinct population segment; NA = no listing status; E = endangered; T = threatened; SC = species of concern; SSC = species of special concern; °F = degrees Fahrenheit. Sources: California Department of Fish and Wildlife 2020; Moyle 2002.

Four threatened or endangered fish species have the potential to occur adjacent to or downstream of the project area during different life stages throughout the year. This reach of the Sacramento River provides suitable habitat for all life stages, including potential spawning habitat, for the federally threatened North American green sturgeon Southern distinct population segment (DPS), while providing migration, holding, and rearing habitat for adult and juvenile Central Valley steelhead, Central Valley spring-run Chinook salmon, and Sacramento River winter-run Chinook salmon. This reach of the Sacramento River also provides potential habitat for six other federal species of concern or State species of special concern.

The federal Endangered Species Act defines critical habitat as a specific geographic area that contains features essential for the conservation of a federally threatened or endangered species and that may require special management and protection. This reach of the Sacramento River, including the riverbank of the Kopta Slough property, is designated as critical habitat for North American green sturgeon, Central Valley steelhead, Central Valley spring-run Chinook salmon, and Sacramento River winter-run Chinook salmon. This section of the Sacramento River also provides essential fish habitat (EFH) for Chinook salmon, as defined by the Magnuson-Stevens Fisheries Conservation and Management Act. EFH is defined as the waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity.

Wildlife Resources

Wildlife resources include wildlife habitats and their associated invertebrates, reptiles, amphibians, birds, and mammals. Wildlife habitat descriptions focus on the value of the vegetation community to wildlife, rather than on the plant species composition. More detailed descriptions of vegetation communities and a map of their distribution on the Kopta Slough property are provided in the Botanical Resources section, below.

The project area (i.e., environmental study limit) for wildlife resources is 668 acres and includes the Kopta Slough property, the land between the Kopta Slough property and the Sacramento River along the northeast boundary of the property, a portion of the Sacramento River along the bank of the property, and the remnant gravel quarry adjacent to the southwest boundary of the property.

Wildlife Habitat

Seven wildlife habitat types were identified within the project area based on the California Wildlife Habitat Relationships (CWHRs) wildlife habitat classification system (California Department of Fish and Game 2008a). These habitat types include annual grassland, barren, irrigated hayfield, riverine, valley foothill riparian, and valley oak woodland (Table 4).

Table 4 Wildlife Habitat Types within the Kopta Slough Project Area

| CWHR Habitat Type | Total Acres within the Kopta Slough Project Area | Percentage of the Kopta Slough Project Area |
|--------------------------|---------------------------------------------------------|----------------------------------------------------|
| Annual grassland | 59.10 | 8.9 |
| Barren | 25.44 | 3.8 |
| Irrigated hayfield | 176.16 | 26.4 |
| Riverine | 6.70 | 0.9 |
| Valley foothill riparian | 193.45 | 29.0 |
| Valley oak woodland | 206.86 | 31.0 |
| Total | 668.00 | 100.0 |

Notes: CWHR = California Wildlife Habitat Relationships.

Habitats adjacent to the project area also influence the occurrence of wildlife species. The project area is surrounded by valley oak woodland, valley foothill riparian, fresh emergent wetland, irrigated hayfield, irrigated grain crops, evergreen orchard, and deciduous orchard. The wildlife habitat types that are found within and adjacent to the project area are described below.

Annual Grassland

Annual grassland is composed primarily of non-native annual grasses and forbs. Some annual grassland habitats can support perennial species. Vernal pools can occur within this habitat type when depressions are underlain by an impervious soil layer (Mayer and Laudenslayer 1988). These impervious soils are absent from the Kopta Slough property, with the exception of the upland parcel at the entrance to the Kopta Slough property. Intensive surveys indicate that vernal pools and swales are absent from this parcel. Common wildlife species associated with annual grassland habitat include the black-tailed jackrabbit (*Lepus californicus*), California ground squirrel

(*Spermophilus beecheyi*), gopher snake (*Pituophis catenifer*), western fence lizard (*Sceloporus occidentalis*), California vole (*Microtus californicus*), American badger (*Taxidea taxus*), western kingbird (*Tyrannus verticalis*), western meadowlark (*Sturnella neglecta*), Brewer's blackbird (*Euphagus cyanocephalus*), American kestrel (*Falco sparverius*), turkey vulture (*Cathartes aura*), and northern harrier (*Circus cyaneus*). Annual grassland habitat is widely distributed on the Kopta Slough property.

Barren

The barren habitat type is defined by the absence of vegetation and includes areas with less than 2-percent herbaceous cover and less than 10-percent tree cover (Mayer and Laudenslayer 1988). Common wildlife species associated with barren habitats include killdeer (*Charadrius vociferus*), gulls, terns, and the western fence lizard. Barren areas within the Kopta Slough property consist mainly of dirt and gravel roads, but also include un-vegetated gravel bars associated with the Sacramento River, the gravel areas surrounding the structures on the upland parcel at the entrance to the Kopta Slough property, and the quarry area adjacent to the southwest corner of the property.

Deciduous Orchard

Deciduous orchards are single species tree-dominated habitats in which the fruit or nut trees are arranged in a linear pattern and are spaced evenly. Understory species may include low-growing grasses or other herbaceous plants, but some deciduous orchards are managed to prevent any understory growth (Mayer and Laudenslayer 1988). Common wildlife species associated with these deciduous orchards include the California ground squirrel, mourning dove (*Zenaida macroura*), California quail (*Callipepla californica*), northern flicker (*Colaptes auratus*), scrub jay (*Aphelocoma californica*), and black-tailed deer (*Odocoileus hemionus*). The deciduous orchards located adjacent to the Kopta Slough property (to the west of Kopta Slough) consist of walnuts and almonds.

Evergreen Orchard

Evergreen orchards are single species, tree-dominated habitats in which the trees are arranged in a linear pattern and are spaced evenly. Understory species may include low-growing grasses or other herbaceous plants, but evergreen orchards are typically managed to prevent any understory growth

(Mayer and Laudenslayer 1988). Wildlife species commonly associated with evergreen orchards include the mourning dove, California quail, barn owl (*Tyto alba*), European starling (*Sturnus vulgaris*), western gray squirrel (*Sciurus griseus*), Botta's pocket gopher (*Thomomys bottae*), black-tailed jackrabbit, and black-tailed deer. The evergreen orchards located adjacent to the Kopta Slough property (to the west of Kopta Slough) consist of olives.

Fresh Emergent Wetland

Fresh emergent wetlands support rooted perennial hydrophytes accustomed to frequent flooding, including sedges, rushes, cattail, and tule. These hydrophytes grow in moist soils or in shallow water along the shoreline of the Sacramento River and Kopta Slough, and represent an ecological transition between terrestrial and aquatic habitats. Stands tend to be dense and structurally simple. Seasonal flooding restricts species diversity to those species adapted to anaerobic soil conditions. Fresh emergent wetlands can provide habitat for more than 160 species of birds in California, as well as key habitat for numerous species of reptiles, amphibians, and mammals (Mayer and Laudenslayer 1988). Characteristic species include the red-winged blackbird (*Agelaius phoeniceus*), western aquatic garter snake (*Thamnophis couchii*), mallard (*Anas platyrhynchos*), common muskrat (*Ondatra zibethicus*), American bittern (*Botaurus lentiginosus*), and bullfrog (*Rana catesbeiana*). Fresh emergent wetland habitat exists at the northeast corner of the Kopta Slough property in a remnant side channel of the Sacramento River, and is found adjacent to the Kopta Slough property along Kopta Slough and within an agricultural drainage ditch that connects with Kopta Slough.

Irrigated Grain Crops

Irrigated grain crops include annuals, such as corn, dry beans, safflower, milo, and sunflowers crops, that are grown in rows and typically planted in spring and harvested in summer or fall. These crops are often planted in rotation with other irrigated crops or winter wheat or barley (Mayer and Laudenslayer 1988). Wildlife species commonly associated with irrigated grain crops include many species of rodents, which attract hawks, owls, and other predators. Deer commonly forage in these fields. The irrigated grain crop located adjacent to the Kopta Slough property (immediately north of the proposed restoration area) has included cotton, sunflower, and corn, and has rotated with beardless wheat.

Irrigated Hayfield

Within the Kopta Slough property, irrigated hayfield is represented by alfalfa. Alfalfa is generally dense, structurally simple, and monotypic. This agricultural crop is intensively managed and mowed. It is generally plowed every three to seven years and is frequently used as part of a crop-rotation strategy (Mayer and Laudenslayer 1988). Wildlife species commonly associated with alfalfa include the black-tailed jackrabbit, California vole, white-tailed kite (*Elanus leucurus*), Swainson's hawk (*Buteo swainsoni*), gopher snake, and Botta's pocket gopher. Irrigated hayfield consists of a single contiguous 176-acre block along the northern edge of the Kopta Slough property. Approximately 80 acres were planted in alfalfa 2018, and the remaining acreage has been planted in a mix of alfalfa, teff grass, and winter wheat. Several alfalfa fields are also located immediately north of the Kopta Slough property.

Riverine

The structure of riverine habitat (stream and river habitat) consists of open water (greater than 2 feet in depth), submerged areas near the shore, and banks with less than 10-percent canopy cover (Mayer and Laudenslayer 1988). Waterfowl use open water areas for resting. Osprey (*Pandion haliaetus*), double-crested cormorants (*Phalacrocorax auritus*), gulls, and terns forage in open water areas. Shorebirds and wading birds, including herons, egrets, and sandpipers, forage along the submerged zone near the shore. Insectivorous species, including swallows and phoebes, forage over riverine habitat. Banks associated with rivers can provide cover or nesting substrate for bank swallows and belted kingfishers (*Megaceryle alcyon*), and the common muskrat, river otter (*Lutra canadensis*), and American beaver (*Castor canadensis*). Riverine habitat occurs adjacent to the Kopta Slough property within Kopta Slough and the Sacramento River main channel.

Urban/Disturbed

Urban or disturbed habitat includes residences, outbuildings, stockyards, and the associated areas of residential landscaping (Mayer and Laudenslayer 1988). Wildlife species commonly associated with urban habitat include the Brazilian free-tailed bat (*Tadarida brasiliensis*), California ground squirrel, Botta's pocket gopher, western fence lizard, and northern mockingbird (*Mimus polyglottos*). Urban or disturbed habitat exists on numerous parcels adjacent to the Kopta Slough property.

Valley Foothill Riparian

Valley foothill riparian consists of mature forest of cottonwood [*Populus fremontii*], valley oak [*Quercus lobata*], and sycamore [*Platanus racemosa*], with an often impenetrable understory of white alder [*Alnus rhombifolia*], willow [*Salix spp.*], Oregon ash [*Fraxinus latifolia*]), elderberry [*Sambucus nigra ssp. caerulea*], poison oak [*Toxicodendron diversilobum*]), and grapevine [*Vitis californica*]. This habitat is associated with the high water table and alluvial soils of stream corridors and floodplains. Valley foothill riparian habitat is designated as a sensitive habitat because of its declining trend and high value to wildlife and hydrologic function. . Valley foothill riparian habitat provides food, water, cover, and reproductive areas for a wide variety of California wildlife species, including 50 species of reptiles and amphibians, 55 mammals, and 147 birds (Mayer and Laudenslayer 1988). Valley foothill riparian habitat also provides migration and dispersal corridors for many wildlife species. This habitat provides nesting habitat for neotropical migratory birds and provides nesting and nursery habitat for heron and egret rookeries. Numerous wildlife species are dependent upon riparian habitat, including the red-shouldered hawk (*Buteo lineatus*), western yellow-billed cuckoo (*Coccyzus americanus occidentalis*), ring-tailed cat (*Bassariscus astutus*), yellow-breasted chat (*Icteria virens*), and American mink (*Mustela vison*). Valley foothill riparian habitat exists throughout and adjacent to the Kopta Slough property. Past protection and restoration actions have resulted in a variety of size and density classes of valley foothill riparian habitat within the Kopta Slough property.

Valley Oak Woodland

Valley oak woodland varies from open savannas to nearly closed canopy forest. The dominant overstory species are oaks [*Quercus lobata*, *Q. douglasii*, and *Q. wislizeni*], with an understory component often consisting of elderberry, poison oak, and annual grasses. This habitat is best developed on valley bottoms with deep alluvial soils and where a permanent underground water source is available to deep-rooted trees. Valley oak woodlands provide food and cover for a variety of wildlife species including the acorn woodpecker (*Melanerpes formicivorus*), oak titmouse (*Baeolophus inornatus*), Lewis' woodpecker (*Melanerpes lewis*), and western gray squirrel. Valley oak woodlands are present in the northwestern portion of the Kopta Slough property. These woodlands include relatively young stands in recently restored areas.

Special-status Wildlife Species

A list of special-status wildlife was generated using the Sacramento USFWS Office's Endangered Species Program website (United States Fish and Wildlife Service 2022). The list identifies federal endangered, threatened, proposed and candidate species under the jurisdiction of the USFWS that may occur or be affected within the project area, as well as areas of designated critical habitat. The CNDDDB Special Animals List (California Department of Fish and Wildlife 2022a) was also consulted for State-listed wildlife species and species of special concern. The combined results of these species lists are presented in Table 5.

Special-status bird surveys were conducted on the Kopta Slough property. During an earlier planning phase of the proposed project, preliminary surveys were conducted for nesting raptors within the project area on three occasions during spring 2008 in accordance with Swainson's hawk survey guidelines (Swainson's Hawk Technical Advisory Committee 2000). Surveys were repeated during winter (pre-nesting) and spring (nesting) in 2014, 2015, and 2021. CDFW's available bank swallow survey data ranging from 2003 to 2020 (California Department of Fish and Game 2003 through 2020) were used to identify colonies in the vicinity of the project area. Preliminary protocol-level western yellow-billed cuckoo surveys were conducted during the 2008 nesting season within suitable habitat. In addition, data from the Point Reyes Bird Observatory's 2010 and 2012 cuckoo survey efforts along the Sacramento River were used to identify nesting cuckoos in the vicinity of the project area (Dettling and Howell 2011; Dettling and Seavey 2013). Preliminary surveys were also conducted during spring 2008 of the location and height of elderberry shrubs (protocol-level surveys were not conducted), and for ground-truthing of wildlife habitat types, on the Kopta Slough property. Elderberry surveys were repeated and expanded in spring 2014 and spring 2021 to incorporate construction disturbance areas, include stem size, and verify that the 2008 data was still accurate. Survey results are summarized in the "Comments" column of Table 5 and presented in Figure 7.

Based on species life history accounts, field surveys, and availability of suitable habitat within the project area, it was determined that five threatened or endangered wildlife species, as well as 19 other special-status wildlife species, may be affected by implementation of the proposed project.

Table 5 Special-status Wildlife Species that may occur within or near the Kopta Slough Project Area

| Common Name (<i>Scientific Name</i>) | Federal Status | State Status | Associated Habitat | Comments |
|-----------------------------------------------------------------|----------------|--------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Birds | | | | |
| American peregrine falcon (<i>Falco peregrinus anatum</i>) | BCC | FP | Forages in wetlands, lakes, rivers, grasslands, and agricultural fields. Nests on cliffs and cliff-like structure. | No peregrine falcon nesting habitat is present within the project area, but sporadic wintering use is likely to occur. <i>Project implementation is not expected to affect this species.</i> |
| American white pelican (<i>Pelecanus erythrorhynchos</i>) | NA | SSC | Forages in shallow water on inland marshes, along lake or river edges, and in wetlands that contain fish. | Occasionally observed on the Sacramento River adjacent to the Kopta Slough property. <i>Project implementation is not expected to affect this species.</i> |
| Bald eagle (<i>Haliaeetus leucocephalus</i>) | NA | E, FP | Large bodies of water or flowing streams with abundant fish and riparian trees for perching and nesting. Breeds February through July, with peak activity from March to June. | One active bald eagle nest was observed approximately 0.7 mile north of the Kopta Slough property boundary during 2008 and 2014 surveys conducted for an earlier planning phase of the proposed project. <i>Project implementation has the potential to affect this species.</i> |
| Bank swallow (<i>Riparia riparia</i>) | NA | T | Colonial nester on vertical streambanks with friable soils. Breeds from early May through July, with peak activity from mid-May to mid-June. | Nearest active colony to the project area was observed in 2016 on the bank of the Kopta Slough property just upstream of the scour hole above the rock revetment (RM 221.4). Active |

| Common Name (<i>Scientific Name</i>) | Federal Status | State Status | Associated Habitat | Comments |
|------------------------------------------------------|----------------|--------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| | | | | <p>colonies were also observed on the eroding bank across the river from the Kopta Slough property (RM 221.6) in 2010 through 2014 and in 2017, 2019, and 2020; on the left bank of private property (RM 220.0) in 2004; on the right bank of the WBSRA Natural Preserve (RM 219.9) in 2003, 2005, 2011-2013, 2017, and 2019; and along the WBSRA eroding bank (RM 218.8 and RM 218.4 in 2017, 2018, and 2020 (California Department of Fish and Game 2003, 2004, 2005, 2007, 2008b, 2009; California Department of Fish and Wildlife and Bank Swallow Technical Advisory Committee 2010-2020). <i>Project implementation has the potential to affect this species.</i></p> |
| <p>Burrowing owl (<i>Athene cunicularia</i>)</p> | <p>BCC</p> | <p>SSC</p> | <p>Prefers grasslands, pastures, agricultural fields, and road embankments. Breeding occurs from March through August, with peak activity in April and May.</p> | <p>Although this species has not been observed in the project area, agricultural habitats within and adjacent to the project area provide potentially suitable nesting and foraging habitat. <i>Project implementation has the potential to affect this species.</i></p> |

| Common Name (Scientific Name) | Federal Status | State Status | Associated Habitat | Comments |
|-----------------------------------------------|-----------------------|---------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Black tern (<i>Chlidonias niger</i>) | NA | SSC | Occurs in freshwater lakes, ponds, wetlands, and agricultural habitats. | This species has been observed foraging over riverine habitat in the Sacramento Valley, but has not been observed in the project area. <i>Project implementation is not expected to affect this species.</i> |
| Caspian tern (<i>Hydroprogne caspia</i>) | BCC | NA | Nests on estuarine shores and islands in alkali and freshwater lakes. Often forages over lacustrine, riverine, and fresh emergent wetland habitats. | This species is relatively uncommon in Tehama County, but has occasionally been observed during the breeding season along the Sacramento River. But, this species has not been observed in or adjacent to the project area. <i>Project implementation is not expected to affect this species.</i> |
| Common loon (<i>Gavia immer</i>) | NA | SSC | Prefers estuarine and subtidal marine habitats; uncommon on large, deep lakes. | This wintering species is known to occur on the Sacramento River, but has not been observed in or adjacent to the project area. <i>Project implementation is not expected to affect this species.</i> |
| Ferruginous hawk (<i>Buteo regalis</i>) | BCC | NA | Requires large, open tracts of grasslands, sparse shrub, or desert habitats with elevated structures for nesting. | Potentially suitable wintering habitat is present within the irrigated hayfields and grasslands within and adjacent to the project area, but this species has not been observed in the project area. <i>Project implementation is not expected to affect this species.</i> |

| Common Name (Scientific Name) | Federal Status | State Status | Associated Habitat | Comments |
|-------------------------------------------------------------|-----------------------|---------------------|---------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Golden eagle (<i>Aquila chrysaetos</i>) | NA | FP | Forages in open habitats including grasslands, savannas, and early seral stages of open shrub and tree habitats. | Limited sporadic use by wintering golden eagles may occur within the project area, but this species has not been observed in the project area. <i>Project implementation is not expected to affect this species.</i> |
| Grasshopper sparrow (<i>Ammodramus savannarum</i>) | NA | SSC | Prefers short to mid-height open grasslands with scattered shrubs. Breeds from early April to mid-July, with peak activity in May and June. | Although this species has not been observed in the project area, potentially suitable nesting habitat is present. <i>Project implementation has the potential to affect this species.</i> |
| Greater sandhill crane (<i>Grus canadensis tabida</i>) | NA | T, FP | Winter habitat consists of grasslands, croplands, or emergent wetlands. | The agricultural lands on and adjacent to the project area provide potentially suitable foraging habitat, but this species has not been observed in the project area. <i>Project implementation is not expected to affect this species.</i> |
| Lawrence's goldfinch (<i>Spinus lawrencei</i>) | BCC | NA | Breeds and forages in open oak or shrub habitats near water. | This species has not been observed in the project area or in adjacent habitats. <i>Project implementation is not expected to affect this species.</i> |
| Least bittern (<i>Ixobrychus exilis</i>) | BCC | SSC | Uses dense emergent vegetation for reproduction and foraging. | This species has not been observed in the project area, and potential breeding and foraging habitat is marginal within the project area. |

| Common Name (Scientific Name) | Federal Status | State Status | Associated Habitat | Comments |
|----------------------------------------------------------------|---------------------------|-------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| | | | | <i>Project implementation is not expected to affect this species.</i> |
| Lesser sandhill crane (<i>Grus canadensis Canadensis</i>) | NA | SSC | Winter habitat consists of grasslands, croplands, or emergent wetlands. | The agricultural lands on and adjacent to the project area provide potentially suitable foraging habitat, but this species has not been observed in the project area. <i>Project implementation is not expected to affect this species.</i> |
| Lewis' woodpecker (<i>Melanerpes lewis</i>) | BCC | NA | Prefers open oak and conifer habitats with snags. | This species is commonly observed along the Sacramento River outside of the breeding season, but has not been observed in the project area. <i>Project implementation is not expected to affect this species.</i> |
| Loggerhead shrike (<i>Lanius ludovicianus</i>) | BCC | SSC | Occurs in open habitats with infrequent perch sites and forages over open, sparse, low herbaceous cover. | The irrigated hayfields within and adjacent to the project area provide suitable habitat for this species, but this species has not been observed within the project area. <i>Project implementation is not expected to affect this species.</i> |
| Long-billed curlew (<i>Numenius americanus</i>) | BCC | NA | Uses a variety of open habitats in the Sacramento Valley during the winter including croplands, mudflats, flooded areas, and open grasslands. | Irrigated hayfield and exposed Sacramento River mudflats within and adjacent to the project area provide suitable wintering habitat for this species, but this species has not been observed within the project area. |

| Common Name (Scientific Name) | Federal Status | State Status | Associated Habitat | Comments |
|-------------------------------------------------|---------------------------|-------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| | | | | <i>Project implementation is not expected to affect this species.</i> |
| Long-eared owl (<i>Asio otus</i>) | NA | SSC | Preferred nesting habitat is reported as dense riparian and live oak stands near open areas or forest grassland edges. Breeding extends from early March to late July. | Potentially suitable nesting and foraging habitat is present within the project area, but this species has not been observed in the project area. <i>Project implementation has the potential to affect this species.</i> |
| Northern harrier (<i>Circus cyaneus</i>) | NA | SSC | Uses a variety of open habitats including meadows, wetlands, annual and perennial grasslands. Nests on ground in shrubby vegetation. Breeds April to September, with peak activity June through July. | Observed foraging over open areas on the Kopta Slough property. <i>Project implementation has the potential to affect this species.</i> |
| Oak titmouse (<i>Baeolophus inornatus</i>) | BCC | NA | Uses a variety of habitats including open oak woodlands and riparian areas. Breeds from March into July, with peak activity in April and May. | Common in the mature valley oak woodland habitat and less frequently observed in the younger restoration plots within the project area. <i>Project implementation has the potential to affect this species.</i> |
| Prairie falcon (<i>Falco mexicanus</i>) | BCC | NA | Associated primarily with grasslands, agricultural fields, river embankments, and open savannas. Usually nests on a sheltered ledge of a cliff, bluff, or outcrop. | Although this species has not been observed in the project area, potentially suitable wintering habitat is present within the irrigated hayfields and annual grasslands of the project area. <i>Project implementation has the potential to affect this species.</i> |

| Common Name (Scientific Name) | Federal Status | State Status | Associated Habitat | Comments |
|----------------------------------------------------|-----------------------|---------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Purple martin (<i>Progne subis</i>) | NA | SSC | Breeds in open, older forests and woodlands, and forages over forest, woodland, chaparral, and riparian habitats. Nests from April into August, with peak activity in June. | Although this species has not been observed in the project area, potentially suitable habitat is present within the project area. <i>Project implementation has the potential to affect this species.</i> |
| Redhead (<i>Aythya Americana</i>) | NA | SSC | Prefers large lakes and areas of emergent vegetation. | This species is occasionally observed on slow-moving open water areas of the Sacramento River, but has not been observed in the project area. <i>Project implementation is not expected to affect this species.</i> |
| Rufous hummingbird (<i>Selasphorus rufus</i>) | BCC | NA | Prefers riparian areas, open woodlands, and chaparral. | This species likely occurs in the project area during migration. In California, migration for this species is in the spring, which is outside of the proposed construction window. <i>Project implementation is not expected to affect this species.</i> |
| Short-eared owl (<i>Asio flammeus</i>) | NA | SSC | Open areas with perch sites and dense grassland for roosting and nesting. Forest and woodland areas are avoided. Breeds from early March through July. | Although this species has not been observed in the project area, potentially suitable nesting and foraging habitat is present within the irrigated hayfields of the project area. <i>Project implementation has the potential to affect this species.</i> |

| Common Name (<i>Scientific Name</i>) | Federal Status | State Status | Associated Habitat | Comments |
|------------------------------------------------------|----------------|--------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Swainson's hawk (<i>Buteo swainsoni</i>) | BCC | T | Breeds in stands with few trees in mature riparian forests. Forages in adjacent grasslands, agricultural fields, or pastures. Breeding occurs late March to late August, with peak activity late May through July. | Three nesting pairs of Swainson's hawks were observed adjacent to the project area during 2008 surveys conducted for an earlier planning phase of the proposed project; two pair were observed during 2014 and 2015 surveys, and two pair were observed during the 2021 surveys. One pair had young in the nest and fledged one chick in 2008. The pairs forage extensively in the alfalfa field at the north end of the Kopta Slough property, in the grasslands on the upper terrace to the west, and, to a lesser extent, in open, early seral stages of riparian habitat, including restored habitats. <i>Project implementation has the potential to affect this species.</i> |
| Tricolored blackbird (<i>Agelaius tricolor</i>) | BCC | T | Breeds near fresh water in dense emergent vegetation and forages in grassland, cropland, and seasonally flooded areas. | Although suitable foraging habitat is present, potentially suitable nesting habitat is generally absent from the project area, and this species has not been observed in the project area. <i>Project implementation is not expected to affect this species.</i> |
| Western yellow-billed cuckoo | T | E | Nests in cottonwood and willow riparian forest. Occurs along the upper Sacramento Valley portion | Potentially suitable western yellow-billed cuckoo nesting habitat is present within some previously |

| Common Name (<i>Scientific Name</i>) | Federal Status | State Status | Associated Habitat | Comments |
|-----------------------------------------------------------|----------------|--------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <i>(Coccyzus americanus occidentalis)</i> | | | of the Sacramento River. Eggs typically laid mid-June to mid-July. | restored areas of the Kopta Slough property, and suitable habitat is present in the adjacent WBSRA Natural Preserve. Site surveys conducted during 2008 for an earlier planning phase of the proposed project, and PRBO Sacramento River surveys conducted during 2010 and 2012 (Dettling and Howell 2011, Dettling and Seavey 2013) failed to detect this species within the project area. Nearest occurrence to project area was documented in the USFWS Rio Vista Unit (RM 216.5) in 2010. The project area falls within the boundary of designated critical habitat for this species. <i>Project implementation has the potential to affect this species.</i> |
| White-tailed kite (<i>Elanus leucurus</i>) | NA | FP | Nests in dense oak or riparian stands near open areas, and forages over grassland, meadows, and cropland. Breeds from February to October, with peak activity from May to August. | Commonly observed in open habitats within the project area and likely breeds on site. <i>Project implementation has the potential to affect this species.</i> |
| Yellow warbler (<i>Dendroica petechia brewsteri</i>) | BCC | SSC | Prefers open to moderate-density forests or woodlands with a dense shrub understory. Breeds from mid-April to early August, | Yellow warblers have not been observed within the project area. But, potentially suitable habitat is present. <i>Project implementation has the</i> |

