EXHIBIT D: MITIGATION MONITORING AND REPORTING PROGRAM

NORTH DELTA FLOOD CONTROL AND ECOSYSTEM RESTORATION EIR

CEQA requires the adoption of feasible mitigation measures to reduce the severity and magnitude of potentially significant environmental impacts associated with project development.

CEQA *Guidelines* Section 15091(d) states:

> When making the findings required in subdivision (a)(1), the agency shall also adopt a program for reporting on or monitoring the changes which it has either required in the project or made a condition of approval or substantially lessen significant environmental effects. These measures must be enforceable through permit conditions, agreements, or other measures.

CEQA *Guidelines* Section 15097(a) states:

> This section applies when a public agency has made the findings required under paragraph (1) of subdivision (a) of section 15091 relative to an EIR or adopted a mitigated negative declaration in conjunction with approving a project. In order to ensure that the mitigation measures and project revisions identified in the EIR or negative declaration are implemented, the public agency shall adopt a program for monitoring or reporting on the revisions which it has required in the project and the measures it has imposed to mitigate or avoid significant environmental effects.

The Final EIR for the North Delta Flood Control and Ecosystem Restoration Project includes mitigation measures to reduce the potential environmental effects of the proposed project. Findings were made in Exhibit B as required under CEQA *Guidelines* Section 15091 (a)(1) which include mitigation measures.

Following certification of the Final EIR and approval of the proposed project, of the Findings in Exhibit B and of this Mitigation Monitoring and Reporting Program (MMRP) by the Director of the Department, the mitigation measures that are within the jurisdiction and responsibility of the Department (DWR) that been required in, or incorporated into the approved project, will be monitored in the manner specified in this MMRP.

Alternatives 1-A and The No Action Alternative for the Group 2 actions are identified as the Preferred Alternatives based on the analysis in the Draft EIR, and comments received during the public comment period and public hearing.

The following MMRP Matrix includes all of the applicable mitigation and monitoring information for the proposed project.

MMRP DETERMINATION

I adopt the Mitigation, Monitoring and Reporting Program set forth in this Exhibit D, which meets the requirements of CEQA Guidelines Section 15091(d)

for Mark W. Cowin, Director

11/8/10
Date

Mitigation	*Implementing Responsibility*	*Monitoring Responsibility*	*Mitigation Timing*
3.2 FLOOD CONTROL AND LEVEE STABILITY			
Mitigation Measure FC-1: Develop a Seepage-Monitoring Program A seepage-monitoring program will be implemented in conjunction with the North Delta Seepage Monitoring Program to establish a baseline, provide early detection of seepage problems caused by the project, and quantify and document seepage as the basis for appropriate mitigation and compensation measures. This seepage monitoring program will be supplemental to the existing North Delta Seepage Monitoring Program initiated in 1993 to establish baseline groundwater conditions adjacent to stream channels in the North Delta that were proposed to be enlarged as part of the North Delta Program. To the extent that the seepage monitoring indicates impacts attributable to the Project, relief wells will be installed to mitigate such impacts.	DWR or contractor will develop a seepage monitoring program to supplement the existing North Delta Seepage Monitoring Program.	DWR Project Manager	Pre- and Post-construction of project
3.4 WATER QUALITY			
Mitigation Measure WQ-1: Monitor for mercury and MeHg levels in water and sediments in the McCormack-Williamson Tract and Grizzly Slough vicinities both before and after restoration activities take place.	DWR or its contractor will develop water quality plan to	DWR Project Manager	Pre- and Post-construction of project

Mitigation	*Implementing Responsibility*	*Monitoring Responsibility*	*Mitigation Timing*
A water quality plan will be developed to monitor for mercury and MeHg levels in water and sediments in the McCormack-Williamson Tract and Grizzly Slough vicinities both before and after restoration activities take place. This monitoring would provide baseline conditions at the site and will allow for comparisons between pre and post restoration MeHg levels. The information will aid in determining potential site management changes in the future, as well as advance the general body of knowledge on the subject of MeHg creation and export in restored tidal marshes. It is likely that these monitoring activities will be coordinated with the creation of the Delta Mercury TMDL.	monitor for elemental and methylmercury before and after project implementation and may adopt site management changes depending upon water quality monitoring results.		
3.6 Groundwater			
Mitigation Measure GW-1: Control Seepage The North Delta Seepage Monitoring Program developed by DWR shall be enhanced to verify that seepage rates will not increase significantly. The enhanced seepage monitoring network should be extensive enough to assess potential design options early in the design phase. The network needs to be upgraded through additional borings deep enough to be below the footing grades of any potential grout-seal walls. The geologic cross sections should be developed along each reach where additional flooding is planned. Additional monitoring wells should be equipped with data loggers capable of frequent monitoring of groundwater levels and temperature. With an upgraded monitoring capability, an increase in seepage rates will be adaptively managed, and additional protection will be provided if implementation has larger impacts than estimated. Additional geotechnical and groundwater data should be acquired and examined during the initial design to determine and provide direction on method(s) of seepage control most appropriate to protect the lands adjacent to McCormack-Williamson Tract which potentially would be affected by frequent inundation of McCormack-Williamson Tract. Common methods of seepage control are internal drainage, seepage berms, cutoff walls, passive relief wells, and active pumping wells. The first two methods, internal drainage and seepage berms, primarily affect seepage locally near the levee and may not be effective in	DWR or contractor will develop a seepage monitoring program to supplement the existing North Delta Seepage Monitoring Program	DWR Project Manager	Design and construction phases

Mitigation	*Implementing Responsibility*	*Monitoring Responsibility*	*Mitigation Timing*
controlling seepage migration away from the levee. Therefore, mitigation will consist of cutoff walls or passive relief and pumping wells, depending on final design determination. For cutoff walls to be effective from practical and cost perspectives, there needs to be a low hydraulic conductivity layer beneath the seepage layers into which a cutoff wall can be extended. While cutoff walls have been extended to depths of more than 100 feet, more practical depths are less than about 60 feet. Where low hydraulic conductivity soils are deeper than about 80 feet, deep pumping wells may be required to control seepage and maintain groundwater levels at pre-flooding levels on adjacent properties. If damages are documented as a direct result of project implementation, the Reclamation District may seek compensation from the United States Army Corps CALFED Levee Stability Program or DWR's Delta Levees and Environmental Engineering Special Projects Program.			
3.3 Geomorphology and Sediment Transport			
Mitigation Measure GEO-1: Conduct Geotechnical Evaluation for Sediments Susceptible to Liquefaction, and Design Project to Accommodate Effects of Liquefaction. The Project applicant, in conjunction with soil scientists or engineers, will be responsible for conducting a geotechnical evaluation of unconsolidated sediments in the Project area to determine whether they are susceptible to liquefaction. Based on subsurface conditions, the Project applicant, in conjunction with soil scientists or engineers, will design the Project to accommodate the effects of liquefaction. The presence of levees that can safely store water without modification of the substrate is considered an acceptable engineering approach. The effects of liquefaction may include lateral deformation or vertical settlement that can be accommodated within the design of the levee or other improvements.	DWR or contractor will be responsible for conducting a geotechnical evaluation of unconsolidated sediments in the Project area to determine whether they are susceptible to liquefaction.	DWR Project Manager	Design Phase Pre-construction

Mitigation	*Implementing Responsibility*	*Monitoring Responsibility*	*Mitigation Timing*
Mitigation Measure GEO-2: Conduct Geotechnical Evaluation for Expansive Soils, and Design Project to Accommodate Effects of Expansive Soils. The Project applicant, in conjunction with soil scientists or engineers, will be responsible for conducting a geotechnical evaluation for expansive soils. Based on subsurface conditions, the Project applicant, in conjunction with soil scientists or engineers, will design the Project structures to accommodate the effects of expansive soils. The presence of levees that can safely store water without modification of the substrate is considered an acceptable engineering approach. Expansive soils that are buried deep or below the groundwater level would not affect surface structures. Therefore, there is no impact, and no modification of soils would be necessary.	DWR or contractor	DWR Project Manager	Pre-construction
3.9 Air Quality			
Mitigation Measures to Reduce Greenhouse Gas Emissions. Construction crews will be required to follow Mitigation Measures (MMs) for reduction of emissions, such as limits on idling, keeping engines in tune, and possibly retrofits to increase fuel efficiency. These MMs will be included in worker environmental education sessions. All measures in the CARB "Heavy-Duty Vehicle Greenhouse Gas Emission Reduction Measures" will also be adhered to if the measures have been instituted by the time construction starts. **Mitigation Measure 1a:** DWR shall ensure that contractors implement a fugitive dust control program pursuant to the provisions of SMAQMD Rule 403. The purpose of this rule is to reasonably regulate operations that periodically may cause fugitive dust emissions into the atmosphere. **Mitigation Measure 1b:** DWR shall ensure that construction equipment is properly tuned and maintained in accordance with manufacturer's specifications. **Mitigation Measure 1c:** DWR shall ensure that contractors maintain and operate construction	DWR, or its construction monitor, will assure that all Mitigation Measures are followed.	DWR Project Manager	During construction

