ATTACHMENT B:
Environmental Commitment Plan and Tracking Program

The San Joaquin River Restoration Settlement Act (Settlement Act), Public Law 111-11, authorizes and directs the Secretary of the Interior (Interior) to implement the Stipulation of Settlement (Settlement) in Natural Resources Defense Council, et al., v. Kirk Rodgers, et al. Section 10004(d) of the Act states the following:

> MITIGATION OF IMPACTS – Prior to the implementation of decisions or agreements to construct, improve, operate, or maintain facilities that the Secretary determines are needed to implement the Settlement, the Secretary shall identify –
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> The impacts associated with such actions; and
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> The measures which shall be implemented to mitigate impacts on adjacent and downstream water users and land owners.

The U.S. Department of the Interior, Bureau of Reclamation (Reclamation) prepared a joint Environmental Impact Statement/Report (EIS/R) with the California State Lands Commission (CSLC) for the Mendota Pool Bypass and Reach 2B Improvements Project (Project), a component of Phase 1 of the overall San Joaquin River Restoration Program (SJRRP). The EIS/R identifies environmental impacts, environmental commitments, and mitigation measures related to implementation of the Selected Alternative, Alternative B (Compact Bypass with Consensus-Based Floodplain and Bifurcation Structure). This Environmental Commitment Plan and Tracking Program (Environmental Commitment Plan) will be used by Reclamation to ensure that all environmental commitments for the Selected Alternative, as described in the EIS/R and the Record of Decision, are implemented and documented appropriately.

The Environmental Commitment Plan includes measures applicable to construction, operation, maintenance, monitoring, and long-term management of the Mendota Pool Bypass and Reach 2B project. Reclamation will be responsible for ensuring implementation of these commitments and for monitoring and reporting requirements, as applicable. These commitments will be implemented prior to or concurrent with construction, as applicable. In the future, conservation measures, environmental commitments, and mitigation measures may be modified, refined, or improved over time based on consultation with regulatory agencies, experience implementing various measures, results of scientific studies, or other relevant sources of information. The table below lists the environmental commitments to be implemented as part of the Selected Alternative and columns for tracking completion of the actions.

Environmental Commitment	Action and Completion Date
Air Quality	
Comply with San Joaquin Valley Air Pollution Control District (SJVAPCD) Regulation VIII. Control measures will be implemented to reduce emissions of particulate matter (predominantly dust/dirt) generated by Project activities, including construction and demolition activities, road construction, bulk materials storage, paved and unpaved roads, carryout and track out, and landfill operations. Control measures include phasing work to reduce the amount of surface area disturbed at any one time, applying water to the construction site to limit visual dust emissions, limiting the speed vehicles travel on unpaved access/haul roads, storing and handling bulk materials in such a manner that minimizes visual dust emissions, minimizing carryout and trackout of soils from unpaved surfaces to paved surfaces, and preparing and implementing a Dust Control Plan**.**	
AQ-1A Reduce Criteria Exhaust Emissions from Construction Equipment. This mitigation measure would apply to heavy-duty construction equipment used during the construction phase of the Project. All off-road construction diesel equipment would use the cleanest reasonably available equipment or consider alternative fueled equipment or addition of after-market control devices, but in no case less clean than the average fleet mix as set forth in California Air Resources Board's (ARB's) latest Off-road Construction Emission Database. The contractor will prepare an inventory of all equipment prior to construction and document efforts it undertook to locate newer equipment (Tier 4, Tier 3, or Tier 2), alternative fueled equipment (electric, compressed natural gas, or gasoline), and addition of after-market control devices. For off-road construction diesel equipment, the contractor would use the cleanest reasonably available equipment or consider alternative fueled equipment or addition of after-market control devices, but in no case less clean than the average fleet mix as set forth in ARB's latest Off-road Construction Emission Database. The contractor will prepare an inventory of all equipment prior to construction and document efforts it undertook to locate newer equipment (Tier 4, Tier 3, or Tier 2), alternative fueled equipment (electric, compressed natural gas, or gasoline), and addition of after-market control devices.	
AQ-1B Reduce Criteria Exhaust Emissions from Material Hauling Vehicles. This mitigation measure would apply to material hauling vehicles used during the construction phase of the Project. Material hauling trips should be consolidated into the fewest trips possible. All material-hauling diesel equipment would use the cleanest reasonably available equipment or consider alternative fueled equipment or addition of after-market control devices, but in no case less clean than the average fleet mix as set forth in ARB's latest Emission Factors Modeling Software (EMFAC) emission database to any vehicle used that the contractor has control over. The contractor will prepare an inventory of the material hauling vehicle fleet prior to construction and document efforts it undertook to locate newer equipment, alternative fueled equipment (electric, compressed natural gas, or gasoline), and addition of after-market control devices. For material hauling vehicles, the contractor would consolidate trips into the fewest possible, use the cleanest reasonably available equipment or consider alternative fueled equipment or addition of after-market control devices, but in no case less clean than the average fleet mix as set forth in ARB's latest EMFAC emission database. The contractor	

Environmental Commitment	Action and Completion Date
will prepare an inventory of the material hauling vehicle fleet prior to construction and document efforts it undertook to locate newer equipment, alternative fueled equipment (electric, compressed natural gas, or gasoline), and addition of after-market control devices. Effectiveness would be based on the emissions calculated based on actual equipment used and operating hours with a minimum performance criteria equal to the average fleet mix as set forth in ARB's latest EMFAC emission database.	
AQ-1C Offset Project Construction Emissions through a SJVAPCD Voluntary Emission Reduction Agreement. This mitigation measure would require Reclamation and/or CSLC to enter into a contractual agreement to mitigate by purchasing offsets to net zero the Project's actual emissions from exhaust equipment for nitrogen oxides (NOx) for any year that the emissions are projected to exceed the significance threshold based on the estimated construction emissions for any funded construction phase. This is required under the General Conformity Rule for projects that are above the de minimis threshold for NOx. The agreement would provide funds to SJVAPCD's Emission Reduction Incentive Program to fund grants for projects that achieve emission reductions, thus offsetting Project-related impacts on air quality. At a minimum, mitigation/offsets would occur in the year of impact, or as otherwise permitted by 40 CFR Part 93 Section 93.163. Reclamation will enter into a contractual agreement to mitigate by purchasing offsets to net zero the Project's actual emissions from exhaust equipment for NOx for any year that the emissions are projected to exceed the significance threshold based on the estimated construction emissions for any funded construction phase. Effectiveness would be based on actual equipment used and operating hours for any emissions that are not reduced by on-site mitigation.	
AQ-2 Reduce or Offset Project Emissions. Refer to Mitigation Measures AQ-1A, AQ-1B, and AQ-1C (Alternative A). The same measures would be used here.	
AQ-3A Reduce Diesel Particulate Matter Emissions from Construction Equipment. This mitigation measure would apply to heavy-duty construction equipment used during the construction phase of the Project. All off-road construction diesel equipment would use the cleanest reasonably available equipment or consider alternative fueled equipment or addition of after-market control devices (e.g. diesel particulate filters), but in no case less clean than 85 percent reduction in particulate matter compared to a Tier 2 engine. For off-road construction diesel equipment, the contractor would use the cleanest reasonably available equipment or consider alternative fueled equipment or addition of after-market control devices (e.g. diesel particulate filters), but in no case less clean than 85 percent reduction in particulate matter compared to a Tier 2 engine. Effectiveness would be based on use of ARB certified after-market control devices or U.S. Environmental Protection Agency (EPA) certified engines.	

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Cultural Resources	
CUL-1A Comply with Section 106 of the NHPA or Equivalent. Reclamation will comply with Section 106 of the NHPA during subsequent site-specific studies as access is granted to the large area of unsurveyed lands within the Project area for which permission to enter was not granted. Reclamation must comply with Public Resources Code sections 5024 and 5024.5, which require Federal agencies to confer with State Historic Preservation Officer (SHPO) before implementing any project with the potential to affect historical resources listed in or potentially eligible for inclusion in the National Register of Historic Places (NRHP) or registered as or eligible for registration as a State historical landmark. Site-specific environmental reviews will be conducted before all ground-disturbing activities. The following mitigation measures, consisting of inventory, evaluation, and treatment processes, will be conducted by Reclamation as part of the environmental reviews to ensure compliance with Section 106 of the NHPA or Public Resources Code sections 5024 and 5024.5, as applicable. Coordination will continue with the relevant Native American tribes in the area, as necessary to complete these compliance processes. Inventory, evaluation, and treatment processes will be implemented during subsequent site-specific studies and as access is granted. These measures include conducting cultural resources surveys of portions of the Project area that have not been surveyed, planning activities to avoid known cultural resources, evaluating the significance of resources that cannot be avoided, and developing treatment process for significant resources. Conduct cultural resources surveys of portions of the Project area that have not been surveyed. Before any ground disturbance takes place in the Project area (including areas of ancillary activities, such as staging areas and access routes), cultural resource surveys covering the Project area will be conducted to locate and record cultural resources. Where appropriate, subsurface discovery efforts also will be undertaken to identify buried archaeological sites. Plan activities to avoid known cultural resources. Before carrying out ground-disturbing activities, areas that have been delineated as containing cultural resources will be demarcated, and all ground-disturbing or related activities will be planned to avoid these areas.	
CUL-1B Conduct Subsurface Testing and/or Archaeological Monitoring in Proximity to Identified Sites or Areas of Sensitivity. Ground-disturbing activities that have the potential to affect archaeological resources may occur in areas that have been identified as either the location of a known archaeological site, or in an area known to be sensitive for the presence of buried cultural resources. Implementation of the following measures would reduce potential impacts to known archaeological sites and areas of sensitivity. Prior to Project implementation, subsurface geoarchaeological testing will be conducted in areas where ground-disturbing construction activities are proposed in native sediments/soils near known archaeological resources, as well as any areas of proposed disturbance in areas identified by Byrd et al. (2009) as having high or very high sensitivity for buried archaeological resources, in order to rule-out the presence of buried archaeological resources within the Project's areas of subsurface disturbance. If subsurface testing is determined not to be feasible and/or the results of testing are inconclusive, an archaeological monitor approved by Reclamation and/or CSLC staff will be present during all ground-disturbing activities in those same areas described above.	

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In the event that cultural resources are exposed during construction, the monitor will be empowered to temporarily halt activities in the immediate vicinity of the discovery while it is evaluated for significance. If, in consultation with interested parties, it is determined that the cultural resources exposed are significant archaeological resources, and if Project activities cannot feasibly avoid the resource, additional measures will be implemented (see Mitigation Measures CUL-1C and CUL-1D below). Where necessary, Reclamation will seek Native American input and consultation. Construction areas with ground-disturbing activities occurring in native sediments/soils near known archaeological resources, as well as any areas of proposed disturbance in areas determined to be highly or very highly sensitive for buried archaeological resources by Byrd et al. (2009) or a subsequent Project-specific geoarchaeological sensitivity analysis. Performance tracking of this mitigation measure is based upon successful implementation and the approval of the documentation by SHPO and appropriate consulting parties. Geoarchaeological testing will occur prior to, and/or archaeological monitoring will occur during, specified ground-disturbing activities. Reclamation will report to SHPO and the consulting parties. Geoarchaeological testing will occur prior to ground disturbing activities. Active archaeological monitoring, as necessary, will occur throughout the duration of these specific ground-disturbing activities.	
CUL-1C Halt Work in the Event of an Archaeological Discovery. If any cultural resources are discovered during ground-disturbing activities, all work in the immediate vicinity of the resources will be halted, and an archaeologist approved by Reclamation and/or CSLC staff will assess the significance of the find. If the discovery is determined to be significant, work may proceed on other parts of the Project area while avoidance or mitigation alternatives are being developed and carried out. Reclamation will prepare and implement an Archaeological Treatment Plan, which will be developed in coordination with interested parties. This plan will include an approach for addressing unanticipated discoveries and will detail the specific procedures to be followed if archaeological materials are found during construction. Reclamation will notify CSLC staff if the find is a cultural resource on lands under the jurisdiction of the CSLC. Reclamation will comply with all applicable rules and regulations promulgated by CSLC with respect to cultural resources in submerged lands. If human remains are encountered, Reclamation will comply with applicable laws and regulations regarding notification and disposition of the remains. If the coroner determines that the remains are Native American, the coroner would notify the Native American Heritage Commission under Health and Safety Code section 7050.5 and Reclamation and/or CSLC staff would ensure that the discovery is treated in accordance with the provisions of Public Resources Code section 5097.98, subdivisions (a)-(d).	

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If any find is determined to be significant, Reclamation and/or CSLC staff, the Project archaeologist, and interested parties will determine the appropriate avoidance measures. All significant cultural materials recovered will be—as necessary and at the discretion of the Project archaeologist and with input from Native American representatives—subject to scientific analysis, professional museum curation, and documentation according to current professional standards. In considering any suggested mitigation proposed to mitigate impacts on historic properties, historical resources, or unique archaeological resources, a determination will be made on whether avoidance is feasible in light of factors such as the nature of the find, Project design, costs, and other considerations. If, in consultation with interested parties, it is determined that a significant archaeological resource is present and that the resource could be adversely affected, one of the following actions may be followed, as feasible: If prudent and feasible, redesign the Project to avoid any adverse effect on the significant archaeological resource.	
Implement Mitigation Measure CUL-1D, Intentional Site Burial for Site Preservation. Implement an archaeological data recovery program (ADRP). If the circumstances warrant an ADRP, a data recovery program will be conducted. The scope of the ADRP will be determined together with the Project archaeologist and interested parties. The archaeologist will prepare a draft ADRP, which would identify the scientific/historical research questions that are applicable to the expected resource, the data classes the resource is expected to possess, and how the expected data classes would address the applicable research questions. Destructive data recovery methods will not be applied to portions of the archaeological resources not impacted by the Project. Performance tracking of this mitigation measure will be based on successful implementation and approval of documentation by SHPO and appropriate consulting parties. Reclamation and/or CSLC staff will report to SHPO and the consulting parties.	
CUL-1D Plan an Intentional Site Burial Preservation in Place. If Project engineering concludes that avoidance is not feasible, a process to determine whether the site can be preserved through intentional site burial will be considered. When complete avoidance is not possible, preservation-in-place is the preferred form of mitigation for a "historical resource of an archaeological nature" because it retains the relationships between artifact and context and may avoid conflicts with groups associated with the site, pursuant to Public Resources Code section 15126.4, subdivision (b)(3)(A). The process presented in overview here will be specified in detail in the Archaeological Treatment Plan. To intentionally bury a site, it will be necessary to conduct test excavations to determine the vertical and horizontal extent of the identified resources. If excavations have not yet been conducted for the purpose of evaluating the site for eligibility in accordance with section 106 of the NHPA, an archaeologist approved by Reclamation and/or CSLC staff will conduct a formal excavation of the site to delineate the site boundaries and to determine the site's eligibility for the California Register of Historical Resources (CRHR) or NRHP. If the site is found to be eligible or potentially eligible, and if avoidance is not feasible, then consideration will be given to intentional site burial. The Project archaeologist will, in consultation with interested parties, delineate the site	

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boundaries, and prepare and implement a design plan to dictate the conditions of the intentional site burial according to the recommendations discussed in the National Park Service Technical Brief Number 5, Intentional Site Burial: A Technique to Protect Against Natural or Mechanical Loss (Thorne 1991). Among the requirements of an effective capping design, the mechanical process of burying the site must be designed in a manner that ensures that the site matrix is protected during the placement process. Preconstruction testing can be used to determine the construction equipment and fill material load limits that are allowable without causing compression or warpage of the artifact and feature components of the site. If the preconstruction testing determines that compression or warpage of the site is probable and that site capping would not reduce effects to less-than-significant levels, additional mitigation, such as data recovery, would be necessary. Furthermore, if it is determined that the engineering requirements of the Project at the location of the site prohibit the effective avoidance of the site or if the surrounding conditions prohibit the protection or preservation of the archaeological components, data recovery may be the only feasible mitigation (see Mitigation Measure CUL-1C, above). In addition, Reclamation and/or CSLC staff will make provisions to monitor the site after the burial process is complete. Performance tracking of this mitigation measure will be based on successful implementation and the approval of the documentation by SHPO and appropriate consulting parties. Reclamation and/or CSLC staff will make provisions with the archaeologist to monitor the site after the burial process is complete. Reclamation and/or CSLC staff will report to SHPO and the consulting parties.	
CUL-1E Avoid Soil Borrowing in the Vicinity of Known Archaeological Resources. Reclamation will design the Project soil borrowing activities to avoid adverse effect on known archaeological resources, to the extent feasible. Known archaeological resources will be delineated and avoided during construction. Mitigation Measures CUL-1B, CUL-1C, and CUL-1D will also be implemented, as needed. If feasible, Reclamation will design the Project soil borrowing activities to avoid any adverse effect on known archaeological resources, such as CA-FRA-45 and CA-FRA-106, both of which are considered potentially significant historical resources. (Mitigation Measures CUL-1B, CUL-1C, and CUL-1D will also be implemented, as needed.) At least 90-days prior to proposed borrowing activities, an archaeologist approved by Reclamation and/or CSLC staff will determine the extent of known resource near borrow areas through a presence or absence testing program using augers or test pits. The Project archaeologist will then cordon the site boundaries in a manner that restricts construction equipment or personnel from entering the site. Reclamation and/or CSLC staff will report to SHPO and the consulting parties. This measure will be implemented as applicable at least 90-days prior to proposed borrowing activities.	