| Common Name (Scientific Name) | Federal Status | State Status | Associated Habitat | Comments |
|-------------------------------------------------------------------|-----------------------|---------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| | | | with peak activity in June. | <i>potential to affect this species.</i> |
| Yellow-billed magpie <i>(Pica nuttalli)</i> | BCC | NA | Preferred habitats include open oak and riparian woodlands as well as agricultural habitats with tall trees. Breeds from late February to mid-July, with peak activity in May and June. | This species has been observed near the project area, and potentially suitable habitat exists within project area. <i>Project implementation has the potential to affect this species.</i> |
| Yellow-breasted chat <i>(Icteria virens)</i> | NA | SSC | Breeds in riparian habitats having dense understory vegetation, such as willow and blackberry. Breeds from early May to early August, with peak activity in June. | This species has not been observed near the project area, but nearly ideal breeding habitat is present throughout both the restored riparian forest and within open overstory areas within the remnant mature riparian forest. <i>Project implementation has the potential to affect this species.</i> |
| Yellow-headed blackbird <i>(Xanthocephalus xanthocephalus)</i> | NA | SSC | Colonial nester that occurs in dense fresh emergent wetlands. | This species has not been observed within the project area and suitable habitat is lacking. <i>Project implementation is not expected to affect this species.</i> |
| <i>Amphibians</i> | | | | |
| California red-legged frog <i>(Rana draytonii)</i> | T | SSC | Lowlands and foothills in or near permanent sources of deep water with dense, shrubby, or | Although potentially suitable habitat exists along Kopta Slough, the California red-legged frog was |

| Common Name (<i>Scientific Name</i>) | Federal Status | State Status | Associated Habitat | Comments |
|----------------------------------------------------|----------------|--------------|----------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| | | | emergent riparian vegetation. | determined to not have the potential to occur in the project area because it was likely extirpated from the valley floor prior to 1960 (United States Fish and Wildlife Service 1996). The closest known locality for this species is 24 miles west of Red Bluff in the foothills. No occurrences are known from the surrounding valley floor Counties of Shasta, Glenn, or Colusa. <i>Project implementation is not expected to affect this species.</i> |
| Foothill yellow-legged frog (<i>Rana boylei</i>) | NA | SSC, T | Shallow streams and riffles with rocky substrate, and open sunny banks and gravel bars, along forests, chaparral, and woodlands. | Foothill yellow-legged frogs are found year-round in rocky streams in a variety of habitats in Tehama County. The project area is located outside the Northwest and North Coast and Feather River populations. There have been no foothill yellow-legged frogs observed within the project area. <i>Project implementation is not expected to affect this species.</i> |
| Reptiles | | | | |
| Giant garter snake (<i>Thamnophis gigas</i>) | T | T | Wetlands, sloughs, irrigation ditches, rice fields, and low-gradient streams with emergent vegetation. | Potentially suitable habitat is present in the project area, but the project area is well outside the species known range. Additionally, habitat |

| Common Name (Scientific Name) | Federal Status | State Status | Associated Habitat | Comments |
|--------------------------------------------------|----------------|--------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| | | | | linkages between the project area and the known species range are absent. <i>Project implementation is not expected to affect this species.</i> |
| Western pond turtle (<i>Emys marmorata</i>) | NA | SSC | Permanent or nearly permanent slow-water habitat (such as ponds, lakes, streams, or irrigation ditches) with available basking sites and upland habitat in the vicinity of the water. Eggs are laid from March to August. | Observed in Kopta Slough and along the Sacramento River. <i>Project implementation has the potential to affect this species.</i> |
| Mammals | | | | |
| American badger (<i>Taxidea taxus</i>) | NA | SSC | Prefers drier open stages of most shrub, forest, and herbaceous habitats, with friable soils. Litters typically born in March and April. | Potentially suitable habitat is present within the grassland habitats within the project area, but badger dens have not been observed and the majority of proposed activities would occur along the river bank or within previously disturbed areas. <i>Project implementation is not expected to affect this species.</i> |
| Pallid bat (<i>Antrozous pallidus</i>) | NA | SSC | Utilizes a variety of habitats including grasslands, shrublands, woodlands, and forests for foraging. Prefers rocky areas for roosting. Young are born from April through July and weaned in | Potentially suitable foraging habitat is present in the project area. Suitable natural roosting sites are generally absent from the project area. <i>Project implementation has the potential to affect this species.</i> |

| Common Name (Scientific Name) | Federal Status | State Status | Associated Habitat | Comments |
|----------------------------------------------------------------|---------------------------|-------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| | | | July and August. | |
| Ring-tailed cat (<i>Bassariscus astutus</i>) | NA | FP | Riparian habitats and associated brush stands. Nests in rock recesses, hollow trees, logs, snags, abandoned burrows or woodrat nests. Early pup-rearing season ranges from May 1 through June 15. | Riparian habitat in the project area provides suitable habitat for this species. <i>Project implementation has the potential to affect this species.</i> |
| Townsend's big-eared bat (<i>Corynorhinus townsendii</i>) | SC | SSC | Prefers mesic habitat where it forages along forest edges, and roosts in a variety of cave or cave-like situations including human-made structures. Young are born in May and June and weaned in August. | Potentially suitable foraging habitat is present within the project area. Structures on the upland parcel at the entrance to the Kopta Slough property could provide potential roosting habitat. <i>Project implementation has the potential to affect this species.</i> |
| Western mastiff bat (<i>Eumops perotis</i>) | NA | SSC | Arid to semi-arid habitats including conifer and deciduous woodlands, coastal scrub, grasslands and chaparral. Roosts in crevices in cliff faces, buildings, and trees. Young are born from early April through August or September. | Potentially suitable habitat is present in the project area. Species documented at WBSRA in a 1999 CNDDDB occurrence record. <i>Project implementation has the potential to affect this species.</i> |
| Western red bat (<i>Lasiurus blossevilli</i>) | NA | SSC | Prefers riparian forest and woodland sites that includes trees for roosting and adjacent open areas for foraging. Young | Riparian habitat in the project area provides suitable habitat for this species. Species documented at WBSRA in a 1999 CNDDB |

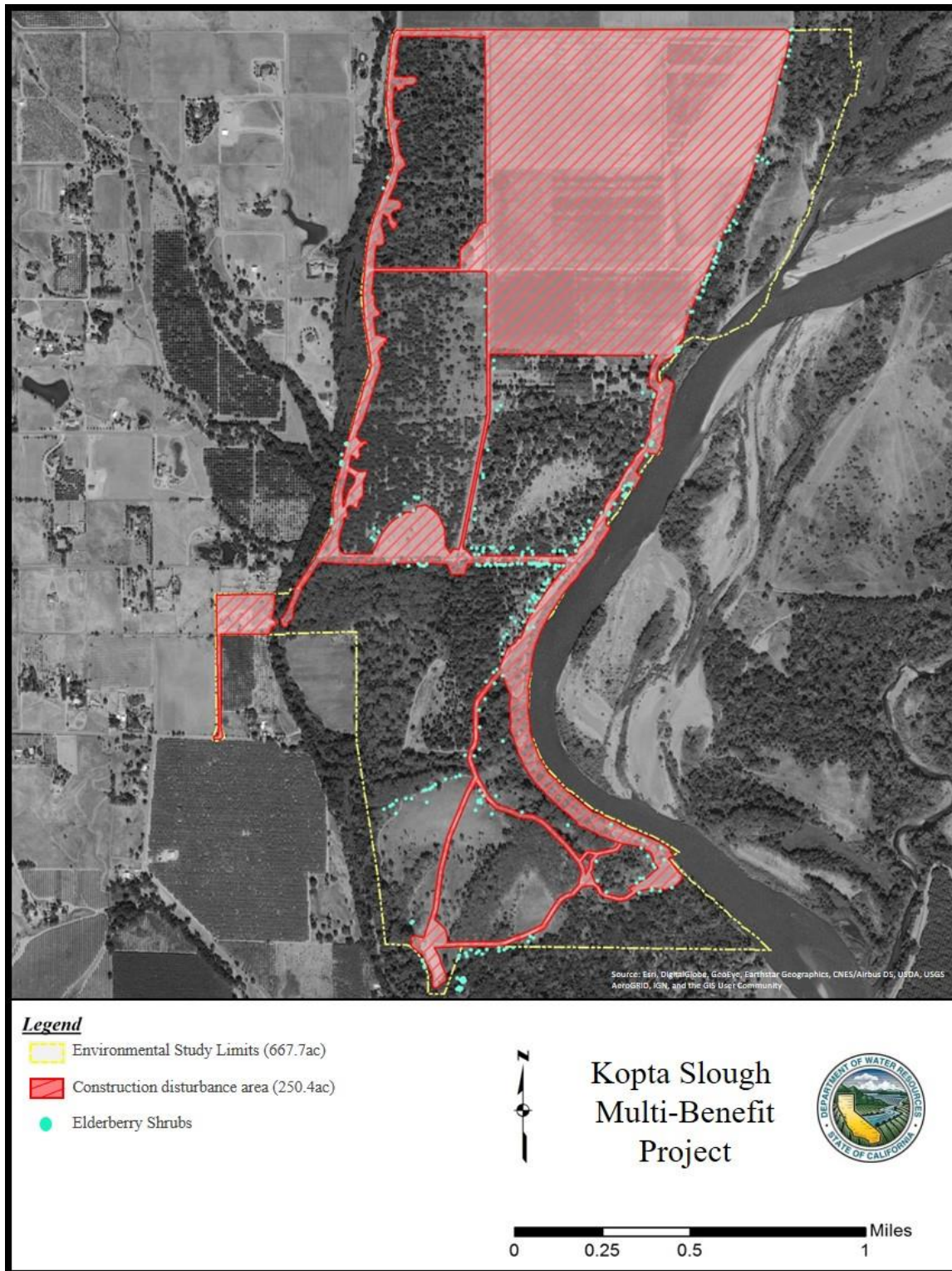
| Common Name (<i>Scientific Name</i>) | Federal Status | State Status | Associated Habitat | Comments |
|-----------------------------------------------------------------------------------|----------------|--------------|------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------|
| | | | are born from late May through early July. | occurrence record. <i>Project implementation has the potential to affect this species.</i> |
| <i>Invertebrates</i> | | | | |
| Monarch butterfly (<i>Danaus plexippus</i>) | C | NA | Found in areas with milkweed plant species during breeding season (spring and summer) and over winter along California coast. | Suitable habitat does not occur within the project area. <i>Project implementation is not expected to affect this species.</i> |
| Valley elderberry longhorn beetle (<i>Desmocerus californicus dimorphus</i>) | T | NA | Elderberry shrubs with stems greater than 1-inch diameter at ground level, and associated with riparian forests that occur along rivers and streams. | Numerous elderberry shrubs exist within the project area. <i>Project implementation has the potential to affect this species.</i> |
| Conservancy fairy shrimp (<i>Branchinecta conservation</i>) | E | NA | Vernal pools | Suitable habitat does not occur within the project area. <i>Project implementation is not expected to affect this species.</i> |
| Vernal pool fairy shrimp (<i>Branchinecta lynchi</i>) | T | NA | Vernal pools | Suitable habitat does not occur within the project area. <i>Project implementation is not expected to affect this species.</i> |
| Vernal pool tadpole shrimp | E | NA | Vernal pools | Suitable habitat does not occur within the project area. |

| Common Name (Scientific Name) | Federal Status | State Status | Associated Habitat | Comments |
|------------------------------------------|---------------------------|-------------------------|---------------------------|-----------------------------------------------------------------------|
| <i>(Lepidurus packardi)</i> | | | | <i>Project implementation is not expected to affect this species.</i> |

Notes: BCC = Federal Bird Species of Conservation Concern; C= candidate; CNDDDB = California Natural Diversity Database; E = endangered; FP = State Fully Protected; NA = not applicable. PRBO = Point Reyes Observatory; T = threatened; RM = river mile; SSC = California Species of Special Concern; USFWS = United States Fish and Wildlife Service; WBSRA = Woodson Bridge State Recreation Area.

Sources: California Department of Fish and Wildlife 2022a, 2022b; Zeiner et al. 1988a, 1988b, 1988c; United States Fish and Wildlife Service 2022.

Figure 7 Elderberry Shrub Distribution within and adjacent to the Proposed Construction Disturbance Area



Botanical Resources

Botanical resources include vegetation communities and their associated plant species, including special-status plant species. Botanical resources also include invasive plant species that may pose a threat to native vegetation, especially sensitive or protected species or plant communities.

The project area for botanical resources is the same as that described for wildlife resources.

Plant Species and Vegetation Communities

The Kopta Slough property supports a mosaic of naturally occurring and restored riparian vegetation communities, as well as disturbed areas and agricultural fields under active cultivation. At the northern end of the Kopta Slough property 176 acres of agricultural fields support field crops. The majority of the Kopta Slough property consists of land restored in phases by TNC from agricultural uses to native riparian species. These restored areas are now vegetated by a mosaic of riparian vegetation types that are dominated by valley oak or cottonwood. They also include more open areas with native riparian forbs, grasses, and shrubs, including blue elderberry (*Sambucus nigra* ssp. *caerulea*). A narrow strip of volunteer woody riparian vegetation consisting mostly of native species exists along the armored bank of the Sacramento River. At the southeastern corner of the Kopta Slough property remnant native riparian forest extends from the river's edge inland to the WBSRA Natural Preserve and surrounds Kopta Slough. This area is dominated by black walnut (*Juglans hindsii*), cottonwood, and box elder (*Acer negundo*).

Vegetation communities were mapped and ground-truthed during spring 2021. The project area was broadly categorized into a "water category" representing a portion of the river and Kopta Slough, as well as four vegetation communities that are described below: riparian scrub and savanna, disturbed/unvegetated, herbaceous, and riparian forest (Table 6 and Figure 8). These categories were differentiated within the context of the project area and based on field observations; however, plant community naming convention is scale-dependent and existing statewide vegetation classification systems also can be used (e.g., Manual of California Vegetation [Sawyer et al. 2008]; California Wildlife-Habitat Relationships [Mayer and Laudenslayer 1988]; Holland Vegetation Types [Holland 1986]; Wetland Habitats [Cowardin et al. 1979]; Table 7).

Table 6 Vegetation Types within the Kopta Slough Project Area

| Vegetation Type | CWHR Habitat Equivalent | Acres within Kopta Slough Project Area |
|----------------------------|-----------------------------------------|----------------------------------------|
| Riparian scrub and savanna | Valley Oak Woodland | 206.86 |
| Disturbed or unvegetated | Barren | 25.44 |
| Herbaceous | Annual grassland and Irrigated Hayfield | 235.26 |
| Riparian Forest | Valley Foothill Riparian | 193.45 |
| Water | Riverine | 6.70 |
| Total | | 668.00 |

Note: CWHR = California Wildlife Habitat Relationships.

Riparian Scrub and Savanna

The riparian scrub and savanna vegetation type combines shrub-dominated areas of coyote bush with more open areas that support a patchwork of small trees, such as box elder, willows, and elderberry.

Riparian Forest

The riparian forest vegetation type describes forests and woodlands with dominant overstory tree species ranging from massive cottonwoods and sycamores to thickets of box elder and willow. In many areas, the forest and shrub vegetation type exhibits a multi-layered canopy, with Himalayan blackberry (*Rubus armeniacus*), being a nearly ubiquitous component of the understory.

Herbaceous

The herbaceous vegetation type includes agricultural fields as well as uncultivated areas dominated by non-native annual grasses, such as brome (*Bromus hordeaceus* and *B. diandrus*). Annual grasslands in the herbaceous vegetation type closely intergrade with savanna portions of the riparian scrub and savanna vegetation type.

Disturbed/Unvegetated

The disturbed/unvegetated vegetation type describes existing roadbeds, parking areas, and mowed pathways.

Water

Open water is not a vegetation type, but these areas can support transient populations of floating aquatic plants, such as frogbit (*Limnobium spongia*), parrot's feather (*Myriophyllum aquaticum*), water primrose (*Ludwigia peploides* ssp. *peploides*), and pondweed (*Potamogeton crispus*). Floating aquatic plants are mobile and entire populations drift with air and water currents.

Figure 8 Distribution of Vegetation Communities within the Kopta Slough Project Area



Table 7 Vegetation Community Descriptions and Vegetation Classification Crosswalk

| Project Area Vegetation Community | Common Plant Species | Manual of California Vegetation Communities¹ | Holland Names² | California Wildlife Habitat Relationship³ |
|------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------|
| Riparian scrub and savanna | <i>Baccharis pilularis</i> , <i>Acer negundo</i> , <i>Sambucus nigra</i> ssp. <i>caerulea</i> , <i>Salix</i> spp. <i>Bromus hordeaceus</i> , <i>B. diandrus</i> | Valley oak woodland and forest; Bromus (diandrus, hordeaceus)-Brachypodium distachyon Semi- Natural Herbaceous Stands | Valley Oak Woodland; Blue Oak Woodland; Northern Oak Woodland; Non-Native Grassland; Valley and Foothill Grassland | Valley Oak Woodland |
| Disturbed or unvegetated | NA (Gravel roads and unvegetated gravels along the Sacramento River shoreline. Some dirt roads are mowed of weeds and other vegetative growth. <i>Bromus</i> spp. and <i>Erodium</i> spp.) | NA | NA | Barren; Riverine |
| Herbaceous | <i>Amsinckia lycopsoides</i> , <i>Lepidium draba</i> , <i>Dipsacus fullonum</i> , <i>Bromus hordeaceus</i> , <i>B. diandrus</i> , <i>Erodium botrys</i> | Blue oak woodland and forest; Valley oak woodland and forest; Bromus (diandrus, hordeaceus)-Brachypodium distachyon Semi- Natural Herbaceous Stands | Valley Oak Woodland; Blue Oak Woodland; Northern Oak Woodland; Non-Native Grassland; Valley and Foothill Grassland | Annual Grassland; Irrigated Hayfield; |

| Project Area Vegetation Community | Common Plant Species | Manual of California Vegetation Communities¹ | Holland Names² | California Wildlife Habitat Relationship³ |
|------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Riparian Forest | <i>Quercus lobata</i> , <i>Populus fremontii</i> , <i>Platanus racemosa</i> , <i>Alnus rhombifolia</i> , <i>Salix exigua</i> , <i>Cephalanthus occidentalis</i> , <i>Acer negundo</i> , <i>Ambrosia psilostachya</i> , <i>Rubus armeniacus</i> , <i>Sambucus nigra</i> ssp. <i>caerulea</i> | Populus Fremontii forest alliance; Rubus armeniacus semi-natural shrubland stands; Ambrosia psilostachya provisional herbaceous alliance; <i>Salix exigua</i> shrubland alliance | Riparian Forests and Woodlands; Gray Pine-Oak Woodland; Valley Oak Woodland; Valley Oak Woodland; Sycamore Alluvial Woodland | Valley Foothill Riparian Fresh Emergent Wetland (herbaceous riparian wetland) |

Notes: ¹Sawyer et al. 2009; ²Holland 1986; ³Mayer and Laudenslayer 1988; NA = Not applicable.

Plant Species

In addition to the plant species mentioned as dominants, co-dominants, or understory associates in Table 7, two other categories of plant species occur or have the potential to occur within the project area: non-native invasive species and special-status species.

Non-Native Plant Species

Based on a search of the California Invasive Plant Council (2021) and California Department of Food and Agriculture (2021) databases, 15 species of non-native plants with varying degrees of invasiveness could occur within the project area (Table 8). Non-native plant species can form large infestations that can adversely affect native plant and animal species, reducing local plant diversity and lowering the wildlife habitat value of the site.

Table 8 Invasive Plant Species likely to occur within the Kopta Slough Project Area

| Scientific Name (Common Name) | Cal-IPC ¹ Inventory Rating | CDFA ² Noxious Weed? | Ecological Threats | Comments |
|--------------------------------------------------------------------------------|---------------------------------------------|---------------------------------------|----------------------------------------------------------------------------------|--------------------------------|
| <i>Ailanthus altissima</i> (Tree of heaven) | M | X | Large colonies displace native riparian trees. | Observed during field surveys. |
| <i>Arundo donax</i> (Giant reed) | H | X | Rapid spread; displaces all riparian vegetation. | Observed during field surveys. |
| <i>Lepidium chalepense</i> (Lens-podded white-top or hoarycress) | M / Alert | X | Large colonies can displace riparian vegetation in openings. | Observed during field surveys. |
| <i>Centaurea solstitialis</i> (Yellow starthistle) | H | X | Rapid spread in adjacent terraces; displaces native vegetation. | Observed during field surveys. |
| <i>Conium maculatum</i> (Poison hemlock) | M | NA | Forms dense patches that displace native vegetation in riparian areas. | Observed during field surveys. |
| <i>Cortaderia selloana</i> , <i>C. jubata</i> (Pampas grass) | H | X | Can spread along levees, replacing native vegetation. | Not observed. |
| <i>Dipsacus sativus</i> , <i>D. fullonum</i> (Fullers and common teasel) | M | NA | Forms impenetrable stands that displace wildlife and native riparian vegetation. | Observed during field surveys. |
| <i>Ficus carica</i> (Edible fig) | M | NA | Displaces native riparian trees. | Observed during field surveys. |
| <i>Foeniculum vulgare</i> (Fennel) | H | NA | Large colonies can displace riparian vegetation in openings. | Not observed. |
| <i>Hypericum perforatum</i> | L | X | Large colonies can displace riparian | Observed during field |

| Scientific Name (Common Name) | Cal-IPC ¹ Inventory Rating | CDFA ² Noxious Weed? | Ecological Threats | Comments |
|-------------------------------------------------------------------------------------------------------------|---------------------------------------------|---------------------------------------|----------------------------------------------------------------------|--------------------------------------------------------------------|
| (Klamathweed) | | | vegetation in openings. | surveys. |
| <i>Lepidium latifolium</i> (Perennial pepperweed) | H | X | Large colonies can displace riparian vegetation in openings. | Observed during field surveys. |
| <i>Ludwigia peploides</i> ssp. <i>montevidensis</i> (Montevideo waterweed or water primrose) | H | NA | Dense mats can clog waterways, alternative aquatic ecosystems. | Observed during field surveys only in Kopta Slough. |
| <i>Lythrum salicaria</i> (Purple loosestrife) | H | X | Large colonies can displace wetland, aquatic vegetation. | Not observed. |
| <i>Rubus armeniacus</i> (Himalayan blackberry) | H | NA | Large colonies displace native riparian trees and shrubs. | Observed during field surveys. |
| <i>Sesbania punicea</i> (Scarlet wisteria) | H | X | Large colonies can displace riparian vegetation in openings. | Not observed. |

Notes:

¹California Invasive Plant Council Inventory (Cal-IPC):

H = High: Invasive species with most severe wildland ecological impacts, widespread;
M = Moderate: Invasive species with substantial wildland impacts; local to widespread;
L= Limited: Invasive species with minor wildland ecological impacts; limited distribution,
though may be locally problematic.

Alert = species with potential to spread explosively, infestation currently restricted.

²California Department of Food and Agriculture (CDFA):

X = Listed as a CDFA noxious weed; NA = Not listed as a CDFA noxious weed.

Source: California Invasive Plant Council 2021.

As indicated in Table 8, 11 of the 15 invasive plant species were observed on the Kopta Slough property during field surveys conducted for an earlier planning phase of the proposed project; these surveys were conducted on foot using real-time global positioning system and geographical information system mapping during the flowering season in 2008 and 2014. Large

infestations of perennial pepperweed (*Lepidium latifolium*), lens-podded white-top (*Cardaria chalepensis*), yellow starthistle (*Centaurea solstitialis*), Himalayan blackberry, and giant-reed (*Arundo donax*) were observed in both survey years. Water primrose (*Ludwigia peploides* ssp. *montevidensis*) was found only in Kopta Slough. In addition to the invasive species indicated in Table 8, scattered clusters of shore vervain (*Verbena littoralis*) were also found during 2014 field surveys.

Special-status Plant Species

A list of special-status plant species potentially present within the project area was generated by conducting a county-level and nine-quad search of the California Native Plant Society (CNPS) Inventory of Rare and Endangered Plants of California (California Native Plant Society 2020), as well as a Rarefind 5 query of the CNDDDB (California Department of Fish and Wildlife 2020a). Query results indicated that six federal or State-listed plant species and 17 additional species with Rare Plant Ranks 1B or 2B are known to occur within a 9-mile radius of the project area below approximately 400-foot elevation (Table 9). Several other species with Rare Plant Ranks 3 or 4 also may occur in the vicinity of the project area. The project area does not fall within designated critical habitat for any plant species (United States Fish and Wildlife Service 2022).

Table 9 Special-status Plant Species with potential to occur within the Kopta Slough Project Area

| Scientific Name (Common Name) | Federal Status ¹ | State Status ² | CNPS Rank ³ | Habitat (elevation in meters) | Flowering Period | Likelihood of occurrence within the Kopta Slough Project Area |
|---------------------------------------------------------------------------|-----------------------------|---------------------------|------------------------|------------------------------------------------------------------------------------------------------------------------|------------------|---------------------------------------------------------------|
| <i>Agrostis hendersonii</i> (Henderson's bent grass) | NA | NA | 3.2 | Valley and foothill grassland (mesic), vernal pools (70–305m). | April–May | Low. No vernal pool or moist grassland habitat present. |
| <i>Astragalus pauperculus</i> (depauperate milk-vetch) | NA | NA | 4.3 | Chaparral, Cismontane woodland, Valley and foothill grassland, vernal mesic, volcanic (60–1215m). | March–June | Low. No vernal pool or moist grassland habitat present. |
| <i>Astragalus tener</i> var. <i>ferrisiae</i> (Ferris's milk-vetch) | NA | NA | 1B.1 | Meadows and seeps (vernally mesic), valley and foothill grassland (sub-alkaline flats) (5–75m). | April–May | Low. No alkaline meadow habitat present. |
| <i>Brodiaea rosea</i> ssp. <i>vallicola</i> (Valley brodiaea) | NA | NA | 4.2 | Valley and foothill grassland (swales), Vernal pools Old alluvial terraces; silty, sandy, and gravelly loam (10–335m). | April–May | Low. No alkaline meadow habitat present. |
| <i>Castilleja rubicundula</i> ssp. <i>rubicundula</i> (Pink creamsacs) | NA | NA | 1B.2 | Chaparral (openings), cismontane woodland, meadows and seeps, valley and foothill | April–June | Low. No moist grassland or serpentine habitat present. |

| Scientific Name (Common Name) | Federal Status ¹ | State Status ² | CNPS Rank ³ | Habitat (elevation in meters) | Flowering Period | Likelihood of occurrence within the Kopta Slough Project Area |
|---------------------------------------------------------------------------------|--------------------------------|------------------------------|---------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|---------------------------------------------------------------------|
| | | | | grassland and serpentinite (20–900m). | | |
| <i>Clarkia gracilis</i> ssp. <i>albicaulis</i> (white-stemmed clarkia) | NA | NA | 1B.2 | Chaparral, Cismontane woodland sometimes serpentinite (245–1085m). | May–July | Low. No suitable habitat present. |
| <i>Cryptantha crinite</i> (silky cryptantha) | NA | NA | 1B.2 | Cismontane woodland, Lower montane coniferous forest, Riparian forest, Riparian woodland, Valley and foothill grassland gravelly streambeds (61–1215m). | April–May | Low. Limited dry streambed present. |
| <i>Downingia pusilla</i> (Dwarf downingia) | NA | NA | 2B.2 | Valley and foothill grassland (mesic), vernal pools (1–445m). | March–May | Low.- No vernal pool or mesic grassland habitat present. |
| <i>Erythranthe glaucescens</i> (shield-bracted monkey flower) | NA | NA | 4.3 | Chaparral, Cismontane woodland, Lower montane coniferous forest, Valley and foothill grassland serpentinite seeps, sometimes streambanks (60–1240m). | February– August | Moderate. Abundant in Butte County. |

| Scientific Name (Common Name) | Federal Status ¹ | State Status ² | CNPS Rank ³ | Habitat (elevation in meters) | Flowering Period | Likelihood of occurrence within the Kopta Slough Project Area |
|-------------------------------------------------------------------------------------------------|-----------------------------|---------------------------|------------------------|--------------------------------------------------------------------------------------------------|------------------|------------------------------------------------------------------------------------------------------------|
| <i>Euphorbia hooveri</i> (Hoover's spurge) | FT | NA | 1B.2 | Vernal pools (25–250m). | July–August | Low. No vernal pool habitat present. |
| <i>Euphorbia ocellata</i> <i>ssp. rattanii</i> (Stony Creek spurge) | NA | NA | 1B.2 | Vernal pools and shale creek banks (25–250m). | July–August | Low. No vernal pool or shale habitat present. |
| <i>Fritillaria pluriflora</i> (Adobe-lily) | NA | NA | 1B.2 | Chaparral, cismontane woodland, valley and foothill grassland/often adobe (60–705m). | February–April | Low. No heavy clay soils present. |
| <i>Gratiola heterosepala</i> (Bogg's Lake hedge-hyssop) | NA | SE | 1B.2 | Lake margins, marshes, vernal pools in wet clay soil (10–2375m). | April–August | Low. No lake margin or vernal pool habitat present. |
| <i>Hesperevax caulescens</i> (hogwallow starfish) | NA | NA | 4.2 | Valley and foothill grassland (mesic, clay), Vernal pools (shallow) sometimes alkaline (0–505m). | March-June | Low. No vernal pool habitat present. |
| <i>Hibiscus lasiocarpus</i> <i>var. occidentalis</i> (Rose-mallow or California hibiscus) | NA | NA | 1B.2 | Marshes and swamps (freshwater), slough riparian edges (0–120m). | June–September | Low to moderate. Potential suitable habitat along edges of Kopta Slough, but not known from Tehama County. |