Mitigation	*Implementing Responsibility*	*Monitoring Responsibility*	*Mitigation Timing*
equipment so as to minimize exhaust emissions. During construction, trucks and vehicles in loading and unloading queues would turn their engines off when not in use to reduce vehicle emissions. Construction emissions shall be phased and scheduled to avoid emissions peaks and discontinued during second-stage smog alerts. **Mitigation Measure 1d:** Electricity from power poles rather than temporary diesel- or gasoline-powered generators shall be used where available. **Mitigation Measure 1e:** All construction vehicles shall be prohibited from idling in excess of five minutes, both on- and off-site. **Mitigation Measure 1f:** Coatings and solvents used in the proposed project shall be consistent with applicable SMAQMD rules and regulations. **Mitigation Measure 1g:** Wheel washers shall be installed where vehicles exit the construction site onto paved roads. **Mitigation Measure 1h:** Haul vehicles shall be covered or comply with the vehicle freeboard requirements of Section 23114 of the California Vehicle Code for both public and private roads. **Mitigation Measure 1i**: Prior to removing the existing drainage system down-stream of the dam, DWR shall inventory materials that may be asbestos-containing. Any asbestos containing materials including cement pipe (transite) will be removed and disposed of by certified asbestos workers in compliance with applicable asbestos abatement regulations(40 CFR Part 763 and 29 CFR Part 1910).			
Mitigation Measure AIR-1: Implement all Mitigation Measures from the CALFED Bay-Delta Program Final Programmatic EIS/EIR. The Project proponent will ensure that all applicable mitigation measures included in the 2002 CALFED Bay-Delta Program Final Programmatic EIS/EIR are implemented. These mitigation measures include CALFED Programmatic Mitigation Measures 1, 2, 3, 5, 6, 7, 8, 9, 10, 11, 12, and 13:	DWR or its construction monitor will assure that all mitigation measures are implemented.	DWR Project Manager	During construction

Mitigation	*Implementing Responsibility*	*Monitoring Responsibility*	*Mitigation Timing*
1. Setting traffic limits on construction vehicles. 2. Maintaining properly tuned equipment. 3. Limiting the hours of operation or amount of equipment. 5. Coordinating prescribed burning programs with relevant air quality management agencies to ensure that the programs are accounted for in state and federal air quality management plans. 6. Regular, periodic watering of construction sites to control levels of dust in the air. 7. Using soil stabilizers and dust suppressants on unpaved service roadways. 8. Daily contained sweeping of paved surfaces. 9. Limiting vehicle idling time. 10. Using alternatively fueled equipment. 11. Requiring selection of borrow sites that are closest to fill locations. 12. Implementing construction practices that reduce generation of particulate matter. 13. Hydroseeding and mulching exposed areas.			
Mitigation Measure AIR-2: Implement SMAQMD Requirement to Reduce NO_X Emissions from Off-Road Diesel-Powered Equipment. The Project proponent shall provide a plan, for approval by the lead agency and **SMAQMD**, demonstrating that the heavy-duty (> 50 horsepower) off-road vehicles to be used in the	DWR or its construction monitor will provide SMAQMD the air quality plan and an	DWR Project Manager	Pre-construction

Mitigation	*Implementing Responsibility*	*Monitoring Responsibility*	*Mitigation Timing*
construction Project, including owned, leased, and subcontractor vehicles, will achieve a Project-wide fleet average of 20% NO_x reduction and 45% particulate reduction[1] compared to the most recent CARB fleet average at time of construction. The Project representative shall submit to the lead agency and SMAQMD a comprehensive inventory of all off-road construction equipment, equal to or greater than 50 horsepower, that will be used an aggregate of 40 or more hours during any portion of the construction Project. The inventory shall include the horsepower rating, engine production year, and projected hours of use or fuel throughput for each piece of equipment. The inventory shall be updated and submitted monthly throughout the duration of the Project, except that an inventory shall not be required for any 30-day period in which no construction activity occurs. At least 48 hours prior to the use of subject heavy-duty off-road equipment, the Project representative shall provide the SMAQMD with the anticipated construction timeline, including start date and name and phone number of the Project manager and on-site foreman.	inventory of all off-road construction equipment equal or greater than 50 horsepower that will be used for more than 40 hours during any portion of the construction Project.		During construction
Mitigation Measure AIR-3: Implement SMAQMD Requirement to Control Visible Emissions from Off-Road Diesel-Powered Equipment. The Project proponent shall ensure that emissions from all off-road diesel-powered equipment used on the Project site do not exceed 40% opacity for more than 3 minutes in any 1 hour. Any equipment found to exceed 40% opacity (or Ringelmann 2.0) shall be repaired immediately, and the lead agency and SMAQMD shall be notified within 48 hours of identification of noncompliant equipment. A visual survey of all in-operation equipment shall be made at least weekly, and a monthly summary of the visual survey results shall be submitted throughout the duration of the Project, except that the monthly summary shall not be required for any 30-day period in which no construction activity occurs. The monthly summary shall include the quantity and type of vehicles surveyed as well as the dates of each survey. The SMAQMD and/or other officials may conduct periodic site inspections to determine compliance. Nothing	DWR or its construction monitor will assure that all mitigation measures are implemented.	DWR Project Manager	During Construction

[1] Acceptable options for reducing emissions may include use of late model engines, low-emission diesel products, alternative fuels, use of electrically powered equipment, engine retrofit technology, after-treatment products, and/or other options as they become available.

Mitigation	*Implementing Responsibility*	*Monitoring Responsibility*	*Mitigation Timing*
in this section shall supersede other SMAQMD or state rules or regulations.			
Mitigation Measure AIR-4: Implement SMAQMD Requirement to Pay an Off-Site Mitigation Fee. The SMAQMD requires that all projects with construction emissions in excess of the their threshold of significance after application of the SMAQMD's standard construction mitigation measures (Mitigation Measures AIR-2 and AIR-3) pay an off-site mitigation fee to reduce construction-related emissions of NO_x to a less-than-significant level. As previously indicated, this analysis is based on incomplete, preliminary, and assumed data, with an assumption that construction activities associated with each Project component would occur throughout the duration of the months scheduled and that all equipment will be in operation for each appropriate component to represent a worst-case scenario. Because of this approach, Project emissions represent a worst-case scenario and are likely to be lower when Project-specific data (e.g., the exact phasing and scheduling of construction activities, the types and number of construction equipment pieces that will be used, etc.) are known. Consequently, this analysis does not quantify the Off-Site Mitigation Fee payable to the SMAQMD. Rather, once this Project- specific data is known, prior to the approval of improvement plans or the issuance of grading permits, the Project proponent will calculate Project-specific construction emissions associated with the Project and submit proof that the off-site air quality mitigation fee of has been paid to SMAQMD and that the construction air quality mitigation plan has been approved by SMAQMD and the lead agency. The Off-Site Mitigation Fee is calculated by estimating the pounds of mitigated daily NO_x emissions over the SMAQMD's 85 pounds per day threshold, divided by 2000 pounds per ton, multiplied by the number of days of construction, and multiplied by the standard SMAQMD fee of $13,600/ton of NO_x.	DWR or its construction monitor will develop project specific data on construction related emissions and provide proof that off-site air quality mitigation fee has been paid.	DWR Project Manager	Pre-construction

Mitigation	*Implementing Responsibility*	*Monitoring Responsibility*	*Mitigation Timing*
Mitigation Measure AIR-5: Consult with SMAQMD and SJVAPCD Implement Approved Emissions Reduction Programs or Offsets to Reduce Operational Emissions. The Project proponent will consult with the SMAQMD and SJVAPCD to determine required measures to reduce the impacts to less-than-significant levels. The Project proponent shall either require the contractor to obtain an air quality permit from the SMAQMD and SJVAPCD or the Project proponent shall contract with the SMAQMD and SJVAPCD for emission reduction credits or funding for an emission reduction program. Emission Reduction Credits shall be provided by either leasing approved credits from the SMAQMD and SJVAPCD emissions reductions credit bank or by funding an emission reduction project that will provide equivalent emission reductions as approved by SMAQMD and SJVAPCD. The Project proponent will implement the SMAQMD- and SJVAPCD approved emissions reduction programs or offsets to reduce emissions to a level considered less than significant by the SMAQMD and SJVAPCD.	DWR or its construction monitor will consult with SMAQMD to determine appropriate measures to reduce air quality impacts to less-than-significant levels.	DWR Project Manager	Design and construction phase
Mitigation Measure AIR-6: Require Construction Contractors to Use Equipment with Valid Statewide Portable Equipment Registrations or to Obtain an Operating Permit from the SMAQMD and SJVAPCD. In the event that electric equipment is not available, the Project proponent shall require construction contractors to use equipment with a valid Statewide Portable Equipment Registration or obtain a permit from the SMAQMD and SJVAPCD for equipment to be used. In the event that the equipment is subject to the Portable Equipment Registration Program and has not previously operated in the SVAB and SJVAB is not part of the planning inventory for the SVAB and SJVAB, then the Project proponent or the contractor shall provide emission reduction credits to reduce the Project impacts to a less-than-significant level in accordance with Mitigation Measure AIR-6.	DWR or its construction monitor will use equipment with a valid Statewide Portable Equipment Registration or obtain a permit from the SMAQMD for equipment to be used.	DWR Project Manager	Design and construction phase