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Programmatic Agreement (PA) on Compliance with Section 106 of the NHPA Complete the following according to the requirements in the PA: • Determine and document the Area of Potential Effects (APE) in consultation with the Corps and SHPO. • Complete historic property identification efforts, evaluations, determinations for National Register of Historic Places eligibility of cultural resources identified within the APE, and assessment of effects. • Prepare a Programmatic Historic Properties Treatment Plan and any subsequent resource-specific Historic Property Treatment Plans to govern the treatment of adversely affected historic properties within the APE. • Conduct government-to-government consultation with federally-recognized Tribes. • Consult with non-federally recognized Native American Organizations and Individuals and other appropriate consulting parties. • Prepare and circulate documents (e.g., reports, correspondence, comments on documents, and other documentation). • Prepare and maintain the administrative record for Section 106 compliance. • Evaluate significance of resources that cannot be avoided. If cultural resources cannot be avoided through careful planning of the activities associated with the Project, additional research or test excavation (as appropriate) will be undertaken to determine whether the resources are significant. • Develop treatment process to mitigate effects of Project upon significant resources. Impacts on significant resources that cannot be avoided will be mitigated in a manner that is deemed appropriate for the particular resource. Mitigation for significant resources may include, but are not limited to, data recovery, public interpretation, performance of a Historic American Building Survey or Historic American Engineering Record, or preservation by other means. • Effectiveness Criteria: Successful compliance with Section 106 of the NHPA or Public Resources Code sections 5024 and 5024.5, as applicable. • Reclamation would report to SHPO and the consulting parties. Site-specific environmental reviews will be conducted prior to ground-disturbing activities. Coordination will continue with the relevant Native American tribes in the area, as necessary to complete compliance processes.	

Environmental Commitment	Action and Completion Date
Fisheries	
The Hills Ferry Barrier will be operated and maintained to exclude Central Valley steelhead from the Restoration Area during construction activities and until suitable habitat conditions are restored, and trapping and monitoring will occur to detect steelhead moving upstream and relocate them to the mouth of the Merced River. Reclamation will continue to implement the Steelhead Monitoring Plan or similar action to prevent steelhead from entering the action area before completion of all aspects of the proposed action. Maintenance of conservation measures will be conducted to the extent necessary to ensure that the overall long-term habitat effects of the Project are positive. Disturbance of riparian vegetation will be avoided to the greatest extent practicable. A spill prevention plan will be prepared describing measures to be taken to minimize the risk of fluids or other materials used during construction (e.g., oils, transmission and hydraulic fluids, cement, fuel) from entering the San Joaquin River or contaminating riparian areas adjacent to the river itself. In addition to a spill prevention plan, a cleanup protocol will be developed before construction begins and will be implemented in case of a spill. Stockpiling of materials, including portable equipment, vehicles and supplies, such as chemicals, will be restricted to the designated construction staging areas, exclusive of any riparian and wetland areas. A qualified biological monitor will be present during all construction activities, including clearing, grubbing, pruning, and trimming of vegetation at each job site during construction initiation, midway through construction, and at the close of construction, to monitor implementation of conservation measures and water quality. The floodplain will be designed in accordance with the Rearing Habitat Design Objectives.	
Minimize Loss of Habitat and Risk of Take of Species. Construction BMPs for off-channel staging, and storage of equipment and vehicles, will be implemented to minimize the risk of contaminating the waters of the San Joaquin River by spilled materials. BMPs will also include minimization of erosion and stormwater runoff, as appropriate. Riparian vegetation removed or damaged will be replaced within the immediate area of the disturbance to maintain habitat quality. If individuals of listed species are observed present within the Project area, NMFS will be notified. NMFS personnel will have access to construction sites during construction, and following completion, to evaluate species presence and condition and/or habitat conditions. If bank stabilization activities are necessary, then such stabilization will be constructed to minimize predator habitat, minimize erosion potential, and contain material suitable for supporting riparian vegetation.	

Environmental Commitment	Action and Completion Date
Reclamation will implement a NMFS-approved Worker Environmental Awareness Training Program for construction personnel to be conducted by the NMFS-approved biologist for all construction workers prior to the start of construction activities. The program will provide workers with information on their responsibilities with regard to Federally-listed fish, their critical habitat, an overview of the life-history of these species, information on take prohibitions, protections under the ESA, and an explanation of the applicable contract requirements or terms and conditions identified in a NMFS biological opinion. Written documentation of the training must be submitted to Reclamation within 14 days of the completion of training. A video recording of the training may be used in place of a live training, as needed. The construction contractor will use a vibratory hammer, where feasible, to avoid acoustic impacts to ESA-listed fish when pile driving. If an impact hammer is necessary, in order to assess and minimize the impacts of underwater noise on salmonids, a pile driving analysis, including an assessment of sound levels from Project activities, would be submitted to NMFS prior to the start of any pile driving activities. If an impact hammer is necessary, the contractor would consider the use a cushion block to attenuate hydroacoustics during in-water pile driving. The construction contractor will use turbidity curtains during in-water work activities, where feasible, to minimize the release of sediment that may be stirred up by the construction activities. Construction work will be conducted under the guidance of a stormwater pollution prevention plan as required by the Construction General Permit (Order No. 2009-0009-DWQ, as amended). As a part of the sampling and monitoring requirements of this permit, in-water turbidity sampling will be conducted by a qualified person to show that turbidity levels do not exceed the limits in the Construction General Permit. Reclamation will require mulches used for hydroseeding in the future floodplain area to contain low concentrations of fertilizer, to the extent feasible. The contractor will use erosion and sediment control measures to minimize harmful runoff into the aquatic ecosystem. Measures shall be taken to ensure that future proposed actions related to the Mendota Pool Bypass and Reach 2B Improvements Project minimize, to the maximum extent practicable, any adverse effects on Federally listed salmon and steelhead that are subject to this consultation. Reclamation shall convene an existing or new interagency working group (such as the Environmental Compliance Workgroup or the Reach 2B and Mendota Pool Bypass Meeting) associated with the SJRRP to coordinate input into future actions associated with the Mendota Pool Bypass and Reach 2B Improvements Project. Membership in the interagency working group will be subject to Reclamation's decision, but should at a minimum include participation of SJRRP resource agency staff from USFWS, NMFS, CDFW, and DFW. Reclamation shall coordinate with NMFS during project development as future actions are designed to ensure conservation measures are incorporated and projects are designed to maximize ecological benefits to the extent practical and feasible.	

Environmental Commitment	Action and Completion Date
Reclamation shall confer with NMFS at all major engineering and planning decision points, including but not limited to the completion of 30%, 60%, 90% and 100% designs. To initiate conference, Reclamation shall send NMFS a letter requesting concurrence that the plans are within the scope of effects considered in this BO. All relevant plan details would be included in the concurrence request package. Reclamation would give NMFS biologists and engineers 45 days to review plans. If NMFS determines that the plans and designs provided by Reclamation do not comply with NMFS standards then NMFS has the right to request changes, and NMFS would work with Reclamation to the extent possible to find a consensus. Approval would consist of a formal letter documenting NMFS concurrence with the provided plans. If Reclamation changes operations of the proposed actions from what is analyzed in the BO then NMFS must be notified with a formal letter at least 45 days before proposed changes take place. The notification should include any additional analysis to determine if take would exceed what is currently authorized in the ITS of the opinion from the operational changes. NMFS would work with Reclamation to find solutions to operational changes to the extent reasonable and feasible that does not cause harm to populations of listed fish. A Fish Rescue and Relocation Plan (FRRP) will be developed by Reclamation or their contractors and provided to NMFS for approval 90 days prior to cofferdam construction. The FRRP will include methods of flow bypass, diversion, dewatering, salmonid collection, transport and release, water quality data, and formation of a team of qualified biologists with expertise in handling, collecting, and relocating salmonids. NMFS will have 45 days to review and approve the FRRP so contractors can be given time to make necessary changes, if any, to follow NMFS guidance or criteria while staying on construction schedule. Before final approval of 100% designs Effectiveness and Compliance Monitoring Plans shall be submitted for the Mendota Pool Fish Screen, Compact Bypass Control Structure Fish Passage Facility, and Chowchilla Bypass Fish Passage Facility. These plans must include monitoring that shows these facilities are working in their intended manner, to NMFS criteria, and do not cause additional take of listed fish. This monitoring for the Compact Bypass Control Structure should consist of, at a minimum, the following: juvenile survival rates though Mendota Pool while the Compact Bypass Control Structure radial gates are closed, juvenile survival through the fish passage structure on the Compact Bypass Control Structure, and juvenile survival through partially opened radial gates on the Compact Bypass Control Structure. Reclamation shall monitor for take at the Mendota Pool Fish Screen to show that take is not exceeding levels given in the BO. Monitoring shall be reported to NMFS with a weekly report when the fish screen is in use. The weekly report shall be sent to all appropriate NMFS staff and shall consist of a summarized statement from data collected by the Effectiveness and Compliance Monitoring Plan. Reclamation shall update the O&M manual for the new bifurcations system to incorporate, without detrimental effects to flood objectives and water supply needs, an adaptive management plan for operations of the Mendota Pool Bypass, Mendota Pool Fish Screen, Chowchilla Bypass, Compact Bypass, and their associated fish passage facilities that allows for ramp down flows in a manner that minimizes juvenile and adult fish stranding.	

Environmental Commitment	Action and Completion Date
Reclamation shall, to the extent feasible, coordinate efforts with levee districts and other flood managers to address changes in flow conditions, flood management actions, and the need to maintain fish in good condition within the Proposed Action area. Measures shall be taken to maintain, monitor, and adaptively manage all conservation measures through a Monitoring and Maintenance Plan (MMP) to ensure their effectiveness. Reclamation shall develop a MMP with an overall goal of ensuring the conservation measures achieve a high level of ecological function and value. The MMP shall include specific goals and objectives and a clear strategy for maintaining all of the Proposed Action conservation elements for the life of the Proposed Action. The MMP shall include specific goals and objectives and a clear strategy for achieving full compensation for all Proposed Action-related impacts on the affected species described above. The MMP shall include a compensatory mitigation accounting plan to ensure the tracking of compensatory measures associated with future projects of the Mendota Pool Bypass and Reach 2B Improvements Project as described in the Proposed Action. The MMP shall be consulted on with NMFS, and NMFS must approve the MMP, prior to the onset of any construction, including placement of in-water revetment or removal of riparian vegetation. The MMP measures shall be monitored by Reclamation for 10 years following construction of the final phase of the Proposed Action and shall update their O&M manual to ensure the MMP is adopted to ensure the goals and objectives of the conservation measures are met for the life of the Proposed Action. Reclamation shall update their O&M Manual to ensure that the self-mitigating elements are meeting the criteria established in the MMP. Reclamation shall continue to coordinate with NMFS during all phases of construction, implementation, and monitoring by hosting annual meetings and issuing annual reports throughout the construction period as described in the MMP. Annual reports shall be sent to relevant staff members of the NMFS San Joaquin River branch. Annual reports shall consist of summarized data and findings from the MMP and clearly state how well the project functioned according to how it was designed, with respect to listed fish, restoration actions, and restoration flows. Reclamation must issue annual reports for five years following completion of the entire proposed action construction or once the proposed action has been observed in all water year types. The purpose is to ensure that conservation features of the proposed action are developing consistent with the MMP. Measures shall be taken to minimize the impacts of bank protection and setback levee construction by implementing integrated conservation measures that provide beneficial growth and survival conditions for salmonids. Also, actions shall be taken to ensure riparian habitat is preserved and protected to the maximum extent allowed within the functional designs of the proposed action. Preserved habitat shall be combined with restorative plantings and features to enhance natural recruitment of riparian vegetation, for protection and creation of fish habitat features.	

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Reclamation shall ensure that native vegetation is used in all replanted areas. All plantings must be provided with the appropriate amount of water to ensure successful establishment. Reclamation shall design floodplains with high-flow channels to increase the inundation extent at lower flows, and remove unconnected low-lying areas in the floodplain to prevent stranding. Reclamation shall develop a vegetation plan in consultation with NMFS to allow for the protection of existing vegetation in place and the planting and establishment of new native riparian vegetation. Measures shall be taken to insure that contractors, construction workers, and all other parties involved with these Proposed Actions implement the Proposed Actions as laid out in the biological assessment and the NMFS Biological Opinion. Reclamation shall provide a copy of the NMFS Biological Opinion, or similar documentation, to the prime contractor, making the prime contractor responsible for implementing all requirements and obligations included in these documents and to educate and inform all other contractors involved in the Proposed Action as to the requirements of the NMFS Biological Opinion. A notification that contractors have been supplied with this information will be provided to the reporting address below. A NMFS-approved Worker Environmental Awareness Training Program for construction personnel shall be conducted by the NMFS-approved biologist for all construction workers prior to the commencement of construction activities. The program shall provide workers with information on their responsibilities with regard to Federally-listed fish, their critical habitat, an overview of the life-history of all the species, information on take prohibitions, protections afforded these animals under the ESA, and an explanation of the relevant terms and conditions of the NMFS Biological Opinion. Written documentation of the training must be submitted to NMFS within 30 days of the completion of training. Measures shall be taken to ensure that riparian habitat within the study area is preserved and protected to the maximum extent feasible for protection of fish habitat features that are the subject of the NMFS Biological Opinion. Reclamation shall develop a vegetation plan in consultation with NMFS to allow for the protection of existing vegetation in place and the planting of new native riparian vegetation.	
Equipment used for the proposed action would be thoroughly washed off-site to remove invasive plant seed, stems, etc. and inspected to prevent transfer of aquatic invasive species, such as quagga mussel and New Zealand mud snail, prior to arriving at the construction area.	
During Preconstruction Engineering and Design, Reclamation shall coordinate with NMFS to provide documentation of operation of the Mendota Pool Bypass, Mendota Pool Fish Screen, Chowchilla Bypass, compact bypass, and their associated fish passage facilities would allow, without detrimental effects to flood management operations, or water supply needs, fish passage as stated in the opinion.	