| Scientific Name (Common Name) | Federal Status¹ | State Status² | CNPS Rank³ | Habitat (elevation in meters) | Flowering Period | Likelihood of occurrence within the Kopta Slough Project Area |
|-----------------------------------------------------------------------------------------|---------------------------------------|-------------------------------------|----------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|-------------------------------------------------------------------------------------------|
| <i>Juncus leiospermus</i> <i>var. ahartii</i> (Ahart's dwarf rush) | NA | NA | 1B.2 | Valley and foothill grasslands (mesic) (30–100m). | March–May | Low. No moist grassland habitat present. |
| <i>Juncus leiospermus</i> <i>var. leiospermus</i> (Red Bluff dwarf rush) | NA | NA | 1B.1 | Chaparral, cismontane woodland, meadows and seeps, valley and foothill grassland, vernal pools and vernal mesic (35–1020m). | March–May | Low. No vernal pool or moist grassland habitat present. |
| <i>Lasthenia glabrata</i> <i>ssp. coulteri</i> (Coulter's goldfields) | NA | NA | 1B.1 | Marshes and swamps (coastal salt), Playas, Vernal pools (1–1220m). | February– June | Low. No vernal pool habitat present. |
| <i>Legenere limosa</i> (Legenere) | NA | NA | 1B.1 | Vernal pools, at receding water edges (1–880m). | April–June | Low. No vernal pool habitat present. |
| <i>Limnanthes floccose</i> <i>ssp. californica</i> (Butte County meadow- foam) | FE | SE | 1B.1 | Valley and foothill grassland (mesic), vernal pools (50–930m). | March–May | Low. No vernal swale or clay grassland habitat present; known only in Butte County. |
| <i>Limnanthes floccose</i> <i>ssp. floccosa</i> (Woolly meadow- foam) | NA | NA | 4.2 | Chaparral, Cismontane woodland, Valley and foothill grassland, Vernal pools vernal mesic (60–1335m). | March–May | Low. No vernal pool habitat present. |

| Scientific Name (Common Name) | Federal Status¹ | State Status² | CNPS Rank³ | Habitat (elevation in meters) | Flowering Period | Likelihood of occurrence within the Kopta Slough Project Area |
|--------------------------------------------------------------------------|---------------------------------------|-------------------------------------|----------------------------------|---------------------------------------------------------------------------------------------------------------------------------|-----------------------------|------------------------------------------------------------------------------|
| <i>Navarretia heterandra</i> (Tehama navarretia) | NA | NA | 4.3 | Valley and foothill grassland (mesic), Vernal pools (30–1010m). | April–June | Low. No vernal pool habitat present. |
| <i>Navarretia leucocephala ssp. bakeri</i> (Baker’s navarretia) | NA | NA | 1B.1 | Vernal pools, meadows and seeps (5–1740m). | April–July | Low. No vernal pool habitat present. |
| <i>Navarretia nigelliformis ssp. nigelliformis</i> (adobe navarretia) | NA | NA | 4.2 | Valley and foothill grassland vernal mesic, Vernal pools sometimes clay, sometimes serpentinite (100–1000m). | April–June | Low. No vernal pool habitat present. |
| <i>Orcuttia pilosa</i> (Hairy Orcutt grass) | FE | SE | 1B.1 | Vernal pools (55–200m). | May–September | Low. No vernal pool habitat present. |
| <i>Orcuttia tenuis</i> (Slender Orcutt grass) | FT | SE | 1B.1 | Vernal pools (35–1760m). | May–October | Low. No vernal pool habitat present. |
| <i>Paronychia ahartii</i> (Ahart's paronychia) | NA | NA | 1B.1 | Moist flats in cismontane woodland, valley and foothill grassland, in vernal pools or vernal wet stony volcanic soil (30–510m). | March–June | Low. No suitable habitat present. |

| Scientific Name (Common Name) | Federal Status¹ | State Status² | CNPS Rank³ | Habitat (elevation in meters) | Flowering Period | Likelihood of occurrence within the Kopta Slough Project Area |
|---------------------------------------------------------|---------------------------------------|-------------------------------------|----------------------------------|---------------------------------------------------------------------------------------------|-----------------------------|------------------------------------------------------------------------------|
| <i>Polygonum bidwelliae</i> (Bidwell's knotweed) | NA | NA | 4.3 | Chaparral, Cismontane woodland, Valley and foothill grassland volcanic (60–1200m). | April–July | Low. No suitable habitat present. |
| <i>Sagittaria sanfordii</i> (Sanford's arrowhead) | NA | NA | 1B.2 | Marshes and swamps (assorted shallow freshwater) (0–610m). | May- October | Low to moderate. Limited shallow still water habitat present. |
| <i>Tuctoria greenei</i> (Greene's tuctoria) | FE | SR | 1B.1 | Vernal pools (30–1070m). | May– September | Low. No vernal pool habitat present. |
| <i>Wolffia brasiliensis</i> (Brazilian watermeal) | NA | NA | 2.3 | Marshes, shallow fresh water (30–100m). | April– December | Low to moderate. Limited shallow still water habitat present. |

Notes:

¹ FE = Federal endangered; FT = Federal threatened.

² SE - State endangered; SR - State rare.

³ California Native Plant Society (CNPS): List 2 - plants rare, threatened, or endangered in California but more common elsewhere; List 3 - plants about which more information is needed; List 4 - plants of limited distribution.

CNPS threat codes: 0.1: Seriously endangered in California; 0.2: Fairly endangered in California; 0.3: Not very endangered in California.

m = meters; NA = No listing status.

Surveys were conducted only for plant species with a moderate likelihood of occurrence in the project area. Most of the low-likelihood plant species listed in Table 9 require specific habitat types, such as lake edge, vernal pool, or heavy clay substrates, none of which are characteristic of the habitats present within the project area. These habitats are also absent in the 5-acre upland parcel at the entrance to the Kopta Slough property. For these reasons, none of the special-status plant species in Table 9 with a low likelihood of occurrence were considered to be potentially present and, consequently, were not included in field surveys conducted for an earlier planning phase of the proposed project on the Kopta Slough property in 2008 and 2014.

Rare plant surveys within anticipated construction disturbance areas were conducted by DWR botany staff on foot and by boat in 2008 and were supplemented with updated boat surveys and terrestrial habitat surveys in 2014 and 2020. California hibiscus (*Hibiscus lasiocarpus* var. *occidentalis*) and Sanford's arrowhead (*Sagittaria sanford*), both special-status plant species known to occur at stream edges, sloughs, and seeps in the northern Sacramento Valley, were the primary focus of the 2008 vegetation survey. Boat surveys conducted within Kopta Slough in 2008 and 2020 were focused on Brazilian watermeal (*Wolffia brasiliensis*) and shield-bracted monkey flower (*Erythranthe glaucescens*). No rare plants were observed during the 2008, 2014, or 2020 surveys.

Wetlands and Other Waters of the United States

DWR conducted a wetland delineation on May 5 and May 19, 2021. Methods followed the 1987 Corps of Engineers Wetland Delineation Manual (Environmental Laboratory) (1987) and the Arid West Regional Supplement to the Corps of Engineers Wetland Delineation Manual (United States Army Corps of Engineers 2008) and adhered to the Minimum Standards for Acceptance of Preliminary Wetland Delineations (United States Army Corps of Engineers 2001). Potentially jurisdictional other waters of the U.S. were delineated on May 6, 2021, in accordance with procedures described in *A Field Guide to the Identification of the Ordinary High Water Mark in the Arid West Region of the Western United States* (Lichvar and McColley 2008).

Within the project area, potentially jurisdictional wetlands and other waters of the U.S. were identified, quantified, and mapped. Aquatic resources within

the project area include palustrine and riverine environments. Interior portions of the Kopta Slough property that are not directly adjacent to a waterbody (i.e., Sacramento River or Kopta Slough) do not have positive indicators for hydrophytic vegetation, hydric soil, or wetland hydrology. Although the entire Kopta Slough property is part of the Sacramento River floodplain, most areas are inundated infrequently and for short periods, and only during major flood events. These non-wetland areas often support deep-rooted phreatophytes with water table access. Delineated palustrine environments consist of a riparian forest and shrub wetland parallel to the Sacramento River, and delineated riverine environments consist of a perennial stream (Sacramento River) and a backwater feature (Kopta Slough). Palustrine environments (wetlands) delineated along the Sacramento River were considered jurisdictional other waters of the U.S.

3.5.2 Discussion of Impacts

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

Fisheries Resources

Less than Significant with Mitigation Incorporated. The reach of the Sacramento River adjacent to the project area provides habitat for both juvenile and adult special-status fish species, including North American green sturgeon, Central Valley steelhead, and Chinook salmon (winter-, spring-, and fall and late fall-run). It also provides potential habitat for river lamprey, Pacific lamprey, hardhead, and Sacramento splittail. Proposed rock revetment removal would require construction activities within and immediately adjacent to the river, which would have the potential to affect special-status fish species and their designated critical habitat within and downstream of the project area through direct harm, changes in water quality, and habitat modification.

Direct Harm

Construction activities along the bank of the Sacramento River cannot be timed to avoid all life stages of special-status fish species because of the year-round presence of at least one life stage. Proposed construction activities that

would extend into the river (i.e., rock revetment removal) have the potential to directly displace, injure, or kill both adult and juvenile fish, including anadromous salmonids and green sturgeon. An excavator would work from the river bank, extending the excavator bucket as much as 20 feet into the wetted channel to remove rock revetment from the river. Adult fish likely would move out of the area before or immediately after equipment begins work in the water, and the existing pools adjacent to and downstream of the rock revetment provide habitat for displaced adults. For these reasons, rock revetment removal activities are not anticipated to injure or kill special-status adult fish species.

The potential for direct injury or death would be higher for juvenile fish because they are less mobile than adults and juvenile winter-run Chinook salmon outmigrants may be in the vicinity of the project area as early as July or August, with September and October being the peak months for outmigration within this reach of the river. But, the exposed rock along the wetted edge of the river, especially in the upstream extent of rock revetment, contributes to increases in velocity along the riverbank. These increased velocities provide marginal juvenile fish habitat along the upstream section of rock revetment (Poytress pers. comm. Jan. 6, 2022). In addition, the undisturbed adjacent river banks provide habitat for displaced juveniles. For these reasons, rock revetment removal activities are not anticipated to injure or kill special-status juvenile fish species in the upstream extent of rock revetment.

The downstream section of the rock revetment could provide potential juvenile fish habitat because velocities along the river bank are slower (Poytress pers. comm. Jan. 6, 2022). Proposed excavation and associated movement of rock within the river could have the potential to injure or kill juvenile winter-run Chinook salmon, which would result in a potentially significant impact. Mitigation Measure Fish-1 includes a work window to avoid peak outmigration and minimize the duration of in-water construction activities. It also requires in-water activities to start at the downstream end of the rock revetment and proceed upstream to avoid juvenile winter-run Chinook salmon that may be present at the lower end of the rock revetment later in the construction work window. Implementation of the avoidance and minimization measures included in Mitigation Measure Fish-1 would reduce these potential short-term impacts to less than significant.

Changes in Water Quality

Proposed construction activities on the bank and within the Sacramento River would cause temporary increases in turbidity and suspended sediment as a result of stirring fine sediments within the river during construction, and the delivery of fine sediments from the river bank during construction and the first year following construction. In addition, the removal of rock revetment from the riverbank could also contribute to potential long-term turbidity increases in the river during high-flow events because the riverbank would be susceptible to erosion. This increase in turbidity and suspended sediment could potentially affect spawning habitat or feeding or holding behavior of special-status and resident fish species downstream of the project area.

The project area is located within and upstream of potential spawning habitat for green sturgeon and Chinook salmon (fall and late-fall run). Suspended sediment from proposed construction activities may settle on downstream potential spawning habitat. Embryos and alevins are particularly susceptible to impacts from increased turbidity during their incubation. A high percentage of fines within the channel substrate can result in reduced oxygen levels within redds, which could result in the smothering of eggs or preventing young from emerging. Increases in turbidity could also temporarily affect adult and juvenile fish species holding and rearing downstream of the project area. Increases in turbidity could temporarily disrupt juvenile behavior or cause juveniles to be temporarily displaced from their habitat, decreasing their foraging efficiency and increasing their vulnerability to predation. Juvenile and adult anadromous fish need clear water to see their prey, which consists primarily of aquatic insects and other macroinvertebrates. These aquatic insects and other macroinvertebrates feed on suspended organic particles, making it essential to have balance between water clarity and turbidity caused by suspended organic particles (Madej 2004). In addition, elevated suspended sediment can also damage gill tissue, causing asphyxiation in both juveniles and adult fish.

These short and long-term impacts related to turbidity and suspended sediment would be potentially significant. But, these impacts would be minimized with the proposed instream construction work window that would take place as river flows recede. The proposed work windows are outside of the spawning and incubation period for North American green sturgeon and just prior to peak spawning for fall- and late fall-run Chinook salmon. In addition, implementation of an avoidance work window and measures to

minimize turbidity as described in Mitigation Measure Fish-1, as well as implementation of the erosion and sediment control measures included in Mitigation Measure Water Quality-1 (refer to Section 3.10.3, "Mitigation Measures," in the "Hydrology and Water Quality" section), would minimize this impact. Construction activities would also comply with the sediment control measures and water quality monitoring required pursuant to a federal Clean Water Act (CWA) Section 401 certification issued by the CVRWQCB, as well as a CDFW Lake and Streambed Alteration Agreement. In addition, a biological assessment (BA) pursuant to Section 7 of the Endangered Species Act has been prepared to address potential impacts of the proposed project on North American green sturgeon, Southern DPS, Central Valley steelhead, Central Valley spring-run Chinook salmon, Sacramento River winter-run Chinook salmon, and their designated critical habitat. An EFH assessment has been prepared as part of the BA to address impacts to Chinook salmon. The proposed project likely will qualify for coverage under the National Oceanic and Atmospheric Administration's (NOAA) Restoration programmatic biological opinion. Upon receipt of concurrence from NOAA Fisheries that the project will qualify for coverage under the programmatic biological opinion, a consistency determination would be obtained from CDFW to address the potential impacts of the proposed project on Central Valley spring-run Chinook salmon and Sacramento River winter-run Chinook salmon. Potential impacts, therefore, would be minimized to less than significant.

Proposed construction activities would require the use of power equipment and heavy equipment to work within and immediately adjacent to the Sacramento River. This need creates a risk of hazardous materials (such as fuel, lubricants, or hydraulic fluids) accidentally leaking or spilling into the river. A hazardous leak or spill could have deleterious effects on all life stages of fish species and their habitat and would be potentially significant. Incubating fry would be at the greatest risk, whereas juvenile and adult fish exhibit a greater level of mobility and greater ability to avoid potentially hazardous materials. But, the majority of construction activities within and adjacent to the Sacramento River would take place outside the spawning and incubation period for North American green sturgeon and prior to the peak spawning for fall and late fall-run Chinook salmon. In addition, implementation of measures to minimize the risk of accidental leaks or spills of hazardous materials included in Mitigation Measure Hazards-1 would

reduce this impact to less than significant.

Habitat Modification

Green sturgeon have been documented in the pool located immediately downstream of the rock revetment proposed for removal. The pool provides holding habitat and potential spawning habitat for adult green sturgeon and provides potential habitat for other special-status and resident fish species. The removal of rock revetment would restore natural riverine processes, which would allow this section of river to meander and may cause the pool to fill in over time. Although it is not possible to predict exactly what the river would do once the rock revetment has been removed, it is anticipated that the quantity and quality of aquatic habitat would be improved as a result of allowing the river to meander. Allowing the river to meander would create additional edge habitat along the river banks and possibly create other pool habitats within and downstream of the project area. In addition, the removal of the berm and rock revetment would increase floodplain connectivity. Reconnecting the river to its floodplain would have many long-term beneficial effects including increasing the frequency of floodplain inundation, creating side channels, and recruiting organic material, IWM, and terrestrial food organisms. Proposed construction activities may result in short-term and potential long-term adverse effects on special-status fish species and their designated critical habitat, but the long-term beneficial effects of the proposed project would outweigh these adverse effects. Therefore, this impact would be less than significant.

Wildlife Resources

Less than Significant with Mitigation Incorporated. During construction and restoration, special-status wildlife species may be adversely affected by habitat modifications, habitat loss, and disturbance. Potential impacts are discussed below for special-status bats, special-status birds, ring-tailed cat, western pond turtle, and valley elderberry longhorn beetle.

Special-Status Bats

Proposed demolition of the structures on the upland parcel at the entrance to the Kopta Slough property has the potential to adversely affect special-status bat species. The metal structures on the property do not provide suitable roosting habitat for bats, but a wooden garage-type structure has the potential to provide night roosting habitat, and may provide marginal day roosting habitat. Although no bat guano or stains were observed during

an intensive search of the wooden structure, the demolition of this structure during site preparation would have the potential to adversely affect bat species that may be using the structure. Western mastiff bats, western red bats, and Townsend's big-eared bats rarely or only occasionally roost in buildings; pallid bats and other common bat species, such as big brown bats, Mexican free-tailed bats, and several species of *Myotis* frequently roost in buildings (Johnston et al. 2004). If bat species are present, failure to properly exclude them from the structures prior to demolition could result in direct mortality and a significant impact. But, with implementation of the pre-construction surveys and bat exclusion measures included in Mitigation Measure Wildlife-1, this potential impact would be less than significant.

Much of the riparian habitat that would be cleared along the river bank prior to rock revetment removal consists of a narrow band of small-diameter trees and willows, but there is a denser section of riparian vegetation at the downstream end of the area proposed for removal that includes large trees. Existing large trees would be identified for avoidance during construction, where feasible, but some large trees likely will require removal. If existing large trees along the bank cannot be avoided during construction, the potential exists to disturb tree-roosting bats during removal. If a tree that provides suitable bat roosting habitat were removed during the bat maternity season or period of torpor, impacts would be potentially significant. Implementation of the protection measures included in Mitigation Measure Wildlife-2, including protective work windows and tree removal techniques, would reduce impacts to less than significant.

Special-Status Bird Species

Nesting Habitat

As described above, much of the riparian habitat that would be cleared prior to rock revetment removal consists of a narrow band of small-diameter trees and willows; it is therefore unlikely to provide suitable nesting habitat for raptors and other bird species associated with mature riparian habitat. The denser riparian vegetation at the downstream end of the area proposed for removal includes large trees that have the potential to provide suitable nesting habitat, but pre-nesting surveys conducted in 2014, 2015, and 2021 failed to detect raptor nests within the riparian habitat proposed for removal, with the exception of a remnant osprey nest that was partially intact in

2014. Similarly, other special-status species associated with more mature riparian habitat, such as the western yellow-billed cuckoo, Nuttall's woodpecker, oak titmouse, and yellow-breasted chat, were not detected in this riparian habitat during surveys. However, several songbird nests were observed, so vegetation removal would have the potential to adversely affect other nesting or breeding special-status bird species or species protected by the Migratory Bird Treaty Act or Fish and Game Code 3503 and 3503.5. Loss of this habitat during the nesting or breeding season would result in a potentially significant impact. Implementation of the construction work window included in Mitigation Measure Wildlife-3 would ensure that tree removal would occur outside of the bird nesting season and would reduce this impact to less than significant levels. In addition, implementation of the proposed project would increase floodplain connectivity, facilitate the meander process, and promote riparian forest succession that would lead to the regeneration of a diverse mosaic of riparian forest types on the floodplain. Over time, the regeneration of diverse riparian habitat would have a beneficial impact on numerous special-status bird species associated with riparian habitat.

Raptor nests were not observed within the footprint of any of the construction disturbance areas, but several raptor nests were observed adjacent to the existing access roads and in the vicinity of the proposed restoration and staging areas.

An active bald eagle nest and an alternate nest located immediately adjacent to the active nest were observed approximately 0.6 mile northeast of the proposed restoration area. Active and potential Swainson's hawk nests have been observed in riparian habitat within Kopta Slough, to the east of the agricultural field, and in a restored area in the northwest corner of the Kopta Slough property. These nests were located approximately 150 to 450 feet from the existing access roads. One of the nests was located within 0.3 mile of the upstream end of rock revetment proposed for removal. An active red-tailed hawk nest was observed approximately 120 feet south of an access road, and an active red-shouldered hawk nest was observed immediately adjacent to an access road. Construction traffic and the noise associated with construction activities could flush these raptors from their nests or cause them to abandon their nests, resulting in a significant impact. But, these nesting raptors are accustomed to the noise associated with large farming equipment on the access roads and in the agricultural field. Project-

related equipment mobilization would be similar to the activities of farming equipment and would not be expected to adversely affect these species, and potential impacts would be less than significant.

If an active nest is located upstream of the rock revetment during the year of construction, rock revetment removal activities could disturb nesting activities and result in a potentially significant impact. But, implementation of the pre-construction nesting surveys included in Mitigation Measure Wildlife-3 and, if nesting special-status bird species are present, implementation of the nest protection buffers included in Mitigation Measure Wildlife-4 and the monitoring activities included in Mitigation Measure Wildlife-5, would reduce this impact to less than significant. In addition, implementation of Mitigation Measure Fish-1, which includes a work window and requires in-water activities to start at the downstream end of the rock revetment and proceed upstream, would ensure that rock revetment removal activities would not occur in the upstream portion of the bank until the end of the nesting season. For this reason, there would be no direct take of any special-status bird species or species protected by the Migratory Bird Treaty Act or Fish and Game Code 3503 and 3503.5.

The replacement of the frequently disturbed irrigated hayfield with permanent native grassland would provide suitable nesting habitat for western burrowing owls and grasshopper sparrows. The association of the native grassland with valley oak woodland and valley foothill riparian in the restoration area would provide suitable nesting habitat for the Swainson's hawk, white-tailed kite, long-eared owl, short-eared owl, and other raptor species. Therefore, restoration of the agricultural field would have a less-than-significant, and potentially beneficial effect, on these nesting bird species.

During rock revetment removal, disturbance to the river bank is unlikely to adversely impact bank swallows because the rock revetment makes the bank unsuitable for nesting habitat. Historically, there was an active bank swallow colony on the bank of the Kopta Slough property upstream of the scour hole, but this location would be buffered from rock revetment removal activities by its distance from activities, dense riparian vegetation, and its location on a bank that extends farther into the river than the rock bank. Rock revetment removal activities would not be expected to adversely affect this species, and impacts would be less than significant. Implementation of the avoidance

measures and construction work window included in Mitigation Measure Wildlife-3 would further reduce these potential impacts to less than significant. In addition, implementation of the proposed project would facilitate meander migration and create freshly eroded banks that are an essential component of bank swallow nesting habitat, resulting in a potentially beneficial effect on this species over time.

Foraging Habitat

The conversion of the 176-acre irrigated hayfield for the purpose of native habitat restoration would represent a loss of foraging habitat for several special-status bird species, including the Swainson's hawk, which forages extensively in this field. Alfalfa is considered a higher-quality foraging habitat for Swainson's hawk, but this species forages in other field crops as well as grasslands and has been observed foraging in the grasslands on the upland parcel and to a lesser extent in open, early seral stages of riparian habitat, including within restored habitats on the Kopta Slough property. The 176-acre field is planted with 80 acres of alfalfa and a mix of alfalfa, teff grass, and winter wheat. Loss of this foraging habitat could represent a significant impact if nearby suitable foraging habitat was not available. As described previously, active and potential Swainson's hawk nests have been observed at different locations within the Kopta Slough property each survey year, with nest locations documented on the northern half of the property in the vicinity of both the agricultural field on the Kopta Slough property and the extensive agricultural fields immediately north of the property. The loss of this foraging habitat on the Kopta Slough property would be offset by the numerous large agricultural fields (including alfalfa fields) immediately adjacent to and within a 5-mile radius of the Kopta Slough property that provide suitable foraging habitat (Figure 9). In addition, the proposed restoration plan for the agricultural field includes the establishment of 45 acres of native grassland habitat that would provide suitable foraging habitat for the Swainson's hawk, as well as other special-status species, such as the northern harrier, white-tailed kite, and prairie falcon. Because extensive suitable foraging habitat would be immediately available to these species, the conversion of the agricultural field to native floodplain habitat would have a less than significant impact on these foraging species.

Ring-Tailed Cat

Much of the riparian habitat that would be cleared prior to rock revetment removal is thin, consists of small-diameter trees and willows, and is unlikely to provide suitable denning habitat for ring-tailed cats. The denser riparian vegetation at the downstream end of the area proposed for removal has the potential to provide suitable denning habitat. If tree removal were to occur during the denning season and ring-tailed cats are present, impacts could be potentially significant. Implementation of the construction work window included in Mitigation Measure Wildlife-2, which is protective of the bat maternity season, would also ensure that tree removal would occur outside of the ring-tailed cat denning season and would reduce this impact to less than significant levels.

Western Pond Turtle

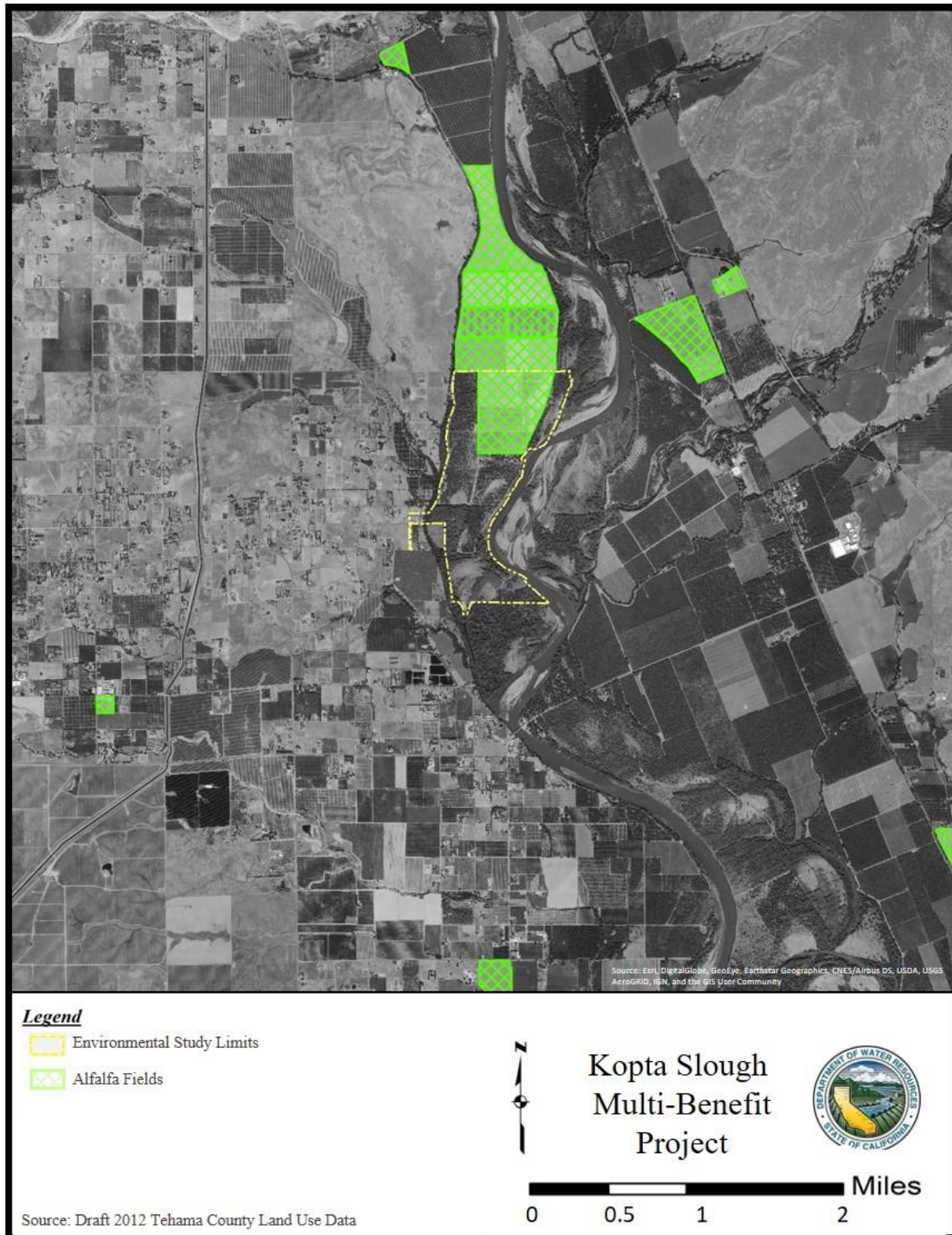
Project activities within the floodplain portion of the Kopta Slough property are not anticipated to affect this species because no activities would occur within Kopta Slough, and the Sacramento River bank along the Kopta Slough property is lined with rock revetment and is too steep for this species to navigate.