Mitigation	*Implementing Responsibility*	*Monitoring Responsibility*	*Mitigation Timing*
3.10 Noise			
Mitigation Measure NZ-1: Limit Noise-Generating Construction Activity and Heavy Trucking to Daytime Hours. DWR will limit noise-generating construction activity within 2,500 feet of occupied residences and heavy trucking within 400 feet of occupied residences to the hours between 6:00 a.m. and 8:00 p.m.	DWR, or its construction monitor, will take noise sensitive land uses into account when establishing haul routes	DWR Project Manager	During construction
4.1 Vegetation and Wetlands			
Mitigation Measure VEG-1: Replace Valley/Foothill Riparian Cover Types. Compensation will include restoring or enhancing in-kind riparian habitat at a ratio of 1 to 3 acres or greater, for each acre affected. The mitigation ratio for federally listed Threatened or Endangered species will be determined by USFW, which will issue a jeopardy or no-jeopardy opinion (subsequent to a Section 7 consultation). Mitigation ratios for state listed threatened or endangered species will be determined through the 2081 permitting process. The MSCS Conservation Measure recommends restoring or enhancing 2 to 5 acres of additional in-kind habitat for every acre of affected habitat near where impacts are incurred before implementing actions that could result in the loss or degradation of habitat (CALFED Bay-Delta Program 2000e). As much of the mitigation habitat as possible will be created on site or near the Project area. This mitigation is consistent with the following MCSC Conservation Measure (CALFED Bay-Delta Program 2000e): To the extent practicable, include Project design features that allow for onsite reestablishment and long-term maintenance of riparian vegetation following Project construction. Restoration of the riparian communities would be done immediately following construction	DWR or its biological contractors. DWR will consult with DFG and/or USFWS.	DWR Project Manager	Initial surveys have been completed. Additional surveys will be conducted prior to construction Design phase

Mitigation	*Implementing Responsibility*	*Monitoring Responsibility*	*Mitigation Timing*
activities by controlling nonnative plants to improve conditions for reestablishing native plants, and enhancing and restoring the original site hydrology to allow the natural reestablishment of the affected plant community. Flooding events would import propagules such as willows, cottonwoods, and perennial herbs that would naturally colonize frequently flooded portions of the site. In addition to the requirements of the MSCS Conservation Measures, DWR will prepare a revegetation plan and monitor the restoration or enhancement mitigation sites. The revegetation plan will be prepared by a qualified restoration ecologist and reviewed by the appropriate agencies. The revegetation plan will specify the planting stock appropriate for each riparian land cover type and each mitigation site, ensuring the use of genetic stock from the North Delta area. The plan will employ the most successful techniques available at the time of planting. Success criteria will be established as part of the plan. Planting will be maintained for a minimum of 5 years, including weed removal, irrigation, and herbivory protection. DWR will monitor the plantings annually for 4 years, followed by monitoring in years 8 and 10 following initial mitigation implementation, to ensure they have established successfully. DWR will submit annual monitoring reports of survival for the first 4 years to the regulatory agencies issuing permits related to habitat impacts—DFG, USACE, and USFWS. Replanting will be necessary if success criteria are not being met. The riparian habitat mitigation will be considered successful when the number of sapling trees established meet the success criteria, the habitat no longer requires active management, and vegetation is arranged in groups that, when mature, replicate the area, natural structure, and species composition of similar riparian habitats in the region.			Post-construction

Mitigation	*Implementing Responsibility*	*Monitoring Responsibility*	*Mitigation Timing*
Mitigation Measure VEG-2: Avoid and Minimize Impacts on Sensitive Biological Resources. DWR will include the following measures to minimize indirect impacts on sensitive natural communities, including riparian habitats, waters of the United States, and special-status plants: 1. DWR will provide an on-site biologist/environmental monitor who will be responsible for monitoring implementation of the conditions in the state and federal permits (CWA Section 401, 402, and 404; ESA Section 7; Fish and Game Code Section 1601; Project plans (SWPPP); and EIS/EIR mitigation measures). 2. The on-site biologist/environmental monitor will determine the location of environmentally sensitive areas adjacent to construction sites based on mapping of existing land cover types and special-status plant species, unless observed field conditions warrant a modification of the environmentally sensitive area boundaries. To avoid construction-phase disturbance of sensitive habitats immediately adjacent to the Project site, the monitor will identify the boundaries and add a 50-foot buffer where feasible with orange construction barrier fencing. The fencing will be mapped on the Project construction drawings. Erosion control fencing will also be placed at the edges of construction where the construction activities are upslope of wetlands and channels to prevent washing of sediments from the construction site into surrounding environmentally sensitive areas. The environmentally sensitive–area and erosion-control fencing will be installed before any construction activities are initiated, and it will be maintained throughout the construction period.	DWR or its biological contractors. DWR will consult with DFG and/or USFWS.	DWR Project Manager	Pre-construction During construction

Mitigation	*Implementing Responsibility*	*Monitoring Responsibility*	*Mitigation Timing*
DWR will provide a worker environmental training program for all construction personnel before the start of construction activities. The program will educate workers about special-status species, riparian habitats, and waters of the United States present on and adjacent to the site, and the regulations and penalties for unmitigated effects on these sensitive biological resources. Where feasible, construction will avoid and minimize trimming or complete removal of vegetation. Following construction, the construction contractor will remove all litter and construction debris and implement a revegetation plan for temporarily disturbed vegetation in the construction zones. The elements that should be included in the revegetation of these sites are described in Mitigation Measures VEG-1, VEG-3, and VEG-8.			Post-construction
Mitigation Measure VEG-3: Replace Nontidal Freshwater Emergent Wetland Cover. Compensation will include restoring or enhancing in-kind riparian habitat at a ratio of 1 to 3 acres or greater, for each acre affected. The mitigation ratio for federally listed Threatened or Endangered species will be determined by USFW, which will issue a jeopardy or no-jeopardy opinion (subsequent to a Section 7 consultation). Mitigation ratios for state listed threatened or endangered species will be determined through the 2081 permitting process. As much of the mitigation habitat as possible will be created on site or near the Project area. The MSCS Conservation Measure recommends restoring or enhancing 2 to 5 acres of additional in-kind habitat for every acre of affected habitat near where impacts are incurred before implementing actions that could result in the loss or degradation of habitat (CALFED Bay-Delta Program 2000e). This mitigation is consistent with the following MCSC Conservation Measure (CALFED Bay-Delta Program 2000e): To the extent practicable, include Project design features that allow for onsite reestablishment and long-term maintenance of natural seasonal wetland vegetation (includes nontidal emergent wetland cover types) following Project construction.	DWR or its biological contractors. DWR will consult with DFG and/or USFWS.	DWR Project Manager	Design and pre-construction phase Post-construction

Mitigation	*Implementing Responsibility*	*Monitoring Responsibility*	*Mitigation Timing*
Restoration of the wetland communities would be done immediately following construction activities by controlling nonnative plants to improve conditions for reestablishing native plants, and enhancing and restoring the original site hydrology to allow the natural reestablishment of the affected plant community. Flooding events would import propagules that would naturally colonize frequently flooded portions of the site. In addition to the requirements of the MSCS Conservation Measures, DWR will prepare a revegetation plan and monitor the restoration or enhancement mitigation sites. The revegetation plan will be prepared by a qualified restoration ecologist and reviewed by the appropriate agencies. The revegetation plan will specify the planting stock appropriate for each nontidal freshwater emergent wetland land cover type and each mitigation site, ensuring the use of genetic stock from the North Delta area. The plan will employ the most successful techniques available at the time of planting. Success criteria will be established as part of the plan. Planting will be maintained for a minimum of 5 years, including weed removal and herbivory protection.DWR will monitor the plantings annually for 4 years, followed by monitoring in years 8 and 10 after initial mitigation implementation, to ensure they have established successfully. For the first 4 years, DWR will submit annual monitoring reports of survival to the regulatory agencies issuing permits related to habitat impacts—DFG, USACE, and USFWS. Replanting will be necessary if success criteria are not being met. The nontidal freshwater emergent wetland habitat mitigation will be considered successful when the number of emergent wetland species established meet the success criteria, the habitat no longer requires active management, and vegetation is arranged in groups that, when mature, replicate the area, natural structure, and species composition of similar nontidal freshwater emergent wetland habitats in the region.			Post-construction

Mitigation	*Implementing Responsibility*	*Monitoring Responsibility*	*Mitigation Timing*
Mitigation Measure VEG-6: Avoid Introduction and Spread of New Noxious Weeds during Project Construction. DWR will include the following measures in the Project construction conditions to minimize the potential for the introduction of new noxious weeds and the spread of weeds previously documented in the Project area: Educate construction supervisors and managers on weed identification and the importance of controlling and preventing the spread of noxious weed infestations. Treat isolated infestations of giant reed or other noxious weeds identified in the Project area with approved eradication methods at an appropriate time to prevent further formation of seed and destroy viable plant parts and seed. Minimize surface disturbance to the greatest extent possible. Seed all disturbed areas with certified weed-free native and nonnative mixes, as provided in the revegetation plan developed in cooperation with DFG. Mulch with certified weed-free mulch. Rice straw may be used to mulch upland areas. Use native, noninvasive species or nonpersistent hybrids in erosion control plantings to stabilize site conditions and prevent invasive species from colonizing. Restore or enhance suitable habitat areas that are occupied by, or are near and accessible to, special-status species that have been adversely affected by the permanent removal of occupied habitat areas.	DWR or its biological contractors. DWR will consult with DFG and/or USFWS.	DWR Project Manager	During and post construction