Environmental Commitment	Action and Completion Date
NMFS Biological Opinion Discretionary Conservation Recommendations • NMFS recommends that the Action Agencies use species recovery plans to help ensure that their actions will address the underlying processes that limit fish recovery, and to identify key actions in the action area when prioritizing Proposed Action sites each year. • Continue to monitor the effects of water delivery operations on salmonid condition in all water year types. Including predation around structures and potentially increased predation within the slack water created when water elevation is raised to make water deliveries into Mendota Pool, and possible increased stress from temperatures and water conditions (e.g. dissolved oxygen content, turbidity, or exposure to toxins) • NMFS recognizes that Reclamation is obligated to provide water supply to the Exchange Contractors, either from the Delta-Mendota Canal (DMC) or from Friant Dam operations. Reclamation is not precluded from operation of the CVP facilities in a manner that could ensure Exchange Contractor needs are provided and that minimizes adverse effects to ESA listed species. NMFS recommends that Reclamation include the Friant Division operations in the reinitiation of consultation on the long term operations of the Central Valley Project, including evaluation of effects of Exchange Contract deliveries and unscreened diversions. • Reclamation should encourage cost share sponsors, stakeholders, and neighboring landowners to develop floodplain and riparian corridor enhancement plans as part of the Proposed Action and the larger SJRRP effort. • Reclamation should seek out opportunities for setback levees and other flood management activities that promote overall riverine system restoration. • Reclamation should support and promote aquatic and riparian habitat restoration within the San Joaquin River and other watersheds, especially those with listed aquatic species. Practices that avoid or minimize negative impacts to listed species should be encouraged. • Reclamation should continue to work cooperatively with other State and Federal agencies, private landowners, governments, and local watershed groups to identify opportunities for cooperative analysis and funding to support salmonid habitat restoration Proposed Actions. • Reclamation should continue to work with NMFS and other agencies and interested entities to restore fish passage to support the improved growth, survival, and recovery of native fish species in the San Joaquin River Restoration Area. • Reclamation should work with NMFS to implement compatible agriculture uses and activities on floodplain areas, as appropriate.	

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• Reclamation shall consider installing instream woody material during Proposed Actions associated with the Mendota Pool Bypass and Reach 2B Improvements Project. The purpose is to maximize the refugia and rearing habitats for juvenile fish. • In order for NMFS to be kept informed of actions minimizing or avoiding adverse effects or benefitting listed species or their habitats, NMFS requests notification of the implementation of any conservation recommendations.	
Minimize Loss of Habitat and Risk of Take from Implementation of Construction Activities • Construction BMPs for off-channel staging and storage of equipment and vehicles will be implemented to minimize the risk of contaminating the waters of the San Joaquin River by spilled materials. BMPs will also include minimization of erosion and stormwater runoff, as appropriate. • Riparian vegetation removed or damaged will be replaced, as applicable, in accordance with the Riparian Habitat Monitoring Management and Mitigation Plan, and will be coordinated with the USFWS and NMFS and/or other agencies as appropriate. • If bank stabilization activities are necessary, then such stabilization will be constructed to minimize predator habitat, minimize erosion potential, minimize sedimentation in the waterway, and contain material suitable for supporting riparian vegetation.	
EFH Conservation Recommendations. Avoid restoration work during critical fish windows to reduce direct impacts to important ecological functions such as spawning, nursery, and migration. This conservation measure requires scheduling projects when managed species are not expected in the area. These periods should be determined prior to project implementation to reduce or avoid any potential impacts. Minimize the removal of existing native riparian vegetation. Mitigate fully any unavoidable damage to EFH during project implementation and accomplish within reasonable period of time after the impacts occurred. For effects related to erosion/sedimentation, increased turbidity, changes in temperature, and potential introduction of pollutants during construction, NMFS recommends the following Conservation Recommendations should be followed:	

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a. Use BMPs in all construction and maintenance activities such as avoiding ground disturbing activities during the wet season, minimizing the time disturbed lands are left exposed, using erosion prevention and sediment control methods, minimizing vegetation disturbance, maintaining buffers of vegetation around wetlands, streams and drainage ways, and avoiding building activities in areas of steep slopes with highly erodible soils. Use methods such as sediment ponds, sediment traps, or other facilities designed to slow water run-off and trap sediment and nutrients. b. Minimize the loss of native riparian vegetation as much as possible. c. Include efforts to preserve and enhance EFH by adequately grading low flow channels of the proper depth and velocity to provide adequate ingress and egress to and from flood plain, such that rearing salmonids may utilize the flood plain without stranding. If agriculture activity is implemented within the proposed action area, the following Conservation Recommendations should be followed: a. Section 2.9 Conservation Recommendation 10 should be followed. b. Ensure that agricultural managers should maintain riparian management zones between the agriculture and the river. Riparian management zones should be wide enough to restore and support riparian functions including shading, LWD input, leaf litter inputs, sediment and nutrient control, and bank stabilization functions. c. Ensure that agricultural managers reduce erosion and run-off by using practices such as contour plowing and terracing, no till agriculture, conservation tillage, crop sequencing, cover and green manure cropping and crop residue, and, by maximizing the use of filter strips, field borders, grassed waterways, terraces with safe outlet structures, contour strip cropping, diversion channels, sediment retention basins and other mechanisms including re-establishment of vegetation. d. Ensure that agricultural managers participate in and benefit from existing programs to encourage wetland conservation and conservation reserves, avoid planting in areas of steep slopes and erodible soils and avoid disturbance or draining of wetlands and marshes. e. Ensure that agricultural managers incorporate water quality monitoring as an element of land owner assistance programs for water quality, and evaluate monitoring results and adjust practices accordingly.	

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f. Ensure that agricultural managers minimize the use of chemical treatments within the riparian management zone. To that end, agricultural managers should: review pesticide use strategies to minimize impact to EFH; reduce pesticide application by evaluating pest problems, past pest control measures and following integrated pest management strategies; and select pesticides considering their persistence, toxicity, runoff potential, and leaching potential. g. Ensure that agricultural managers Encourage farmers to take advantage of the conservation programs that were reauthorized in the Food, Conservation, and Energy Act of 2008 (i.e., Farm Bill). If grazing activity is implemented within the proposed action area, the following Conservation Recommendations should be followed: a. Ensure that grazing managers utilize focused monitoring, management, and grazing regimes or special mitigation activities that allow recovery of degraded areas and maintain streams, wetlands, and riparian areas in properly functioning condition. b. Ensure that grazing managers establish proper streambank alteration move triggers and grazing season of use endpoint indicators to reduce the amount streambank damage and allow banks to stabilize over time, reduce the amount of the fine sediment introduced into streams; and reduce the amount of damage to streambanks which will also assist in retaining important undercut streambanks, large woody debris, and overhanging vegetation that provide cover. c. Reclamation should determine cumulative effects of past and current grazing operations on EFH when designing grazing management strategies. d. Ensure that grazing managers minimize application of chemical treatments within the riparian management zone. e. Ensure that grazing managers utilize innovative grazing practices such as variants of restrotation grazing systems, late season riparian grazing systems, winter grazing and management of stocking rates. f. Encourage livestock owners to take advantage of The Conservation of Private Grazing Land Program (CPGL) and the Conservation Reserve Enhancement Program (CREP). CPGL and CREP are voluntary programs that help owners and managers of private grazing land address natural resource concerns while enhancing the economic and social stability of grazing land enterprises and the rural communities that depend on them. Technical assistance is provided by the Natural Resource Conservation Service.	

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g. Ensure that grazing managers establish proper streambank alteration move triggers and endpoint indicators in combination with the other management measures intended to reduce the amount of time livestock spend in riparian areas to reduce the amount of the fine sediment introduced into streams.	
Fish and Wildlife Coordination Act Recommendations (NMFS) a. Reclamation should continue to implement high priority actions in the NMFS Central Valley Salmon and Steelhead Recovery Plan (NMFS 2014) to the maximum extent feasible. b. Flood operations and water deliveries should include ramping to prevent dewatering of habitat important to anadromous fish and be scheduled with the intention to minimize impacts on anadromous fish, where possible.	
Flood Management	
Minimize Flood Risk from Restoration Flows. The Program's strategy for minimizing flood risk is to limit the maximum downstream extent and rate of Restoration Flows for the given reach to then-existing channel capacities. This strategy is incorporated by reference from the PEIS/R (SJRRP 2011, pages 2-22 through 2-28). These Program-wide commitments are documented in the 2012 Record of Decision (ROD) for the SJRRP. No new project-level actions to minimize flood risk from Restoration Flows are being proposed.	
Geology and Soils	
Conduct site-specific Geotechnical Exploration, Testing and Analysis. Site-specific geotechnical exploration, testing, and analysis will be conducted prior to final design to allow for the characterization of site soils and appropriate design of proposed structures with respect to potentially corrosive soils or subsidence conditions.	
Excavate Borrow Materials. Excavation of borrow materials will be done in accordance with Reclamation design standards, and comply with provisions of the Clean Water Act Section 402 and the National Pollutant Discharge Elimination System (NPDES) Construction General Permit.	
Hydrology – Groundwater	
GRW-1A Prepare and Implement a Stormwater Pollution Prevention Plan. Construction activities are subject to construction-related stormwater permit requirements of the Federal Clean Water Act's NPDES program. A Stormwater Pollution Prevention Plan (SWPPP) will be prepared that identifies BMPs to prevent or minimize the	

Environmental Commitment	Action and Completion Date
introduction of contaminants into surface waters. The SWPPP will detail the construction-phase housekeeping measures for control of contaminants, as well as the treatment measures and BMPs to be implemented for control of pollutants once the Project has been constructed. The SWPPP will establish good housekeeping measures such as construction vehicle storage and maintenance, handling procedures for hazardous materials, and waste management best management practices. They include procedural and structural measures to prevent release of wastes and materials used at the site. Implementation of the SWPPP would avoid or reduce runoff pollutants at the construction sites to the "maximum extent practicable." Reclamation and/or construction contractor will prepare and implement an SWPPP consistent with requirements in the Statewide NPDES Construction General Permit. The SWPPP will set forth a best management practice monitoring, maintenance, and reporting schedule and will identify the responsible entities during the construction and post-construction phases. Monitoring will include visual inspections of the best management practices, inspection for non-stormwater discharges, and visual inspection and/or sample collection of stormwater discharges. If monitoring results indicate polluted discharges, a construction site and run-on evaluation will be conducted to determine the source of the pollutant and corrective actions will be implemented immediately if necessary. **Location:** Project areas with active construction or used by construction personnel, including access roads, staging and storage areas, borrow sites, within the river channel and on adjacent uplands. **Effectiveness Criteria:** Performance tracking will be based on successful compliance with the Statewide NPDES Construction General Permit. **Responsible Agency:** Reclamation and the construction contractor. **Monitoring/Reporting Action:** At a minimum, annual reports will be submitted to the State Water Resources Control Board (SWRCB) via the Storm Water Multiple Application and Report Tracking System. **Timing:** The SWPPP will be developed prior to construction and will be implemented during construction.	
Prepare and Implement a Construction Groundwater Management Plan. Reclamation and/or construction contractor will prepare and implement a Construction Groundwater Management Plan that includes a protocol for sampling and analyzing the quality of dewatering effluent during construction for comparison with existing groundwater. This plan will be consistent with the monitoring and reporting program required by the Statewide NPDES Construction General Permit and/or RWQCB's NPDES Permit for Dewatering and Other Low Threat Discharges to Surface Waters, Order No. R5-2013-0074 (General Permit for Low Threat Discharges).[1]	

[1] The General Permit for Low Threat Discharges covers construction dewatering when the discharges do not contain significant quantities of pollutants and they are either 4 months or less in duration or have a daily average discharge flow that does not exceed 0.25 million gallons per day.

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Implementation Action: Reclamation and/or construction contractor will prepare and implement a Construction Groundwater Management Plan. The plan will include a protocol for sampling and analysis of dewatering effluent during construction and include a description of the sampling methods, locations, and frequency, the constituents monitored, and how the receiving waters will be visually inspected. If monitoring results indicate polluted effluent, a Report of Waste Discharge will be filed with the RWQCB to initiate consultations to obtain a Waste Discharge Order specifying approved treatment methods and disposal options. **Location:** Project areas with active dewatering. **Effectiveness Criteria:** Performance tracking of this mitigation measure will be based upon successful compliance with the Statewide NPDES Construction General Permit and/or General Permit for Low Threat Discharges. **Responsible Agency:** Reclamation and the construction contractor. **Monitoring/Reporting Action:** At a minimum, annual reports will be submitted to Reclamation managers summarizing the monitoring data obtained during the previous year(s). **Timing:** The Construction Groundwater Management Plan will be developed prior to construction and will be implemented during construction.	
Hydrology – Surface Water Resources and Water Quality	
Development and Implementation of SWPPP. A SWPPP consistent with the Statewide NPDES Construction General Permit (Order No. 2009-0009-DWQ, as amended) will be developed and implemented. The SWPPP will detail the construction-phase erosion and sediment control BMPs and the housekeeping measures for control of contaminants other than sediment, as well as the treatment measures and BMPs to be implemented for control of pollutants once the Project has been constructed. Erosion control BMPs will include source control measures such as scheduling of construction activities with regard to the rainy season, wetting of dry and dusty surfaces to prevent fugitive dust emissions, preservation of existing vegetation, and effective soil cover (e.g., geotextiles, straw much, hydroseeding) for inactive areas and finished slopes to prevent sediments from being dislodged by wind, rain, or flowing water. Sediment control BMPs will include measures such as street sweeping transportation corridors, and installation of fiber rolls and sediment basins to capture and remove particles that have already been dislodged. The SWPPP will establish good housekeeping measures such as construction vehicle storage and maintenance, handling procedures for hazardous materials, and waste management BMPs. These BMPs include procedural and structural measures to prevent release of wastes and materials used at the site. BMPs associated with installation of removable cofferdams and temporary diversion of flows around the work area will be described. The SWPPP will also describe post-construction BMPs to be implemented for control of pollutants once the Project has been constructed. **Implementation Action:** Reclamation and/or the construction contractor will prepare and implement an SWPPP consistent with requirements in the Statewide NPDES Construction General Permit. The SWPPP will set forth a BMP monitoring, maintenance, and reporting schedule and will identify the responsible entities during the construction and post-construction phases. Monitoring will include visual inspections of the BMPs, inspection for non-stormwater	