During rock revetment removal, disturbance to the river bank is unlikely to adversely impact the western pond turtle because the rock revetment combined with the velocity of the river make this bank unsuitable habitat. However, western pond turtles were observed in the fresh emergent wetland habitat located in the northeast corner of the Kopta Slough property, as well as in the scour area just upstream of the rock revetment. Because of the potential for this species to be in close proximity to the rock revetment removal area, it is possible that construction activities and the associated noise may adversely affect this species. But, implementation of the precautionary measures included in Mitigation Measure Fish-1, which states that the excavator bucket shall be operated to "tap" the surface of the water, or, where safe, a qualified biologist shall wade ahead of the equipment to scare fish away from the work area, would also be protective of western pond turtles and would reduce these potential impacts to less than significant. In addition, implementation of the proposed project would facilitate meander migration and create freshly eroded banks that are an essential component of western pond turtle habitat, resulting in a potentially beneficial effect on this species over time.

Valley Elderberry Longhorn Beetle

Elderberry shrubs exist throughout the Kopta Slough property within previously restored areas and along the river bank. Numerous elderberry shrubs were mapped within and adjacent to proposed construction disturbance areas, where many shrubs have stems greater than 1 inch in diameter at ground level and would provide suitable habitat for the valley elderberry longhorn beetle (VELB) (Figure 7). The construction disturbance area and associated spoil areas, access roads, and staging areas were designed to avoid numerous elderberry shrubs and minimize the proposed project's potential impact on the VELB. Elderberry shrubs were identified at nine locations within the construction disturbance area for avoidance, if feasible, but may require relocation. In addition, proposed construction activities and associated access and haul roads located immediately adjacent to elderberry shrubs could result in adverse effects to VELB from dust generated by proposed construction activities and construction traffic. These potential effects to elderberry shrubs during construction and restoration would result in a significant impact. Implementation of the protection and disturbance minimization measures included in Mitigation Measure Air Quality-1 and Mitigation Measure Wildlife-7, as well as implementation of the relocation plan included in Mitigation Measure Wildlife-8, would reduce these potential impacts to less than significant. Impacts would be further reduced with implementation of the restoration plan for the agricultural field, which includes planting elderberry shrubs within the valley oak riparian forest and valley oak woodland vegetation types (Appendix A). Transfer of the Kopta Slough property to USFWS ownership would ensure the long-term conservation of the elderberry shrubs on the property.

Figure 9 Alfalfa Fields located within a 5-mile Radius of the Kopta Slough Project Area



Botanical Resources

No Impact. Construction activities and the associated temporary loss of native vegetation described in discussion (b) below have no potential for adverse effects to special-status plant species. No known occurrences of special-status plants or their required habitats are present in the proposed construction disturbance areas. Therefore, there would be no impact.

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

Fisheries Resources

Less than Significant. Proposed construction activities on the riverbank would require the removal of approximately 10 acres of riparian vegetation along the Sacramento River, most of which is far enough from the river that it provides minimal SRA cover (Figure 10). To minimize impacts, the construction disturbance area was designed to avoid areas where there are gaps in the rock revetment, and large trees or groups of trees along the bank were identified for avoidance, where feasible. The majority of riparian vegetation that would be removed provides low-quality fish habitat, as the majority of the riparian vegetation is located high up on the bank because of the existing rock revetment. The area between the edge of the river and woody riparian vegetation consists of exposed rock along the water line, with grasses and herbs on the upper slope of the bank. The instream cover within this section of river bank consists primarily of rock revetment, which lacks the diversity of instream cover and habitat. The removal of the rock revetment would restore the natural riverine processes and promote riparian forest succession, which would increase habitat structure along the channel margin in the form of roots, fallen trees, overhanging branches, and undulated banks. The development of point bars across the river in concert with riparian forest regeneration would provide cover along the channel margin for juvenile special-status fish species. Naturally eroding banks would increase the recruitment of IWM in the river, providing important instream cover and contributing to channel and habitat diversity. The removal of the existing rock revetment would result in the short-term loss of riparian habitat, but would increase the amount and quality of riparian habitat, SRA cover, and fish habitat over time. Therefore, the temporary loss of riparian vegetation would be less than significant.

Figure 10 Riparian Vegetation within the Construction Disturbance Area



Wildlife Resources

Less than Significant. Construction activities associated with site preparation (such as clearing of staging areas, road widening, and temporary bridge construction), rock revetment removal, and restoration of the agricultural field would result in the disturbance of wildlife habitat on the Kopta Slough property (Table 10).

Table 10 Potential Impacts to Wildlife Habitat from Proposed Construction and Restoration Activities within the Kopta Slough Project Area

| CWHR Habitat Type | Vegetation Community Equivalent | Acres Potentially Disturbed |
|--------------------------|---------------------------------|-----------------------------|
| Barren | Disturbed or unvegetated | 19.89 |
| Annual grassland | Herbaceous | 14.36 |
| Irrigated Hayfield | Herbaceous | 176.16 |
| Valley Foothill Riparian | Riparian Forest | 10.31 |
| Riverine | Water | 1.68 |
| Total | | 222.40 |

Disturbance to annual grassland and barren habitat would occur during preparation of staging areas, road widening, and spoiling of berm material on the upland parcel at the entrance to the Kopta Slough property. The disturbance to these low-quality habitat types would be temporary and would not have a substantial adverse effect on any special-status wildlife species. Following completion of construction, disturbed annual grassland areas would be restored with native ground cover. Therefore, the disturbance to annual grassland and barren habitat would be less than significant.

Restoration of the agricultural field would result in the direct loss of 176 acres of irrigated hayfield, which is not a sensitive natural community. The irrigated hayfield would be restored to a mix of valley foothill riparian, valley oak woodland, and native grassland habitat. The restored area would provide diverse habitats and support numerous wildlife species, including potential habitat for special-status species, such as VELB and the western

yellow-billed cuckoo. Therefore, loss of irrigated hayfield habitat for the purpose of habitat restoration would be less than significant.

Permanent impacts to approximately 0.05 acre of valley foothill riparian habitat would occur at the eastern end of the Kopta Slough bridge when vegetation is removed to accommodate the turning radius of construction vehicles and equipment (Figure 10). Disturbance would mostly affect non-native blackberry shrubs, but would require the removal of a few small trees. In addition, approximately 0.1 acre of valley foothill riparian habitat consisting mostly of willows would be removed in the northwest corner of Spoil Area 5 to accommodate spoil material (Figure 10). These permanent impacts would be minimal, would not have a substantial adverse effect on this sensitive natural community, and would be less than significant. Impacts would be further reduced by restoring valley foothill riparian habitat within the proposed restoration area.

Disturbance to riverine and valley foothill riparian habitat would occur during rock revetment removal and berm excavation. Riverine habitat would be disturbed during removal of the toe rock on the bank of the Kopta Slough property. This disturbance would be temporary and would extend up to 20 feet into the river channel where the river is between approximately 250 to 375 feet in width, resulting in a less-than-significant impact. Valley foothill riparian habitat would be removed along the bank during site preparation, resulting in a loss of approximately 10 acres. Because valley foothill riparian habitat is considered a sensitive natural community, this impact has the potential to be significant. To minimize impacts, the construction disturbance area was designed to avoid areas where gaps in the rock revetment exist and to avoid large native trees, groups of native trees, and elderberry shrubs along the bank, where feasible. The purpose of the rock revetment removal is to restore natural fluvial and geomorphic processes. The small amount of remaining vegetation likely would soon be removed by natural bank erosion processes, as calculations of bank erosion rates prior to the installation of rock revetment vary from 30 to 90 feet per year (with an average of approximately 60 feet) based on channel changes that have occurred between 1896 and 1958 (California Department of Water Resources 2013). Rock revetment removal and berm excavation would increase floodplain connectivity, facilitate the meander process, and promote riparian forest succession that would lead to the regeneration of a diverse mosaic of riparian forest types on the floodplain. The restoration of these natural

fluvial and geomorphic processes and the regeneration of riparian habitat over time would offset the initial temporary loss of riparian habitat. In addition, the exposed bank would be planted with a native grass seed mix and willow cuttings would be planted in specific areas along the bank at the river's edge in compliance with permit requirements to encourage and promote regeneration of riparian wetland vegetation. Because of this regeneration of vegetation, temporary impacts to valley foothill riparian habitat would be minimized and would be less than significant.

Botanical Resources

Less than Significant with Mitigation Incorporated. Construction activities associated with site preparation (such as clearing of staging areas, road widening, and temporary bridge construction, if needed) and rock revetment removal would result in the removal or disturbance of vegetation on the Kopta Slough property (Table 10). Of the vegetation types that would be affected, California sensitive natural communities are only found in the "riparian forest" vegetation type (California Department of Fish and Wildlife 2020b). All other vegetation types (water, herbaceous, disturbed, and unvegetated) do not contain sensitive natural communities and are mostly dominated by non-native species.

Refer to impact discussion (b) in the Wildlife Resources section above. The discussion of the adverse impacts and beneficial effects to valley foothill riparian habitat resulting from construction activities also applies to the mature riparian forest communities. Permanent impacts to riparian forest would be minimal, would not have a substantial adverse effect on this sensitive natural community, and would be less than significant. Impacts would be further reduced by restoring valley foothill riparian habitat within the proposed restoration area. Temporary impacts would be offset by the restoration of natural fluvial and geomorphic processes and the regeneration of riparian forest over time that would occur post-project. In addition, the exposed bank would be planted with a native grass seed mix and willow cuttings would be planted in specific areas along the bank at the river's edge in compliance with permit requirements to encourage and promote regeneration of riparian vegetation. Temporary impacts to riparian forest would be less than significant.

Construction activities could also result in the spread of invasive plants or noxious weeds within the project area. Ground-disturbing activities and

vegetation removal could increase the spread of the numerous existing invasive species on the Kopta Slough property, and construction equipment and vehicles could introduce new invasive plant species if seeds or plant materials are present on the equipment. Invasive plant species have the potential to displace large areas of riparian forest habitat, and the spread of these species as a result of construction activities would be potentially significant. But, implementation of the weed prevention and control measures included in Mitigation Measure Botany-1 would reduce this potential impact to less than significant.

c) Have a substantial adverse effect on federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) or other Waters of the U.S. through direct removal, filling, hydrological interruption, or other means?

Less Than Significant with Mitigation Incorporated. Construction activities associated with the proposed project have the potential to cause temporary impacts to approximately 4.40 acres of potentially jurisdictional other waters of the U.S (Table 11).

Table 11 Aquatic Resources Delineated within the Construction Disturbance Area

| Delineated Wetlands and Other Waters | Area Mapped in Construction Disturbance Area (acres) |
|---------------------------------------------|-------------------------------------------------------------|
| Riparian Wetland | 0 |
| Perennial Stream | 4.40 |
| Total Wetlands and Other Waters of the U.S. | 4.40 |

The temporary construction bridge, if needed, was designed to avoid impacts to Kopta Slough. But, because construction activities would occur within close proximity to Kopta Slough, it is possible that ground-disturbing activities could result in the inadvertent fill or siltation of Kopta Slough. Implementation of the erosion and sediment control measures included in Mitigation Measure Water Quality-1 (refer to Section 3.10.3, "Mitigation Measures," in the "Hydrology and Water Quality" section) would avoid or minimize this potential impact to less than significant.

Rock revetment removal would result in the temporary release of sediment into the Sacramento River that may adversely affect the water quality of the Sacramento River and would be potentially significant. But, implementation of the erosion and sediment control measures included in Mitigation Measure Water Quality-1 and compliance with Clean Water Act Sections 404 and 401 permit conditions, as well as Section 1602 Lake and Streambed Alteration Agreement conditions, would reduce this temporary impact on waters of the United States to less than significant.

Rock revetment removal would also result in temporary impacts to approximately 4.40 acres of perennial stream channel. These impacts are considered temporary because rock revetment removal would allow the disturbed vegetation to reestablish, and would facilitate the establishment of additional riparian vegetation along the bank. In addition, disturbed riparian areas would be planted post-construction with a native seed mix and willow cuttings planted in specific areas along the bank at the river's edge to encourage and promote regeneration of riparian vegetation. Willows would be planted at a density that would not prevent the natural river processes that are part of the project objectives. This temporary impact to perennial stream channel would not be substantial and would be less than significant.

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

Fisheries Resources

Less Than Significant. The project area provides both an upstream and downstream migratory corridor for adult and juvenile anadromous fish species, as well as other fish species. Adult anadromous fish species migrate through the project area to access upstream spawning areas in the upper Sacramento River and its tributaries; juvenile anadromous fish species migrate downstream through the project area on their way to the estuary or ocean. Adult green sturgeon, Central Valley steelhead, and fall-run Chinook salmon have the potential to migrate through the project area during the proposed instream construction work window; juvenile green sturgeon, Central Valley steelhead, winter-run Chinook salmon, fall-run Chinook salmon, and late fall-run Chinook salmon have the potential to migrate downstream during the proposed instream construction work window.

No structures would be placed within or across the river, and proposed in-water activities would be restricted to take place from the west bank and not anticipated to extend beyond 20 feet into the river in a reach where the river is between approximately 250 to 375 feet in width. Proposed construction activities may deter fish movement along the west bank but would not prevent upstream or downstream movement. The proposed project is not anticipated to substantially interfere with the upstream or downstream movement of fish species. Therefore, impacts would be less than significant.

Wildlife Resources

Less Than Significant with Mitigation Incorporated. An active great blue heron nest colony was identified along the Sacramento River in the northeast corner of the Kopta Slough property. The colony is located east of the alfalfa field, where restoration is proposed. Because existing farming practices do not appear to affect their nesting behavior, construction activities are not expected to affect this nest colony. Another great blue heron and great egret nest colony was identified north of the confluence of Kopta Slough and the Sacramento River within the WBSRA Natural Preserve. This nest colony is located approximately 0.6 mile south of the proposed Spoil Area 5 and is separated from the spoil area by a dense riparian forest. For these reasons, construction activities would not be expected to affect this nest colony. Construction noise and activity could temporarily alter foraging patterns of resident wildlife species that utilize the agricultural field or the adjacent grassland and riparian habitat on the Kopta Slough property. This could interfere with nesting in the area if construction occurs during the breeding season. Riparian vegetation removal along the river bank could interfere with wildlife movement, including resident deer herd movement, and would result in the loss of nest trees for migratory bird species. But, the interference would be temporary and no long-term effects are expected. In addition, the existing riparian habitat on the remainder of the Kopta Slough property would provide movement corridors for wildlife during construction. The impact on wildlife movement would not be substantial, and implementation of the avoidance measures and construction work windows included in Mitigation Measure Wildlife-2 would minimize this impact. Project implementation would increase floodplain connectivity, facilitate the meander process, and promote riparian forest succession that would lead to the regeneration of a diverse mosaic of riparian forest types on the floodplain. In the long-term, the proposed project would enhance the riparian corridor. Therefore, impacts would be less than significant.

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

No Impact. The proposed project is a restoration project and would not conflict with any local policies or ordinances protecting biological resources. Therefore, there would be no impact.

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

No Impact. There are no adopted habitat conservation plans, natural community conservation plans, or other approved local, regional, or State habitat conservation plans that include the project area.

3.5.3 Mitigation Measures

Fisheries Resources

Mitigation Measure Fish-1: Implement Measures to Minimize Injury or Mortality to Adult or Juvenile Fish Species.

To minimize injury or mortality to adult or juvenile fish species, the contractor shall implement the following measures:

- In-water construction activities shall be minimized to the greatest extent possible by restricting equipment to work from the river bank between August 1 and October 31.
- In-water activities shall start at the downstream end of the rock revetment at the beginning of the construction window and proceed upstream.
- Prior to beginning work within the river, the excavator bucket shall be operated to "tap" the surface of the water, or, where safe, a qualified biologist shall wade ahead of the equipment to scare fish away from the work area.
- Operation of the excavator bucket within the river shall be conducted slowly and deliberately to allow fish time to seek refuge outside the work area.

- In-river work shall occur for up to 12 hours per day to allow a 12-hour window of time for fish to migrate through without noise disturbance.
- If water is drafted from the Sacramento River or Kopta Slough for construction purposes, water pump intakes shall be screened in compliance with California Department of Fish and Wildlife and National Marine Fisheries Service salmonid-screening specifications.

Mitigation Measure Water Quality-1: Implement a Stormwater Pollution Prevention Plan

Refer to Section 3.10.3, "Mitigation Measures," in the "Hydrology and Water Quality" section.

Mitigation Measure Hazards-1: Prepare and Implement a Spill Prevention and Control Plan

Refer to Section 3.10.3, "Mitigation Measures," in the "Hydrology and Water Quality" section.

Wildlife Resources

Mitigation Measure Wildlife-1: Implement Bat Exclusion Measures Prior to Demolition of Existing Structures

Prior to structure demolition, structures shall be inspected by a qualified biologist to determine if bats are present. If present, surveys shall be conducted to determine if the structure is being used as a day, night, or maternity roost. If a roost is present, appropriate bat exclusion measures shall be implemented at least five to seven days prior to structure demolition outside of the maternity season, which can range from mid-April through August 31, and outside of the winter months when bats could be hibernating. Bat exclusion measures could include one-way devices, such as polypropylene netting, plastic sheeting, or tube-type excluders, that would be placed at all active entry points.

Mitigation Measure Wildlife-2: Implement Protective Measures During Removal of Trees that Provide Suitable Bat Roosting Habitat

All removal of trees that provide suitable bat roosting (such as trees with

deep bark crevices, snags, or holes) shall be conducted between August 31 and October 30, or earlier than October 30 if evening temperatures fall below 45 degrees Fahrenheit or more than half inch of rainfall occurs within 24 hours during the month of October. These dates correspond to the time period when bats would not be caring for non-volant young and have not yet entered torpor. A qualified biologist shall monitor removal and trimming of trees that provide suitable bat roosting habitat. Tree removal and trimming shall occur over two consecutive days. On the first day in the afternoon, limbs and branches shall be removed using chainsaws only. Limbs with cavities, crevices, or deep bark fissures shall be avoided, and only branches or limbs without those features shall be removed. On the second day, the entire tree shall be removed. Prior to tree removal and trimming, each tree shall be shaken gently and several minutes shall pass before felling trees or limbs to allow bats time to arouse and leave the tree. The biologist shall search downed vegetation for dead or injured bat species and report any dead or injured special-status bat species to CDFW.

Mitigation Measure Wildlife-3: Implement an Avoidance Work Window and Conduct Pre-Construction Nesting Bird Surveys

Vegetation removal shall occur outside of the nesting season, which typically ranges from February 1 through August 31.

All other construction activities shall also occur outside of the nesting season. If construction activities must overlap with this period, a qualified biologist shall be retained to conduct preconstruction surveys for active bird nests. Nesting surveys shall be conducted in accordance with the recommended timing, methodology, or protocol for each bird species. Surveys shall also include a 0.25-mile radius outside of the project area for Swainson's hawk, and a 500-foot radius outside of the project area for other nesting birds. Surveys shall be conducted within 14 days prior to the start of construction, or as prescribed by established survey protocols.

Mitigation Measure Wildlife-4: Establish Nest Protection Buffers for Active Bird Nests

If an active bird nest is located within the survey area, a qualified biologist shall establish an appropriate nest protection buffer based on the bird species, type of construction activities, and line of sight to the work area.

Under this measure, nesting birds and offspring would not be disturbed or killed, and nests and eggs would not be destroyed. Work shall be conducted no less than 500 feet from an active raptor nest and 100 feet from an active migratory bird nest, though buffer distances for all nesting birds may differ based on consultation with CDFW and USFWS. To prevent encroachment, the established buffer(s) shall be clearly marked by high-visibility material if the qualified biologist determines that high-visibility material would not attract predators to the nest site. No construction activities, including tree removal, shall occur within the buffer zone until the young have fledged or the nest is no longer active, as confirmed by the qualified biologist.

Mitigation Measure Wildlife-5: Monitor Active Nests Within the Nest Protection Buffer

If project activities must occur within established buffer zones, a qualified biologist shall establish monitoring measures, including frequency and duration, based on species, individual behavior, and type of construction activities. If birds are showing signs of distress within the established buffer(s), work activities shall be modified or the buffer(s) shall be expanded to prevent birds from abandoning their nest. At any time the biologist shall have the authority to halt work if there are any signs of distress or disturbance that may lead to nest abandonment. Work shall not resume until corrective measures have been taken or it is determined that continued activity would not adversely affect nest success.

Mitigation Measure Wildlife-6: Conduct Daily Searches for Western Pond Turtle During Instream Activities

On the day that instream activities commence, a qualified biologist (and/or a qualified person with permission from CDFW) will walk through the path of scheduled instream activity to assess the presence of turtles and herd them, if possible, into areas of lesser impact or moved by a permitted person to an area of safety out of harm's way.

Mitigation Measure Wildlife-7: Implement Protection Measures for Elderberry Shrubs

The contractor shall implement protection measures around elderberry shrubs with stems greater than 1-inch diameter at ground level that are to

be preserved during construction activities. The protection measures shall be developed during formal consultation with USFWS and may include the following (U.S. Fish and Wildlife Service 2017):

- Fencing. Elderberry shrubs within and immediately adjacent to the construction footprint will be fenced or flagged as close to the construction limits as feasible.
- Avoidance area. Activities that may damage or kill an elderberry shrub (e.g., excavation, grading, etc.) may need an avoidance area of at least 10 feet from the dripline, depending on the type of activity.
- Worker education. A qualified biologist will provide training for all contractors, work crews, and any on-site personnel on the status of the VELB, its host plant and habitat, the need to avoid damaging the elderberry shrubs, and the possible penalties for noncompliance.
- Construction monitoring. A qualified biologist will monitor the work area at project-appropriate intervals to assure that all avoidance and minimization measures are implemented. The amount and duration of monitoring will depend on the project specifics and should be discussed with the USFWS biologist.
- Timing. As much as feasible, all activities that could occur adjacent to elderberry shrubs will be conducted outside of the flight season of the VELB (March through July).
- Trimming. Trimming may remove or destroy VELB eggs or larvae and may reduce the health and vigor of the elderberry shrub. To avoid and minimize adverse effects to the VELB when trimming, trimming will occur between November and February and will avoid the removal of any branches or stems that are 1 inch or greater in diameter. Measures to address regular or large-scale maintenance (trimming) should be established in consultation with the USFWS.
- Chemical Usage. Herbicides will not be used within the dripline of the shrub. Insecticides will not be used within 98 feet of an elderberry shrub. All chemicals will be applied using a backpack sprayer or similar direct application method.
- Mowing. Mechanical weed removal within the dripline of the shrub will be limited to the season when adults are not active (August through February) and will avoid damaging the elderberry.

- Erosion Control and Revegetation. Erosion control will be implemented and the affected area will be revegetated with appropriate native plants.

Mitigation Measure Wildlife-8: Relocate Elderberry Shrubs that Must Be Removed

The lead agency shall identify measures to relocate or replace elderberry shrubs with stems measuring 1 inch or greater in diameter at ground level if an adequate buffer cannot be provided, or if a shrub cannot be avoided during construction and must be removed. Transplantation procedures shall comply with USFWS's *Framework for Assessing Impacts to the Valley Elderberry Longhorn Beetle* (U.S. Fish and Wildlife Service 2017) and approved by USFWS during formal consultation. Elderberry shrubs that cannot be avoided will be identified and transplanted within the Kopta Slough property.

Mitigation Measure Air Quality-1: Implement Fugitive Dust Prevention and Control Measures

Refer to Section 3.4.3, "Mitigation Measures," in the "Air Quality" section.

Mitigation Measure Fish-1: Implement Measures to Minimize Injury or Mortality to Adult or Juvenile Fish Species.

Refer to the "Fisheries Resources" discussion at the beginning of Section 3.5.3, "Mitigation Measures."

Botanical Resources

Mitigation Measure Botany-1: Develop and Implement a Weed Prevention and Control Plan

Prior to the start of construction, the contractor shall prepare a weed prevention and control plan in coordination with the appropriate agency. The plan may include the following avoidance and minimization measures:

- Construction equipment shall be made weed-free prior to entering the project area (e.g., washing construction equipment and trucks before entering the area).

- Equipment staging shall occur in areas that have been cleared of weeds.
- Straw bales and other vegetative materials used for erosion control shall also be certified weed-free.
- All revegetation materials (e.g., container plants, mulches, seed mixtures) shall be certified weed-free and come from locally adapted native plant materials to the extent practicable.
- If areas require additional weed control, herbicides may be used consistent with federal, State, and local requirements, under advisement of a department or interagency pesticide control advisor (PCA). All herbicides shall be applied by a licensed operator.
- Invasive plants removed during project construction (e.g., *Arundo donax*) shall be removed to an appropriate off-site disposal area or otherwise properly disposed of out of the floodplain, or buried appropriately beneath spoiled material at a depth sufficient to prevent reintroduction and floating debris.
- Construction practices shall comply with other recommendations of the PCA for invasive weed management.

Mitigation Measure Water Quality-1: Implement a Stormwater Pollution Prevention Plan

Refer to Section 3.10.3, "Mitigation Measures," in the "Hydrology and Water Quality" section.

Wetlands and Other Water of the U.S.

Mitigation Measure Water Quality-1: Implement a Stormwater Pollution Prevention Plan

Refer to Section 3.10.3, "Mitigation Measures," in the "Hydrology and Water Quality" section.

3.6 Cultural Resources

| V. CULTURAL RESOURCES — Would the project: | Level of Significance |
|----------------------------------------------------------------------------------------------------------------------|----------------------------------------------------|
| a) Cause a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5? | No Impact |
| b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5? | Less than Significant with Mitigation Incorporated |
| c) Disturb any human remains, including those interred outside of formal cemeteries? | Less than Significant with Mitigation Incorporated |

3.6.1 Environmental Setting

This section evaluates the potential impacts of the proposed project on cultural resources. Cultural resources encompass the tangible and intangible remains of our past and may include prehistoric and historic archaeological sites, built environment resources, structures, objects, cultural landscapes, and human remains. Cultural resources also include “historical resources,” which are:

- Resources listed in or determined eligible for listing in the California Register of Historical Resources (CRHR).
- Resources included in a local register of historical resources, or ones that have been identified as significant in an historical resource survey.
- Resources that are deemed by a lead agency to be historically or culturally significant, with regards to California’s past (CEQA Guidelines Section 15064.5 ((a))).

In general, to be considered “historically significant,” a resource must meet one or more of the following criteria, enumerated in PRC 5024.1 as follows:

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

This section relies on information and findings presented in the confidential “Archaeological Survey Report for the Kopta Slough Flood Damage Reduction and Habitat Restoration Project, Tehama County, California” (Heffner and Pierce 2021) prepared for the proposed project. This report details the results of the cultural resources inventory, including archival research, records searches, consultation, and fieldwork. Also included in this report is an overview of the project area, including prehistory, ethnohistory, and history. All sections below are drawn from the report unless otherwise cited.

Tribal cultural resources and tribal consultation and outreach efforts are discussed in Section 3.13, “Tribal Cultural Resources.”

Regional Archaeology and Ethnography

The findings of archaeological investigations conducted throughout the Sacramento Valley must be used to reconstruct the prehistory of the Kopta Slough property, as studies in the immediate vicinity are few. Most of the work conducted in this part of the Sacramento Valley has occurred on the west side of the valley within or adjacent the low foothills of the North Coast Range or on the east side of the river in Yana ethnographic territory. Fewer sites have been excavated in the valley proper, near Red Bluff or south of the project area around Colusa (White 2003b). The currently accepted cultural chronology for the Sacramento Valley, developed from archaeological inquiry beginning in the 1930s, consists of the Windmill (3,000 BCE – 2500 BCE), Berkeley (2500 BCE – 500 CE), and Augustine (CE 500 to contact) patterns. The distinctive material culture associated with each pattern reveal an evolution of subsistence procurement, tool manufacture, and social systems (Moratto 1984).

Evidence of occupation more than 5,000 years before present is likely buried under sediments from the frequent flooding of the valley (Moratto 1984). In a rare instance, work near Colusa has revealed dates close to this mark (Rosenthal et al. 2007). More common indications of a prehistoric presence are from roughly 3,500 years ago and forward in time.

The project lies in an area that was traditionally occupied by the River Nomlaki. The River Nomlaki held lands east and west of the Sacramento River from approximately Deer Creek in the south to Cottonwood Creek in the north. The River Nomlaki spoke Wintuan, of the Penutian linguistic stock. The closest River Nomlaki village to the project area is the village of *mitenek*, located 4 miles to the north along Thomes Creek (Goldschmidt 1978).

Very little is known about the River Nomlaki as their population suffered devastating losses from disease spread by European American traders traveling through the area in the early 1830s.