Mitigation	*Implementing Responsibility*	*Monitoring Responsibility*	*Mitigation Timing*
Mitigation Measure VEG-7: Conduct Preconstruction Surveys for Special-Status Plants. Within 1 year before initiating construction, DWR will conduct special-status plant surveys of all proposed areas of disturbance. The purpose of these surveys will be to verify that the locations of special-status plants in the 2004 surveys are extant, identify any new special-status plant occurrences, cover any portions of the Project area not previously identified, and map tidal mud flat habitat in the Project area, including the construction footprints. The survey also will evaluate the habitat quality based on surrounding habitats (e.g., adjacent levee banks with RSP based on surrounding habitats (e.g., adjacent levee banks with RSP would lower the habitat quality, adjacent riparian vegetation would increase habitat quality). The extent of both habitat occupied by special-status plant species and unoccupied tidal mud flat habitat will be quantified for use in determining the amount of habitat mitigation required under Mitigation Measure VEG-5. This mitigation is consistent with the MSCS Conservation Measure stating (CALFED Bay-Delta Program 2000e): before implementing actions that could result in take or the loss or degradation of occupied habitat, conduct surveys in suitable habitat within portions of the species' range that CALFED actions could affect to determine the presence and distribution of the species. The extent of mitigation of direct loss of or indirect impacts on special-status plants will be based on these survey results. Locations of special-status plants in proposed construction areas will be recorded using a GPS unit and flagged.	DWR or its biological contractors. DWR will consult with DFG and/or USFWS.	DWR Project Manager	Pre-Construction and design phase

Mitigation	*Implementing Responsibility*	*Monitoring Responsibility*	*Mitigation Timing*
Mitigation Measure VEG-8: Avoid and Minimize Impacts on Special-Status Species and Compensate for Special-Status Species Loss. Any stands of special-status plants found during preconstruction surveys that can be avoided in the construction area will be fenced, including a buffer of 50 feet on all sides. If the special-status plants cannot be avoided, DWR will salvage the plants before the onset of the activities. Salvaged plants will be transplanted immediately to an area of suitable habitat. DWR will initiate mitigation of unavoidable loss of any special-status plants before construction and will base the compensation on the survey results obtained from the preconstruction surveys. The MSCS conservation measure for habitat compensation states, "for each linear foot of occupied habitat lost, create 5 to 10 linear feet of suitable habitat, of equal or higher habitat quality, within 1 year of loss" (CALFED Bay-Delta Program 2000e). Compensation for loss of special-status plants as a result of construction for the Project, therefore, will include creation of new tidal mud flat habitat at a ratio of 5–10 linear feet for each linear foot removed by the Project. The quality of the removed occupied habitat will be evaluated during the preconstruction survey required under Mitigation Measure VEG-7. Low-quality mud flat habitat at the base of levee banks with RSP, for example, would be mitigated at a ratio of 5:1 (5 linear feet created for each linear foot removed), while high-quality mud flat habitat adjacent to emergent wetland and/or riparian vegetation would be mitigated at or near the 10:1 (10 linear feet created for each linear foot removed) mitigation ratio. DWR will identify suitable habitat creation sites that are located as close to the site of plant removal as possible; are areas with minimal boat wakes, shallow water, and slow water velocities; and are not likely to be dredged or have other improvements constructed. Created habitat will have a suitable mud flat substrate at appropriate elevations (approximately 0.5–2 feet NGVD) with minimal disturbance from boat wakes, and levee maintenance. DWR will obtain mitigation site access through a conservation easement or fee title. To the extent practicable, mitigation sites will be located near ongoing or future ERP Projects. If off-site mitigation sites are identified, mitigation will be implemented before the loss of occupied habitat, and salvaged plant material will be planted at the mitigation site. If on-site mitigation	DWR or its biological contractors. DWR will consult with DFG and/or USFWS.	DWR Project Manager	Pre-construction and design phase

Mitigation	*Implementing Responsibility*	*Monitoring Responsibility*	*Mitigation Timing*
sites will be used, salvaged plant material will be stockpiled or propagated at a native plant nursery for planting later, and mitigation will be implemented as soon as practicable after completion of construction activities. If off-site mitigation is necessary, a location that does not currently support tidal flats will be selected. As experimental compensation in additional to the MSCS measure, DWR will prepare a transplanting plan for the special-status plants. As these special-status plants have habitat requirements similar to those described for Mason's lilaeopsis (Golden and Fiedler 1991; Zebell and Fielder 1996), the methods outlined in the monitoring plan for transplanting Mason's lilaeopsis in Barker Slough (California Department of Water Resources 1990b) will be adapted to the special-status plants. The plan will include a success criterion for the transplanted plants to achieve 80% survival at the end of a 5-year monitoring period and additional compensatory measures to implement if the survival rate is not achieved. All unavoidable stands of special-status plants to be removed from the construction area will be salvaged and transplanted to a portion of the created suitable habitat. Areas of occupied habitat will also be considered for enhancement, if transplanting is possible without disturbance of the existing special-status plants. DWR will obtain site access through a conservation easement or fee title. DWR will maintain the transplant areas for a minimum of 5 years, including replanting, removing trash or debris washed onshore, and removing nonnative species, if possible, without disturbing the special-status plants. DWR will monitor the transplanted plants for at least 10 years after transplanting, at 5-year intervals. Monitoring will include measurement of cover of the transplanted plants using large-sized quadrants or, preferably, a transect method. For each monitoring period, DWR and Reclamation will submit a report to DFG describing the results of the monitoring period. The reports will include the monitoring data and a discussion of any problems with the plants and			During and post-construction

Mitigation	*Implementing Responsibility*	*Monitoring Responsibility*	*Mitigation Timing*
the measures implemented or proposed to correct the problems. The reports will also indicate the annual precipitation and note the occurrence of drought conditions or above-normal flooding events. This information will assist in evaluating whether the transplanted plants have been able to tolerate more than just normal precipitation years. If the monitoring period has coincided with an extended period of drought or high precipitation, DFG may request additional monitoring to measure the response of transplants to a greater range of natural processes.			
4.2 Fisheries and Aquatics			
Mitigation Measure Fish-1: Incorporate Instream Woody Material into Rock Slope Protection at Degraded Levee Sites. To minimize SRA cover losses and reduce habitat fragmentation at degraded levee sites, DWR will incorporate instream woody material into RSP. Instream woody material will consist of multibranched pieces of wood more than 3 feet in length and 2 inches in diameter firmly anchored to shore at an elevation that is mostly submerged at low water levels. This measure will provide woody instream cover to replace, in part, that removed during construction. SRA cover would not be expected to be replaced by natural recruitment at degraded levee sites because RSP is would preclude revegetation at these sites. Site-specific consideration of this mitigation measure will be evaluated to address potential effects on recreation safety both during and after construction. Issues of liability associated with placing material directly in the water column, and hydraulic concerns, may limit the use of this mitigation measure.	DWR or its biological contractors. DWR will consult with DFG and/or USFWS.	DWR Project Manager	During final design approval and during construction

Mitigation	*Implementing Responsibility*	*Monitoring Responsibility*	*Mitigation Timing*
Mitigation Measure Fish-2: Quantify and Replace Affected Shaded Riverine Aquatic Cover. Following final project designs and at least 1 year prior to Project construction, DWR will conduct surveys to quantify existing and affected SRA cover (in linear feet and area), including SRA cover supported by existing streamside riparian vegetation and instream woody material and riparian vegetation that currently does not support SRA cover but may support such cover in the future as a result of Project operation (e.g., that resulting from inundation of McCormack-Williamson Tract). For purposes of classification, SRA cover includes terrestrial (e.g., shoreline) and floodplain areas that support riparian vegetation and living or dead vegetation that are inundated during mean high water. In addition, the area of existing SRA cover includes aquatic areas extending from the shoreline to the outermost toward mid-channel) extension of either the vegetative canopy overhanging the water or the living or dead vegetation (Fris and Dehaven 1993). If surveys determine that a net loss in SRA cover will result from construction activities and Project operation, DWR will replace, in association with replanted riparian vegetation (see Mitigation Measure VEG-1), all affected SRA cover by planting riparian vegetation in shoreline and floodplain areas. Candidate SRA cover mitigation areas include terrestrial (e.g., shoreline) and floodplain areas that are inundated during mean high water. Streamside vegetation plantings may also count towards SRA cover if they occur within 15 feet (horizontal distance) of the edge of the wetted channel (i.e., low-flow channel). SRA cover, represented by overhead vegetation and instream woody material in this analysis, is a Resource Category 1. The USFWS's mitigation goal for a Resource Category 1 habitat is no loss of existing habitat quantity or value. DWR will consult with fishery resource agencies (DFG, NMFS, and USFWS), RWQCB, and EBMUD to determine the appropriate candidate SRA cover mitigation areas and replacement ratio for affected SRA cover. Replacement ratios for SRA cover impacts often exceed the affected amount to account for the temporal loss of habitat value while newly replanted vegetation matures. Although on-site mitigation is preferred, off-site mitigation for SRA cover losses may be	DWR or its biological contractors. DWR will consult with DFG and/or USFWS.	DWR Project Manager	Final Project Design Mitigation Post-Construction