Environmental Commitment	Action and Completion Date
discharges, and visual inspection and/or sample collection of stormwater discharges. If monitoring results indicate that the discharge is above the turbidity Numeric Action Level (NAL) or outside the range of the pH NAL, a construction site and run-on evaluation will be conducted to determine the source of the pollutant and corrective actions will be immediately implemented if necessary. The construction contractor will use industry standard BMPs to control erosion and discharge of sediment. BMPs are described in the SWPPP and will include, but are not limited to, the following: a. Minimize disturbed areas. Only clear land which will be actively under construction in the near term, minimize new land disturbance during the rainy season, and avoid clearing and disturbing sensitive areas (e.g., steep slopes and natural watercourses) and other areas where site improvements will not be constructed. b. Stabilize disturbed areas. Provide temporary stabilization of disturbed soils whenever active construction is not occurring on a portion of the site. Provide permanent stabilization during finish grade and landscape the site. c. Protect slopes and channels. Safely convey runoff from the top of the slope and stabilize disturbed slopes as quickly as possible. Avoid disturbing natural channels. Stabilize temporary and permanent channel crossings as quickly as possible and ensure that increases in runoff velocity caused by the project do not erode the channel. d. Control the site perimeter. Delineate site perimeter to prevent disturbing areas outside the project limits. Divert upstream run-on safely around or through the construction project. Runoff from the project site should be free of excessive sediments and other constituents. The following construction BMPs will be implemented as general guidelines during construction when removing vegetation and/or maintaining existing woody vegetation, as applicable: a. Minimize the removal of existing riparian and native vegetation to the maximum extent practicable. b. Clearly mark or flag with construction tape areas containing protected vegetation in order to ensure these areas are not disturbed. Trees will be flagged and avoided during construction, when and where possible. c. Provide for rapid revegetation of all denuded areas through natural processes supplemented by artificial revegetation and irrigation where necessary. d. Preservation of existing vegetation will be provided prior to the start of clearing and grubbing operations or other soil disturbing activities in areas identified on the plan as those areas to be preserved. Where existing woody vegetation on the plans as being removed, no preservation activities will be required. e. Mark areas to be preserved with temporary fencing, such as orange polypropylene that is stabilized against ultraviolet light, and is at least 3 feet tall.	

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f. Fence posts will be wood or metal and the spacing and depth will be adequate to completely support the fence in an upright position. g. Minimize disturbed areas by locating temporary roadways to avoid stands of trees and shrubs, where feasible, and to follow existing contours and reduce cutting and filling. h. Consider the impact of grade changes to existing vegetation and the root zone. i. Keep equipment away from trees to prevent trunk and root damage. j. Construction materials, equipment storage, and parking areas will be located where they will not cause root compaction in trees to be retained. k. All workers will be instructed to honor protective devices. No heavy equipment, vehicular traffic, or storage piles of any construction material will be permitted within the dripline of any tree to be retained. No toxic or construction materials (including paint, acids, nails, gypsum board, chemicals, fuels, or lubricants) will be stored within 15 meters (50 feet) of the drip line of any retained trees, where feasible, nor disposed of in any way which would injure vegetation. The following construction BMPs will be implemented as general guidelines during construction to minimize surface erosion: a. Erosion control measures involving revegetation (seeding and fertilization) should be planned and implemented as soon as practicable following disturbance. b. An integrated system of collection, control, and dispersal of surface runoff should be considered to prevent erosion. Mechanical measures include construction of ditches, slash windrows, straw bale dams, sediment barriers, erosion netting and fabrics, terraces, benching, riprap, and tackifiers. c. Be aware of ongoing conditions of weather, soil conditions, and water movement and how these conditions may affect runoff and erosion. d. Employ regular inspections and maintenance of erosion control features. Effect repairs promptly when deficiencies are found. These stabilization measures include a combination of practices that promote the reestablishment of vegetation on exposed slopes, provide physical protections to exposed surfaces, prevent the downslope movement of soil, and control drainage. The following construction BMPs will be implemented as general guidelines during construction to stabilize disturbed soils:	

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a. Employ regular inspections and maintenance of erosion control features. Effect repairs promptly when deficiencies are found. b. Measures to reestablish vegetation on exposed soils are usually accomplished by seeding suitable herbaceous vegetation in conjunction with irrigation, mulching and fertilization. Treatments may include tree seedling planting, sprigging, or bioengineering. c. Measures to physically protect the soil surface from erosion or modify the topography to minimize erosion include the use of gravel on the road surface and use of mulches, riprap, erosion mats, and terracing on cuts, fills, and ditches as appropriate. Temporary waterbars in areas of uncompleted roads and trails can be effectively used to reduce sedimentation. d. Measures which physically inhibit the transport of sediments to streams include the use of slash filter windrows on or below the fill slopes, baled straw in ditches or below fillslopes, silt fences, and catch basins in culvert inlets. e. Measures that reduce the amount of solid disturbance in or near streams include immediate placement of large culverts in live streams prior to crossing stream with rock embankment during road construction, when feasible. Temporary pipes should not be installed, when feasible, unless sedimentation can be minimized during installation, use and removal. Less toxic alternative materials will be used when available. **Location**: Project areas with active construction or used by construction personnel, including access roads, staging and storage areas, borrow sites, and areas within the river channel and on adjacent uplands. **Effectiveness Criteria**: Performance tracking will be based on successful compliance with the Statewide NPDES Construction General Permit. **Responsible Agency:** Reclamation and the construction contractor. **Monitoring/Reporting Action**: At a minimum, annual reports will be submitted to the SWRCB via the Storm Water Multiple Application and Report Tracking System. **Timing:** The SWPPP will be developed prior to construction and will be implemented during construction.	
SWQ-3 Minimize Use of Pesticide and Herbicide Contaminated Soil. Construction activities in the Project area will be modified to minimize use of contaminated soil. Implementation of this mitigation measure would reduce this impact to a less than significant level.	

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Implementation Action: The contractor will collect soil samples in conformance with EPA SW-846 methodology and analyze the samples for heavy metals and chlorinated pesticides and herbicides. The analytical results will be evaluated against EPA's Regional Screening Levels, guidelines for freshwater disposal of dredge materials, aquatic toxicity screening levels, or other regulatory and literature guidance documents for aquatic toxicity. Alternatively, aquatic testing may be conducted on representative soil samples for this purpose. If the soil pesticide and herbicide conglomerate toxicity factors and/or toxicity testing shows unacceptable toxicity levels, that soil will not be used in the construction of Project levees and concentrated areas of contamination would be remediated in areas where the soil will come in direct contact with the San Joaquin River water. **Location:** Floodplain areas or areas used for borrow materials. **Effectiveness Criteria:** Effectiveness will be based on compliance with testing and risk assessment guidelines. **Monitoring/Reporting Action:** Adequacy of the proposed construction practices will be confirmed with Reclamation managers and CSLC monitors. **Timing:** Prior to construction of Project levees or floodplain grading.	
Land Use Planning and Agricultural Resources	
Preserve Agricultural Productivity of Designated Farmland to the Extent Possible. Reclamation will recognize and minimize adverse effects on agricultural lands to the extent practicable, including modification of construction practices. The following activities would minimize adverse effects on existing agricultural land in production and limit the extent of farmland that would be converted to non-agricultural uses. **Implementation Action:** The following actions will be implemented opportunistically, where feasible, appropriate, and consistent with the purpose, need, and objectives of the Project. These following measures are summarized, in part, from the 2012 ROD for the SJRRP (Reclamation 2012): • When selecting sites for borrow excavation, minimize the fragmentation of lands that are to remain in agricultural use and retain contiguous parcels of agricultural land of sufficient size to support their efficient use for continued agricultural production. • Where the levee system would transect agricultural properties, and the landowners desire to continue agricultural use on the portions located within the levee system, provide a means of convenient access to these properties.	

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• Reclamation will either (1) acquire agricultural conservation easements for designated Farmland/Important Farmland[2] at a 1:1 ratio to be held by land trusts or public agencies who will be responsible for enforcement of the deed restrictions maintaining these lands in agricultural use, or (2) provide funds to a land trust or government program that conserves agricultural land sufficient to obtain easements on comparable land at a 1:1 ratio. • Stockpile the upper 2 feet of soil from Project structural feature footprints that are designated Farmland. Stockpiled soil would be used in subsequent restoration of agricultural uses or redistributed for agricultural purposes. • Restore for agricultural uses in those portions of borrow sites and of levee, bypass, and other Project feature footprints that are designated Farmland and are not converted to Project features, managed habitat, or Project mitigation for nonagricultural impacts. Restoration for agricultural use would include redistribution of salvaged topsoil and earthwork for necessary irrigation and drainage. • Redistribute the most productive salvaged topsoil from structural feature footprints that is not used in restoring agricultural uses to affected designated Farmland. Redistribution will be to less productive agricultural lands near but outside the levee setback and Mendota Pool. Bypass areas that could benefit from the introduction of good-quality soil. By agreement between Reclamation or landowners of affected properties and the recipient(s) of the topsoil, the recipient(s) must use the topsoil for agricultural purposes. • Minimize disturbance of designated Farmland and continuing agricultural operations during construction by implementing the following measures: (1) locate construction laydown and staging areas on sites that are fallow, disturbed, or to be discontinued for use as agricultural land to the extent possible, and (2) use existing roads to access construction areas to the extent possible. • Coordinate with growers to develop appropriate construction practices to minimize construction-related impairment of agricultural productivity. Practices may include coordinating the movement of heavy equipment within the levee setback and Mendota Pool Bypass areas and implementing traffic control measures outside these areas. • Comply with California Government Code sections 51290–51295 with regard to acquiring lands under Williamson Act contract. Specifically, whenever it appears that land within a preserve or under contract may be required for a public improvement, the California Department of Conservation (DOC) and the city or county responsible for administering the preserve must be notified (§ 51291, subd. (b)). Within 30 days of being notified, the DOC and the city or county would forward comments, which would be considered by Reclamation (§ 51291, subd. (b)). The Williamson Act contract would be terminated when the land is	

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acquired (§ 51295). The DOC would be notified within 10 working days upon completion of the land acquisition (§ 51291, subd. (c)). If, after acquisition, Reclamation determine that the property would not be used for the proposed public improvement, the DOC and the city or county administering the involved preserve will be notified before the land is returned to private ownership. The land would be reenrolled in a new contract or encumbered by an enforceable restriction at least as restrictive as that provided by the Williamson Act (§ 51295). • Reclamation will coordinate with landowners and agricultural operators to sustain existing agricultural operations, at the landowners' discretion, within the Project area until the individual agricultural parcels are needed for Project construction. **Location:** Agricultural lands within the Project area. **Effectiveness Criteria:** Effectiveness will be based on annual reporting of the number of acres removed from agricultural production during implementation. **Responsible Agency:** Reclamation and CSLC. **Monitoring/Reporting Action**: Adequacy of the proposed activities will be confirmed with Reclamation project managers and CSLC monitors. **Timing:** Mitigation will be ongoing over the construction timeframe	
Preserve Agricultural Productivity of Designated Farmland to the Extent Possible. Preserve Agricultural Productivity of Designated Farmland to the Extent Possible. Refer to Mitigation Measure LU-1. Reclamations will recognize and minimize adverse effects on agricultural lands to the extent practicable, including modification of construction practices.	
Notify County Planning Agencies of General Plan and Zoning Ordinance Inconsistencies. Reclamations will recognize and minimize adverse effects on agricultural land use and zoning by notifying Fresno and Madera County planning agencies of any inconsistencies in designations and applicable polices for affected areas. **Implementation Action:** Fresno and Madera County planning agencies will be notified of any inconsistencies in designations and applicable polices for affected areas. **Location:** Agricultural lands within the Project area. **Effectiveness Criteria:** Effectiveness will be based on whether updates can be made by county planning agencies.	

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Responsible Agency: Reclamation and CSLC. **Monitoring/Reporting Action:** Notifications of zoning and land use plan inconsistencies will be confirmed with Reclamation project managers and CSLC monitors. **Timing:** Formal notification of any zoning and/or land use plan inconsistencies would occur after project approval.	
Noise and Vibration	
Reduce Temporary and Short-Term Noise Levels from Construction-Related Equipment Near Sensitive Receptors. Construction activities in the Project area will be modified to minimize adverse effects to noise sensitive receptors when construction activities occur within daytime 50 A-weighted decibel (dBA) Equivalent Noise Level (Leq) noise contours or nighttime 45 dBA Leq noise contours outside of construction noise exempt hours. **Implementation Action:** Reclamations will ensure that the following noise-reduction protocols are implemented, as needed, to reduce temporary and short-term construction-related noise impacts near sensitive receptors. Equipment will be used as far away as practical from noise-sensitive uses. Construction equipment will be properly maintained per manufacturers' specifications and fitted with the best available noise suppression devices (e.g., mufflers, silencers, wraps). All impact tools will be shrouded or shielded, and all intake and exhaust ports on power equipment will be muffled or shielded. Equipment that is quieter than standard equipment will be used, including electrically powered equipment instead of internal combustion equipment where use of such equipment is a readily available substitute that accomplishes Project tasks in the same manner as internal combustion equipment. Construction site and haul road speed limits will be established and enforced. The use of bells, whistles, alarms, and horns will be restricted to safety and warning purposes only. Construction equipment will not idle for extended periods of time when not being used during construction activities. When construction activities are conducted within 2,000 feet of noise-sensitive uses, noise measurements will be taken at the nearest noise-sensitive land uses relative to construction activities with a sound-level meter that meets the standards of the American National Standards Institute (ANSI Section S14 1979, Type 1 or Type 2). This would allow that construction noise levels to comply with applicable daytime and nighttime noise standards. When construction noise exceeds applicable daytime and nighttime standards, berms, or stockpiles will be used in an attempt to lower noise levels to within acceptable nontransportation standards. If noise levels are still determined to exceed noise standards, temporary barriers will be erected as close to the construction activities as feasible, breaking the line of sight between the source and receptor where noise levels exceed applicable standards. All acoustical barriers would be constructed with material having a minimum surface weight of 2 pounds per square foot or greater and a	

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demonstrated Sound Transmission Class (STC) rating of 25 or greater, as defined by Test Method E90 of the American Society for Testing and Materials. Placement, orientation, size, and density of acoustical barriers will be specified by a qualified engineer. A disturbance coordinator will be designated to post contact information in a conspicuous location near the construction site entrance so that it is clearly visible to nearby receivers. The coordinator will manage complaints resulting from the construction noise. Reoccurring disturbances will be evaluated by a qualified acoustical consultant to ensure compliance with applicable standards. The disturbance coordinator will contact nearby noise-sensitive receptors, advising them of the construction schedule. **Location:** Project areas where construction activities will be conducted within 2,000 feet of noise-sensitive receptors. **Effectiveness Criteria:** Effectiveness will be based on public complaints to the SJRRP. **Responsible Agency:** Reclamation and the construction contractor. **Monitoring/Reporting Action:** Adequacy of the proposed construction practices will be confirmed with Reclamation construction managers and CSLC monitors. **Timing:** Ongoing when construction activities occur outside of construction noise exempt hours.	
Reduce Temporary Noise Levels from Construction-Related Traffic Increases Near Sensitive Receptors. Construction-related activities will be modified to reduce temporary and short-term traffic noise at sensitive receptors along San Mateo Avenue when construction-related traffic noise is generated outside of construction noise exempt hours. **Implementation Action:** Reclamations will ensure that the following noise-reduction protocols are implemented on haul routes near sensitive receptors along San Mateo Avenue to reduce temporary and short-term construction-related traffic noise generated outside of construction noise exempt hours. Equip all heavy trucks with noise-control devices (e.g., mufflers) in accordance with manufacturers' specifications. Inspect all heavy trucks periodically to ensure proper maintenance and presence of noise-control devices (e.g., lubrication, non-leaking mufflers, and shrouding). Establish and implement measures to reduce haul truck operation speeds, limit the amount of borrow site material to be hauled daily, and limit the hours of operation for haul trucks. Install temporary noise barriers adjacent to sensitive receptor locations, as needed. **Location:** Haul routes near sensitive receptors along San Mateo Avenue.	