Information about the River Nomlaki is primarily gleaned from their close relations, the Hill Nomlaki, who were less severely impacted by disease in the first half of the nineteenth century.

Village populations reportedly ranged from 25 to 200 patrilineally related individuals who were headed by a chief (Goldschmidt 1978). The Nomlaki relied on a seasonal round of hunting, fishing, and gathering for subsistence. The Sacramento River was a great resource for a variety of fish species, primarily salmon. The River Nomlaki traded with their neighbors for resources not readily available to them.

Regional and Local History

The earliest recorded European presence within the general area of the proposed project is the Spanish expedition of Luis Arguello in 1820–1821 (Hoover et al. 1990). During the period of Mexican rule beginning in 1821, fur trappers introduced lethal disease which had a profound effect on the indigenous population by the early 1830s. In the 1840s, the Mexican government granted ranchos to the earliest European settlers of Tehama County, such as Peter Lassen's Rancho Bosquejo, adjacent to the Kopta Slough property on the left bank of the Sacramento River. California became part of the United States in 1850. Tehama County was created in 1856 (Gudde 1998). By the 1880s, a portion of the Lassen grant had sold to former governor Leland Stanford, who planted a vast vineyard and gave the town Vina its name (Hoover et al. 1990). Agriculture continues to be the prime economic enterprise in the local area.

Present Environment

The proposed project is situated on an active floodplain in a predominantly rural environment consisting of agricultural lands. Riparian vegetation grows along the river channel. Immediately adjacent to and south of the Kopta Slough property is the WBSRA Natural Preserve, which is characterized by dense mixed riparian forest.

The Quaternary stream deposits that characterize the project area are geologically of recent age. Older, non-eroding geologic deposits lie along the edges of the floodplain.

Riverbanks are commonly considered sensitive for archaeological resources, as natural levees tend to be higher and drier than the surrounding land and are close to sources of water and fish. However, the channel of the Sacramento River is known to have meandered within the Kopta Slough property during historic times, making the right bank less sensitive than an older, more stable bank would be.

Known Resources in the Project Area

No archaeological sites have been identified within the project area. A small group of historic-era ranch structures and an historic-era railcar bridge exist within the proposed Staging Area 2. These structures were documented and evaluated by Environmental Services Association (ESA) in 2014. ESA determined that these structures were not eligible for listing in the NRHP and CRHR.

Cultural Resources Inventory Methods

Archival Research

A records search was conducted on July 1, 2014, by staff at the California Historical Resources Information System (CHRIS), Northeast Information Center (NEIC) at Chico State University, for an earlier planning phase of the project. The search encompassed a 0.5-mile radius around the project area. An updated record search for the current project area was conducted on June 30, 2021, by staff at the CHRIS NEIC. The search encompassed a 0.25-mile radius around the project area and excluded any reports and survey records previously received by DWR from the 2014 record search.

Other sources consulted included online historical aerials, United States Geological Society (USGS) topographic quadrangle maps, and Bureau of Land Management (BLM) General Land Office (GLO) plat maps. The online soils database, [Web Soil Survey](#), was also consulted (Natural Resources Conservation Service 2019a).

Historical Society Outreach

The Tehama County Genealogical and Historical Society was contacted via letter on June 3, 2014, during an earlier planning phase of the project.

The letter requested information on known historic-era resources within the project area.

NAHC and SLF Search

DWR contacted the Native American Heritage Commission (NAHC) on July 7, 2008; June 3, 2014; and March 29, 2021 requesting a Sacred Lands File search of the project area. The NAHC maintains a confidential file that contains sites of traditional, cultural, or religious value to the Native American community.

Pedestrian Survey

Terrestrial field surveys of the project area were conducted in 2008, 2014, and 2015 as part of earlier planning phases of the project by DWR archaeologists. A boat survey of the riverbank was also conducted in 2014. These earlier surveys covered most of the access roads, staging areas, and rock revetment and berm removal portions of the project.

DWR archaeologists conducted pedestrian surveys of Restoration Areas 1A and 1B, and additional spoil areas, access roads, staging areas, and the lower crossroad headgate removal area in May, June, July, and August 2021.

Cultural Resources Inventory Results

Archival Research

Record searches conducted in 2014 and in 2021 by the CHRIS NEIC indicated that three cultural resource surveys have been previously conducted within the project area; one has been conducted within a 0.25-mile radius of the project area, and seven have been conducted within a 0.5-mile radius of the project area (Table 1). Of the three surveys conducted within the project area, one includes the surveys conducted by DWR for prior planning phases of the project (Pierce 2015) (see discussion under "Pedestrian Survey" directly above). These surveys resulted in the identification of one resource within the project area, four resources within a 0.25-mile radius of the project area, and one resource within a 0.5-mile radius of the project area (Table 12).

Table 12 Previously Conducted Cultural Resource Surveys within or near the Project Area

| NEIC ID # | Name of Study | Author (Year) | Location in Relation to Project Area |
|-----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------|--------------------------------------|
| 1235 | Archaeological Survey of the Maywood Colony Bluffs Subdivision Tehama County, California | Archaeological Research Program California State University, Chico (1990) | Within |
| 1664 | An Archaeological Assessment for the Sacramento River Rock Revetment Sites, Chico Landing to Red Bluff, Butte, Glenn, and Tehama Counties, California, Part of the Cultural Resources Inventory and Evaluation for U.S. Army Corps of Engineers, Sacramento District | Shapiro and Syda (1997) | Within |
| 13292 | Cultural Resource Inventory Report for the Kopta Slough Flood Damage Reduction and Habitat Restoration Project | Pierce (2015) | Within |
| 7000 | Archaeological Reconnaissance of Three Properties in Butte County. Thomas Staley AP#36-44-04, Alan Johnson (no AP# given), William Peaker AP#36-13-94 | Manning (1980) | 0.25-mile radius |
| 150 | Archaeological Reconnaissance of 26 Erosion Sites Along the Sacramento River, Chico Landing to Red Bluff, Butte, Glenn, and Tehama Counties, California | Johnson (1975) | 0.5-mile radius |
| 4534 | Archaeological Survey Report for Woodson Bridge CBs DMP. | Steidl (2001) | 0.5-mile radius |
| 4541 | Archaeological Inventory Survey Ducks Unlimited, River Riparian Restoration Project, c. 1,800 Acres at Two Locations Along the | Jensen (1998) | 0.5-mile radius |

| NEIC ID # | Name of Study | Author (Year) | Location in Relation to Project Area |
|------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|---------------------------------------------|
| | Sacramento River, Butte and Tehama Counties, California | | |
| 5360 | Report of Geoarchaeological Trenching in the USFWS Rio Vista Unit, Tehama County, California | White (2003a) | 0.5-mile radius |
| 5617 | An Archaeological Evaluation of the City of Corning's Water Treatment Plant, Corning, Tehama County, California Phase 1 Investigation 30 Acre Survey. U.S.G.S. Vina Quadrangle (T24N, R2W, Section 20, 21) | Harrington (2003) | 0.5-mile radius |
| 6867 | Cultural Resource Overview and Management Plan Sacramento River Conservation Area, Tehama, Butte, Glenn, and Colusa Counties, California | White (2003b) | 0.5-mile radius |
| 7143 | Archaeological Reconnaissance for Proposed Expansion of the City of Corning Sewage Treatment Plant | Chaloupka (1977) | 0.5-mile radius |

Note: NEID ID # = National Electronic Insurance Clearinghouse identification number.

Table 13 Previously Recorded Cultural Resources within or near the Project Area

| Primary/ Trinomial | Resource Type | Description | Evaluation Status | Location in Relation to Project Area |
|----------------------------|----------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|--------------------------------------------|
| P-52-02568 | Historic built environment | Historic farm building complex consisting of four buildings and a single-lane farm bridge over Kopta Slough. Constructed circa 1969 and 1980. | Evaluated as not eligible | Within (Staging Area 2/Spoil Area 2) |
| P-52-01532/ CA-TEH-1532 | Prehistoric | Small temporary and seasonal campsite, with lithic scatter and basalt tools. | Unknown | 0.25-mile radius |
| P-52-01533/ CA-TEH-1533 | Prehistoric | Basalt tool scatter. | Unknown | 0.25-mile radius |
| P-52-01534/ CA-TEH-1534 | Prehistoric | Small temporary and seasonal campsite, with basalt flakes, tools, and a bowl mortar fragment. | Unknown | 0.25-mile radius |
| P-52-02567 | Historic built environment | Single-lane vehicular bridge spanning a creek along Dale Road, constructed circa 1950. | Unevaluated | 0.25-mile radius |
| P-52-02065 | Historic built environment | Clarifier pool and structure, constructed in 1948. | Unknown | 0.5-mile radius |

Of these previously identified resources, only three are prehistoric archaeological sites, and all three are located within a 0.25-mile radius of the project area. Site P-52-002568 was recorded and evaluated in 2014 by ESA as part of an earlier planning phase of the project. This site consists of four buildings and a bridge constructed between 1969 and 1980. Building 1 is a single-story prefabricated silo made of corrugated metal. Building 2 is a single-story agricultural shop and storage building. Building 3 is a single-story, wood-framed garage with a small, wood-framed shed addition on the southern elevation. Building 4 is a single-story agricultural shed. The bridge is a single-lane vehicular farm bridge that spans Kopta Slough. The bridge consists of a converted rail flat car with steel I-beams supporting a wood plank road deck with steel curbs.

The historic-era resources were evaluated against the criteria for listing on the CRHR outlined in PRC Section 5024.1 and against the National Register of Historic Places (NRHP) significance criteria defined in the Code of Federal Regulations, Title 36, Section 60.4. None of them appeared eligible for either the CRHR or the NRHP.

Research on historical maps and aerials indicate that the area has been used primarily for agriculture, with some wooded areas serving as boundaries between agricultural fields (FrameFinder 2021a, 2021b; Nationwide Environmental Title Research 2021).

Historical Society Outreach

DWR received an email response from Gene Serr of the Tehama County Genealogical and Historical Society on June 7, 2014, stating the Squaw Hill Ferry was located at the site of Woodson Bridge and requesting to be notified if any significant signs of the ferry were found. Woodson Bridge was within the boundaries of an earlier planning phase of the project; however, these boundaries have since been revised, and the bridge is no longer within them.

NAHC and SLF Search

The NAHC replied on August 18, 2008, stating that there were no recorded sacred sites in or near the project area and provided a list of knowledgeable individuals in Tehama County. When contacted again in 2014, the NAHC responded that there were no recorded sacred sites in or near the project

area. But, a 2020 NAHC SLF search for the current version of the project was positive for a recorded sacred site in or near the project area.

Pedestrian Survey

Pedestrian surveys of the project area conducted by DWR archaeologists did not result in the identification of any newly recorded archaeological resources. One built-environment resource, P-52-002568, was identified during the 2014 surveys and is located within Staging Area 2/Spoil Area 2. This resource is a complex of agricultural buildings and a railcar bridge constructed from 1969 through 1980, and recommended as ineligible for listing in the NRHP and CRHR.

Buried Site Sensitivity

The project area lies within a floodplain and is situated between Kopta Slough and the Sacramento River. Soils in the project area consist of a mixture of sandy and gravelly alluvium, silty and sandy loam, gravelly loam, and riverwash, most of which are derived from floodplains or drainages (Natural Resources Conservation Service 2021). The silty, sandy, and gravelly loams are considered prime farmland.

Historical maps and aerials show that the course of the Sacramento River within the project area has changed numerous times through history (Frame Finder 2021a, 2021b; Nationwide Environmental Title Research 2021; United State Geological Survey 1904, 1950, 1969, 1976). Historically through the present, the majority of the project area has been used for farming and, as a result, has been subject to much disturbance. Additionally, archival research, records searches, and pedestrian surveys did not result in the identification of archaeological resources within the project area. None of the tribes contacted in 2008, 2014, and 2021 expressed any concerns regarding cultural resources within or near the project area. One built environment resource — a complex of farm buildings and a bridge (Site P-52-002568) is located within Staging Area 2/Spoil Area 2. There are also several historic farm roads that cross through the project area. For these reasons, the project area is considered to have a low-to-moderate buried site sensitivity for historical archaeological resources, particularly related to the historic agricultural use of the project area.

Three prehistoric archaeological sites were recorded within a 0.25-mile radius of the project area. Additionally, the project area is situated between two bodies of water — Kopta Slough and the Sacramento River. Areas along waterways, especially rivers, are highly sensitive for cultural deposits because of a long-standing tendency to rely on waterways as a source of water and food, for transportation, and as trade routes. According to Meyer’s geoarchaeological study of Caltrans District 2 (which includes Tehama County), the area around Corning generally has low buried site sensitivity, with the exception of areas adjacent to rivers or other bodies of water (such as the Sacramento River), which have moderate to high sensitivity for buried archaeological sites.

Given this information, the areas of the project adjacent to the Sacramento River and Kopta Slough can be considered to have moderate to high sensitivity for buried prehistoric archaeological resources and the portions of the project located more inland and used for farming can be considered to have low sensitivity for buried prehistoric archaeological resources. Types of buried prehistoric archaeological resources that may be encountered in these low-lying, frequently flooded areas include isolated ground stone or flaked stone tools.

3.6.2 Discussion of Impacts

a) Cause a substantial adverse change in the significance of a historical resource as identified in Section 15064.5?

No Impact. The proposed project would require the demolition of existing buildings and structures on the Kopta Slough property at 24990 Dale Road (Site P-52-002568). These resources were evaluated for historical significance and do not appear to meet the criteria for listing in either the CRHR or the NRHP and are not considered historical resources for the purposes of CEQA. No other built environment resources are present within the project area. Proceeding with the proposed project would have no impact on historical resources or historic properties.

No archaeological resources have been identified in the project area. Therefore, no known archaeological resources that may qualify as historical resources (as defined in CEQA Guidelines Section 15064.5) are present in the project area and there would be no impact.

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

Less than Significant with Mitigation Incorporated. No archaeological resources were identified during cultural resources inventory efforts conducted for the proposed project. But, previously recorded archaeological sites do exist within a 0.25 mile of the project area. Areas near permanent water sources, such as the Sacramento River, can be sensitive for archaeological resources, including mounds formed over time from prehistoric occupation. The upper portions of these sites may have been leveled by historic agricultural practices or the natural meandering of the river, leaving the lower parts obscured but intact. Layers of alluvium may further cover already-buried resources. If unknown archaeological resources of any age are encountered during the removal of rock revetment or other project-related construction activities, a potentially significant impact may result. Implementation of Mitigation Measure Cultural-1 would reduce this impact to less than significant.

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

Less than Significant with Mitigation Incorporated. No formal cemeteries exist within the project area, and no human remains were identified within the project area during pedestrian survey or documentary research. Although it is unlikely that human remains would be encountered during activities, such as rock revetment removal, prehistoric archaeological deposits containing human remains, do occur along waterways, such as the Sacramento River or Kopta Slough. In addition, ground-disturbing activities could reveal human remains associated with the historic occupation of the area by both Native Americans and European Americans. Such deposits may be hidden by vegetation or alluvium and not visible on the ground surface. The possibility of uncovering or causing unintentional damage to unknown burials cannot be entirely eliminated, and would be potentially significant. Implementation of Mitigation Measure Cultural-2 would reduce this impact to less than significant.

3.6.3 Mitigation Measures

Mitigation Measure Cultural-1: Protect Newly Discovered Archaeological, Prehistoric, Historic, or Tribal Cultural Resources

Prior to the start of construction, DWR will provide an environmental tailgate training including an overview of the types of cultural resources, including tribal cultural resources (which could occur in the project area), a statement of confidentiality, and a review of the steps that must occur if any potential cultural resources are identified in the project area.

If any potential historical or archaeological materials are discovered during construction activities, work must be halted within 100 feet of the find until an archaeologist who meets U.S. Secretary of Interior's Professional Qualification Standards for Archaeology or personnel working under their direction evaluates the find. If the discovered materials are potential tribal cultural resources, affiliated Native American tribes will be notified and provided an opportunity to participate in the evaluation of the find. Work may continue on other parts of the proposed project while evaluation and, if necessary, mitigation, take place (CEQA Guidelines Section 15064.5 [f]). After the assessment is completed, the archaeologist shall submit a report to DWR describing the significance of the discovery with management recommendations. If the find is determined by DWR to be an historical, unique archaeological, or tribal cultural resource, time allotment and funding sufficient to allow for implementation of avoidance measures, or appropriate mitigation, must be available.

Should significant archaeological resources be found, the resources shall be treated in compliance with PRC Section 21083.2. If the project can be modified to accommodate avoidance, preservation of the site is the preferred alternative. Data recovery of the damaged portion of the site also shall be performed pursuant to PRC Section 20183.2(d).

Mitigation Measure Cultural-2: If Human Remains are Found, Cease Construction Activities and Implement Appropriate Procedures for the Treatment of Remains

If remains or potential human remains are discovered, all work in the vicinity of the find must stop immediately. DWR or their designated representative

will immediately notify the Tehama County coroner. If the coroner determines the remains to be Native American, the coroner will notify the NAHC by phone within 24 hours. Pursuant to California Public Resources Code Section 5097.98, DWR will open consultation with the individual(s) identified by the NAHC as the most likely descendants (MLDs). MLDs shall be provided the opportunity to inspect the site of discovery and make recommendations regarding the treatment of the remains and any items associated with the burial, including preservation and avoidance, relinquishment to MLDs, or dignified removal and reinterment in a location not subject to future disturbance. The professionally qualified archaeologist shall record the site, or the location of reburial, with the NAHC. DWR will direct work to recommence after the human remains have been investigated and recommendations have been made for the appropriate treatment and disposition of the remains.

3.7 Geology and Soils

| VII. GEOLOGY AND SOILS — Would the project: | Level of Significance |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------|
| a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving: <ul style="list-style-type: none"> i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? ii) Strong seismic ground shaking? iii) Seismic-related ground failure, including liquefaction? iv) Landslides? | No Impact No Impact No Impact No Impact |
| b) Result in substantial soil erosion or the loss of topsoil? | Less than Significant with Mitigation Incorporated |
| c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse? | No Impact |
| d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code, creating substantial direct or indirect risks to life or property? | No Impact |

| VII.GEOLOGY AND SOILS — Would the project: | Level of Significance |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|
| e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater? | No Impact |
| f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature? | No Impact |

3.7.1 Environmental Setting

Geology

The Kopta Slough property is part of the modern and historic floodplain and meander belt of the Sacramento River in Tehama County. The Sacramento River drains the northern Sacramento Valley, an elongated structural basin containing fluvial, volcanic, metamorphic, and marine sediments deposited over the last 160 million years. Sedimentary rocks and deposits in the region range in age from Upper Jurassic to Recent, and sediments were derived from the Coast Ranges to the west and the Cascade Range to the east.

The Kopta Slough property is underlain by the Pliocene-age Tehama Formation and younger Quaternary-age fluvial surficial deposits. The Tehama Formation is composed of noncontiguous layers of metamorphic pale green, gray, and tan sandstone and siltstone, with lenses of pebble and cobble conglomerate (Helley and Harwood 1985). The source area of the Tehama Formation sediments is the Coast Ranges to the west and, to a lesser extent, the Klamath Mountains to the north. Sediments were deposited by streams flowing from the west under floodplain conditions. These fluvial deposits are characterized by a series of poorly sorted sediments, by channels of coarser sediments in the finer-textured strata, and by the lenticular character of the coarser beds (Anderson and Russell 1939).

Within and adjacent to the Kopta Slough property, between RM 220 and 222, the Tehama Formation is relatively erosion-resistant and has resisted lateral river migration for at least the last 100 years (California Department of Water Resources 1986). Geologic mapping shows the Tehama Formation outcropping along the lower western boundary of the Kopta Slough property within Kopta Slough, and north to the utility bridge that crosses Kopta

Slough (California Department of Water Resources 1979). Outcrops of Tehama Formation are exposed downstream of the Kopta Slough property in the right bank and river channel near Woodson Bridge.

Quaternary-age stream channel and flood deposits, consisting of mostly unconsolidated cobbles, gravel, sand, and silt, overly the Tehama Formation on the Kopta Slough property. The flood plain deposits were deposited during flooding along the Sacramento River and include oxbow, swale, and abandoned stream channel deposits (California Department of Water Resources 1979).

Soils

Soils within the Kopta Slough property consist of two types: Riverwash and Columbia series (Hubbell et al. 2003; University of California, Davis 2021; Natural Resource Conservation Service 2021).

Riverwash consists of excessively drained soils formed from sandy and gravelly alluvium derived from igneous and metamorphic rock. Slopes range from 0 to 2 percent with very low runoff. Riverwash is not suitable for farming or building upon under natural conditions and is the basis of drainage ways and river valleys.

The Columbia Series soils within the Kopta Slough property are limited to Columbia silt loam; Columbia fine sandy loam; and Columbia complex, channeled. The Columbia series consists of deep, moderately well-drained soils formed in alluvium on floodplains and natural levees. Slopes range from 0 to 8 percent. Runoff is negligible to medium, with moderately rapid permeability. Except where drained, these soils are saturated at a depth of 20 to 48 inches for several months between November and April.

Hubbell et al. (2003) sampled 30 auger holes across the Kopta Slough property. Saturation (groundwater) was encountered in 19 of the 30 auger holes at an average depth of 12.5, plus or minus 0.5 feet.

3.7.2 Discussion of Impacts

a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:

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

No Impact. The proposed project may include the placement of a temporary construction bridge, but does not include construction of any permanent structures. There are two normal faults outside of the project area: the Chico monocline fault, approximately 12 miles to the east; and the Corning fault, approximately 6 miles to the west. Both are classified as Quaternary “potentially active faults,” with movement within the last 1.6 million years (Jennings and Bryant 2010). Historically, Tehama County has experienced only minor earthquakes and secondary impacts from earthquakes located outside of the county (Tehama County 2009). The Kopta Slough property is not on or near any areas shown on the California Geological Survey (CGS) Alquist-Priolo Fault Zone Maps for California (Bryant and Hart 2007). In addition, there are no known faults mapped within the Kopta Slough property (Jennings and Bryant 2010). Therefore, there would be no impact.

ii) **Strong seismic ground shaking?**

No Impact. The CGS Earthquake Shaking Potential for California map (Branum et al. 2016) indicates that the Kopta Slough property and surrounding region have a “low frequency shaking potential,” where the potential is calculated by consideration of historic earthquakes, slip rates of major faults, and surface geologic materials. The “low frequency shaking potential” means that the Kopta Slough property and surrounding region are expected to have a very low relative intensity of ground shaking and damage from future earthquakes. The Kopta Slough property and surrounding region are not exposed to potentially strong seismic ground shaking because of the distance from active fault zones and faults (Jennings and Bryant 2010), and the proposed project does not include the construction of permanent structures. Therefore, there would be no impact.

iii) Seismic-related ground failure, including liquefaction?

No Impact. The Kopta Slough property and surrounding region are not considered by the CGS or the USGS to have significant potential for liquefaction, landslide, strong earth ground shaking, or other earthquake and geologic hazards (California Geological Survey 2021). In addition, the proposed project does not include the construction of permanent structures. Therefore, there would be no impact.

iv) Landslides?

No Impact. The Kopta Slough property and surrounding region are comprised of flat-lying horizontal beds of sedimentary fluvial and floodplain deposits, with some localized lenses of cross-bedded or low angle-dipping sediments. The Kopta Slough property and surrounding region are not located on or near areas prone to landslides, as indicated by the Susceptibility to Deep-Seated Landslides in California map (Wills et al. 2011). In addition, the project area and surrounding region are not considered by the CGS or USGS as having significant potential for liquefaction, landslide, strong earth ground shaking or other earthquake and geologic hazards (California Geological Survey 2021). Landslides on the Kopta Slough property have not occurred and are not expected because of the geometry and composition of the sedimentary deposits. Therefore, there would be no impact.

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

Less Than Significant with Mitigation Incorporated. Construction-related ground disturbance could result in the temporary exposure of soil to wind and water erosion, which could be potentially significant. But, implementation of the erosion and sediment control measures included in Mitigation Measure Water Quality-1 would minimize this impact to less than significant. Following completion of construction, disturbed areas would be replanted or otherwise appropriately stabilized, and the restored floodplain habitat within the existing agricultural field would help to restore and protect the topsoil.

The purpose of the proposed project is to restore fluvial and floodplain functions to the project area. Therefore, the intent of the proposed project is to reactivate the fluvial geomorphological processes upon the project area,

which may result in minor to major, though not unexpected, changes to the project area. Following rock revetment removal, the soils and underlying geologic units (such as Quaternary-age stream channel and flood deposits) of the Kopta Slough property would be exposed to the river's natural functions, including erosive and depositional physical processes. The river bank would be expected to become saturated and undergo sloughing or erosion as a result of inundation during high flows and flood flows or a change in the meander of the river, and depositional actions would be expected to deposit soils on the floodplain. It is expected, and desired, that part or all of the previously armored bank and adjacent land would be altered or affected in response to the renewed fluvial and floodplain processes of the Sacramento River. These changes, which are the purpose of the proposed project, would be beneficial over the long-term and, therefore, would be less than significant.

c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?

No Impact. The purpose of the proposed project is to restore fluvial and floodplain functions to the project area. Following removal of rock revetment, the soils and underlying geologic units (such as Quaternary-age stream channel and flood deposits) of the Kopta Slough property would be exposed to the river's natural functions, including sloughing or erosion. These erosive processes would not result in an off-site landslide, lateral spreading, subsidence, liquefaction, or collapse. Therefore, there would be no impact.

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

No Impact. The proposed project does not include the construction of permanent buildings or structures that would be at risk from the hazards of expansive soils. Therefore, there would be no impact.

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

No Impact. No septic tanks or alternative waste water disposal systems would be developed during implementation of the proposed project, and the existing septic system on the upland parcel would be removed. Therefore, there would be no impact.

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

No Impact. The project area is located within Quaternary-age stream channel and flood deposits. The riverbank within the project area is a recent phenomenon resulting from the meandering nature of the Sacramento River. Project activities would not extend beyond the younger alluvium into older sediments, eliminating the possibility of encountering a unique paleontological resource. Older non-marine deposits from the Pleistocene era that are located to the west of the Kopta Slough property are not unique to the region. Therefore, there would be no impact.

3.7.3 Mitigation Measures

Mitigation Measure Water Quality-1: Implement a Stormwater Pollution Prevention Plan

Refer to Section 3.10.3, "Mitigation Measures," in the "Hydrology and Water Quality" section.

3.8 Greenhouse Gas Emissions

| VIII. GREENHOUSE GAS EMISSIONS — Would the project: | Level of Significance |
|-------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|
| a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment? | Less than Significant |
| b) Conflict with any applicable plan, policy, or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases? | No Impact |

3.8.1 Environmental Setting

GHG Emissions Analysis

In May 2012, DWR adopted the DWR Climate Action Plan-Phase I: GGERP, which details DWR's efforts to reduce its GHG emissions consistent with Executive Order S-3-05 and the Global Warming Solutions Act of 2006 (AB 32). DWR also adopted the initial study/negative declaration prepared for the GGERP in accordance with the CEQA Guidelines review and public process. Both the GGERP and initial study/negative declaration are incorporated herein by reference (California Department of Water Resources 2012a, 2012b). The GGERP provides estimates of historical (back to 1990), current, and future GHG emissions related to operations, construction, maintenance, and business practices (e.g., building-related energy use). The GGERP specifies aggressive 2020 and 2050 emission reduction goals and identifies a list of GHG emissions reduction measures to achieve these goals.

DWR specifically prepared its GGERP as a "Plan for the Reduction of Greenhouse Gas Emissions" for purposes of CEQA Guidelines section 15183.5. That section provides that such a document, which must meet certain specified requirements, "may be used in the cumulative impacts analysis of later projects." Because global climate change, by its very nature, is a global cumulative impact, an individual project's compliance with a qualifying GHG emissions reduction plan may suffice to mitigate the project's incremental contribution to that cumulative impact to a level that is not "cumulatively considerable" (CEQA Guidelines, Section 15064, subdivision (h)(3)).

More specifically, "[l]ater project-specific environmental documents may tier from and/or incorporate by reference" the "programmatic review" conducted for the GHG emissions reduction plan. "An environmental document that relies on a greenhouse gas reduction plan for a cumulative impacts analysis must identify those requirements specified in the plan that apply to the project, and, if those requirements are not otherwise binding and enforceable, incorporate those requirements as mitigation measures applicable to the project" (CEQA Guidelines Section 15183.5, subdivision (b)(2)).

Section 12 of the GGERP outlines the steps that each DWR project will take to demonstrate consistency with the GGERP. These steps include:

(1) analysis of GHG emissions from construction of the proposed project, (2) determination that the construction emissions from the project do not exceed the levels of construction emissions analyzed in the GGERP, (3) incorporation into the design of the project DWR's project level GHG emissions reduction strategies, (4) determination that the project does not conflict with DWR's ability to implement any of the "specific actions" GHG emissions reduction measures identified in the GGERP, and (5) determination that the project would not add electricity demands to the State Water Project system that could alter DWR's emissions reduction trajectory in such a way as to impede its ability to meet its emissions reduction goals.