Mitigation	*Implementing Responsibility*	*Monitoring Responsibility*	*Mitigation Timing*
needed to provide full compensation if existing constraints prevent full replacement of affected SRA cover quantities and values in the Project.			
Mitigation Measure Fish-3: Monitor for Fish Stranding and Fill Any Substantial Scour Pools Formed following Large Flood Events That Result in Significant Flooding of McCormack-Williamson Tract. The potential exists for fish, including migratory juvenile fish, to become trapped in scour holes and other depressions that may form on McCormack-Williamson Tract and the Grizzly Slough property during Project operation as floodwaters recede. DWR will monitor McCormack-Williamson Tract and the Grizzly Slough property following flood events that inundate significant portions of the created floodplains to identify areas that may have scoured and that have resulted in fish stranding. If monitoring indicates that fish stranding has occurred, DWR will use appropriate methods (e.g., seining, electrofishing), as authorized, as soon as possible following isolation of the water body to remove stranded fish. Rescued fish will be released to the nearest main channel area. Qualified fish biologists will conduct monitoring and fish rescue operations. To reduce the potential for further fish stranding at locations where scour pools have formed following floodplain inundation, DWR will then use appropriate methods (e.g., grading, rock placement) to fill in new scour holes to reduce their potential to strand fish in the future. Scour areas and depressions that are identified to be potential stranding sites will be filled that year before the beginning of the next winter season.	DWR or its biological contractors. DWR will consult with DFG and/or USFWS.	DWR Project Manager	Post-construction
4.3 Wildlife			
Mitigation Measure WILD-2: Avoid and Minimize Effects on Nesting Birds during Construction and Maintenance. The study area is located in and adjacent to habitat that supports nesting birds protected under the MBTA. Protective fencing will be used to protect nesting habitat outside of the construction and maintenance areas. DWR will perform preconstruction surveys to determine whether nesting birds, including migratory birds, raptors, and special-status bird species, are present within or immediately adjacent to the Project sites and associated staging and storage areas.	DWR or its biological contractors in consultation with DFG and/or USFWS will prepare a Floodplain and Shallow Water Tidal Marsh Habitat	DWR Project Manager	Final design, during and after construction

Mitigation	*Implementing Responsibility*	*Monitoring Responsibility*	*Mitigation Timing*
Under this Alternative, DWR will remove all woody and herbaceous vegetation from the construction areas during the nonbreeding season for most migratory bird species (September 1–February 1) to minimize effects on nesting birds. During the breeding season, all vegetation will be maintained to a height of approximately 6 inches to minimize the potential for bird nesting. If construction occurs during the breeding season and not all affected vegetation has been removed, a qualified biologist will survey the construction area for active nests and young migratory birds immediately before construction. If active nests or migratory birds are found within the boundaries of the construction area, DWR will develop appropriate measures and will inform DFG of its actions and the potential impacts on these species. Inactive migratory bird nests (excluding raptors) located outside of the construction areas will be preserved. If an inactive migratory bird nest is located in any of these areas, it will be removed before the start of the breeding season (approximately February 1). If an active raptor nest is found outside the construction areas, a buffer zone will be created around the nest tree. The recommended buffer, as identified by DFG, is 250 feet (Sections 3503 and 3503.5 of the California Fish and Game Code). A larger buffer zone will be established around Swainson's hawk nest sites, as described under Mitigation Measure WILD-10: Avoid and Minimize Construction-Related Disturbances within ½ Mile of Active Swainson's Hawk Nest Sites. This mitigation measure is consistent with CALFED Mitigation Measures 1, 2, 5, and 14.	Restoration and Monitoring Plan		
Mitigation Measure WILD-3: Minimize Impacts on Sensitive Biological Resources. DWR will include the following measures to minimize indirect impacts on wildlife and wildlife habitat: 3. DWR will provide an on-site biologist/environmental monitor who will be responsible for monitoring implementation of the conditions in the state and federal permits (CWA Section 401, 402, and 404;	DWR or its biological contractors will implement specified CALFED Programmatic Mitigation Measures 6 and 7. DWR will consult with DFG and/or	DWR Project Manager	Final Design and pre-Construction

Mitigation	*Implementing Responsibility*	*Monitoring Responsibility*	*Mitigation Timing*
ESA Section 7; Fish and Game Code Section 1601; Project plans (SWPPP); and EIS/EIR mitigation measures).	USFWS.		
4. The on-site biologist/environmental monitor will determine the location of environmentally sensitive areas adjacent to each of the Project sites based on existing land cover type and special-status plant species mapping, unless observed field conditions warrant a modification of the environmentally sensitive area boundaries. To avoid construction-phase disturbance of sensitive habitats immediately adjacent to the Project site, the monitor will identify the boundaries and add a 50-foot buffer where feasible with orange construction barrier fencing. The fencing will be mapped on the Project construction drawings. Erosion control fencing also will be placed at the edges of construction where the construction activities are upslope of wetlands and channels to prevent washing of sediments from the construction site into surrounding environmentally sensitive areas. The environmentally sensitive area and erosion-control fencing will be installed before any construction activities are initiated, and it will be maintained throughout the construction period.			
DWR will provide a worker environmental training program for all construction personnel before the start of construction activities. The program will educate workers about special-status species, riparian habitats, and waters of the United States present on and adjacent to the site, and the regulations and penalties for unmitigated effects on these sensitive biological resources.			During construction
Where feasible, construction will avoid and minimize trimming or complete removal of vegetation.			
Following construction, the construction contractor will remove all litter and construction			Post-construction

Mitigation	*Implementing Responsibility*	*Monitoring Responsibility*	*Mitigation Timing*
debris and implement a revegetation plan for temporarily disturbed vegetation in the construction zones.			
Mitigation Measure WILD-6: Replace Nontidal Wetland Land Cover Types. Impacts on nontidal wetlands would be mitigated by implementation of Mitigation Measure VEG-3, as described in Section 4.1, Vegetation and Wetlands. Where impacts on wetlands cannot be avoided, the area of effect would be kept to the minimum possible. Loss of, or impacts on, these habitats will be compensated for as part of compliance with the state and federal wetland permitting process.	DWR or its biological contractors will ensure design incorporates these features, and that they are included in construction.	DWR Project Manager	During final design approval and during construction
Mitigation Measure WILD-7: Compensate for the Loss of Greater Sandhill Crane Foraging Habitat. Impacts on greater sandhill crane foraging habitat would be mitigated by creating suitable foraging habitat at an off-site conservation area or obtaining a conservation easement of lands that provide suitable foraging habitat for greater sandhill cranes. Agricultural lands may be provided at a ratio of 1:1 or greater, and located on lands that will be preserved and maintained by DWR. The final determination of the mitigation ratio for this state listed as threatened and fully protected species will be determined through DFG's 2081 permitting process. DWR will provide funding for the long-term management and monitoring of these lands and will prepare a monitoring plan for the mitigation site.	DWR or its biological consultant will consult with DFG to determine whether or how surveys are to be performed, conduct any necessary surveys, and if species is detected, develop restoration and relocation plans.	DWR Project Manager	Final design and pre-construction

Mitigation	*Implementing Responsibility*	*Monitoring Responsibility*	*Mitigation Timing*
Mitigation Measure WILD-8: Perform Preconstruction and Postconstruction Surveys for Elderberry Shrubs. A qualified biologist will perform an elderberry shrub survey before starting construction and sediment disposal activities, and mitigation site implementation to ensure that elderberry shrubs, if present, are identified. The on-site biologist will field stake the locations of elderberry shrubs and shrub clusters before construction begins. Orange exclusion fencing will be installed around each elderberry shrub and shrub cluster. DWR will attempt to perform construction operations without affecting elderberry shrubs and to maintain a 100-foot buffer zone around all elderberry shrubs, to the greatest extent possible. However as a result of the dimensions of the work areas, it is anticipated that work could occur within the 100-foot buffer zone. The surveys will be performed according to the USFWS VELB compensation guidelines (U.S. Fish and Wildlife Service 1999). During the preconstruction and post-construction surveys the following information will be recorded for each shrub or shrub cluster: the number of stems greater than 1 inch in diameter, the number of stems less than 1 inch in diameter, the approximate height and width of the elderberry shrub or shrub cluster, the presence of VELB exit holes, and the dominant vegetation that is associated with the elderberry shrub or shrub cluster. The location of each elderberry shrub or shrub cluster will be mapped using GPS, and a site	DWR or its biological contractors will consult with USFWS to determine whether or how surveys are to be performed, conduct any necessary surveys, and if species is detected, develop restoration and relocation plans.	DWR Project Manager	Pre-construction and post-construction