Environmental Commitment	Action and Completion Date
Effectiveness Criteria: Effectiveness will be based on public complaints to the SJRRP. **Responsible Agency:** Reclamation and the construction contractor. **Monitoring/Reporting Action:** Adequacy of the proposed construction practices will be confirmed with Reclamation construction managers and CSLC monitors.	
Paleontological Resources	
Stop Work if Paleontological Resources Are Encountered During Earthmoving Activities and Implement Recovery Plan. To minimize potential adverse impacts on unique, scientifically important paleontological resources during earthmoving activities, the following measures would be implemented during construction to reduce possible damage to unique paleontological resources. The contractor will conduct employee training for the construction workers at the site on identification of paleontological resources. If paleontological resources are discovered in local borrow areas, during earthmoving activities, or in the river channel, the construction crew will immediately cease work in the vicinity of the find. A paleontologist approved by Reclamation and/or CSLC staff will evaluate the resource and prepare a recovery plan in accordance with Society of Vertebrate Paleontology (SVP) Guidelines (SVP 1995). The recovery plan may include a field survey, construction monitoring, sampling and data recovery procedures, museum storage coordination for any specimen recovered, and a report of findings. Recommendations in the recovery plan will be implemented before construction activities could resume at the site where the paleontological resources were discovered. **Implementation Action:** The contractor will conduct employee training for the construction workers at the site on identification of paleontological resources. If paleontological resources are discovered in local borrow areas, during earthmoving activities, or in the river channel, the construction crew would immediately cease work in the vicinity of the find. A paleontologist approved by Reclamation and/or CSLC staff will evaluate the resource and prepare a recovery plan in accordance with SVP Guidelines. Recommendations in the recovery plan will be implemented before construction activities could resume at the site. **Location:** Construction areas with active excavation. **Effectiveness Criteria:** Performance tracking of this mitigation measure will be based on the stoppage in work in the vicinity of the find and meeting the recommendations in the recovery plan. **Responsible Agency:** Reclamation. **Monitoring/Reporting Action:** Preparation of a recovery plan in accordance with SVP Guidelines, if paleontological resources are discovered during earthmoving activities and notification of CSLC monitors if find is on land under the CSLC's jurisdiction. **Timing:** Mitigation would be ongoing over the construction timeframe.	

Environmental Commitment	Action and Completion Date
Public Health and Hazardous Materials	
Reclamation will comply with the California Environmental Protection Agency's (Cal/EPA's) Unified Program. Reclamation will comply with Federal, State, and local hazardous materials regulations, as applicable, monitored by the State (e.g., California Occupational Safety and Health Administration [Cal/OSHA], Department of Toxic Substances Control, California Highway Patrol) and/or local jurisdictions. Reclamations will adopt reasonable wildland fire safety strategies and have the firefighting equipment required by Cal/OSHA during all phases of construction. Reclamation will implement Mitigation Measures HAZ-2A, HAZ-2B, HAZ-2C, HAZ-2D, HAZ-2E, HAZ-3, HAZ-4, HAZ-5A, HAZ-5B, HAZ-5C, and HAZ-6, as described in Chapter 19.0, "Public Health and Hazardous Materials." With implementation of these measures, Reclamation will follow general hazardous materials guidelines, properly dispose of hazardous building components, properly dispose of pesticides, properly manage discolored or odiferous soils, properly remove underground storage tanks, minimize disturbance to known hazardous material sites, minimize use of pesticide and herbicide contaminated soil, minimize exposure to potential West Nile Virus carrying vectors, minimize exposure to potential Hantavirus vectors, minimize exposure to Valley Fever, and minimize the disturbance of idle or abandoned wells.	
Follow General Hazardous Materials Guidelines. Construction and operations and maintenance activities in the Project area will be modified to minimize adverse effects to the public or the environment, including implementing general hazardous material guidelines such as: (1) using less toxic alternative materials when available, (2) minimizing leaks and spills, and (3) following regulatory guidelines. **Implementation Action:** The contractors and operators will follow regulatory guidelines for transportation, storage, use, and disposal of hazardous materials. This includes training of personnel using hazardous materials, use of secondary containment, storing incompatible materials separately, having emergency and spill clean-up equipment on-site, and contracts in place for emergency responses, if needed. This also includes requirements for delivery of fuels and lubricants by service trucks to the site. The following measures will be used to minimize spills and leaks of hazardous materials used during Project construction and during operations and maintenance: • The contractors and operators will develop a project-specific Health and Safety Plan and Hazardous Materials Control, Spill Prevention and Response Plan for the work. • The contractors and operators will provide hazardous materials material safety data sheets to Project personnel.	

Environmental Commitment	Action and Completion Date
• The contractors and operators will use personal protective equipment during hazardous materials work. • The contractors and operators will use good housekeeping methods on the Project worksite. • The contractors and operators will use proper sampling, analysis, characterization and disposal of hazardous waste. Spills and leaks of hazardous materials will be disposed of appropriately. • Less toxic alternative materials will be used when available. • The contractor and operators will use licensed contractors and transportation companies for hazardous materials work. **Location:** Project areas with active construction or used by construction personnel including access roads, staging and storage areas, and borrow sites. Project facilities with long-term operations and maintenance. **Effectiveness Criteria:** Effectiveness will be based on incidence of hazardous material spills. **Responsible Agency:** Reclamation and CSLC. **Monitoring/Reporting Action:** Adequacy of the proposed construction practices will be confirmed with Reclamation construction and operations managers and CSLC monitors. **Timing:** Ongoing over the construction timeframe and ongoing over the life of the project for operations and maintenance.	
Properly Dispose of Hazardous Building Components. Construction activities in the Project area will be modified to minimize adverse effects to the public or the environment, including proper disposal of hazardous building components such as lead based paint, components with polychlorinated biphenyls (PCBs), and asbestos containing material. **Implementation Action:** Hazardous building components will be handled in the following manner: • Building components will be tested for lead based paint and PCBs before demolition is conducted. Remediate poor condition lead based paint and building components with PCBs before the remaining building is demolished. Properly characterize, profile, and dispose of lead based paint and PCB containing materials. • The contractor will test structures to be demolished for asbestos containing materials. If asbestos containing materials are present, use trained workers to remove the asbestos containing materials before the demotion is conducted. Asbestos containing materials wastes will be disposed of in an approved landfill.	

Environmental Commitment	Action and Completion Date
• The contractor will remove, store, package, and ship universal wastes (e.g., fluorescent lighting tubes) off-site for proper disposal. **Location:** Construction areas with potential hazardous building components. **Effectiveness Criteria:** Effectiveness will be based on compliance with health and safety guidelines. **Responsible Agency:** Reclamation, CSLC, and the construction contractor. **Monitoring/Reporting Action:** Adequacy of the proposed construction practices will be confirmed with Reclamation construction managers and CSLC monitors. **Timing:** Ongoing over the construction timeframe.	
Properly Dispose of Pesticides. Construction activities in the Project area will be modified to minimize adverse effects to the public or the environment, including proper disposal of pesticides. **Implementation Action:** If pesticide or herbicide containers are found during the building demolition, the contents will be recycled to the degree possible that is consistent with the product label. Unusable materials and containers will be disposed of in accordance with applicable regulations. **Location:** Project areas with active construction or used by construction personnel with pesticide or herbicide containers. **Effectiveness Criteria:** Effectiveness will be based on compliance with disposal guidelines. **Responsible Agency:** Reclamation, CSLC, and the construction contractor. **Monitoring/Reporting Action:** Adequacy of the proposed construction practices will be confirmed with Reclamation construction managers and CSLC monitors. **Timing:** Ongoing over the construction timeframe.	
Properly Manage Discolored or Odiferous Soils. Construction activities in the Project area would be modified to minimize adverse effects to the public or the environment, including proper management of discolored or odiferous soils.	

Environmental Commitment	Action and Completion Date
Implementation Action: If discolored or odiferous soils are found during the Project earthwork, the contractor will excavate the soil using Hazardous Waste and Emergency Response 40-hour trained personnel. Engineering dust control methods, such as soil wetting and using dust suppressants, will be used during movement of impacted soil. Appropriate monitoring and reporting is required during the construction work. The contractor will segregate the soil on plastic sheeting, sample, analyze, characterize and profile the soil for on-site use, off-site reuse, or off-site disposal in accordance with applicable regulations. While the soil pile is not being worked, it will be covered to minimize dust and odor generation. **Location:** Project areas with active construction or used by construction personnel with discolored or odiferous soils. **Effectiveness Criteria:** Effectiveness will be based on compliance with regulatory guidelines. **Responsible Agency:** Reclamation, CSLC, and the construction contractor. **Monitoring/Reporting Action:** Adequacy of the proposed construction practices will be confirmed with Reclamation construction managers and CSLC monitors. **Timing:** Ongoing over the construction timeframe.	
Properly Remove Underground Storage Tanks. Construction activities in the Project area will be modified to minimize adverse effects to the public or the environment, including proper removal of underground storage tanks. **Implementation Action:** Removal of underground storage tanks will be handled in the following manner: • The tanks will be emptied and the contents used or recycled by a licensed underground storage tank contractor. The tanks can also be recycled. • Contaminated soil will be excavated, stockpiled on plastic sheeting, sampled, analyzed, characterized, profiled, and disposed of in compliance with relevant regulations (e.g., California Underground Storage Tank Regulations [SWRCB 2012]). **Location:** Project areas with active construction or used by construction personnel including access roads, staging and storage areas, and borrow sites with underground storage tanks. **Effectiveness Criteria:** Effectiveness will be based on compliance with regulatory guidelines. **Responsible Agency:** Reclamation, CSLC, and the construction contractor.	

Environmental Commitment	Action and Completion Date
Monitoring/Reporting Action: Adequacy of the proposed construction practices will be confirmed with Reclamation construction managers and CSLC monitors. **Timing:** Ongoing over the construction timeframe.	
Minimize Disturbance to Known Hazardous Material Sites. Construction activities in the Project area will be modified to minimize adverse effects to the public or the environment, including minimizing disturbance to known hazardous material sites. **Implementation Action:** The location of the hazardous materials at the site will be identified and disturbance to this material will be avoided to the extent possible. If active oil and gas wells cannot be avoided, the destruction or closure of those wells will be conducted in accordance with the California Department of Conservation Division of Oil, Gas, and Geothermal Resources regulations. If asbestos containing material is located in an area that requires excavation, the following mitigation measures are required. All Federal, State and local permits to conduct this work will be obtained before the work is conducted. The contractor will develop an asbestos mitigation plan which will include dust control, ambient and personnel air monitoring, disposal, transportation planning, and reporting. The plan would be reviewed and approved by the SJVAPCD. Upon approval of the mitigation plan, the plan will be implemented during construction activities. The contractor will use only asbestos trained personnel for the work. The asbestos containing material waste will be disposed of in only approved asbestos containing material disposal landfills. **Location:** Project areas with active construction or used by construction personnel including access roads, staging and storage areas, and borrow sites that have abandoned oil and gas wells or asbestos containing material. **Effectiveness Criteria:** Effectiveness will be based on compliance with regulatory guidelines. **Responsible Agency:** Reclamation, CSLC, and the construction contractor. **Monitoring/Reporting Action:** Adequacy of the proposed construction practices will be confirmed with Reclamation construction managers and CSLC monitors. **Timing:** Ongoing over the construction timeframe.	

Environmental Commitment	Action and Completion Date
Minimize Use of Pesticide and Herbicide Contaminated Soil. Construction activities in the Project area will be modified to minimize adverse effects to the public or the environment, including minimizing use of pesticide or herbicide contaminated soil. **Implementation Action:** The contactor will collect samples in conformance with EPA SW-846 methodology and analyze the samples for heavy metals and chlorinated pesticides and herbicides. The analytical results will be evaluated against the Title 22 California hazardous waste criteria, the RWQCB's Environmental Screening Levels, the EPA's Regional Screening Levels, or other regulatory and literature guidance documents for aquatic toxicity for reuse on the Project levees. Alternatively, aquatic testing may be conducted on representative soil samples for this purpose. (The aquatic toxicity evaluation for soil that will be exposed to the river is particularly important for the levee river side construction.) If the soil pesticide and herbicide conglomerate toxicity factors and/or toxicity testing shows unacceptable toxicity levels, that soil will not be used in the construction of Project levees or in other Project areas where the soil could come in direct contact with the San Joaquin River water. **Location:** Project areas with active construction or used by construction personnel including borrow sites. **Effectiveness Criteria:** Effectiveness will be based on compliance with testing and risk assessment guidelines. **Responsible Agency:** Reclamation, CSLC, and the construction contractor. **Monitoring/Reporting Action:** Adequacy of the proposed construction practices will be confirmed with Reclamation construction managers and CSLC monitors. **Timing:** Ongoing over the construction timeframe.	
Minimize Exposure to Potential West Nile Virus Carrying Vectors. Construction activities in the Project area will be modified to minimize adverse effects to the public or the environment, including minimizing exposure to potential West Nile Virus carrying vectors. **Implementation Action:** The following mitigation measures will be used to minimize the opportunity of mosquito bites. Good housekeeping will be used on the Project site to reduce areas of ponding water (including standing water in buckets and cans) to prevent mosquitos from breeding in the ponded water and then transmitting the disease. For example, work areas will be inspected, uncovered, upright containers that could accumulate water will be eliminated, and potholes and other areas where water is likely to accumulate will be filled or drained. Workers will be alerted to use mosquito repellants, particularly early in the morning and in the evening hours. If mosquitos continue to be a problem with the Project personnel after implementing the above strategies, the issue will be discussed with the local mosquito abatement district(s) and additional controls such as spraying may be implemented.	