Consistent with these requirements, a GGERP Consistency Determination Checklist is attached (Appendix C, "DWR Greenhouse Gas Emission Reduction Plan Consistency Determination Checklist"). This checklist documents that the project has met each of the required elements.

3.8.2 Discussion of Impacts

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

Less than Significant Impact. Based on the analysis provided in the GGERP and the demonstration that the proposed project is consistent with the GGERP (as shown in the attached Appendix C), DWR, as the lead agency, has determined that the proposed project's incremental contribution to the cumulative impact of increasing atmospheric levels of GHGs is less than cumulatively considerable and, therefore, less than significant.

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

No Impact. DWR's GGERP is in compliance with all applicable plans, policies, and regulations. The proposed project is in compliance with the GGERP, and all BMPs suggested in the GGERP are outlined in Section 2.7, "Environmental Commitments" as part of the proposed project. Therefore, there would be no impact.

3.8.3 Mitigation Measures

None required. Potentially significant impacts were not identified for this resource.

3.9 Hazards and Hazardous Materials

| IX. HAZARDS AND HAZARDOUS MATERIALS — Would the project: | Level of Significance |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------|
| a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials? | Less than Significant with Mitigation Incorporated |
| b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment? | Less than Significant with Mitigation Incorporated |
| c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school? | No Impact |
| d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment? | No Impact |
| e) For a Project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the Project area? | No Impact |
| f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan? | Less than Significant |
| g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires? | Less than Significant with Mitigation Incorporated |

3.9.1 Environmental Setting

Hazards

Hazards include safety risks associated with proximity to an airport, wildland fires, or interference with adopted emergency response or emergency evacuation plans.

There are five private airports and two public airports located within Tehama County (TollFreeAirline.com 2020). The private Deer Creek Ranch Airport in the town of Vina and the public Corning Municipal Airport are located in the vicinity of the project area. The Deer Creek Ranch Airport is located approximately 5 miles northeast of the project area and the Corning Municipal Airport, which has an adopted airport land use plan, is located approximately 4 miles northwest of the project area.

Wildland fires pose a hazard to rural and urban development, infrastructure, and natural resources. Numerous factors, such as topography, vegetation characteristics, fuel load, and climate, contribute to the degree of fire hazard in an area. Within Tehama County, 11 identified communities are at high risk of damage from wildfire because of their location within the wildland-urban interface. The high risk areas closest to the project area are the incorporated cities of Corning and Los Molinos (California Department of Forestry and Fire Protection 2020a), with Corning rated as having a high fire threat level, and Los Molinos rated as having a moderate fire threat level. The project area falls within an unincorporated Local Responsibility Area that has a fire hazard severity zone designation of "non-very high" (California Department of Forestry and Fire Protection 2020b). The project area is surrounded primarily by agricultural uses, riparian vegetation, the Sacramento River, and a few residences.

South Avenue, which connects the I-5 and SR 99 transportation corridors, is the main road that would be used in an emergency response to any areas within or surrounding the project area. The project area would be accessed via South Avenue, Hall Road, and Dale Road (Figure 6).

Hazardous Materials

Hazardous materials are defined in Section 66260.10, Title 22, of the California Code of Regulations as:

A substance or combination of substances which, because of its quantity, concentration, or physical, chemical, or infectious characteristics, may either (1) cause, or significantly contribute to, an increase in mortality or an increase in serious, irreversible, or incapacitating reversible, illness; or (2) pose a substantial present or potential hazard to human health or environment when improperly treated, stored, transported, or disposed of or otherwise managed.

Pursuant to Government Code Section 65962.5, both the SWRCB GeoTracker and California Department of Toxic Substances Control (DTSC) EnviroStor databases were consulted on December 24, 2021, to determine if there are any recorded sites of concern within an approximate 4-mile radius of the project area. No sites were identified by EnviroStor or GeoTracker (California Department of Toxic Substances Control 2021; California State Water Resources Control Board 2021).

Within the project area, past and current agricultural operations on the Kopta Slough property have the potential to result in hazardous materials contamination. Agricultural operations, such as the application of pesticides or herbicides, as well as the use and maintenance of farming equipment and vehicles, can lead to toxic build-up of residues in the soil. The hazardous materials associated with the agricultural operations are stored in one of the maintenance buildings on the upland parcel at the entrance to the Kopta Slough property. There are also two aboveground tanks that store fuel, including diesel. On the Kopta Slough property, a diesel-powered well pump is located adjacent to the agricultural field and has a fuel truck stationed next to it. In addition, the wells and septic system located on the Kopta Slough property have the potential to contribute to contamination.

3.9.2 Discussion of Impacts

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

Less than Significant with Mitigation Incorporated. Construction activities have the potential to accidentally release hazardous materials, such as fuels, oils, grease, lubricants, and cleaning solvents. An accidental release of hazardous materials could create a hazard through exposure of construction workers, contamination of soils, or degradation of water quality,

resulting in a potentially significant impact. During restoration activities, the potential use of pesticides and herbicides could also result in the accidental release of hazardous materials, but the risk of an accidental release would be similar to the existing risk on the agricultural field. Implementation of the BMPs included in Mitigation Measure Hazards-1 would minimize the potential for impacts from hazards and hazardous materials, resulting in a less-than-significant impact.

Prior to demolition of the existing structures on the upland parcel at the entrance to the Kopta Slough property, the stored hazardous materials would be removed. These materials could pose a hazard if not properly relocated or disposed. If any of these materials were stored on exposed soil, it is possible that the soils may be contaminated from accidental spills or leaks. It is also possible that the soils beneath the aboveground fuel tanks and the diesel-powered well pump could be contaminated from leaks or spills and pose a hazard. Contamination from any of these sources would be potentially significant. But, implementation of the soil disposal protocol included in Mitigation Measure Hazards-2 would reduce this potential impact to less than significant.

b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?

Less than Significant with Mitigation Incorporated. Two of the existing water wells located on the Kopta Slough property would be used as a source of water for proposed construction activities and to irrigate the proposed restoration area, and one existing well on the upland parcel at the entrance to the Kopta Slough property would be left in place. The remaining wells, if left unsecured, could serve as a potential conduit for soil and groundwater contamination. The existing inactive septic system on the upland parcel at the entrance to the Kopta Slough property could fail and result in pollution of the soil and groundwater following placement of fill material on the parcel. Contamination from any of these sources would be potentially significant. But, the septic system would be removed during site preparation, and implementation of the proper well abandonment and destruction standards included in Mitigation Measure Hazards-3 would reduce this potential impact to less than significant.

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

No Impact. The project area is not located within 0.25 mile of an existing school. The nearest school is located approximately 4 miles west of the project area in the City of Corning. In addition, no new schools are proposed in the vicinity of the unincorporated project area. Therefore, there would be no impact.

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

No Impact. A search of both the SWRCB GeoTracker and DTSC EnviroStor databases on December 24, 2021, indicated that there are no recorded sites of concern within the project area or within an approximate 4-mile radius of the project area. Therefore, there would be no impact.

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

No Impact. The project area is located 5 miles from the private Deer Creek Ranch Airport and approximately 4 miles from the Corning Municipal Airport, a distance which is outside of the airport land use plan's designated safety zones. Therefore, there would be no impact.

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

Less than Significant. The proposed project would not require any public road closures during construction, but workers commuting to the site and construction vehicles would temporarily increase the amount of traffic on South Avenue and on the surrounding project area access roads. Commuting and construction traffic could result in traffic delays, but the delays would be minor and would occur intermittently during the temporary construction period. The potential minor delays in traffic would have a less-than-

significant impact on the implementation of an emergency response or evacuation plan.

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

Less than Significant with Mitigation Incorporated. The project area consists of wildlands that are adjacent to residences, but it is not located within a high fire hazard severity zone. However, there is a potential risk of fire along the Kopta Slough property access roads and in the proposed staging areas, which are comprised of mostly non-native vegetation that could be ignited by construction equipment or associated construction activities. A fire within these areas would be potentially significant. But, the potential fire risk would be short-term and minimal and would be less than significant following implementation of the fire protection and prevention plan included in Mitigation Measure Hazards-4.

Restoration of the 176-acre agricultural field to a mix of valley oak riparian forest, valley oak woodland, and grassland would increase the amount of fuel for wildfires on the Kopta Slough property. But, the restoration area would have a planting pattern similar to existing adjacent restored areas and the riparian vegetation combined with the generally flat topography adjacent to the Sacramento River would have a low potential fire risk. In addition, future recreational use levels on the Kopta Slough property are expected to be low. The potential risk of wildfire, therefore, would be less than significant.

3.9.3 Mitigation Measures

Mitigation Measure Hazards-1: Prepare and Implement a Spill Prevention and Control Plan

The contractor shall be required to prepare and implement a spill prevention and control plan prior to construction, which will contain measures to avoid or minimize potential chemical contamination within the Sacramento River and its floodplain. The plan shall include the following construction BMPs:

- All personnel involved in use of hazardous materials shall be trained in emergency response and spill control.

- Contractors shall have oil-absorbent and spill-containment materials on site when mechanical equipment is in operation within 100 feet of the river or slough and shall adhere to all required State and federal standards. If a spill occurs, no additional work shall commence in-channel until (1) the mechanical equipment is inspected by the contractor and the leak has been repaired, (2) the spill has been contained, and (3) the appropriate agencies have been contacted and have evaluated the impacts of the spill.
- Staging, storage, servicing, and refueling of vehicles and equipment shall take place outside the river channel. Any equipment that may leak shall be stored over impermeable surfaces, if available, and drip pans (or any other type of impermeable containment measure) will be placed under parked machinery and checked and replaced when necessary, to prevent drips and leaks from entering the environment.
- Machinery that enters the river during work shall be steam cleaned, inspected daily, and properly maintained to avoid water quality contamination from the release of grease, oil, petroleum products, or other hazardous materials.
- Every reasonable precaution will be exercised to protect streams and other waters from pollution with fuels, oils, and other harmful materials. Safer alternative products (such as biodegradable hydraulic fluids) will be used where feasible.
- The use or storage of petroleum-powered equipment shall be accomplished in a manner to prevent the potential release of petroleum materials into the river or Kopta Slough.
- Any fuel stored within the project area shall be stored outside the channel in a double-walled contained vessel surrounded by a berm appropriately sized for the volume.
- Spill containment kits shall be on site at all times.

Mitigation Measure Hazards-2: Identify and Properly Dispose of Contaminated Soils

Soils in areas where hazardous materials storage could have resulted in leaks or spills shall be tested for contamination. If found, contaminated soils shall be excavated to a depth that when tested meets DTSC and SWRCB

approvals as clean. Only a trained professional will remove the hazardous materials pursuant to the *Hazardous Waste Operations and Emergency Response* standards (Occupational Safety and Health Administration 2022). Any contaminated soils shall be disposed of at an approved facility.

Mitigation Measure Hazards-3: Implement DWR Standards for the Proper Abandonment or Destruction of Wells

DWR's Water Well Standards (California Department of Water Resources 2022) state that a well is considered "abandoned" or permanently inactive if it has not been used for one year, unless the owner demonstrates intention to use the well again. Inactive wells intended for future use must be properly maintained to meet well standard requirements, which include providing a secure cover, marking the location of the well, and clearing brush, debris and waste materials surrounding the well.

A well that is no longer useful must be destroyed to assure that the existing groundwater quality is protected and preserved for further use, and to eliminate any potential physical hazard. Destruction of a well shall consist of completely filling and sealing the well in accordance with the procedures described in DWR Water Well Standards, Section 23 (California Department of Water Resources 2022). Permits for well destruction shall also be obtained from the Tehama County Environmental Health Department.

Mitigation Measure Hazards-4: Develop a Fire Protection and Prevention Plan

The project contractor shall be required to develop a fire protection and prevention plan. The plan shall include the following requirements: fire safety training for all construction employees; proper maintenance (e.g., working spark arresters) and operation (e.g., restrictions on the use of gasoline-powered tools around flammable vegetation) of construction equipment; mowing of the parking areas to keep vegetation from coming in contact with the hot undercarriage of employee and construction vehicles; on-site fire suppression tools (e.g., shovels, fire extinguishers) for each construction vehicle; and proper disposal of flammable vegetative waste material during dry weather periods.

3.10 Hydrology and Water Quality

| X. HYDROLOGY AND WATER QUALITY — Would the project: | Level of Significance |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|
| a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality? | Less than Significant with Mitigation Incorporated |
| b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin? | Less than Significant |
| c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or through the addition of impervious surfaces, in a manner which would: <ul style="list-style-type: none"> i) Result in substantial erosion of siltation on- or off-site? ii) Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site? iii) Create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff? | <p>Less than Significant with Mitigation Incorporated</p> <p>Less than Significant with Mitigation Incorporated</p> <p>Less than Significant</p> |
| iv) Impede or redirect flood flows? | Less than Significant with Mitigation Incorporated |
| d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation? | No Impact |
| e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan? | Less than Significant with Mitigation Incorporated |

3.10.1 Environmental Setting

Hydrology

The hydrology of the Sacramento River system is affected by a variety of factors, including rainfall and snowmelt events, water storage projects (reservoirs), tributary streams, and diversions. This complex system includes a series of dams and associated reservoirs, levees, weirs, bypasses,

and other features that have been constructed throughout the last 150 years to regulate flow conditions for water supply and flood management. The primary flood management features on the Sacramento River system are Shasta Lake and the federally authorized Sacramento River Flood Control Project (SRFCP). The SRFCP area spans from Red Bluff to Verona and includes levees, cleared channels, bypasses, and overflow flood management facilities of the SPFC.

The Flood Control Act of 1958 modified and extended the SRFCP to include bank protection, channel improvements, and regulation of floodplain improvements from Chico Landing to Red Bluff. The authority to adopt designated floodways in the Central Valley was given to the CVFPB under Section 8609 of the California Water Code. A "designated floodway" refers to the stream channel and the portion of the adjoining floodplain reasonably required to pass the design flood, which is the flood, either observed or synthetic, which is chosen as the basis for the design of a hydraulic structure. The Federal Emergency Management Agency (FEMA) establishes Special Flood Hazard Areas along streams and associated floodplains to identify lands with at least a 1-percent chance of flooding in any given year. The project area is located within a Special Flood Hazard Area designated as approximate Zone A on FEMA's Flood Insurance Rate Maps, which are published as part of the National Flood Insurance Program. Approximate Zone A identifies a Special Flood Hazard Area where floodplain boundaries have been established using approximate methodologies.

The Chico Landing-to-Red Bluff reach of the Sacramento River (RM 194 to RM 244) is relatively unaffected by flood management facilities. The river naturally meanders through alluvial deposits, and tributaries contribute unregulated flood inflows in this reach. Tributaries in this reach include Red Bank, Antelope, Mill, Elder, Thomes, and Deer creeks. The meandering nature of the river in this reach prompted USACE to identify locations which needed protection to prevent movement of the river onto adjoining lands. SPFC facilities, consisting primarily of bank protection sites, extend intermittently along this 50-mile reach. Another component of the SRFCP included floodway designation, floodplain planning, and land use zoning to prevent encroachment into the natural floodplain. Most of the floodplain along this reach, which can range to several miles in width, is in riparian habitat or agricultural production. Some rural residential development has occurred along the river, with concentrated urban development around the

City of Tehama and Hamilton City. The design flow of the river from Deer Creek to Chico Landing is 260,000 cubic feet per second (cfs).

Flow in the Sacramento River is gauged by DWR near the downstream limit of the project area at Woodson (Vina) Bridge, and USGS gauges Deer Creek near the foothills. The gauge data represent flow between the abutments of Woodson Bridge and do not include the overland flow occurring to the east of the bridge. The peak flow on January 1, 1997, was 168,000 cfs in channel. A hydraulic analysis conducted by Ayres Associates (Appendix D, "Hydraulic Analysis, Conceptual Design, and Preliminary Cost Estimate for The Kopta Slough Flood Damage Reduction And Habitat Restoration Study on The Sacramento River, RM 216 to RM 224, Tehama County, California") estimated the total channel and overbank floodplain flow for this event to be 199,700 cfs. Of this amount, Deer Creek contributed 24,000 cfs. Flood hydrographs provided by the Water Management Section of USACE were based on best available data. USACE conducted a Hamilton City storm centering analysis to develop the hydrographs, which estimate 10- and 100-year flows of 168,500 and 293,700 cfs, respectively. Through an iterative hydraulic modeling process, the bankfull discharge for the project area reach was determined to be 95,100 cfs (Appendix D).

Surface Water Quality

The water quality of the Sacramento River is affected by a variety of factors, including weather, geology, water storage projects (reservoirs), tributary streams, agricultural runoff, municipal and industrial discharges, and non-point sources such as instream transport of stream-bottom sediments with elevated levels of heavy metals and importation of water from other watersheds. Water quality in the mainstem of the Sacramento River is affected by releases from Shasta Dam, which forms Shasta Lake. Water quality in Shasta Lake is affected largely by three tributaries (McCloud, Pit, and Sacramento rivers) and the geochemical and biochemical processes occurring within the reservoir.

Several of the Sacramento River tributaries downstream from Shasta Dam are also regulated by reservoirs, which affects their water quality. Spring Creek Reservoir releases water to Spring Creek (contaminated with acid mine drainage), which is tributary to Keswick Reservoir. Clear Creek was impounded to form Whiskeytown Reservoir, through which water from the

Trinity River is diverted into the Sacramento River drainage.

The project area falls within the Red Bluff Diversion Dam (RBDD) to Hamilton City reach of the Sacramento River. This reach flows mostly through recent alluvium and has formed a floodplain that ranges from 1 to 5 miles in width. The gradient decreases from approximately 2.5 feet per mile at Red Bluff to 1.3 feet per mile near Colusa. A regular riffle-pool sequence is evident in unaltered areas, but is less apparent in the river downstream from Princeton. The riverbed is essentially gravel and cobble in the RBDD to Hamilton City reach (California Department of Fish and Game 1982).

Tributary inflows of some significance in this reach include Antelope, Mill, and Deer creeks from the east, and Red Bank, Elder, and Thomes creeks from the west. Agricultural diversions are common in this reach of the river. The major diversions in this reach include the Tehama-Colusa Canal and the Glenn-Colusa Irrigation District Canal. In addition, several smaller pump diversions by private farming interests are present.

Since 2008, DWR has performed quarterly water quality sampling at three long-term water quality monitoring stations in the RBDD to Hamilton City reach: Sacramento River below Red Bluff (Station #A0275890), Sacramento River at Vina Bridge near Corning (Station #A0270000), and Sacramento River at Hamilton City (Station #A0263000). Monitoring stations contain temperature probes that monitor continuous water temperature. Discrete water chemistry sampling events occur every February, May, August, and November as part of DWR's Sacramento Watershed Coordinated Monitoring Program. Discrete sampling includes physical parameters such as pH, specific conductance, total dissolved and total suspended solids, and dissolved oxygen. Collected nutrient parameters include total and dissolved organic carbon, phosphorus, and nitrogen-based compounds. Minerals are measured as hardness, and as ions of calcium, chloride, potassium, sodium, boron, magnesium, and sulfate. Metals and trace elements, such as aluminum, arsenic, chromium, copper, iron, manganese, and selenium, are also sampled.

Water temperatures in the RBDD to Hamilton City reach fluctuate seasonally, with daily mean high temperatures of approximately 18 degrees Celsius (°C) during the summer and fall, and daily mean low temperatures of approximately 7°C during the winter. High-water temperatures predictably occur during periods with low flow (late summer and early fall) (California Department

of Water Resources 2021), with abnormally high water temperatures coinciding with drought conditions that occurred during 2014 through 2016.

Water chemistry at the three stations in the RBDD and Hamilton City reach is very similar, with parameters typically falling within acceptable water quality standards developed to protect the beneficial uses of water (e.g., drinking water maximum contaminant levels (MCLs), agriculture and stock water goals, and freshwater aquatic life protection thresholds) (California State Water Resources Control Board 2021). The CVRWQCB has assigned beneficial use designations for the Sacramento River within the RBDD to Hamilton City reach, which include municipal and domestic supply, agricultural supply, industrial service supply, water contact and non-contact recreation (e.g., swimming and boating), warm and cold water habitat, wildlife habitat, and navigation (Central Valley Regional Water Quality Control Board 2018).

Data collected between 2008 and 2020 for the three water quality stations within the RBDD to Hamilton City reach provide baseline water quality to assess potential impacts of the proposed project. These data show water in this reach to be neutral to slightly alkaline. Some chemical characteristics fluctuate widely with the season and with flows. For example, electrical conductivity, total dissolved and suspended solids, and turbidity are highest during the winter and early spring because of tributary runoff and bank erosion caused by high flows. Metals, such as aluminum, chromium, iron, and manganese, fluctuate during different discharge rates as well, with relatively high concentrations associated with higher sediment loads. Most of the trace metals transported in the Sacramento River between Shasta Dam and Freeport occur in colloidal form (defined as grain size between approximately 0.005 and 1.0 micrometer in diameter) (United States Geological Survey 2000). Detailed water quality descriptions for each of the three water quality stations are provided below.

Sacramento River below Red Bluff Diversion Dam (RBDD)

DWR water quality data collected from this station, located at RM 242.8, represent ambient water quality conditions for Sacramento River water as it enters the project area from upstream. This location was sampled 32 times between 2008 and 2020. Most water quality parameters measured during this period were within applicable Central Valley Basin Plan criteria levels,

including applicable U.S. Environmental Protection Agency (EPA) criteria levels, for the protection of the designated beneficial uses for this waterbody. However, manganese, iron, and aluminum were often measured above California Secondary Maximum Contaminant levels, but only during winter and spring sampling events (California State Water Resources Control Board 2021). Arsenic, iron, and aluminum were frequently measured above National Ambient Water Quality Criteria (NAWQA) for aquatic life protection criteria (United States Environmental Protection Agency 2021).

Sacramento River at Vina (Woodson Bridge)

DWR water quality data collected from this station, located at RM 218, represent ambient water quality conditions for Sacramento River water immediately downstream from the project area and Woodson Bridge. The sampling location is also within the influence of the City of Corning sewer outfall. This location was sampled 30 times between 2008 and 2020. Water quality sampling at this location show turbidity and concentrations of manganese, iron, and aluminum occasionally above California Secondary Maximum Contaminant levels during winter and spring sampling events. Arsenic and metals, such as aluminum and iron, were often detected above NAWQA for aquatic life protection criteria (United States Environmental Protection Agency 2021). All other sampled water quality parameters at this site were within applicable Central Valley Basin Plan criteria levels (Central Valley Regional Water Quality Control Board 2018).

Sacramento River at Hamilton City

DWR water quality data collected from this station, located near RM 199, represent ambient water quality conditions for Sacramento River water at the downstream extent of the project area. This location was sampled 54 times between 2008 and 2020. Most water quality parameters measured at this site during this period were within applicable Central Valley Basin Plan criteria levels, except for manganese, iron, and aluminum, which during winter and spring sampling events often had concentrations above California Secondary Maximum Contaminant levels. Arsenic, aluminum, and iron were frequently measured above NAWQA for aquatic life protection criteria (United States Environmental Protection Agency 2021).

Groundwater and Groundwater Quality

Alluvial sediment aquifers occur in valleys where eroded sediment and water accumulate, forming groundwater basins. In these basins, groundwater is stored in the pore spaces between sediment particles, forming one to many aquifers. Water availability from these aquifers can be high or low depending on the composition of the sediment, depth of the aquifer and degree of recharge. The state has been divided into 515 groundwater basins and subbasins (California Department of Water Resources 2021), and the proposed project is in the Corning subbasin of the Sacramento Valley Basin.

DWR monitors five wells within a 1-mile radius of Kopta Slough (station numbers 24N02W27G001M, 24N02W27G002M, 24N02W27G003M, 24N02W27G004M, and 23N02W04A004M). Most groundwater quality parameters measured at these wells between 2000 and 2019 were within applicable drinking water MCLs and agricultural water quality goals. However, one well sampled in 2019 had an arsenic concentration above the California Primary Maximum Contaminant Level, two wells had sodium in excess of agricultural goals, and several wells had aluminum and iron concentrations over drinking water taste and odor criteria. These elevated constituents reflect the local geology and occur naturally in the area.

DWR well completion reports (WCRs) for the six irrigation wells within the project area show that groundwater was first encountered between depths of eight to 20 feet during well installations (California Department of Water Resources 1966, 1974). The WCRs also show that groundwater levels recovered rapidly after well development, indicating that the groundwater yield and recharge rates in these wells are relatively high because of their proximity to the Sacramento River and the transmissivity of the valley's water-bearing strata.

Groundwater quality can be affected by both natural and human-caused activities. In natural systems, the quality of groundwater results from geochemical reactions between the water and rock as the water flows from areas of recharge. Typically, the longer that groundwater remains in contact with soluble materials, the greater the concentrations of dissolved materials in the water (in addition to the effects of temperature, pressure, and solubility). The quality of groundwater can also change as a result of the mixing of waters from different aquifers. Additionally, the quality of surface

waters could impact groundwater quality where the surface waters are able to percolate down to the aquifers. Human-caused effects on groundwater quality can occur directly by the infiltration of compounds, or indirectly by alteration of flow or geochemical conditions. Groundwater quality may be influenced by irrigation water, wastewater from human activities, and by-products from industrial activities that may percolate into the soil.

3.10.2 Discussion of Impacts

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

Surface Water Quality

Less than Significant with Mitigation Incorporated. Implementation of the proposed project is not anticipated to adversely impact electrical conductivity or temperature in the Sacramento River. Anticipated surface water quality impacts largely would be related to potential increased turbidity levels in the mainstem Sacramento River during rock revetment removal along the bank of the Kopta Slough property. There also could be short-term (two to five years) turbidity impacts during high-flow events following project completion, as the purpose of the proposed project is to allow the river to meander and reclaim floodplain function. Restoration of these river processes would result in erosive and depositional physical processes, which could increase turbidity when flows are high enough to initiate these actions. But, under existing conditions turbidity levels already exceed the primary MCL during these storm events, so project-related increases in turbidity are not expected to be significant relative to background levels.

The Kopta Slough property is a historic floodplain of the Sacramento River. Rock revetment removal would allow natural river processes to return, which would restore cycles of erosion and deposition of river sediments. While erosive action would increase sediment loads in the river, depositional actions would remove sediment load from the river. Particle bound contaminants, mostly metals, would be expected to cycle between inputs of sediment to the river channel when river power is sufficient to cause erosion of the floodplain, followed by deposition of sediments on the floodplain when river power decreases below the amount necessary for erosion.

Removal of rock revetment during the construction phase would include equipment working from the land side to minimize instream construction activities. Although all work would be conducted in late summer and prior to the flood season when flows in the Sacramento River are reduced, removal of rock revetment and the incorporated fine sediment from below the water level would result in increased turbidity levels in the Sacramento River that would be locally potentially significant. Construction activities would also have the potential to accidentally release hazardous materials, such as fuels, oils, grease, lubricants, and cleaning solvents, into the Sacramento River. An accidental release of hazardous materials could result in the degradation of water quality and would be potentially significant. But, implementation of the spill prevention and control measures included in Mitigation Measure Hazards-1 and the erosion and sediment control measures included in Mitigation Measure Water Quality-1 would minimize this impact. In addition, construction activities would comply with the sediment control measures and water quality monitoring required pursuant to a CWA Section 401 certification issued by the CVRWQCB, as well as a CDFW Lake and Streambed Alteration Agreement. Therefore, potential impacts to surface water quality would be reduced to less-than-significant levels.

Groundwater Quality

Less than Significant with Mitigation Incorporated. During restoration activities, the use of pesticides and herbicides could result in potential groundwater contamination. However, pesticide and herbicide application occurs within the proposed restoration area under existing conditions, and application rates associated with restoration would not be expected to increase substantially over historic or existing application rates. In addition, once the restoration area is established, pesticide and herbicide application would cease or decrease substantially. Therefore, the potential impact on groundwater quality would be less than significant.

Two of the wells located on the Kopta Slough property would continue to be used following completion of construction. Impacts to groundwater quality could occur if the remaining wells are not properly abandoned or destroyed and the septic system is not removed. But, the septic system would be removed during site preparation, and implementation of the DWR standards included in Mitigation Measure Hazards-3 would ensure the proper abandonment or destruction of wells and avoid this potential contamination,

resulting in a less-than-significant impact.