Mitigation	*Implementing Responsibility*	*Monitoring Responsibility*	*Mitigation Timing*
map will be prepared identifying the location and size of each shrub and shrub cluster. DWR will use this site map to determine vehicle and equipment haul routes and work areas. Following completion of construction activities, DWR will evaluate the elderberry shrubs to determine whether any shrubs were damaged by Project activities. If damage occurs to elderberry shrubs, DWR will consult with USFWS on appropriate mitigation.			
Mitigation Measure WILD-9: Avoid and Minimize Impacts on Elderberry Shrubs. Wherever feasible, DWR will avoid and minimize Project effects on elderberry shrubs. Avoidance and minimization efforts will be performed according to the USFWS VELB compensation guidelines (U.S. Fish and Wildlife Service 1999). If elderberry shrubs with one or more stems measuring 1 inch or greater in diameter at ground level or plants with visible evidence of exit holes are located within or adjacent to proposed construction areas, DWR will implement the following actions: Install exclusion fencing around each elderberry shrub and shrub cluster. Avoid disturbance to VELB by establishing and maintaining, to the maximum extent feasible, a 100-foot buffer around elderberry plants identified as suitable habitat. If a 100-foot buffer cannot be maintained, DWR will consult and gain approval from the USFWS for measures that would minimize disturbance and promptly restore the damaged area. Fence and flag all buffer areas and place signs every 50 feet along the edge of the avoidance area, as described in the VELB compensation guidelines (U.S. Fish and Wildlife Service 1999). Train construction personnel to recognize elderberry shrubs and to determine the presence of	DWR or its biological contractor will consult with USFWS to determine whether or how surveys are to be performed, conduct any necessary surveys, and if species is detected, develop restoration and relocation plans.	DWR Project Manager	Pre-construction During construction

Mitigation	*Implementing Responsibility*	*Monitoring Responsibility*	*Mitigation Timing*
VELB from exit holes on stems. All construction personnel should receive USFWS–approved environmental awareness training before undertaking work at construction sites.			
Mitigation Measure WILD-10: Compensate for Unavoidable Impacts on Elderberry Shrubs. If avoidance and minimization of effects on VELB habitat are not possible, DWR will compensate for unavoidable effects based on the VELB conservation guidelines (U.S. Fish and Wildlife Service 1999). Mitigation efforts may include transplanting elderberry shrubs, planting additional elderberry and associated plant species at an on-site or off-site mitigation area, or purchasing VELB mitigation credits at a USFWS–approved mitigation bank.	DWR will consult with USFWS to determine the level of compensation for unavoidable effects based on VELB conservation guidelines.	DWR Project Manager	Pre-construction and Post-Construction
Mitigation Measure WILD-11: Conduct Preconstruction Surveys for Giant Garter Snake. Preconstruction surveys for giant garter snake will be conducted in all suitable breeding and foraging habitat in the vicinity of Project or mitigation activities to ensure that this species is not present in these locations. Surveys will also be performed at all mitigation sites before implementation of the mitigation features. Surveys will be performed during the active period of the snake (May 1–October 1). If surveys must be conducted during the species' inactive period, DWR will contact USFWS to determine whether additional measures are necessary to minimize and avoid take (U.S. Fish and Wildlife Service 1997). Preconstruction surveys will be performed by a qualified biologist within 24-hours of commencement of construction activities. The survey results will be provided to USFWS before starting construction activities.	DWR will consult with USFWS to determine whether or how surveys are to be performed, conduct any necessary surveys, and if species is detected, develop restoration and relocation plans.	DWR Project Manager	Pre-construction
Mitigation Measure WILD-12: Minimize Construction-Related Disturbances in the Vicinity of Occupied Habitat. Construction activities could occur throughout the year and would overlap the giant garter snake active and inactive periods. To the greatest extent practicable, major construction activities that could affect giant garter snake breeding and foraging habitat will be avoided during the active period. If Project construction activities necessitate dewatering wetland	DWR will consult with USFWS to determine whether or how surveys are to be performed, conduct any necessary surveys, and if species is detected, develop	DWR Project Manager	Pre-construction During construction

Mitigation	*Implementing Responsibility*	*Monitoring Responsibility*	*Mitigation Timing*
habitat during the snake's active period, that habitat will remain dry for at least 15 consecutive days before excavation or refilling (U.S. Fish and Wildlife Service 1997). If construction activities will be conducted during the species' inactive period, DWR will contact USFWS to determine whether additional measures are necessary to minimize and avoid take. Clearing of wetland vegetation will be confined to the minimal area necessary to complete the desired activities. The movement of heavy equipment will be restricted to established roadways or constructed haul roads to minimize habitat disturbance.	restoration and relocation plans.		
Mitigation Measure WILD-13: Perform Preconstruction Surveys for Nesting Swainson's Hawks before Construction and Maintenance. Preconstruction surveys for Swainson's hawk will be conducted at and adjacent to all locations to be disturbed by construction to ensure that this species is not nesting in these locations. Surveys will also be performed at all mitigation sites before implementation of the mitigation features. Preconstruction surveys will consist of surveying all potential nest sites within ½ mile of proposed construction features, borrow sites, and mitigation sites. Surveys will be performed several times during the breeding season to avoid and minimize effects on late-nesting birds. Nest sites will be marked on an aerial photograph, and the position will be recorded using GPS.	DWR or its biological consultant will coordinate with DFG in conducting pre-construction surveys at and adjacent to adjacent to all locations to be disturbed by construction. DWR shall consult with DFG to determine amount and location of off-site mitigation land, and DWR will purchase andprotect said lands.	DWR Project Manager	Pre-construction

Mitigation	*Implementing Responsibility*	*Monitoring Responsibility*	*Mitigation Timing*
MITIGATION MEASURE WILD-14: AVOID AND MINIMIZE CONSTRUCTION-RELATED DISTURBANCES WITHIN ½ MILE OF ACTIVE SWAINSON'S HAWK NEST SITES. Construction would occur throughout the year and would overlap with the Swainson's hawk breeding season. To the greatest extent practicable, major construction activities that would occur within ½ mile of an active Swainson's hawk nest should be avoided during the breeding season. If practicable, construction activities that would result in the greatest disturbance to an active nest site will be deferred until after or as late in the breeding season as possible. DWR will notify DFG of the locations of active nest sites identified during the preconstruction surveys and will coordinate with DFG on appropriate avoidance and minimization measures on a case-by-case basis. DFG requires that a ½-mile buffer be established around all active Swainson's hawk nests between March 1 and August 15 (California Department of Fish and Game 1994). Potential nesting trees within the construction footprint will be removed before construction and before nesting by individual pairs is initiated. Potential nest trees outside the construction footprint will be retained. Vegetation will be removed before the nesting season for migratory birds and Swainson's hawk (i.e., removal will occur between September 1 and February 1). Because of the relatively narrow width of the Project area and the location and dimensions of the proposed work areas and access roads to riparian vegetation that currently provide nesting habitat for Swainson's hawks, a ½-mile buffer may not be feasible in all areas. DWR will maximize the buffer width around active nest sites on a site-by-site basis and will consult with DFG on the buffer widths before initiating construction-related activities. If possible, DWR will delay construction and maintenance around individual raptor nests until after the young have fledged. DWR will immediately cease work and contact DFG if a young bird has prematurely fledged the nest as a result of construction or maintenance activities.	DWR will incorporate tree protection in its design; project construction supervisors will be informed of tree protection measures. DWR will maximize the buffer width around active nest sites on a site-by-site basis and will consult with DFG on the buffer widths before initiating construction-related activities.	DWR Project Manager	Current and on-going During construction

Mitigation	*Implementing Responsibility*	*Monitoring Responsibility*	*Mitigation Timing*
Mitigation Measure WILD-15: Replace or Compensate for the Loss of Swainson's Hawk Foraging Habitat. Based on the presence of suitable habitat, it is assumed that construction activities will occur within ½ mile of active nest sites. As a result, DWR will compensate for foraging habitat at one of the following ratios (California Department of Fish and Game 1994): provide 1 acre of suitable foraging habitat (e.g.; Habitat Management [HM] lands) for each acre of affected habitat (1:1 ratio)— at least 10% of these lands will include a fee title acquisition or conservation easement allowing for active management of the land to manage for active prey production, and the remaining 90% of the HM lands will be protected by a conservation easement on agricultural or other lands that provide suitable foraging habitat for Swainson's hawks; or provide ½ acre of HM land, with a fee title acquisition or conservation easement allowing for active management of the land to manage for active prey production (0.5:1 ratio). DWR will also provide funding to ensure that these lands will be managed to provide Swainson's hawk foraging habitat. This funding will consist of a site management endowment at a rate to be determined by DFG.	DWR shall consult with DFG to determine amount and location of off-site mitigation land, and DWR will purchase and protect said lands.	DWR Project Manager	Pre-construction and during construction
Mitigation Measure WILD-17: Conduct Preconstruction Surveys for Burrowing Owls. Preconstruction surveys for western burrowing owls will be conducted at and adjacent to all locations to be disturbed by construction to ensure that this species is not nesting or roosting in these locations. Surveys will also be performed at all mitigation sites before implementation of the mitigation features. Preconstruction surveys will be performed according to the DFG guidelines for this species (California Department of Fish and Game 1995b). Surveys will	DWR or its biological consultants will conduct surveys. If burrowing owls are confirmed, DWR will mitigate as determined in consultation with	DWR Project Manager	Current and on-going Pre-construction