Environmental Commitment	Action and Completion Date
Location: Project areas with active construction or used by construction personnel. **Effectiveness Criteria:** Effectiveness will be based on evidence of mosquitos and complaints of mosquito bites. **Responsible Agency:** Reclamation, CSLC, and the construction contractor. **Monitoring/Reporting Action:** Adequacy of the proposed construction practices will be confirmed with Reclamation construction managers and CSLC monitors. **Timing:** Ongoing over the construction timeframe.	
Minimize Exposure to Potential Hantavirus Vectors. Construction activities in the Project area will be modified to minimize adverse effects to the public or the environment, including minimizing exposure to potential Hantavirus vectors. **Implementation Action:** The following mitigation measures will minimize worker exposure to this disease. Educate workers on the virus, how it is transmitted, and safety precautions such as wearing masks around areas where rodents may have lived. Avoid stirring up dust in spaces where rodents may have lived. **Location:** Project areas with active construction or used by construction personnel, particularly in enclosed buildings. **Effectiveness Criteria:** Effectiveness will be based on implementation of construction training. **Responsible Agency:** Reclamation, CSLC, and the construction contractor. **Monitoring/Reporting Action:** Adequacy of the proposed construction practices will be confirmed with Reclamation construction managers and CSLC monitors. **Timing:** Ongoing over the construction timeframe	
Minimize Exposure to Valley Fever. Construction activities in the Project area would be modified to minimize adverse effects to the public or the environment, including minimizing exposure to Valley Fever. **Implementation Action:** The contractor will: • Educate workers on exposure to Valley Fever, how to recognize symptoms of illness, and ways to minimize exposure. • Wet soil before and during earthwork to minimize visible dust generation.	

Environmental Commitment	Action and Completion Date
• Limit vehicle speeds on uncontrolled, unpaved access/haul roads within the Project construction site. • Use dust suppressants, as needed. • Monitor for dust, and if dust levels exceed regulatory requirements, increase soil wetting and/or dust suppressant addition until the dust levels drop to acceptable levels. • Use personal protective equipment to avoid breathing dust, if dust levels exceed regulatory requirements. • Position workers upwind, where possible, when performing soil-disturbing tasks. • Suspend work during heavy wind or dust storms and minimize amount of soil disturbed. **Location:** Project areas with active construction or used by construction personnel. **Effectiveness Criteria:** Effectiveness will be based on compliance with dust control measures. **Responsible Agency:** Reclamation, CSLC, and the construction contractor. **Monitoring/Reporting Action:** Adequacy of the proposed construction practices will be confirmed with Reclamation construction managers and CSLC monitors. **Timing:** Ongoing over the construction timeframe.	
Minimize the Disturbance of Idle or Abandoned Wells. Construction activities in the Project area will be modified to minimize disturbance of idle or abandoned wells. **Implementation Action:** Reclamations will survey all project sites for unknown idle and abandoned wells before initiating ground-disturbing activities. If the survey discovers an idle or abandoned well, ground-disturbing activities will not occur within 100 feet of the well, if feasible. If ground-disturbing activities need to occur within 100 feet of the abandoned well, Reclamations would either cover, fence, or otherwise clearly mark the well location and take measures to reduce hazards to workers and/or ensure that the well has been abandoned in accordance with State and local regulations, whichever is appropriate. Fresno County Department of Public Health, Environmental Health Division, or Madera County Department of Environmental Health will be notified, as appropriate. **Location:** Project areas with active construction or used by construction personnel, including borrow sites. **Effectiveness Criteria:** Effectiveness will be based on implementation of the pre-construction measures.	

Environmental Commitment	Action and Completion Date
Responsible Agency: Reclamation, CSLC, and the construction contractor. **Monitoring/Reporting Action:** Adequacy of the proposed construction practices will be confirmed with Reclamation construction managers and CSLC monitors. **Timing:** Ongoing over the construction timeframe.	
Recreation	
Minimize Construction Effects on Recreation Uses. Construction activities in the Project area will be modified to minimize adverse effects on recreation uses, including the following provisions: (1) allow access to recreation use areas when active construction is not occurring, and (2) configure construction zones to minimize access restrictions to recreation use areas. The proposed construction modifications would provide comparable access to recreation use areas as under existing conditions when active construction is not occurring (subject to public safety constraints). **Implementation Action:** Allow access to recreation use areas at Mendota Pool and below Mendota Dam when active construction is not occurring, and configure construction zones to minimize access restrictions to these and other recreation use areas (e.g., San Mateo Avenue crossing) during periods when active construction is not occurring **Location:** The location of proposed construction area security modifications will vary as construction activities move throughout the Project area but would be focused primarily at Mendota Pool. **Effectiveness Criteria:** Effectiveness will be based on public complaints to the SJRRP. **Responsible Agency:** Reclamation and CSLC. **Monitoring/Reporting Action:** Adequacy of the proposed construction practices will be confirmed with Reclamation managers and CSLC monitors. **Timing:** Mitigation will be ongoing over the construction timeframe.	
Establish Boat Portage Facilities Around Project Facilities. Portage facilities for small watercraft will allow for boating access around Project structures and facilitate connectivity to downstream areas in Reach 3. Portage facilities will incorporate signs to direct boaters around water control structures, fish passage facilities, and fish screens, showing boaters how to connect with the river safely while minimizing impacts to adjacent private lands at each location. The portage improvements would provide comparable access to recreation use of the river equivalent to the "ease of use" associated with the existing hand launch facility, subject to public safety constraints.	

Environmental Commitment	Action and Completion Date
Transportation and Traffic	
Transportation and Traffic. Reclamation will comply with Department of Motor Vehicles codes by requiring contractors and employees to be properly licensed and endorsed when operating commercial vehicles. Reclamation will comply with California Vehicle Code section 35551 by enforcing compliance with weight restrictions on vehicles traveling on freeways and highways and by requiring heavy haulers to obtain permits, if required, prior to delivery of any heavy haul load. Reclamation will comply with California Vehicle Code section 35780 by requiring heavy haulers to obtain a Single-Trip Transportation Permit prior to delivery of any oversized load. Reclamation will coordinate with the California Department of Transportation (Caltrans) for relocation of any structures or fixtures necessary to telegraph, telephone, or electric power lines or of any ditches, pipes, drains, sewers, or underground structures located in the public rights-of-way. As required by the 2012 ROD for the SJRRP, Reclamations will prepare and implement a traffic management plan that identifies the number of truck trips, time of day for arrival and departure of trucks, limits on number of truck trips, and traffic circulation control measures. Control measures typically include advertising planned lane closures, warning signage, a flag person to direct traffic flows when needed, and methods for maintaining continued access by emergency vehicles. During project construction, access to existing land uses will be maintained at all times, with detours used as necessary during road closures. The traffic management plan will be submitted to the appropriate county public works, fire, police, and sheriff departments for comments.	
Use Construction Sequencing to Provide Continuous Emergency Access at Drive 10 ½. Construction activities in the Project area will be modified to provide continuous emergency access at Drive 10 ½ through construction sequencing and local emergency dispatchers will be notified of temporary road closures associated with this crossing. Implementation of this measure will reduce short-term impacts to emergency access near Drive 10 ½ during construction. **Implementation Action:** Provide continuous emergency access at Drive 10 ½ through construction sequencing. To continue the current level of emergency access, Drive 10 ½ will be rerouted along the bypass channel levees and cross the head of the bypass channel at the proposed Compact Bypass Control Structure prior to channel excavation at Drive 10 ½'s current alignment. **Location:** Active construction areas at Drive 10 ½. **Effectiveness Criteria:** Effectiveness will be based on access availability. **Responsible Agency:** Reclamation and the construction contractor.	

Environmental Commitment	Action and Completion Date
Monitoring/Reporting Action: Adequacy of the proposed construction practices will be confirmed with Reclamation construction managers and CSLC monitors. **Timing:** Ongoing over the construction timeframe.	
Utilities and Service Systems	
Utility and Service System. As required by the 2012 ROD for the SJRRP to minimize and avoid disruption of subsurface utilities from ground-disturbing activities, Reclamations will (1) confirm the location of existing underground utilities, (2) coordinate with the owners of transmission lines and pipelines, (3) design restoration actions to avoid affecting underground facilities, if feasible, and (4) coordinate with the utility owner to shut off and relocate the utilities, as necessary. The location of public utilities will be confirmed and appropriate notifications will be made by contacting utility providers (e.g., power and communication utility service, and irrigation district service) who operate, maintain or own utilities in the Project area. Construction contractors will request an underground service alert from Underground Service Alert North in advance of earthmoving activities to locate and avoid underground utilities. Solid waste removed from the Project area will be disposed of in a permitted landfill. The operator of the recycling/disposal location will be notified and Reclamations will obtain approval for the type and amount of solid waste that will be generated.	
Vegetation and Wildlife	
Special-Status Plants	
Avoid and Minimize Effects to Special-Status Plants. Within 1 year before the commencement of ground-disturbing activities, protocol-level surveys for the special-status plants that are applicable to Reach 2B (FEIS/R Chapter 6, Table 6-3 (Federal-, State-, or CNPS-Listed Plant Species with a Potential to Occur in the Project Area) and Hibiscus lasiocarpos var. occidentalis), will be conducted in grassland, elderberry savannah, fresh emergent wetland, and wet herbaceous habitats by a qualified botanist, in accordance with Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities (DFW 2009). If detected, locations of special-status plant populations that can be avoided will be clearly identified in the field by staking, flagging, or fencing a minimum 100-foot-wide buffer around them before the commencement of ground disturbing activities. No activity will occur within the buffer area, and worker awareness training and biological monitoring will be conducted to ensure that avoidance measures are being implemented. If federally listed plants are detected within or adjacent to the Project area, additional avoidance and minimization measures, including measures that will avoid direct take of this species, will be developed in coordination with USFWS and DFW. In addition, if federally listed plants are detected within or adjacent to the Project area and complete	

Environmental Commitment	Action and Completion Date
avoidance is not possible, Reclamation will stop all construction activities that will have the potential to impact the species and reinitiate consultation with USFWS, and PLANTS-2 (Compensate for Loss of Special-Status Plants) from the PEIS/R will be implemented. If federally listed plants are not detected within or adjacent to the Project area, additional avoidance, minimization, and compensation will not be required.	
Riparian Habitat and Other Sensitive Natural Communities	
Avoid and Minimize Loss of Riparian Habitat and Other Sensitive Natural Communities. Biological surveys have been conducted to identify, map, and quantify riparian and other sensitive habitats in potential construction areas. See Section 6.3.3 of the EIS/R. Construction activities will be avoided in areas containing sensitive natural communities, as appropriate.	
Compensate for Loss of Riparian Habitat and Other Sensitive Natural Communities. The Riparian Habitat Mitigation and Monitoring Plan for the SJRRP is being developed and implemented in coordination with DFW. Credits for increased acreage or improved ecological function or riparian and wetland habitats resulting from the implementation of SJRRP actions will be applied as compensatory mitigation before additional compensatory measures are required. If losses of other sensitive natural communities (e.g., recognized as sensitive by California Natural Diversity Database, but not protected under other regulations or policies) would not be offset by the benefits of the SJRRP, then additional compensation will be provided through creating, restoring, or preserving in perpetuity in-kind communities at a sufficient ratio for no net loss of habitat function or acreage. The appropriate ratio will be determined in coordination with USFWS, DFW, and/or the Corps, depending on agency jurisdiction.	
Waters of the United States/Waters of the State	
Identify and Quantify Wetlands and Other Waters of the United States. The distribution of wetlands in the Project area is described in Section 15.3.3 of the EIS/R. That section of the EIS/R also describes the acreage of effects on waters of the United States, based on the mapped distribution of these wetlands, hydraulic modeling and field observation. A delineation of waters of the United States has been submitted to the Corps for verification. The delineation was conducted according to methods established in the Corps Wetlands Delineation Manual and Arid West Supplement (Corps Environmental Laboratory 1987, 2008). Construction and modification of road crossings, control structures, fish barriers, fish passages, and other structures will be designed to minimize effects on waters of the United States and waters of the State, and will employ best management practices (BMPs) to avoid indirect effects on water quality.	

Environmental Commitment	Action and Completion Date
Obtain Permits and Compensate for Any Loss of Wetlands and Other Waters of the United States/Waters of the State. Reclamation, in coordination with the Corps, will determine the acreage of effects on waters of the United States and waters of the State that will result from implementation of the Project. Reclamation will adhere to a "no net loss" basis for the acreage of wetlands and other waters of the United States and waters of the State that will be removed and/or degraded. Wetland habitat will be restored, enhanced, and/or replaced at acreages and locations and by methods agreed on by the Corps and the Central Valley Regional Water Quality Control Board (RWQCB). Reclamation will obtain Section 404 and Section 401 (Clean Water Act) and Section 10 (Rivers and Harbors Act) permits and comply with all permit terms. The acreage, location, and methods for compensation will be determined during the Section 401 and Section 404 permitting processes. The compensation will be consistent with recommendations in the Fish and Wildlife Coordination Act Report.	
Invasive Plants	
Implement the Invasive Vegetation Monitoring and Management Plan. Reclamation will implement the Invasive Vegetation Monitoring and Management Plan for the SJRRP (Appendix L of the PEIS/R), which includes measures to monitor, control, and where possible eradicate, invasive plant infestations during flow releases and construction activities. The implementation of the Invasive Vegetation Monitoring and Management Plan (Appendix L of the PEIS/R) will include monitoring procedures, thresholds for management responses, success criteria, and adaptive management measures for controlling invasive plant species. The control of invasive weeds and other recommended actions in the Invasive Vegetation Monitoring and Management Plan (Appendix L of the PEIS/R) will be consistent with recommendations in the Fish and Wildlife Coordination Act Report.	
Conservation Plans	
Remain Consistent with Approved Conservation Plans. Facility siting and construction activities will be conducted in a manner consistent with the goals and strategies of adopted habitat conservation plans, natural community conservation plans, or other approved local, regional, or State habitat conservation plans to the extent feasible. Coordination will occur with USFWS and/or DFW, as appropriate.	
Compensate Effects Consistent with Approved Conservation Plans. Reclamation will compensate effects consistent with applicable conservation plans and implement all applicable measures required by the plans.	

Environmental Commitment	Action and Completion Date
Blunt-Nosed Leopard Lizard	
Avoid and Minimize Effects to Species Within 1 year before the commencement of ground-disturbing activities protocol-level surveys will be conducted according to the Blunt-Nosed Leopard Lizard Survey Protocols for the San Joaquin River Restoration Program (U.S. Fish and Wildlife Service [USFWS] 2009) on lands identified as potentially suitable for blunt-nosed leopard lizard, which consist of annual grassland and elderberry savannah habitats on the south side of the San Joaquin River near the Chowchilla Bifurcation Structure. If blunt-nosed leopard lizard is not detected within the Project area, additional avoidance, minimization, and compensation for this species will not be required. If blunt-nosed leopard lizard are detected within or adjacent to the Project area, additional avoidance and minimization measures, including measures that will avoid direct take of this species, will be developed in coordination with USFWS and DFW and implemented before ground-disturbing activities. Construction activities within blunt-nosed leopard lizard habitat will occur outside of the peak activity period (April to July). In addition, if blunt-nosed leopard lizard are detected within or adjacent to the Project area, Reclamation will stop all construction activities that will have the potential to impact the species and reinitiate consultation with USFWS, and BNLL-2 (Compensate for Loss of Habitat or Species) from the PEIS/R will be implemented.	
Giant Garter Snake	
Avoid and Minimize Loss of Habitat for Giant Garter Snake. For work that would occur during the active season for giant garter snakes (between May 1 and October 1), preconstruction surveys will be completed by a qualified biologist approved by USFWS and DFW within a 24-hour period before any ground disturbance of potential giant garter snake habitat. If ground-disturbing activities stop on the Project site for a period of 2 weeks or more, a new giant garter snake survey will be completed no more than 24 hours before the restart of ground-disturbing activities. Avoidance of suitable giant garter snake habitat, as defined by USFWS (USFWS 1999a) and DFW, will occur, where feasible, by demarcating and maintaining a 300-foot-wide buffer around these areas. To the extent feasible, all activity involving disturbance of potential giant garter snake habitat will be restricted to the active season for giant garter snakes (between May 1 and October 1). For Project activities that cannot feasibly occur within this window, a cofferdam will be constructed in coordination with USFWS and work will be conducted in the dried area. If cofferdam construction is infeasible, work will be conducted during one active season (May 1 to October 1) and the following inactive season. Exclusion fencing, and increased monitoring of wintering sites will occur in coordination with USFWS during this inactive period construction. Construction will be minimized within 200 feet of banks of habitat, especially during the inactive period (Oct 2 to April 30) and movement of heavy equipment will be confined to existing roadways, to the extent feasible. Stockpiles and staging areas will be established more than 200 feet from the bank/edge of aquatic habitat. Clearing will be confined to the contractor use area which will be considered the minimal area necessary to facilitate construction activities. Giant garter snake habitat within or adjacent to the Project will be flagged, staked, or fenced and designated as an Environmentally Sensitive Area. No activity will occur within this area, to the extent feasible, and USFWS-approved worker awareness training and biological monitoring will be conducted to ensure that avoidance measures are being implemented.	