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

Less Than Significant. Proposed construction activities do not include structures or impervious surfaces and would not interfere with groundwater recharge. The proposed project would require temporary watering of roads during construction for dust control, as well as seasonal irrigation of the restoration area and any restored or stabilized areas for approximately three years until the vegetation is established. Water would be supplied by an existing well previously used to irrigate the agricultural field on the Kopta Slough property. The volume of water needed for these activities would not decrease groundwater supplies and would not impede sustainable groundwater management of the basin. In addition, restored riparian vegetation would utilize less groundwater over the long-term than the agricultural field. Therefore, the impact on groundwater supplies would be less than significant.

c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:

i) result in substantial erosion or siltation on- or off-site?

-and-

ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?

-and-

iv) impede or redirect flood flows?

Less Than Significant with Mitigation Incorporated. The proposed project is a restoration action that does not include the addition of impervious surfaces. The Sacramento River from Chico Landing to Red Bluff is affected by lateral migration consisting of erosion on the outside bank of curved channel reaches, coupled with point bar and floodplain building on the inside bank. Rock revetment removal would restore the natural processes of erosion and deposition and channel migration, all essential for ecosystem function. The effects of future channel migration resulting from

implementation of the proposed project were analyzed using the meander model as described in the draft DWR memorandum, *Meander Modeling for the Kopta Slough Flood Damage Reduction and Habitat Restoration Project* (Appendix E). The meander model is a methodology used to predict the future trend line of river migration by representing the erodibility of the soils, stream centerline, flow, and average geomorphic parameters (width, depth, water surface slope, and grain size), all relative to a 2-year flood event. The Kopta Slough property is located between RM 219 and RM 222; the modeled reach extends from RM 198 to RM 225. Rock revetment removal was represented in the model by changing the erodibility of the soils. The other model parameters are average geomorphic conditions for this reach of the river and do not reflect the proposed natural berm removal or the associated increased floodplain access for high flows. Figure 11 shows the historical lateral migration of the river from 1981 to 2013, as well as the predicted trend line of the migration in 50 years (year 2063). The results predict westward lateral migration of the river onto the Kopta Slough property, which is the intent of the rock revetment removal. The predicted trend line of lateral migration upstream and downstream of the Kopta Slough property with rock revetment removal remains unchanged from the predicted trend line of lateral migration without rock revetment removal in 2072. This model result indicates that rock revetment removal and the associated lateral migration of the river would not have an adverse effect on adjacent private property and would be less than significant.

The hydraulic analysis conducted for the proposed project included scenarios that simulated net changes to flood-flow water depths, velocities, and shear stress based on proposed restoration and rock revetment removal designs (Appendix D and Appendix F). More specifically, modeling scenarios for the proposed project consisted of locally higher channel roughness in the restoration area and fill areas within the project boundary, an assumed roughness similar to existing conditions in the rock revetment removal areas, and a reduction in roughness associated with the portion of bank where berm removal would occur. The hydraulic modeling included two-dimensional modeling, which allows for inputs and results to be more specific and localized. The hydraulic modeling results showed a localized increase in water depth within and to the north of the proposed restoration area ranging from approximately 0.1 to 0.3 feet for the 1-percent annual exceedance probability(100-year) flood event (Figure 12), with the exception of a small area on the northern property boundary predicted to

increase by 0.4 feet (Appendix F). The maximum increase of 0.4 feet is associated with a depth of 8.7 feet under existing conditions. Modeling results show that this localized increase in water surface elevation, which is attributed to the increased roughness of the restoration area plantings, would not affect the overall spatial extent of the 100-year floodplain inundation area because of the elevated lands along the west of the project area and the localized nature of the small increase in depth. This increase in water surface elevation predicted in the two-dimensional analysis is considered less than significant because the relative change in depth would be small and does not indicate a significant increase in flood risk. Additionally, within the localized area of increase there is no threat to life or livelihood and there are no structures (e.g., houses or outbuildings) in the area that could be negatively affected by the increase.

Just south of the proposed restoration area, model results indicate a decrease in water surface elevation from 0.1 to 0.2 feet (Appendix F). This decrease in water surface elevation downstream of the project area is considered negligible and less than significant.

Hydraulic model results of changes in flow velocity within the project area are shown in Figure 13. Model results suggest decreases in velocity ranging from 0.25 to 2.0 feet per second would occur within the restoration area as a result of the structural (vegetation) resistance (Appendix F). These reductions in velocity suggest capacity to still convey flood flows while reducing potential for scour. The 0.4-foot increase in water surface elevation discussed above would have an associated decrease in velocity of 0.7 feet per second. To further evaluate the relative impact of this localized impact, a one-dimensional hydraulic analysis was also performed. One-dimensional models historically have been used to evaluate flood impacts resulting from changed conditions with an acceptable tolerance of equal to or less than 0.1 feet of change in water surface elevation. One-dimensional modeling averages the flow velocity to a single value and places a uniform water surface elevation over the entire cross section. For the proposed project, this one-dimensional approach normalizes, or averages, the hydraulic impacts with the flow conditions in the main channel. This essentially averages the decreased flow velocity expected in the restoration area with the higher and larger area of flow velocity in the main channel. The one-dimensional analysis suggests that the small area of modest decrease in flow velocity would not have a substantial hydraulic impact on the overall capacity of the

river. This negligible result reinforces the rationale that the increase in water surface elevation predicated in the two-dimensional analysis is considered less than significant because the relative change in depth and velocity would be small and does not indicate a significant increase in flood risk.

Increases in velocity ranging from 0.2 to 1.5 feet per second would occur in the floodplain adjacent to restoration area and within the gravel quarry area (Spoil Area 5) (Appendix F) with the majority of the area forecast at less than 1.0 feet per second. Existing riparian vegetation and new grassland plantings in the floodplain are expected to mitigate scour impacts in these areas. The average channel velocity of the river is approximately 7 feet per second in the 100-year flow Hydraulic model results suggest there would be a localized increase (less than 0.75 feet per second) in flow velocity in an existing riffle section of the Sacramento River channel located adjacent to the proposed restoration area. Modeled localized increases are minor relative to the channel velocity and alone are not expected to induce significant changes to the channel morphology. Therefore, the impact of these changes in velocity would be less than significant. However, as noted previously, the removal of rock revetment would increase the scour potential of the Kopta Slough bank and inundation and restoration of floodplain processes within the project area are fundamental objectives of the proposed project.

Modeled changes in shear stress within the project area are shown in Figure 14 and are attributed to both the restoration planting and rock revetment removal. Rock revetment removal would increase river bank shear stress, which is consistent with restoring the river meander process. Modeled increases in shear stress ranging from 0.2 to 0.8 pounds per square foot would occur within the restoration area as a result of the vegetation planting (Appendix F). Shear stress would increase by 0.2 pounds per square foot to the west and east of the restoration area and in the gravel quarry area (Spoil Area 5) (Appendix F). Existing and planted vegetation and annual grasses would stabilize the soil and reduce the erosional effects. Shear stress would decrease by 0.1 to 0.4 pounds per square foot immediately south and downstream of the restoration area (Appendix F). Therefore, the impact of these changes in shear stress would be less than significant.

Rock revetment removal would involve working in the water with heavy equipment for a period of up to 90 days. This work would increase turbidity in this reach of the river to potentially significant levels. But, all work would

be conducted in late summer and prior to the flood season, when flows in the Sacramento River are reduced. In addition, implementation of the erosion and sediment control measures included in Mitigation Measure Water Quality-1 would minimize this impact to less than significant.

As a result of project implementation, erosion and deposition throughout the riverbanks and floodplain within the project area are expected and desirable. Rock revetment and natural berm removal would allow more frequent and relatively higher-velocity flows to leave the main channel of the Sacramento River and flow across its floodplain. Such flow likely would initiate and maintain secondary flow paths through the floodplain. Sediment mobilized and transported from the site is not expected to result in measurable differences in turbidity levels downstream because this erosion would occur during high-flow events and could not be differentiated from background levels.

Because erosion and deposition in the floodplain are desirable outcomes of the proposed project, standard erosion control methods are not appropriate at this site. As described above, in-water work would be completed when flows in the Sacramento River are reduced and would be managed to minimize turbidity and maintain State water quality standards during construction. Smaller rain events may release sediment from disturbed areas immediately adjacent to the project area. This release is unlikely to cause downstream water quality to fall below State water quality standards because of the magnitude of flows in the Sacramento River at this time. Although substantial fine sediment could be generated from the site during flood events, the site's contribution of turbidity to the mainstem river is unlikely to be substantial or measurable during these larger floods. In addition, the purpose of the proposed project is to restore natural geomorphic processes, which includes erosion that naturally contributes to turbidity. Therefore, erosion and deposition resulting from implementation of the proposed project would be less than significant.

iii) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?

Less than Significant. There are no existing or planned stormwater drainage systems within the project area. The proposed project would not create substantial additional sources of polluted runoff on the Kopta Slough property.

Restoration of the agricultural field would result in increased water holding capacity of the soils and eliminate the existing exposed soils associated with crop planting and harvest, effectively reducing runoff rates. Therefore, the impact on runoff rates and amounts would be less than significant.

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

No impact. The project area is located within a FEMA-designated Special Flood Hazard Area. Under existing conditions, the project area is inundated during high-flow and flood-flow events. Continued inundation of the floodplain post-project would have no impact on the release of pollutants.

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

Less than Significant with Mitigation Incorporated. As discussed above, implementation of the proposed project has the potential to result in significant impacts to water quality or groundwater resources, but implementation of the spill prevention and control measures included in Mitigation Measure Hazards-1, the erosion and sediment control measures included in Mitigation Measure Water Quality-1, and the DWR standards for the proper abandonment or destruction of wells included in Mitigation Measure Hazards-3 would minimize the potential for adverse impacts. Construction activities would also comply with the sediment control measures and water quality monitoring required pursuant to a CWA Section 401 certification issued by the CVRWQCB, as well as a CDFW Lake and Streambed Alteration Agreement. Construction activities would be temporary and would not substantially affect surface water or groundwater resources. Groundwater would be used to irrigate the restoration area, but its use would be consistent with existing agricultural use. Therefore, the potential for the proposed project to conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan would be less than significant.

Figure 11 Historical Sacramento River Lateral Migration from 1981 to 2013 and Predicted 2063 Trend Line

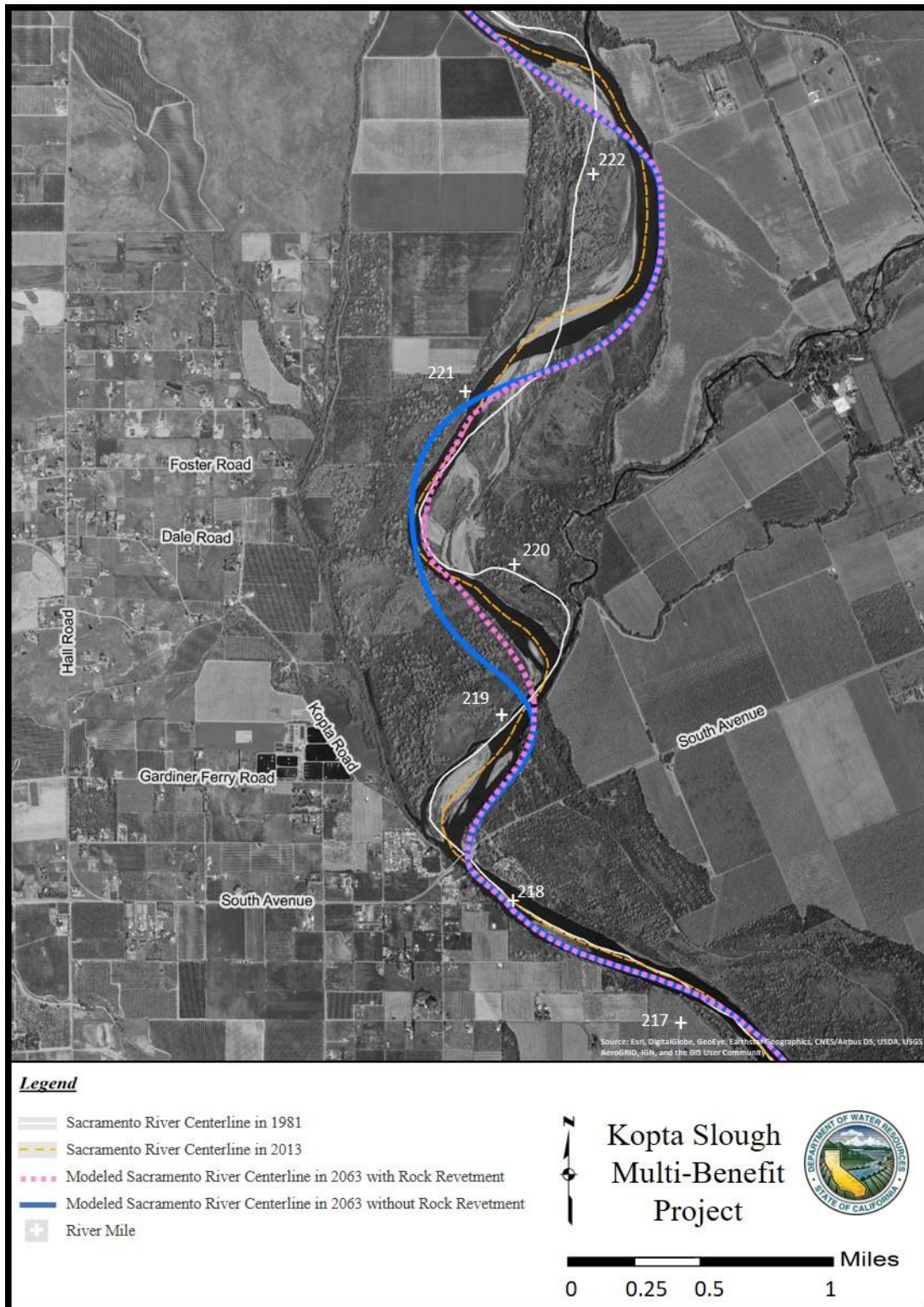


Figure 12 Change in Water Depth for the 100-year Flow Hydraulic Modeling Scenario

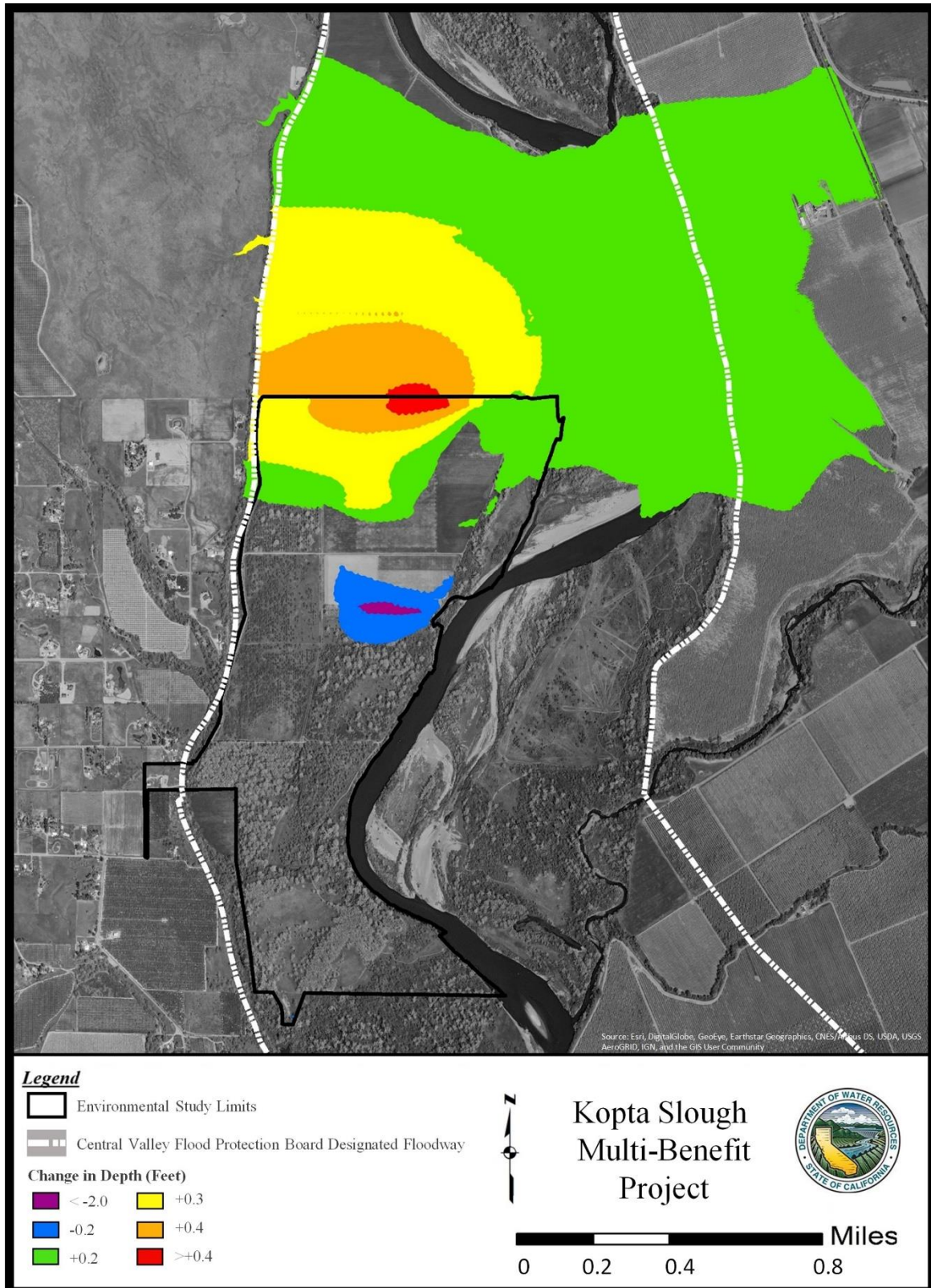


Figure 13 Change in Velocity for the 100-year Flow Hydraulic Modeling Scenario

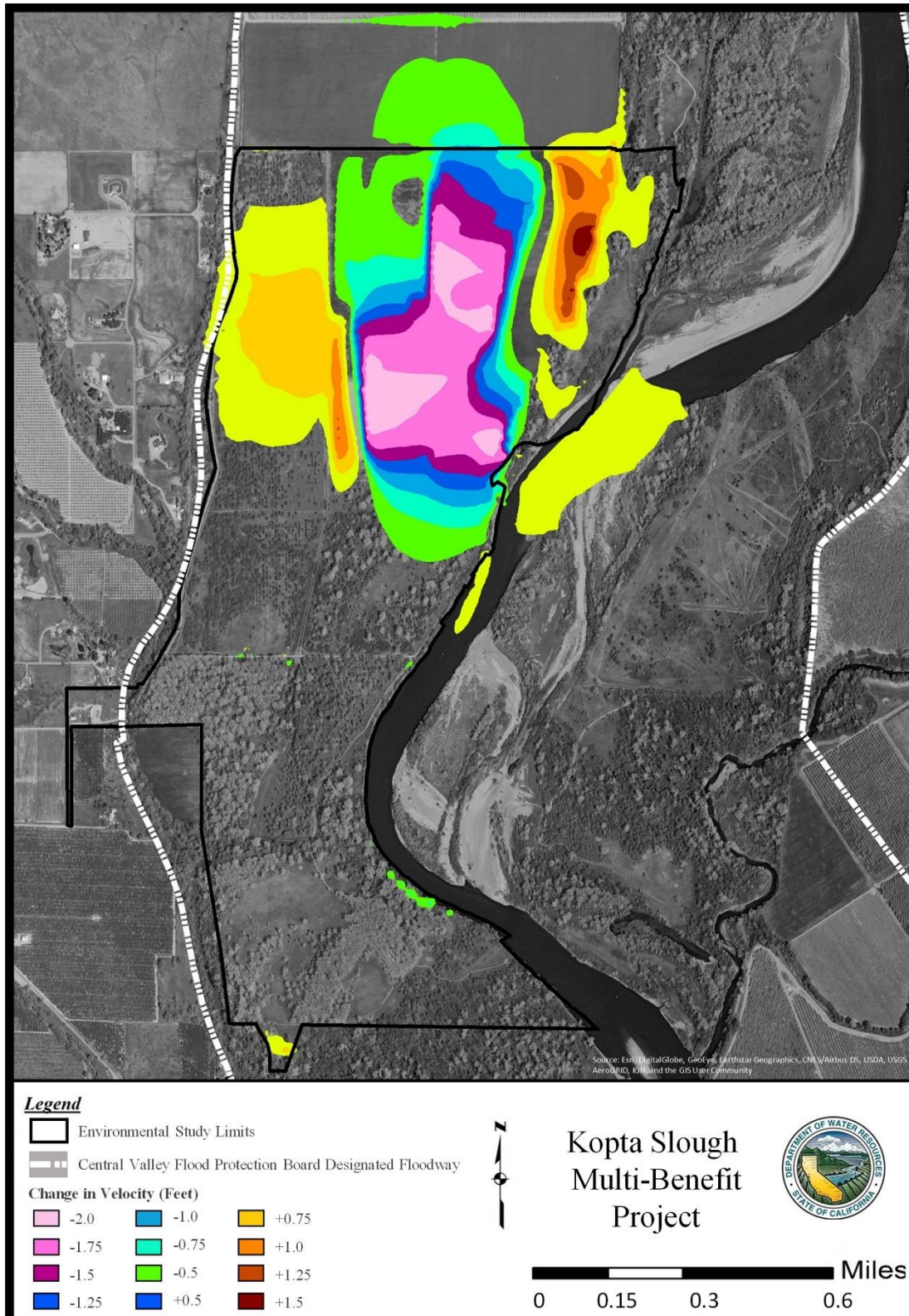
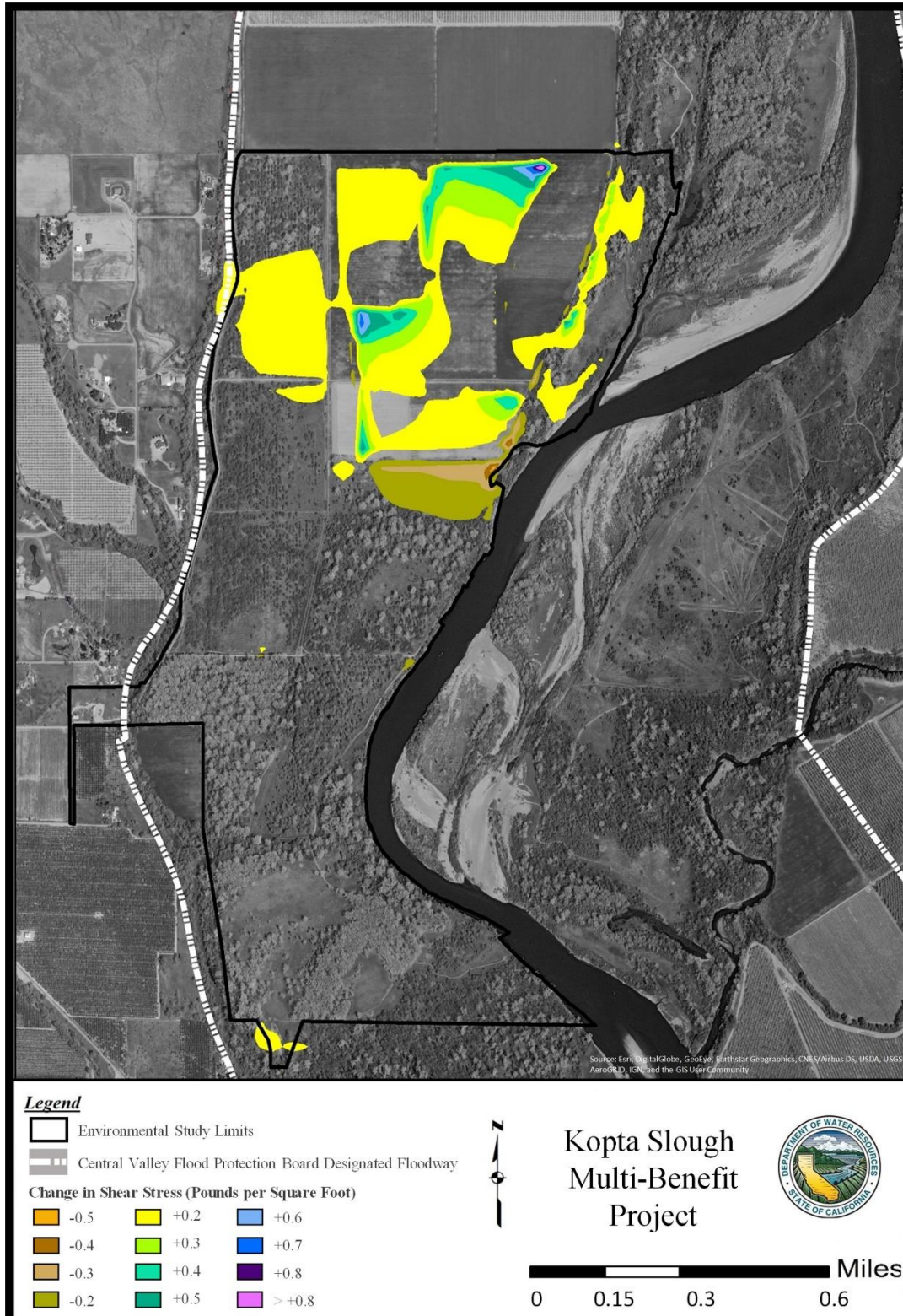


Figure 14 Change in Shear Stress for the 100-year Flow Hydraulic Modeling Scenario



3.10.3 Mitigation Measures

Mitigation Measure Water Quality-1: Implement a Stormwater Pollution Prevention Plan

The contractor shall be required to prepare a stormwater pollution prevention plan (SWPPP) and receive approval from the lead agency prior to the start of construction. The BMPs specified by the SWPPP shall be implemented to monitor, minimize, and prevent construction dirt, debris, stormwater runoff, and miscellaneous by-products from entering the Sacramento River. BMPs may include the following:

- Disturbed areas shall be minimized to the extent practicable, and sensitive areas (e.g., steep slopes and natural watercourses) shall be avoided where construction activities are not required or could be avoided.
- Temporary stabilization of disturbed soils shall be provided whenever active construction is not occurring on a portion of the site.
- Temporary water pollution control measures, such as sandbags, silt fences, application of straw and seed, and other erosion control devices, shall be placed along the disturbed river bank to minimize sediment from entering the river. Erosion control materials, such as coir rolls or erosion control blankets, will not contain plastic netting that could entrain wildlife. Sediment shall be removed from sediment control materials once it has reached one-third of the exposed height of the control, and placed in an upland location where it cannot be washed into the river. Spoils shall be hauled away from river as soon as possible to minimize sediment delivery to the river. Temporary stock piles shall be in areas a sufficient distance from watercourses, where it cannot enter the river or watercourse.
- Spoil areas containing erodible material shall be stabilized at the end of the construction season or when rain is possible.
- Silt curtains or other methods may be utilized to minimize turbidity within the Sacramento River when performing any in-water work or work immediately adjacent to the river.
- Water quality monitoring, which shall be conducted during all periods of in-water work, may include observations of visible sediment plumes in surface waters, and turbidity measurement, settleable solids

measurement, and visual observations for construction related pollutants, both upstream from construction activities and downstream of the active work area pursuant to permit requirements. Water quality monitoring shall inform construction activities, and temporary cessation of in-water work shall be implemented when the project's issued CWA Section 401 or Section 1600 permit thresholds are exceeded. In-water work may resume when water quality parameters decrease to levels below permit requirements.

- Following construction and prior to the onset of winter rains, the disturbed areas along the river bank shall be reseeded with a mix of native grasses and forbs to control soil erosion.

Mitigation Measure Hazards-1: Prepare and Implement a Spill Prevention and Control Plan

Refer to Section 3.9.3, "Hazards and Hazardous Materials."

Mitigation Measure Hazards-3: Implement DWR Standards for the Proper Abandonment or Destruction of Wells

Refer to Section 3.9.3, "Hazards and Hazardous Materials."

3.11 Noise

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

3.11.1 Environmental Setting

Noise is defined as excessive, unwanted, unexpected, or unpleasant sound.

The primary existing sources of noise in the vicinity of the project area include traffic on South Avenue, large equipment and vehicles associated with agricultural operations, railroad operations, and boating on the Sacramento River. The nearest railroad track passes through the town of Vina approximately 1 mile to the east of the Kopta Slough property. The Corning Municipal Airport is located approximately 4 miles to the west of the Kopta Slough property, and a private airstrip is located approximately 5 miles to the northeast.

Noise impacts are typically described as the effect on noise-sensitive land uses that are located within hearing range of a noise-producing activity. These noise-sensitive land uses are referred to as sensitive receptors and include residences, schools, hospitals, child-care facilities, and other similar land uses where noise could affect health or safety. A sensitive receptor's response to noise can vary depending on existing background (ambient) noises and the intensity, duration, frequency, and timing of the noise. In general, the more that a noise exceeds the existing ambient noise level, intensity, duration, or frequency, the less acceptable the new noise will be, as judged by the exposed receptor.