Mitigation	*Implementing Responsibility*	*Monitoring Responsibility*	*Mitigation Timing*
consist of surveying all suitable nesting and roosting habitat within 500 feet of proposed construction features, deposition areas, and mitigation sites, as well as along all haul roads located on levees or at the toe of the levees. Surveys will be conducted during both the wintering and nesting seasons, unless the species is detected during the first survey. The winter survey will be conducted between December 1 and January 31 (if possible). Nesting surveys will be conducted between April 15 and July 15 to correspond with the peak of the breeding season. Surveys will be performed in the early morning and evening as specified in the DFG guidelines. Pedestrian survey transects will be spaced to provide 100% visual coverage of the ground surface. Disturbance of occupied burrows during the surveys will be avoided to the greatest extent practicable. In addition to the seasonal surveys, a preconstruction survey will be conducted within 30 days before construction to ensure that no additional owls have established territories since the initial surveys.	DFG.		
Mitigation Measure WILD-18: Minimize Construction-Related Disturbances near Occupied Nest Sites. Burrowing owls may use the nest burrows as roosting sites throughout the year or may move into other burrows not used for nesting outside of the breeding season. Major construction activities that would result in the greatest disturbance to an active nest or roost sites will be deferred until after or as late in the breeding season as possible. The following activities are considered impacts on western burrowing owls (California Department of Fish and Game 1995b): disturbance within approximately 160 feet (50 meters), which may result in harassment of owls at occupied burrows;	DWR or its biological consultants will conduct surveys. If burrowing owls are confirmed, DWR will mitigate as determined in consultation with DFG.	DWR Program Manager	Current and on-going Pre-construction and during construction

Mitigation	*Implementing Responsibility*	*Monitoring Responsibility*	*Mitigation Timing*
destruction of natural and artificial burrows; and destruction or degradation of foraging habitat within 330 feet (100 meters) of an occupied burrow. DWR will notify DFG of the locations of occupied burrows identified during the preconstruction surveys and will coordinate with DFG on appropriate avoidance and minimization measures on a case-by-case basis.			
Mitigation Measure WILD-19: Avoid or Minimize Disturbance to Active Nest and Roost Sites. If practicable, active nest and roost sites will be avoided during Project implementation. To avoid impacts during the nonbreeding season (September 1–January 31), no activities should occur within 160 feet of occupied burrows. To avoid impacts during the breeding season (February 1–August 31) no activities should occur within 250 feet of occupied burrows. Avoidance of occupied burrows also requires that a minimum of 6.5 acres of foraging habitat be permanently preserved around each occupied burrow (California Department of Fish and Game 1995b). If active burrows are identified during the preconstruction surveys, DWR will coordinate with DFG to identify the appropriate avoidance and minimization measures and to determine the configuration of the foraging habitat to be permanently preserved.	DWR or its biological consultants will conduct surveys. If burrowing owls are confirmed, DWR will mitigate as determined in consultation with DFG.	DWR Program Manager	Current and on-going Pre-construction

Mitigation	*Implementing Responsibility*	*Monitoring Responsibility*	*Mitigation Timing*
Mitigation Measure WILD-20: Create New or Enhance Existing Suitable Burrows. If the destruction of occupied burrows is unavoidable, existing unsuitable burrows will be enhanced or new, artificial burrows will be created in accordance with the DFG guidelines (California Department of Fish and Game 1995b). New or enhanced burrows will be provided at a ratio of 2:1 and located on lands that will be preserved and maintained by DWR. DWR will provide funding for the long-term management and monitoring of these lands and will prepare a monitoring plan for the burrowing owl mitigation site. Passive relocation techniques will be used to clear burrowing owls from occupied burrows. These techniques are described in the DFG guidelines for this species. Passive relocation techniques and artificial burrow designs will be approved by DFG before implementing this mitigation measure. Passive relocation will not be allowed until after the breeding season if it is determined that eggs or nestlings are present.	DWR or its biological consultants will conduct surveys. If burrowing owls are confirmed, DWR will mitigate as determined in consultation with DFG.	DWR Program Manager	Current and on-going Pre-construction
Mitigation Measure WILD-21: Replace Lost Burrowing Owl Foraging Habitat. If it is determined that occupied burrows are present in the Project area, DWR will mitigate the loss or disturbance of foraging habitat by implementing the following measures: 1. Permanently preserve 6.5 acres of foraging habitat around each occupied burrow that is avoided. The 6.5 acres may include an approximately 300-foot radius around each burrow or an alternate configuration totaling 6.5 acres, as approved by DFG. 2. Permanently preserve 6.5 acres of foraging habitat around each newly constructed or enhanced burrow. The 6.5 acres may include an approximately 300-foot radius around each burrow or an alternate configuration totaling 6.5 acres, as approved by DFG.	DWR or its biological consultants will conduct surveys. If burrowing owls are confirmed, DWR will mitigate as determined in consultation with DFG.	DWR Program Manager	Current and on-going Pre-construction During or

Mitigation	*Implementing Responsibility*	*Monitoring Responsibility*	*Mitigation Timing*
Based on the preconstruction survey results, DWR will avoid and minimize impacts on burrowing owls and acquire, protect, or manage suitable burrowing owl foraging habitat in the Project vicinity or, pending approval of DFG, purchase mitigation or conservation bank credits at an approved bank.			post-construction
Mitigation Measure WILD-21: Replace Lost Burrowing Owl Foraging Habitat. If it is determined that occupied burrows are present in the Project area, DWR will mitigate the loss or disturbance of foraging habitat by implementing the following measures: 1. Permanently preserve 6.5 acres of foraging habitat around each occupied burrow that is avoided. The 6.5 acres may include an approximately 300-foot radius around each burrow or an alternate configuration totaling 6.5 acres, as approved by DFG. 2. Permanently preserve 6.5 acres of foraging habitat around each newly constructed or enhanced burrow. The 6.5 acres may include an approximately 300-foot radius around each burrow or an alternate configuration totaling 6.5 acres, as approved by DFG. Based on the preconstruction survey results, DWR will avoid and minimize impacts on burrowing owls and acquire, protect, or manage suitable burrowing owl foraging habitat in the Project vicinity or, pending approval of DFG, purchase mitigation or conservation bank credits at an approved bank.	DWR or its biological consultants will conduct surveys. If burrowing owls are confirmed, DWR will mitigate as determined in consultation with DFG.	DWR Program Manager	Current and on-going Pre-construction During or post construction
Mitigation Measure WILD-22: Avoid and Minimize Construction-Related Disturbances in the Vicinity of Occupied Habitat. Western pond turtles are known to occur in the waterways of the Project area and are expected	DWR will conduct habitat assessment, consult with USFWS and DFG, assure project phasing is	DWR Project Manager	Pre-construction and during construction

Mitigation	*Implementing Responsibility*	*Monitoring Responsibility*	*Mitigation Timing*
to occur in suitable off-channel habitats. Because these waterways are large, open systems, it is not feasible to clear and permanently exclude all western pond turtles from the construction sites. A qualified biologist will conduct preconstruction surveys to determine the approximate population density of turtles in the construction areas. Where practical, DWR will install sheet piles, cofferdams, or other measures to minimize sedimentation between the in-channel construction zones and adjacent waterways. This system would minimize the degradation of aquatic habitats outside the construction zone and inhibit the movement of some turtles into the construction zone. Turtles found in the work area will be captured and transported to a nearby location outside of the work area. To avoid the loss of western pond turtle and eggs as a result of construction, DWR will install plastic orange mesh exclusion fencing or silt exclusion fencing on the channel banks to prevent turtles from nesting in the work areas. The fencing will be installed to a depth of 6 inches below the ground surface to prevent turtles from going under the fence. Fences will be installed before the nesting season (i.e., March 1) and will remain in place through August. The fencing may be removed before grading. An on-site biologist will be present during all in-channel activities to relocate western pond turtles outside of the construction zones.	appropriate, and assure that large woody debris are placed.		
Mitigation Measure WILD-23: Conduct Preconstruction Surveys for Tricolored Blackbird. Preconstruction surveys for tricolored blackbird nesting colonies will be conducted at and adjacent to all locations to be disturbed by construction to ensure that this species is not nesting in these locations. Surveys will also be performed at all mitigation sites before implementation of the mitigation features. Preconstruction surveys will consist of surveying all suitable breeding habitat in the vicinity of Project or mitigation activities. Pedestrian survey transects will be used to provide 100% visual coverage of the suitable breeding habitat. Nest colony surveys are recommended to	DWR shall consult with DFG to determine amount and location of off-site mitigation land, and DWR will purchase and protect said lands.	DWR Project Manager	Pre-construction