Environmental Commitment	Action and Completion Date
Vegetation will be hand-cleared in areas where suitable giant garter snake habitat is documented to occur, based on mapping provided in the BA or future, USFWS-approved mapping. Exclusionary fencing with one-way exit funnels will be installed at least 1 month before activities to allow the species to passively leave the area and to prevent reentry into work zones, per USFWS and/or DFW guidance. If a giant garter snake is found during construction activities, USFWS, DFW, and the Project's biological monitor will immediately be notified. The biological monitor, or his/her assignee, will stop construction in the vicinity of the find and allow the snake to leave on its own. The monitor will remain in the area for the remainder of the work day to ensure the snake is not harmed. Escape routes for giant garter snake will be determined in advance of construction and snakes will be allowed to leave on their own. If a giant garter snake does not leave on its own within 1 working day, USFWS will be consulted and actions will be coordinated with DFW. All construction-related excavations will be covered to prevent entrapment of individuals. Where applicable, construction areas will be dewatered 2 weeks before the start of activities to allow giant garter snakes and their prey to move out of the area before any disturbance. Any plugging or collapsing of small mammal burrows on levee structures within 200 feet of giant garter snake aquatic habitat will be done during the active season (between May 1 and October 1). Prior to the action, the burrow entrance will be either fitted with a one way door mechanism that would allow snakes to exit the burrow, but not re-enter, or the burrow would be thoroughly examined using an appropriate scoping system that could reach the fullest extent of the burrow. This conservation measure will be included in all future levee maintenance actions.	
Compensate for Temporary or Permanent Loss of Habitat, Temporarily affected giant garter snake aquatic habitat will be restored in accordance with criteria listed in the USFWS Mitigation Criteria for Restoration and/or Replacement of Giant Garter Snake Habitat (Appendix A to Programmatic Formal Consultation for U.S. Army Corps of Engineers 404 Permitted Projects with Relatively Small Effects on the Giant Garter Snake Within Butte, Colusa, Glenn, Fresno, Merced, Sacramento, San Joaquin, Solano, Stanislaus, Sutter, and Yolo Counties, California (USFWS 1997)), or the most current criteria from USFWS or DFW. Permanent loss of giant garter snake habitat will be compensated at a ratio and in a manner that has been consulted on with USFWS and coordinated with DFW and may include dedication of conservation easements, purchase of credits at a USFWS-approved mitigation bank in sufficient quantity to compensate for the effect, and/or other off-site conservation measures. Protocol-level trapping surveys and detailed habitat mapping will be conducted in suitable habitat for giant garter snake in 2016. These surveys will be conducted by a biologist permitted by both USFWS and DFW, and in accordance with survey protocols approved by both agencies. If giant garter snake is detected during the 2016 trapping surveys, a pre-construction trapping survey will be conducted within the appropriate work areas and giant garter snakes will be relocated to a nearby, safe location outside of harm's	

<table>
<tr><th>Environmental Commitment</th><th>Action and Completion Date</th></tr>
<tr><td>
way (likely either within Fresno Slough or Mendota Pool) prior to construction, in consultation with USFWS and coordination with DFW (note that only appropriately permitted individuals may handle listed species). If simply moving the snakes outside of the immediate area of disturbance is not feasible, then a relocation plan will be developed for longer-distance relocations (e.g., Volta Wildlife Area). The relocation plan will include information such as relocation methods, disease control methods, a habitat and giant garter snake population assessment at the recipient site, and post relocation monitoring methods.

On-site and off-site compensatory mitigation will occur in both Fresno Slough and the Volta Wildlife Area, to provide benefits to both populations.

Compensatory mitigation will occur in all feasible locations of those identified below, up to a 3.5:1 replacement ratio for impacted acres identified as suitable habitat.

Giant Garter Snake- Extent of Potential Impacts and Estimated Mitigation Acreages

<table>
<tr><th>Anticipated GGS Impacts</th><th>Potential Impacts (acres)</th><th>Mitigation Target (acres)</th></tr>
<tr><td>Aquatic</td><td>142</td><td>423</td></tr>
<tr><td>Upland</td><td>221</td><td>848</td></tr>
<tr><td>TOTAL</td><td>363</td><td>1,271[1]</td></tr>
</table>
[1] Amount may vary based on habitat availability and mitigation opportunities

Compensatory mitigation will include:

a. A new turn-key mitigation site, or sites, in Fresno Slough and/or

b. A new turn-key mitigation site or purchase of credits at a mitigation bank near the Volta Wildlife Area.
In addition to the above up to 3.5:1 acreage compensation, providing funding to assist the Volta Wildlife Area in developing additional water sources for giant garter snake habitat enhancement, constructing ridges for burrows in an existing area of habitat, or creating additional wetland habitat at the existing Volta Wildlife Area may be pursued to provide benefits to the existing population.
</td><td></td></tr>
<tr><td>Western Pond Turtle</td><td></td></tr>
<tr><td>Avoid and Minimize Loss of Individuals. A qualified biologist will conduct surveys in aquatic habitats to be dewatered and/or filled during Project construction. Surveys will be conducted immediately after dewatering and before fill of aquatic habitat suitable for western pond turtles. If western pond turtles are found, the biologist will capture them and move them to nearby USFWS- and/or DFW-approved areas of suitable habitat that will not be disturbed by Project construction.</td><td></td></tr>
</table>

Environmental Commitment	Action and Completion Date
Swainson's Hawk	
Avoid and Minimize Impacts to Swainson's Hawk Preconstruction surveys for active Swainson's hawk nests will be conducted in and around all potential nest trees within ½-mile of Project-related disturbance (including construction-related traffic). These surveys will be conducted in accordance with the Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley (Swainson's Hawk Technical Advisory Committee 2000) or current guidance. If known or active nests are identified through preconstruction surveys or other means, a biological monitor will be on site when construction is occurring to monitor the nest. When possible, a ½-mile no-disturbance buffer will be established around all active nest sites if construction cannot be limited to occur outside the nesting season (February 15 through September 15). If it is not possible to maintain a ½-mile no-disturbance buffer, the biological monitor will determine the size of the buffer needed and which activities can proceed without impacting the nest, in coordination with DFW. If reduced buffers are used or limited activity is required within a buffer a qualified biologist will monitor the nest and advise Reclamation if behavioral impacts to the nest are observed, so that corrective action to protect the nest can be implemented. If a nest develops near ongoing construction activities after the activities were initiated a biological monitor will observe the nest and implement a buffer or limit activity near the nest to the degree necessary to prevent construction from negatively affecting the nest. Worker awareness training and biological monitoring will be conducted to ensure that avoidance measures are being implemented.	
Compensate for Loss of Nest Trees and Foraging Habitat. If foraging habitat for Swainson's hawk is removed in association with Project implementation and impacted foraging habitat is not replaced with an equal or greater amount of suitable foraging habitat in the completed Project area, foraging habitat compensation will occur in coordination with DFW. Foraging habitat mitigation may consist of planting and establishing alfalfa, row crops, pasture, fallow fields, or other habitats considered to be Swainson's hawk foraging habitat in the Project impact calculations. If potential nesting trees are to be removed during construction activities, removal will take place outside of Swainson's hawk nesting season. If impacted Swainson's hawk nesting habitat is not replaced with an equal or greater amount of suitable nesting habitat in the completed Project area, Reclamation will develop a plan to replace known Swainson's hawk nest trees with a number of equivalent native trees that were previously determined to be impacts in coordination with DFW. If necessary, compensation will include dedication of conservation easements, purchase of mitigation credits, or other off-site conservation measures, and the details of these measures will be included in the mitigation plan and must occur with full endowments for management in perpetuity. The plan will include information on responsible parties for long-term management, holders of conservation easements, long-term management requirements, and other details, as appropriate, for the preservation of long-term viable populations.	

Environmental Commitment	Action and Completion Date
Other Nesting Raptors	
Avoid and Minimize Loss of Individual Raptors. If nesting raptors are determined to be present, construction activity, including vegetation removal, will only occur outside the typical breeding season for raptors (vegetation removal from September 16 to January 31), if feasible. If Project related activities must occur during the breeding season (February through mid-September) for non-listed raptors, surveys for active nests will be conducted by a qualified biologist no more than 30 days prior to commencing Project-related activities. If active nests are located in the Project footprint, a no-disturbance buffer of 500 feet will be established until a qualified biologist determines that the bird(s) have fledged and are no longer reliant upon the nest or parental care for survival, to the extent feasible. No activity will occur within the buffer area, to the extent feasible, and worker awareness training and biological monitoring will be conducted to ensure that avoidance measures are being implemented. A smaller buffer may be considered by a qualified biologist and in coordination with DFW based on the sensitivity of the resource, the type of disturbance activity, and nesting stage, particularly if a nest is established while construction is already underway or if a particular nest is found to be less sensitive to construction activities. If reduced buffers are used or limited activity is required within a buffer a qualified biologist will monitor the nest and advise Reclamation if behavioral impacts to the nest are observed, so that corrective action to protect the nest can be implemented.	
Compensate for Loss of Nest Trees. Native trees removed during Project activities will be replaced with an appropriate number of native trees as determined by Reclamation in coordination with DFW.	
Riparian Nesting Birds: Least Bell's Vireo	
Avoid and Minimize Effects to Species. Prior to ground disturbance, a qualified biologist will conduct surveys for least Bell's vireo in all riparian habitats within 500 feet of ground-disturbing activities at the start of the spring nesting season adhering to guidance offered in Least Bell's Vireo Survey Guidelines (USFWS 2001). If full protocol surveys cannot be implemented prior to initiation of ground-disturbing activities, the monitoring biologist approved by USFWS will be present for all activities within 500 feet of potentially suitable habitat. The monitoring biologist will perform a minimum of three focused surveys on three separate days prior to ground disturbance to determine the presence of least Bell's vireo, nest building, egg incubation, or brood rearing activities within 500 feet of the project footprint. The surveys will begin a maximum of 7 days prior to project construction and one survey will be conducted the day before ground disturbance. If any least Bell's vireo are detected, Reclamation will postpone work within 500 feet of the location and contact USFWS within 24 hours. Upon notification, USFWS will discuss the best approach to avoid/minimize impacts to nesting least Bell's vireo and a nest monitoring program acceptable to USFWS. Subsequent to these discussions, work may be initiated subject to implementation of the agreed upon avoidance/minimization approach and nest monitoring program. In addition, if least Bell's vireo are detected in the Project area, Reclamation will stop all construction activities that will have the potential to impact the species and reinitiate consultation with USFWS, and RNB-2 (Compensate for Loss of Habitat or Species) from the PEIS/R will be implemented.	

Environmental Commitment	Action and Completion Date
Other Birds Protected by the Migratory Bird Treaty Act	
Avoid and Minimize Effects to Species. Native nesting birds will be avoided by not conducting Project activity, including vegetation removal, during the typical breeding season (February 1 to September 1), if species covered under the Migratory Bird Treaty Act and Fish and Game Code sections 3503, 3503.5, and 3513 are determined to be nesting, to the extent feasible. Vegetation removal will be limited to the areas necessary for construction. If Project-related activities must occur during the breeding season (February 1 through September 1) for birds protected by the Migratory Bird Treaty Act, surveys for active nests, including ground nesting birds, will be conducted by a qualified biologist no more than 30 days prior to commencing Project-related activities. If active nests are identified a biological monitor will be on site when construction is occurring to monitor impacts to the nest. If necessary, buffers adequate to protect the nest will be established and activities that may disrupt nesting behavior will be avoided within the buffer until the breeding season has ended or until a qualified biologist has determined that the birds have fledged and are no longer reliant upon the nest or parental care for survival. If a nest develops near ongoing construction activities after the activities were initiated a biological monitor will observe the nest and implement a buffer or limit activity near the nest to the degree necessary to prevent construction from negatively affecting the nest. An Avian Protection Plan will be established in coordination with USFWS and DFW. Any overhead utility companies within the Project area, whose lines, poles, or towers may be moved in association with the Project, will also be consulted as part of the Avian Protection Plan.	
Tricolored Blackbird	
Avoid Nesting Colonies Measures will be taken to protect nesting tricolored blackbirds during the nesting season (typically February 1-July 1). Special attention will be paid to row crops, alfalfa fields, and tule or cattail wetlands. If necessary, surveys will be conducted to identify any potential nesting colonies within 300 feet of construction activity. To the extent feasible, vegetation clearing (including in row crops and alfalfa fields) and short-term disturbances (e.g., construction traffic or activities lasting no more than 6 hours) will not be conducted within 60 feet of an active nest and prolonged construction activities will not be conducted within 300 feet of an active nest. If activities near nests cannot be avoided as described above, a biological monitor will observe the nests and any activities within these areas to determine the size of the buffer and the extent to which activities must be limited to prevent construction from negatively affecting nesting tricolored blackbirds. Because many tricolored blackbird nesting colonies expand over time, the extent of any breeding colony will be reassessed and buffers relocated as necessary. Nests will not be disturbed until a qualified biologist has confirmed that all young have fledged and are able to disperse from the breeding site. This will typically occur approximately 40 days after nest building begins.	
Cliff Swallow	
Avoid Nesting Colonies. Measures will be taken to protect nesting cliff swallows (and other swallows) on existing structures (e.g., Chowchilla Bifurcation Structure) during the nesting season (typically February 15-September 1).	