Sensitive receptors in the vicinity of the Kopta Slough property include residences located immediately adjacent to Kopta Slough along the length of the Kopta Slough property, residences located immediately adjacent to the northern boundary of the upland parcel, a residence located southwest of the utility bridge across Kopta Slough, and a residence located west of the gravel quarry (Spoil Area 5). Dense riparian vegetation separates the residences from the slough and the quarry. Several additional residences are located along the County roads that would provide access to the project area (Figure 6). Sensitive receptors also include recreationists using the reach of the Sacramento River that is immediately adjacent to the Kopta Slough property.

3.11.2 Discussion of Impacts

a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of

standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

Less than Significant. The Noise Element of the Tehama County General Plan does not include standards for construction-related noise levels. The City of Corning standard for construction-related noise restricts construction activities to the hours of 7:00 a.m. through 7:00 p.m., but does not include established standards for noise levels. The EPA noise level standards recommend that the noise level averaged over a 24-hour period should not exceed 70 decibels (dB).

Construction activities associated with equipment mobilization and demobilization, vegetation removal during site preparation, and habitat restoration would be temporary and generate noise levels similar to existing agricultural operations and traffic in the vicinity of the project area. These activities would not result in a substantial increase in ambient noise levels and their impact would be less than significant.

Demolition of the existing structures on the upland parcel at the entrance to the Kopta Slough property and construction of a temporary bridge (if necessary) would result in the temporary increase of ambient noise levels. Structure demolition and bridge construction would occur more than 330 feet from the nearest sensitive receptor and would be attenuated by the distance; bridge construction noise would be further attenuated by dense riparian vegetation in Kopta Slough. These activities would not result in a substantial increase in ambient noise levels for sensitive receptors and would be less than significant.

Grading activities and potential material spoiling that would occur on the upland parcel (Spoil Area 2) would also result in a temporary increase in ambient noise levels. These activities would occur within a range of distances from the nearest sensitive receptor, with most locations within the upland parcel a sufficient distance to attenuate noise levels, resulting in a less-than-significant impact. If grading or spoiling were to occur along the northeast boundary of the upland parcel, activities could occur within 60 feet of a residence. Construction equipment that would be used for these activities, such as a backhoe or grader, typically generate 85 to 90 dB of noise. These construction activities would be limited to daytime hours and would progress throughout the upland area, so the noise exposure would not be stationary near the residence and would be short in duration. When

averaged over a 24-hour period, this temporary noise would not be substantial and would not exceed the EPA 70 dB threshold, resulting in a less-than-significant impact on ambient noise levels.

Construction activities associated with rock revetment removal would require loading the rock revetment material into trucks along the bank, dumping material onto the staging area for dry sorting and crushing, and loading it back into haul trucks for associated spoiling activities. Rock dumping, sorting, and crushing would exceed existing ambient noise levels and would generate excessive noise levels at the source of the noise. But, the noise levels associated with rock dumping, sorting, and crushing would be temporary and would be attenuated by the distance from adjacent residences (approximately 1,700 feet from Staging Area 1 and 3,015 feet from Staging Area 3) and by the dense riparian vegetation separating the residences from the staging area, resulting in a less-than-significant impact on ambient noise levels.

Recreationists on the Sacramento River may be adversely affected by noise levels associated with rock dumping, sorting, and crushing, but recreationists would only be exposed to the noise levels briefly and would be informed of construction activities by signs placed upstream and downstream of the rock revetment removal area to discourage use of the area (refer to Section 2.7, "Environmental Commitments"). The impact of construction-generated noise levels on Sacramento River recreationists would be less than significant.

Noise levels associated with materials spoiling along Spoil Area 1 and in Spoil Area 5 would be attenuated by the distance to the nearest sensitive receptors, which are residences 300 to 600 feet away from Spoil Area 1 and a residence 600 feet from Spoil Area 5. The dense riparian vegetation in Kopta Slough that separates the spoil areas from the residences would further attenuate noise levels. Spoiling activities in the remaining spoil areas would occur at further distances from any sensitive receptors. Spoiling activities would not result in a substantial increase in ambient noise levels and would be less than significant.

Long-term management of the Kopta Slough property and the proposed restoration area could require activities, such as mowing, disking, replanting, and herbicide application. These activities, as well as the numbers and types of vehicles and equipment needed to implement them, would be similar to the

existing agricultural operations that occur on the Kopta Slough property and on the parcel located immediately north of the proposed restoration area. Implementation of these activities would not create a substantial increase in ambient noise levels and would have a less-than-significant impact.

The noise impacts described above would be further reduced with Implementation of the best management practices included in Mitigation Measure Noise-1.

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

Less than Significant. Construction activities on the Kopta Slough property would include rock revetment removal, excavation, grading, spoiling, structure demolition, habitat restoration, and construction of a temporary bridge. Excessive groundborne vibration or groundborne noise could be generated when rock revetment material is dumped onto the proposed staging area within the existing agricultural field. But, the groundborne vibration would be temporary, limited to daylight hours, and would be attenuated by its distance of 1,700 feet from the nearest sensitive receptor. It is also possible that bridge construction or structure demolition could generate groundborne vibration or groundborne noise. However, the groundborne vibration or groundborne noise associated with these activities would not be expected to be excessive, and would be attenuated by a distance of more than 330 feet from the nearest sensitive receptor. Therefore, construction-related groundborne vibration or groundborne noise levels would be less than significant.

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

No Impact. The proposed project is located approximately 5 miles from the nearest private airstrip and approximately 4 miles from the Corning Municipal Airport, which is outside of the airport's noise contours (Tehama County 2009). Therefore, people residing or working in the project area would not be exposed to excessive airport or airstrip noise levels and there would be no impact.

3.11.3 Mitigation Measures

Mitigation Measure Noise-1: Implement BMPs to Minimize Construction-Related Noise Effects on Sensitive Receptors

The contractor shall implement BMPs to minimize construction-related noise in the vicinity of sensitive receptors. BMPs shall include the following:

- All construction equipment shall be equipped with manufacturer’s specified noise-muffling devices that are properly operated and maintained.
- All construction equipment shall be stored in a designated staging area during the construction phase to eliminate daily heavy-duty truck trips on local roadways.
- All stationary noise-generating equipment shall be placed as far away as feasibly possible from sensitive noise receptors and in an orientation that minimizes noise impacts, such as behind existing barriers, storage piles, or unused equipment.
- Speed limits shall be established and enforced for construction vehicle traffic on Dale Road to minimize traffic noise.
- All construction activities shall be limited to the daytime weekday hours of 7:00 a.m. to 7:00 p.m. and daytime Saturday hours of 8:00 a.m. to 5:00 p.m. to the extent feasible. Construction outside of normal construction hours shall be minimized or avoided completely when located adjacent to sensitive receptors. The contractor shall notify Tehama County and immediate residents when work is scheduled to extend outside of normal construction times.

3.12 Transportation

| XVII. TRANSPORTATION — Would the project: | Level of Significance |
|----------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|
| a) Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities? | Less than Significant |
| b) Would the project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)? | Less than Significant |
| d) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm | No Impact |

| XVII. TRANSPORTATION — Would the project: equipment)? | Level of Significance |
|----------------------------------------------------------|-----------------------|
| e) Result in inadequate emergency access? | Less than Significant |

3.12.1 Environmental Setting

The two major transportation routes in the vicinity of the project area include I-5, approximately 5 miles west of the Kopta Slough property, and SR 99, approximately 3 miles east of the Kopta Slough property. South Avenue, which connects these two major transportation routes, is rural in nature but is considered an essential roadway of Tehama County. The Kopta Slough property is located on the private Finnell Avenue, which can be accessed from South Avenue to Hall Road to Dale Road. Hall Road is designated as a minor collector, as it provides a linkage between two essential roadways (Figure 6).

Tehama Rural Area Express provides a fixed-route bus service and operates throughout Tehama County, but none of the routes or stops are located in the vicinity of the project area (Tehama Rural Area Express 2022). There are no bicycle or pedestrian facilities in the vicinity of the project area.

Several bus routes serve public schools in the City of Corning. One of the bus routes includes a stop at the intersection of Hall and Dale roads, which is part of the proposed project construction traffic access route. During the 2019–2020 school year, the bus picked up students at this intersection at approximately 7:00 a.m. and dropped them off at approximately 2:40 p.m. (Corning Union Elementary School District 2020).

3.12.2 Discussion of Impacts

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

No Impact. Bus stops and bicycle and pedestrian facilities do not exist within or adjacent to the project area. The proposed project is a restoration action that would not conflict with any plans, policies, or programs that support alternative transportation. There would be no project-related impact on the circulation system.

b) Would the project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?

Less than Significant. Construction-related travel to and from the project area would result in temporary increases in vehicle miles traveled (VMT), with the majority of the increase attributed to heavy-duty trucks and equipment transport. This temporary increase would not conflict or be inconsistent with CEQA Guidelines, Section 15064.3(b), because VMT reduction goals are based on regular automobile traffic and do not include temporary heavy-duty truck VMT. In addition, regular project-related traffic would not be generated after project completion, making the project qualify as a "small project." Finally, the project does not include transportation-related elements or infrastructure that would affect transportation post-project. The project would not include growth and would have a less-than-significant impact on regional VMT.

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

Less than Significant. Proposed widening of the existing dirt and gravel roads on the Kopta Slough property would improve the safety of the roads for use by construction equipment and would not create a road hazard.

The proposed project does not include alterations or design features for public roads, but there is a school bus stop at the intersection of Hall and Dale roads. Students exiting the bus at this stop typically walk along the road to their homes. Because these rural roads do not have sidewalks or other pedestrian safety features, the presence of construction vehicles could decrease safety on these roads, resulting in a potentially incompatible use. But, the potential for an increased hazard would be similar to hazards presented by large farm equipment that frequents these roads, would be temporary, and would not be substantial, resulting in a less-than-significant impact. Implementation of the traffic safety measures included in the construction management plan (refer to Section 2.7, "Environmental Commitments") would further reduce this potential safety risk.

d) Result in inadequate emergency access?

Less than Significant. It is possible that the increase in construction

vehicles on local roads at the start and end of proposed project construction could have a minor effect on emergency response times because of possible temporary delays. However, the proposed project would not result in any road or lane closures, and construction traffic levels would not prevent local service providers from being able to respond to an incident in or near the project area. Therefore, the impact to emergency access would be less than significant.

3.12.3 Mitigation Measures

None required. Potentially significant impacts were not identified for this resource.

3.13 Tribal Cultural Resources

| XVIII. TRIBAL CULTURAL RESOURCES — Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is: | Level of Significance |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------|
| a) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or | Less than Significant with Mitigation Incorporated |
| b) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe. | Less than Significant with Mitigation Incorporated |

3.13.1 Environmental Setting

This section evaluates the potential impacts of the proposed project on tribal cultural resources (TCRs). TCRs are defined under PRC Section 21074 as sites, features, places, geographically defined cultural landscapes, sacred places, or objects with cultural value to a California Native American tribe. To qualify as a TCR, the resource must be listed or eligible for listing in the

CRHR or be determined to meet CRHR criteria by the agency after considering the significance of the resource to the tribe.

This section relies on information and findings presented in the confidential *Archaeological Survey Report for the Kopta Slough Flood Damage Reduction and Habitat Restoration Project, Tehama County, California* (Heffner and Pierce 2021) prepared for the proposed project. This report details the results of the cultural resources inventory, including archival research, records searches, consultation, and fieldwork. Also included in this report is an overview of the project area, including ethnography. All sections below are drawn from these documents unless otherwise cited.

Refer to Section 3.6, "Cultural Resources," for a description of the regional archaeology and ethnography; the cultural resources inventory methods and results for archival research and pedestrian surveys; and an evaluation of buried site sensitivity in the project area.

Tribal Consultation

Assembly Bill (AB) 52 coordination is required when a tribe has requested that a CEQA lead agency consult with them for a specific geographic area. DWR has not received notification requests pursuant to AB 52 that include the project area; therefore, AB 52 coordination is not required. Consultation by DWR is being conducted in compliance with the California Natural Resources Agency Tribal Consultation Policy (California Natural Resources Agency 2012) and the DWR Tribal Engagement Policy through contact with the NAHC.

DWR contacted the NAHC on July 7, 2008; June 3, 2014; and on March 29, 2021, for a Sacred Lands File search of the project area. The NAHC maintains a confidential file, which contains sites of traditional, cultural, or religious value to the Native American community.

The NAHC replied on August 18, 2008, stating that there were no recorded sacred sites in the project area and provided a list of knowledgeable individuals in Tehama County. Project notification letters were sent on August 21, 2008, to individuals and tribes including the Paskenta Band of Nomlaki Indians, Redding Rancheria, and the Wintu Tribe of Northern California (Table 14).

Six years later (June 3, 2014), the NAHC was again contacted for an updated SLF search and contact list. The NAHC reported on June 12, 2014, that there were no recorded sacred sites in the project area and provided an updated list of knowledgeable individuals in Tehama County. Project notification letters were sent on June 18, 2014, to individuals and tribes including the Paskenta Band of Nomlaki Indians, Redding Rancheria, and the Wintu Tribe of Northern California (Table 14). Follow-up emails were sent to all individuals and tribes on March 24, 2015.

DWR contacted the NAHC again on March 29, 2021, for an updated Sacred Lands File search and contact list. The NAHC responded on April 22, 2021, stating their search of the Sacred Lands File was positive and provided contact information for the Paskenta Band of Nomlaki Indians. DWR contacted the Tribe on April 23, 2021, under their Tribal Engagement Policy and again on October 5, 2021.

Table 14 Summary of Native American Consultation

| Tribe | Contact Person | Date of Engagement Policy Letter | Date of Engagement Policy Follow-Up Email | Response |
|----------------------------------|----------------------------------------|-----------------------------------------|--------------------------------------------------|-------------------------------------------------------------------|
| Paskenta Band of Nomlaki Indians | Everitt Freeman, Chairperson | 08/21/2008 | None | None received. |
| Paskenta Band of Nomlaki Indians | Andrew Freeman, Chairperson | 06/18/2014 | 03/24/2015 | None received. Email rejected by server; email address not valid. |
| Paskenta Band of Nomlaki Indians | Andrew Alejandro, Chairperson | 05/05/2021; 10/05/2021 | 10/06/2021 | None received. |
| Redding Rancheria | Tracy Edwards, Chief Executive Officer | 8/21/2008 | None | None received. |
| Redding Rancheria | Barbara Murphy, Chairperson | 08/21/2008 | None | None received. |

| Tribe | Contact Person | Date of Engagement Policy Letter | Date of Engagement Policy Follow-Up Email | Response |
|------------------------------------|---------------------------------------------------|----------------------------------|-------------------------------------------|-------------------------------------------------------------------------|
| Redding Rancheria | Jason Hart, Chairperson | 06/18/2014 | 03/24/2015 | None received. |
| Redding Rancheria | Jack Potter, Chairperson | None | 03/24/2015 | None received. |
| Redding Rancheria | James Hayward, Sr., Cultural Resources Program | 08/21/2008; 06/18/2014 | 03/24/2015 | None received. |
| Wintu Tribe of Northern California | Kelli Hayward | 08/21/2008; 06/18/2014 | 03/24/2015 | None received. Email rejected by server; email address not valid. |

Tribal Cultural Resources

Research on historical maps, online historical aeriels, and BLM GLO plat maps did not reveal any potential TCRs within or near the project area. Record searches, archival research, and pedestrian surveys did not result in the identification of any TCRs within the project area. Although the most recent NAHC SLF search was positive, the Paskenta Band of Nomlaki Indians have not, to date, expressed any concern about the project or provided information on TCRs within or near the project area.

3.13.2 Discussion of Impacts

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

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

–or–

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

Less than Significant with Mitigation Incorporated. Record searches, archival research, and pedestrian surveys conducted for the proposed project did not result in the identification of TCRs within or adjacent to the project area. An NAHC search of the SLF conducted on April 22, 2021, was positive for sacred sites. The letter received from the NAHC suggested contacting the Paskenta Band of Nomlaki Indians for more information. To date, the Paskenta Band of Nomlaki Indians have not responded to outreach efforts.

The project area has been heavily disturbed by continuous farming and livestock grazing. However, three prehistoric archaeological resources have been recorded within a 0.25-mile radius of the project area. Additionally, areas along waterways, such as Kopta Slough and the Sacramento River, are often sensitive for Native American occupation sites. The portions of the project area adjacent to the Sacramento River and Kopta Slough can be considered to have moderate to high sensitivity for buried prehistoric archaeological resources and the portions of the project located more inland can be considered to have low sensitivity for buried prehistoric archaeological resources.

Although no TCRs have been identified within the vicinity of the project area, there is the potential for uncovering previously unknown resources that meet the criteria for a TCR (as defined under PRC Section 21074) during proposed project construction. If project construction activities were to affect previously unknown TCRs in a manner that would damage their cultural value, the impact would be significant. Implementation of the protection measures included in Mitigation Measures Cultural-1 and Cultural-2 would reduce potential impacts to less than significant.

3.13.3 Mitigation Measures

Mitigation Measure Cultural-1: Protect Newly Discovered Archaeological, Prehistoric, Historic, or Tribal Cultural Resources

Refer to Section 3.6.3, "Cultural Resources."

Mitigation Measure Cultural-2: If Human Remains are Found, Cease Construction Activities and Implement Appropriate Procedures for the Treatment of Remains

Refer to Section 3.6.3, "Cultural Resources."

3.14 Utilities and Service Systems

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

3.14.1 Environmental Setting

Utilities and service systems include water supply, wastewater and storm drainage facilities, landfills, electric power, natural gas, and telecommunications facilities.

Water supply to the Kopta Slough property consists of groundwater wells. The Kopta Slough property has an inactive septic system that was previously used for wastewater on its upland parcel; it is not served by any other wastewater facilities. The Kopta Slough property is located within the floodplain of the Sacramento River and is not served by any stormwater drainage facilities or natural gas lines.

Properties located along the river upstream and downstream of the Kopta Slough property also rely on groundwater wells for their water supply. In addition, the private property located immediately adjacent to the northeast corner of the Kopta Slough property (approximately RM 221.5) has appropriate, licensed water rights to the Sacramento River for the beneficial use of irrigation. Downstream of the Kopta Slough property (approximately RM 212), the U.S. Bureau of Reclamation has permitted water rights to the Sacramento River for numerous beneficial uses (California State Water Resources Control Board 2020).

The Corning Wastewater Treatment Plant is located approximately 1 mile southwest of the Kopta Slough property. The treatment plant's sewer outfall, which discharges into the Sacramento River, is located downstream of the Kopta Slough property at RM 218.

The Tehama County/Red Bluff Landfill, which is located in the City of Red Bluff, serves the cities of Red Bluff, Corning, and Tehama, as well as the unincorporated areas of Tehama County. The landfill is located approximately 30 miles northwest of the project area and is permitted to receive waste types such as agricultural, industrial, construction and demolition, mixed municipal, and green materials (Tehama County Solid Waste Management Agency 2020).

An unmarked utility box, likely for phone service, is located to the left of the gate post at the entrance to the Kopta Slough property. There are also several PG&E power lines on the upland parcel at the entrance to the Kopta Slough property. One transmission line extends west-east across the

floodplain portion of the Kopta Slough property and terminates at the southeast corner of the existing agricultural field.

3.14.2 Discussion of Impacts

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

-and-

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

Less than Significant. The Kopta Slough property is located within the Sacramento River's floodplain. As such, the project area is not served by wastewater treatment or stormwater drainage facilities and does not include natural gas lines. Water supply is provided by groundwater wells. The proposed project would not generate wastewater or discharge wastewater into Kopta Slough or the Sacramento River and would not require the relocation, expansion, or construction of water, wastewater treatment, stormwater drainage, or natural gas facilities. Therefore, there would be no impact.

The intent of the proposed project is to restore natural river processes, including river migration. River migration has the potential to impact points of diversion or points of discharge. To predict the future migration of the Sacramento River, a meander model was developed which allows comparison of future river migration trends with and without implementation of the proposed project (Appendix E "Meander Modeling for the Kopta Slough Flood Damage Reduction and Habitat Restoration Project"). The model results predict westward lateral migration of the river onto the Kopta Slough property, which is the intent of the rock revetment removal (Figure 11). The predicted future trend line of lateral migration upstream and downstream of the Kopta Slough property with rock revetment removal remains unchanged from the predicted trend line of lateral migration without rock revetment removal. This model result indicates that rock revetment removal would not have an adverse effect on the point of diversion on the private property immediately upstream of the Kopta Slough property. The river alignment is

predicted to remain the same downstream of Woodson Bridge with or without implementation of the proposed project, indicating that the City of Corning sewer outfall (RM 218) and the U.S. Bureau of Reclamation point of diversion (RM 212) would not be affected by rock revetment removal. Therefore, there would be no impact on these water supply intakes or the City of Corning sewer outfall and no relocation, construction, or expansion of these facilities would be required.

The utility box at the Kopta Slough property entrance gate would be relocated prior to the start of construction to widen the entrance for large construction equipment access. Ground disturbance associated with this activity would be minimal, and disturbed areas would be stabilized following completion of construction. Therefore, impacts would be less than significant.

b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years?

Less than Significant. No development is proposed or anticipated within the floodplain portion of the Kopta Slough property. Proposed construction activities, including berm and road excavation, road widening, structure demolition, and rock revetment removal, would require a source of water for dust control purposes. In addition, the proposed habitat restoration on 176 acres of the Kopta Slough property would require the use of an irrigation system for a duration of approximately four years. Any areas planted to restore areas of temporary construction disturbance or to mitigate for project impacts may also require irrigation.

One domestic well on the upland parcel and two irrigation wells on the floodplain portion of the Kopta Slough property would be used as the source of irrigation water for these construction, restoration, and mitigation activities. The groundwater wells on the Kopta Slough property have provided sufficient water supply for previous restoration efforts and for the existing agricultural operation. The proposed construction and irrigation activities would be similar to those used for previous restoration efforts on the Kopta Slough property and would not be expected to exceed the capacity of the wells. In addition, construction and irrigation would not be long-term. Therefore, the impact would be less than significant.

d) Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?

-and-

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

Less than significant. Although excavated material would be spoiled onsite, the proposed construction activities on the Kopta Slough property would generate solid waste that may be disposed of at the local landfill. Solid waste that would be disposed of could include vegetation and materials from the structures that are proposed for demolition. The proposed project would comply with all applicable statutes and regulations related to disposal of solid waste and would dispose of the waste in the Tehama County/Red Bluff Landfill. This landfill has available capacity and is permitted to accept construction and demolition waste and green waste. Therefore, impacts on the local landfill would be less than significant.

3.14.3 Mitigation Measures

None required. Potentially significant impacts were not identified for this resource.

3.15 Wildfire

| XX. WILDFIRE — If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project: | Level of Significance |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------|
| a) Substantially impair an adopted emergency response plan or emergency evacuation plan? | Less than Significant |
| b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire? | Less than Significant with Mitigation Incorporated |
| c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment? | No Impact |
| d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes? | Less than Significant |

3.15.1 Environmental Setting

The project area is surrounded primarily by agricultural uses, riparian vegetation, the Sacramento River, and a few residences. As described in Section 3.9.1, “Hazards and Hazardous Materials,” the project area falls within an unincorporated Local Responsibility Area that has a fire hazard severity zone designation of “non-very high”. The high risk areas closest to the project area are the incorporated cities of Corning (high fire threat level) and Los Molinos (moderate fire threat level).

3.15.2 Discussion of Impacts

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

Less than Significant. As described in Section 3.9.2, “Hazards and Hazardous Materials,” the proposed project would not require any public road closures during construction, but workers commuting to the site and construction vehicles would temporarily increase the amount of traffic on South Avenue and on the surrounding project area access roads. Commuting

and construction traffic could result in traffic delays, but the delays would be minor and would occur intermittently during the temporary construction period. The potential minor delays in traffic would have a less-than-significant impact on the implementation of an emergency response or evacuation plan.

b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?

Less than Significant with Mitigation Incorporated. As described in Section 3.9.2, "Hazards and Hazardous Materials," the project area consists of wildlands that are adjacent to residences, but it is not located within a high fire hazard severity zone. However, there is a potential risk of fire along the Kopta Slough property access roads and in the proposed staging areas, which are comprised of mostly non-native vegetation that could be ignited by construction equipment or associated construction activities. A fire within these areas would be potentially significant. But, the potential fire risk would be short-term and minimal and would be less than significant following implementation of the fire protection and prevention plan included in Mitigation Measure Hazards-4.

Restoration of the 176-acre agricultural field to a mix of valley oak riparian forest, valley oak woodland, and grassland would increase the amount of fuel for wildfires on the Kopta Slough property. But, the restoration area would have a planting pattern similar to existing adjacent restored areas and the riparian vegetation combined with the generally flat topography adjacent to the Sacramento River would have a low potential fire risk. In addition, future recreational use levels on the Kopta Slough property are expected to be low. The potential risk of wildfire, therefore, would be less than significant.

c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?

Less than Significant. During construction, a combination of existing and temporary new roads would be used for access. New roads would be graded and existing roads would be improved. Post-project, existing roads would remain and areas of disturbance associated with new roads would be stabilized and seeded or

replanted, as appropriate. The environmental impacts of these activities are addressed in the appropriate resource sections of this document. These activities would not exacerbate fire risk; impacts would be **less than significant**.

d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?

Less than Significant. The relatively flat topography of the project area and vicinity does not provide conditions that would pose a landslide risk.

As described in Section 3.10.2, "Hydrology and Water Quality," meander model results predict westward lateral migration of the river onto the Kopta Slough property, which is the intent of the rock revetment removal. The predicted trend line of lateral migration upstream and downstream of the Kopta Slough property with rock revetment removal remains unchanged from the predicted trend line of lateral migration without rock revetment removal in 2072. This model result indicates that rock revetment removal and the associated lateral migration of the river would not have an adverse effect on adjacent private property, and the potential for flooding as a result of river meander would be less than significant.

Hydraulic modeling results showed a localized increase in water depth within and to the north of the proposed restoration area attributed to the restoration area plantings and would not affect the overall extent of floodplain inundation. This increase in water surface elevation is considered less than significant because there is no threat to life or livelihood, there are no structures (e.g., houses or outbuildings) in the area that could be negatively affected by the increase, and there are no State or federal freeboard requirements within this river reach. The potential for flooding as a result of increased water depth would, therefore, be less than significant.

3.15.3 Mitigation Measures

Mitigation Measure Hazards-4: Develop a Fire Protection and Prevention Plan

Refer to Section 3.9.3, "Hazards and Hazardous Materials."

3.16 Mandatory Findings of Significance

3.16.1 CEQA Guidelines

CEQA Guidelines Section 15065 state that the lead agency shall find that a project may have a significant effect on the environment and thereby require an environmental impact report (EIR) to be prepared for the project where there is substantial evidence, in light of the whole record, that any of the following conditions may occur. Where prior to commencement of the environmental analysis a project proponent agrees to mitigation measures or project modifications that would avoid any significant effect on the environment or would mitigate the significant environmental effect, a lead agency need not prepare an EIR solely because, without mitigation, the environmental effects would have been significant.

| XXI. MANDATORY FINDINGS OF SIGNIFICANCE | Level of Significance |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------|
| a) Does the Project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory? | Less than Significant with Mitigation Incorporated |
| b) Does the Project have impacts that are individually limited, but cumulatively considerable? (“Cumulatively considerable” means that the incremental effects of a Project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)? | Less than Significant with Mitigation Incorporated |
| c) Does the Project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly? | Less than Significant |

3.16.2 Discussion

a) Does the Project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of

a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?

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

–and–

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

Less than Significant with Mitigation Incorporated. As discussed in Sections 3.1 through 3.14, the proposed project would not significantly affect the environment. The proposed project would have potentially adverse effects on air quality, biological resources, cultural resources, soils, hazards and hazardous materials, water quality, and tribal cultural resources, but these impacts would be reduced to less-than-significant levels with implementation of avoidance and minimization measures and by incorporating mitigation measures. A summary of mitigation measures is provided in Appendix G, “Mitigation Monitoring and Reporting Program.” The proposed project would not result in cumulatively considerable impacts.

Based on the findings of this initial study, the proposed project would not have the potential to substantially degrade the quality of the environment; substantially reduce the habitat of a fish or wildlife species; cause a fish or wildlife population to drop below a self-sustaining level; threaten to eliminate a plant or animal community; substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory; or have environmental effects that will cause substantial adverse effects on human beings.

The proposed project is intended to provide long-term benefits to the environment by increasing floodplain connectivity, facilitating the meander process, and promoting riparian forest succession that would lead to the regeneration of a diverse mosaic of riparian forest types on the floodplain.

Chapter 4. List of Preparers and Contributors

The following staff directed, managed, prepared, or reviewed sections of this initial study; conducted related fieldwork or modeling; or provided significant background materials:

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Useful Web Links

Web Soil Survey

<https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm>