Environmental Commitment	Action and Completion Date
Swallow nests on existing structures will not be removed or disturbed during the nesting season. If work at or within 150 feet of swallow nests is anticipated to begin during the nesting season, all swallow nests will be removed outside of the nesting season and measures will be taken to prevent swallows from accessing the structure and building new nests when the nesting season begins. If exclusion is necessary an exclusion plan will be submitted to USFWS and DFW for review 30 days prior to implementation. Measures to prevent swallows from building nests may include exclusion with use of netting, blocking the entrance or access to the nest habitat with wood, plastic, vinyl, or other materials, or covering nest attachment sites with polytetrafluoroethylene (PTFE, commonly called Teflon). If only that section of a structure where swallows have nested in the past is netted, the swallows will often choose alternative sites on the same structure. Therefore, any part of a structure suitable for nesting must be addressed. After the measures are installed, the area will be monitored for entry points and necessary adjustments will be made. If work near a structure that will not directly affect the structure begins prior to the nesting season and swallows nest near the ongoing construction work, then it will be assumed that the swallows are not bothered by the work, the work can continue, and exclusion is not necessary. Work near a structure with swallow nests that will not directly affect the structure may be initiated during the nesting season if a biological monitor determines that the work is not disrupting nesting activities. In these cases, use of visual blinds or buffers between construction work and the nests may be helpful to protect the nests.	
Burrowing Owl	
Avoid Loss of Individuals. Preconstruction surveys for burrowing owls will be conducted in areas supporting potentially suitable habitat and within 30 days before the start of construction activities. If ground-disturbing activities are delayed or suspended for more than 30 days after the preconstruction survey, the site will be resurveyed. These surveys and mitigation will be conducted in accordance with the Staff Report on Burrowing Owl Mitigation (DFW 2012), or current guidance. Occupied burrows will not be disturbed during the breeding season (February 1 through August 31). Buffers to protect occupied burrows will be established consistent with the Staff Report on Burrowing Owl Mitigation (DFW 2012). Buffer size will vary based on the time of year and level of disturbance. Between April 1 and October 15 buffers will be between 200 to 500 meters depending on level of disturbance. Between October 16 and March 31 buffers will be between 50 and 500 meters depending on the level of disturbance. Ground-disturbing activities will not occur within the designated buffers, to the extent feasible. A smaller buffer may be considered by a qualified biologist and in coordination with DFW based on the sensitivity of the resource, the type of disturbance activity, and nesting stage, particularly if a nest is established while construction is already underway or if a particular nest is found to be less sensitive to construction activities. If reduced buffers are used or limited activity is required within a buffer a qualified biologist will monitor the nest and advise Reclamation if behavioral impacts to the nest are observed, so that corrective action to protect the nest can be implemented.	

Environmental Commitment	Action and Completion Date
Special-Status Bats	
Avoid and Minimize Loss of Individuals. Prior to removal of potentially suitable roosting habitat for special-status bats (e.g., removal of buildings, modification of bridges), surveys for roosting bats on the Project site will be conducted by a qualified biologist. Surveys for bat species will be conducted no more than 14 days prior to ground disturbance and/or construction activities and during the appropriate time of day to maximize detectability. The type of survey will depend on the condition of the potential roosting habitat and may include visual surveys or use of acoustic detectors. Visual surveys may consist of a daytime pedestrian survey for evidence of bat use (e.g., guano) and/or an evening emergence survey for the presence or absence of bats. The type of survey will depend on the condition of the potential roosting habitat. If no bat roosts are found, then no further study is required. If evidence of bat use is observed, the number and species of bats using the roost will be determined. Bat detectors may be used to supplement survey efforts. If roosts are determined to be present and must be removed, the bats will be excluded from the roosting site before the facility is removed. A mitigation program addressing compensation, exclusion methods, and roost removal procedures will be developed in coordination with DFW before implementation. Exclusion plans will include methods to safely exclude roosting bats from the roosting structure to be removed, monitoring of the roost during eviction and a discussion of type, amount, and distance of suitable habitat near the habitat to be removed. Exclusion methods may include use of one-way doors at roost entrances (bats may leave, but not reenter), or sealing roost entrances when a site can be confirmed to contain no bats. Exclusion efforts may be restricted during periods of sensitive activity (e.g., during hibernation or while females in maternity colonies are nursing young).	
Compensate for Loss of Habitat. The loss of each roost will be replaced, in coordination with DFW, and may include construction and installation of bat boxes suitable to the bat species and colony size excluded from the original roosting site. Roost replacement will be implemented before bats are excluded from the original roost sites. Once the replacement roosts are constructed and it is confirmed that bats are not present in the original roost sites, the structure may be removed.	
Fresno Kangaroo Rat	
Avoid and Minimize Effects to Species. Preconstruction surveys will be conducted by a USFWS-approved biologist to determine if potential burrows for Fresno kangaroo rat are present in the Project footprint in annual grassland and elderberry savannah identified as potential Fresno kangaroo rat habitat on the south side of the San Joaquin River near the Chowchilla Bifurcation Structure. Surveys will be conducted well in advance of ground-disturbing activities. The biologist will conduct burrow searches by systematically walking transects, which will be adjusted based on vegetation height and topography, and in coordination with USFWS and DFW. Transects will be used to identify the presence of kangaroo rat burrows. When burrows are found within 100 feet of the Project footprint, focused live trapping surveys will be conducted by a biologist permitted to handle Fresno kangaroo rat by both the USFWS and DFW, and following a USFWS and DFW approved trapping plan.	

Environmental Commitment	Action and Completion Date
If Fresno kangaroo rat are detected within or adjacent to the Project area, additional avoidance and minimization measures will be developed in coordination with USFWS and DFW, as appropriate, and construction activities will be conducted when they are least likely to affect the species (i.e., after the normal breeding season of December through September (Ahlborn 1999)). This timing will be coordinated with USFWS and DFW. In addition, if Fresno kangaroo rat are detected within or adjacent to the Project area, Reclamation will stop all construction activities that will have the potential to impact the species and reinitiate consultation with USFWS, and FKR-3 (Compensate for Loss of Habitat or Species) from the PEIS/R will be implemented. If Fresno kangaroo rat are not detected within or adjacent to the Project area, additional avoidance, minimization, and compensation will not be required.	
San Joaquin Kit Fox	
Avoid and Minimize Effects to Species. A qualified biologist will conduct preconstruction surveys in the Project area no less than 14 days and no more than 30 days before the commencement of ground-disturbing activities to identify potential dens more than 5 inches in diameter. Reclamation will implement USFWS' Standardized Recommendations for Protection of San Joaquin Kit Fox Prior to or During Ground Disturbance (USFWS 1999b). Reclamation will notify USFWS and DFW in writing of the results of the preconstruction survey within 30 days after these activities are completed. If San Joaquin kit fox are detected within or adjacent to the Project area, additional avoidance and minimization measures, including measures that will avoid direct take of this species, will be developed in coordination with USFWS and DFW and implemented before ground disturbing-activities. If dens are located within the proposed work area, and cannot be avoided during construction activities, a USFWS-approved biologist will determine if the dens are occupied. Reclamation will present the results of preactivity den searches within 5 days after these activities are completed and before the start of ground disturbing activities in the Project area. Reclamation will notify USFWS and DFW immediately if a natal or pupping den is found in the survey area. If occupied dens are present within the proposed work area, their disturbance and destruction will be avoided, to the fullest extent possible. Exclusion zones will be implemented following the latest USFWS procedures and construction activities will be conducted when they are least likely to affect the species (i.e., after the normal breeding season of December to April (Ahlborn 2000)). This timing will be coordinated with USFWS and DFW. In addition, if San Joaquin kit fox are detected within or adjacent to the Action Area, Reclamation will stop all construction activities that will have the potential to impact the species and reinitiate consultation with USFWS, and SJKF-2 (Compensate for Loss of Habitat or Species) from the PEIS/R will be implemented. If San Joaquin kit fox are not detected within or adjacent to the Project area, additional avoidance, minimization, and compensation will not be required.	

Environmental Commitment	Action and Completion Date
Pacific Lamprey	
Avoid and Minimize Effects to Species. A qualified biologist will conduct preconstruction surveys as outlined in Attachment A of USFWS' Best Management Practices to Minimize Adverse Effects to Pacific Lamprey (Entosphenus tridentatus) (2010). Work in documented areas of Pacific lamprey presence will be timed to avoid in-channel work during typical lamprey spawning (March 1 to July 1), to the extent feasible. If temporary dewatering in documented areas of lamprey presence is required for instream channel work, salvage methods will be implemented to capture and move ammocoetes to a safe area, in consultation with USFWS.	
Valley Elderberry Longhorn Beetle	
Within 1 year before the commencement of ground-disturbing activities, a qualified biologist will identify any elderberry shrubs in the Project footprint. If elderberry shrubs are found on or adjacent to the construction Project footprint, if feasible, a 100-foot-wide avoidance buffer – measured from the dripline of the plant – will be established around elderberry shrubs with stems greater than 1 inch in diameter at ground level and will be clearly identified in the field by staking, flagging, or fencing. No activities will occur within the buffer areas and worker awareness training and biological monitoring will be conducted to ensure that avoidance measures are being implemented.	
USFWS Biological Opinion Reasonable and Prudent Measures 1. Minimize take in the form of harassment and/or harm of the giant garter snake during project construction activities and during project implementation. 2. The permanent loss and degradation of giant garter snake habitat shall be confined to the proposed project site, and minimized and restored to the greatest extent practicable	
USFWS Biological Opinion Discretionary Conservation Recommendations 1. Assist USFWS in implementing recovery actions identified within the Recovery Plans for federally listed species, and their critical habitat areas. 2. Encourage or require the use of appropriate California native species in revegetation and habitat enhancement efforts associated with projects authorized or undertaken by Reclamation. **3.** Sightings of any listed or sensitive animal species should be reported to the California Natural Diversity Database of the DFW. A copy of the reporting form and a topographic map or adequate aerial photograph clearly marked with the location the animals were observed also should be provided to USFWS.	

Environmental Commitment	Action and Completion Date
USFWS Biological Opinion Discretionary Conservation Recommendations 1. Assist USFWS in implementing recovery actions identified within the Recovery Plans for federally listed species, and their critical habitat areas. 2. Encourage or require the use of appropriate California native species in revegetation and habitat enhancement efforts associated with projects authorized or undertaken by Reclamation. 3. Sightings of any listed or sensitive animal species should be reported to the California Natural Diversity Database of the DFW. A copy of the reporting form and a topographic map or adequate aerial photograph clearly marked with the location the animals were observed also should be provided to USFWS.	
USFWS Fish and Wildlife Coordination Act Report Recommendations 1. Minimize impacts to ruderal and annual grassland habitat that is temporarily disturbed during construction by reseeding with native grasses and forbs after the construction is complete. 2. Implement all appropriate proposed conservation measures for affected species and their habitats as described in the EIS/R for the Project. 3. Minimize impacts to Western Pond Turtle by implementing the conservation measure WPT-1 in the EIS/R. 4. Where appropriate, minimize impacts to Tricolored Blackbirds by following the DFW Guidance document Staff Guidance Regarding Avoidance of Impacts to Tricolored Blackbird Breeding Colonies on Agricultural Fields in 2015 (DFW, 2015). 5. Minimize impacts to cliff swallow nesting colonies under bridges by developing an exclusion plan in coordination with USFWS prior to bridge construction. 6. Mitigate for habitat impacts of the project based on the following ratios: valley/foothill riparian 4:1, grassland 3:1, natural seasonal wetland 4:1, nontidal freshwater permanent emergent 3:1, and upland cropland 1:1. 7. Rodenticide should not be used within the project area. 8. Implement an Erosion Control Plan and Storm Water Prevention Plan that minimizes erosion and sedimentation during construction by using erosion control devices, such as straw waddles. 9. Survey the construction sites for ground nesting birds and if nests with eggs are found, it is recommended that either: (1) construction is delayed until nesting season is completed, or (2) eggs are removed from the nest and placed in a facility for incubation.	

Environmental Commitment	Action and Completion Date
10. Work towards making the proposed project carbon neutral. Consistent with the Intergovernmental Panel on Climate Change (IPCC) (2007a and 2007b) adaptation strategies/mitigation recommendations, USFWS recommends carbon offsets be achieved through sequestering carbon (e.g., by converting tilled agricultural fields near the project area to native grasslands). Alternatively, compensating for the proposed project's carbon footprint by purchasing carbon offsets. 11. Implement a Hazardous Materials Control and Spill Prevention and Response Plan to avoid the release of hazardous materials to the environment (for chemicals such as the galvanizing paint for the radial gates). 12. Continue the collaborative approach to the planning and implementation of this Project with USFWS.	
Visual Resources	
Minimize Visual Disruption from Construction Activities. The construction contractor will be required to adhere to the following construction requirements regarding construction-related visual/aesthetic disruption. **Implementation Action:** Minimize construction related impacts on visual resources by including requirements in the contract with the construction company. In order to minimize visual disruption, the construction contractor will be required to implement the following: • When possible, preserve existing vegetation, particularly vegetation along the edge of construction areas that may help screen views. • After construction, regrade areas located outside of the floodplain that were disturbed by construction, staging, and storage to original contours where feasible, and revegetate with plant material similar in replacement numbers and types to that which was removed based upon local jurisdictional requirements. If there are no local jurisdictional requirements, replace removed vegetation at a 1:1 replacement ratio for shrubs and small trees, and 2:1 replacement ratio for mature trees. • To the extent feasible, do not locate construction staging sites within the immediate foreground distance (0 to 500 feet) of existing residential, recreational, or other high-sensitivity receptors. Where such siting is unavoidable, staging sites will be screened from sensitive receptors using appropriate solid screening materials such as temporary fencing and walls. **Location:** The location of proposed construction area modifications will vary as construction activities move throughout the Project area but will be focused primarily at Mendota Pool Park and San Mateo Avenue. Fencing will be implemented where topography and Project area activities allow. **Effectiveness Criteria:** Effectiveness will be based on public complaints to the SJRRP. **Responsible Agency:** Reclamation, CSLC, and the contractor.	

Environmental Commitment	Action and Completion Date
Monitoring/Reporting Action: Adequacy of the proposed construction practices will be confirmed with Reclamation construction managers and CSLC monitors. **Timing:** Mitigation will be ongoing over the construction timeframe.	
Require Conformance to Lighting Standards. Reclamations will conform to the guidelines described below to reduce impacts associated with light and glare during the construction phase. **Implementation Action:** Minimize construction related impacts on visual resources by including requirements in the contract with the construction contractor. • If construction lighting is needed, contractors will be required to shield lighting and direct lights downward onto the work site. • Meet the minimum county lighting standards for all Project-related lighting. All lighting fixtures will be designed to be consistent with the guidelines contained in the applicable county general plan. • Shield or screen lighting fixtures to direct the light downward and prevent light from spilling on adjacent properties. • Prohibit the use of harsh mercury vapor, low-pressure sodium, or fluorescent bulbs. • Consider design features, namely directional shielding for all substantial light sources, that will reduce effects of nighttime lighting. In addition, consider the use of automatic shutoffs or motion sensors for lighting features to further reduce excess nighttime light. All nighttime lighting will be shielded to prevent the light from shining off the surface intended to be illuminated. **Location:** The location of proposed construction area modifications will vary as construction activities move throughout the Project area but will be focused primarily at the Mendota Dam area and the Bass Avenue residential area. **Effectiveness Criteria:** Effectiveness will be based on public complaints to the SJRRP. **Responsible Agency:** Reclamation, CSLC, and the contractor. **Monitoring/Reporting Action:** Adequacy of the proposed construction practices will be confirmed with Reclamation construction managers and CSLC monitors. **Timing:** Mitigation will be ongoing over the construction timeframe.	