Mitigation	*Implementing Responsibility*	*Monitoring Responsibility*	*Mitigation Timing*
begin at the end of April with subsequent surveys occurring throughout the breeding season (Beedy and Hamilton 1997). If a nesting colony is observed, the location will be marked on an aerial photograph, and the position will be recorded using GPS.			
Mitigation Measure WILD-24: Minimize Construction-Related Disturbances in the Vicinity of Active Tricolored Blackbird Colonies. Portions of the construction would occur throughout the year and would overlap the tricolored blackbird breeding season (mid-April–July). To the greatest extent practicable, major construction activities that occur within ¼ mile of tricolored blackbird nest sites will be avoided during the breeding season. If practicable, construction that would result in the greatest disturbance to an active nest sites will be deferred until after or as late in the breeding season as possible. DWR will notify DFG of the locations of active nest sites identified during the preconstruction surveys and will coordinate with DFG on appropriate avoidance and minimization measures on a case-by-case basis.	DWR shall consult with DFG to determine amount and location of off-site mitigation land, and DWR will purchase and protect said lands. DWR will coordinate with DFG on appropriate avoidance and minimization measures on a case-by-case basis.	DWR Project Manager	Pre-construction and during construction
Mitigation Measure WILD-25: Conduct Preconstruction Surveys for California Black Rail. Preconstruction surveys for California black rail will be conducted at and adjacent to all locations to be disturbed by construction to ensure that this species is not nesting in these locations. Surveys will also be performed at all mitigation sites before implementation of the mitigation features. Preconstruction surveys will consist of surveying all suitable breeding habitat in the vicinity of Project or mitigation activities. Surveys will be performed to record species presence and density and abundance. Surveys will be performed in all tidal emergent wetlands that are greater than 1.2 acres (0.5 hectare) in total area and have shallow water or moist soil conditions (Arizona Game and Fish Department 2002). Fixed, permanent survey points will be selected and marked in the field and by using a GPS receiver. Surveys will be performed several times during the breeding season to avoid and minimize effects on late nesting birds. The surveys will be performed during periods of	DWR will conduct surveys to record species presence and density and abundance. DWR will consult with DFG to minimize or avoid impacts. DWR will manage water to discourage habitat use by black rails prior to habitat inundation or ground disturbance.	DWR Project Manager	Pre-construction

Mitigation	*Implementing Responsibility*	*Monitoring Responsibility*	*Mitigation Timing*
good weather (e.g., clear to cloudy skies, no precipitation, minimal wind). The survey points will be surveyed in either the early morning or evening. Morning surveys will begin within 30 minutes of sunrise and will be completed within 4 hours after sunrise. Evening surveys will begin 4 hours before sunset and be completed before dark (Arizona Game and Fish Department 2002). A recording of a black rail call will be played at varying intervals and records of responses will be recorded. The playback interval will follow the guidelines identified in the black rail monitoring protocol (Arizona Game and Fish Department 2002). If a response is heard, the location will be marked on an aerial photograph, and the position will be recorded using GPS.			
Mitigation Measure WILD-26: Minimize Construction-Related Disturbances in the Vicinity of Active California Black Rail Nest Sites. Portions of the construction activities would occur throughout the year and would overlap the California black rail breeding season (mid-March–July). To the greatest extent practicable, major construction activities that would be near expected California black rail nest sites will be avoided during the breeding season. If practicable, construction activities that would result in the greatest disturbance to an active nest site will be deferred until after or as late in the breeding season as possible. DWR will notify DFG of active nest sites identified during the preconstruction surveys and will coordinate with DFG on appropriate avoidance and minimization measures on a case-by-case basis.	DWR will notify DFG of active nest sites identified during the preconstruction surveys and will coordinate with DFG on appropriate avoidance and minimization measures on a case-by-case basis.	DWR Program Manager	Pre-construction and during construction
Mitigation Measure WILD-27: Conduct Preconstruction Surveys to Locate Rookeries. Preconstruction surveys for rookeries will be conducted at and adjacent to all locations to be disturbed by construction. Surveys will also be performed at all mitigation sites before implementation of the mitigation features. Preconstruction surveys will consist of surveying all potential nest sites within ¼ mile of proposed construction features, and mitigation sites. Surveys will be performed several times during the breeding season to avoid and minimize impacts on late-nesting birds. Rookery locations will be marked on an aerial photograph, and the position will be recorded using GPS. Preconstruction survey data will be used in	DWR in consultation with DFG will conduct preconstruction surveys for rookeries will be conducted at and adjacent to all locations to be disturbed by construction.	DWR Program Manager	Pre-construction and during construction

Mitigation	*Implementing Responsibility*	*Monitoring Responsibility*	*Mitigation Timing*
accordance with conservation measures listed below.			
Mitigation Measure WILD-28: Minimize Construction-Related Disturbances within ¼ Mile of Active Rookeries. Portions of the construction activities will occur throughout the year and will overlap with the breeding season. To the greatest extent practicable, major construction activities that will occur within ¼ mile of an active rookery will be avoided during the breeding season. If practicable, construction activities that would result in the greatest disturbance to an active rookery will be deferred until after or as late in the breeding season as possible. DWR will notify DFG of the locations of active rookeries identified during the preconstruction surveys and will coordinate with DFG on appropriate avoidance and minimization measures on a case-by-case basis.	DWR in consultation with DFG will conduct preconstruction surveys for rookeries will be conducted at and adjacent to all locations to be disturbed by construction.	DWR Program Manager	Pre-construction and during construction
Mitigation Measure WILD-30: Replace Lost Breeding Habitat. DWR will compensate for the unavoidable loss of riparian habitat caused by Project implementation by restoring or enhancing in-kind riparian and valley oak habitat. This compensation will restore or enhance in-kind habitat at a ratio of 3 acres for each acre affected, as described in the mitigation measures for riparian habitat in Section 5.1.	DWR will compensate for the unavoidable loss of riparian habitat caused by Project implementation by restoring or enhancing in-kind riparian and valley oak habitat.	DWR Project Manager	Post-construction
Mitigation Measure WILD-31: Conduct Preconstruction Surveys for Bats. A qualified biologist will conduct acoustic and visual surveys for bats one or two times between April and August before construction begins. The biologist should determine whether the structures and bridges to be removed are being used as day, night, and/or maternal roost. If large trees and structures are to be removed prior to the end of the maternity season (late August), they will be surveyed for exit flights in order to be sure that roosting bats will not be harmed in tree or structure removal. If any special-status bat species are discovered roosting on the structures or the bridges, work on the bridges should be avoided until after migration in	DWR will ensure that any occupied trees or structures are removed only when bats are absent or least likely to be affected.	DWR Project Manager	Pre-construction

Mitigation	*Implementing Responsibility*	*Monitoring Responsibility*	*Mitigation Timing*
late fall when bats are less likely to be roosting in these areas. Removal of existing structures and work on the bridges should begin during late fall or winter (November 1–March 1). The biologist should confirm that the bats have vacated the work areas before the start of construction activities. If construction during this time period is not possible, the biologist will consult with DFG to determine appropriate mitigation measures, which may include constructing and placing bat boxes near the bridge or exclusion of bats from the bridge through accepted means. Implementation of these measures would prevent injury and mortality of special-status bats and other bat species.			
5.1 Land Use, Recreation, and Economics			
Mitigation Measure LU-1: Project Features for Farmland Protection **Conservation Easement Agreement on Staten Island to ensure protection of agricultural land within the Project Area.** Staten Island was acquired by TNC (as a third-party landholder) in October 2001 with DWR funds, specifically for the purposes of the North Delta Project and in cooperation with CalFED. Although this Project originated from the CalFED program, it is being implemented independently with DWR as the lead agency. As a component of the funds provided by DWR, TNC entered into an agreement providing DWR with an exclusive and perpetual conservation easement covering the entire property. The purpose of this easement is to protect the following multiple and complementary benefits: agricultural land preservation, including the economic viability of agricultural operations; wildlife habitat protection; protection of a floodplain area from potential inappropriate and incompatible development; and potential role in future flood management and water management improvements (the North Delta Project).	DWR or TNC will continue to manage Staten Island in accordance with the Conservation Easement Agreement.	DWR Project Manager	Current and ongoing

Mitigation	*Implementing Responsibility*	*Monitoring Responsibility*	*Mitigation Timing*
These multiple and complementary benefits are preserved under the easement agreement: Whereas, Grantor [TNC] and the Department [DWR] further acknowledge that the Department is engaging in a multi-agency planning process for designing and constructing floodway improvements in the North Delta (the "North Delta Planning Process"), pursuant to the CALFED Bay-Delta Program Programmatic Record of Decision (August 28, 2000). The Department's evaluation of alternatives for such floodway improvements in the North Delta may include use of all or a portion of Staten Island for future flood management projects or activities. The stipulations specified in the easement agreement provide protection for the approximately 8400 acres of Staten Island farmland. This in combination with the flood protection benefits provided by the Project for several thousand acres of surrounding (adjacent to Staten Island and McCormack-Williamson Tract) farmland, will result in a net benefit to agriculture within the Project Area. **Continue Agricultural Practices on McCormack-Williamson Tract and the Grizzly Slough Property.** DWR may consider managing McCormack-Williamson Tract and the Grizzly Slough property to support wildlife-friendly agricultural practices. Floodplain habitat and agriculture are often compatible land uses, and similar management efforts in the Yolo Bypass have proven successful. For example, grazing could be used not only to keep the land in agricultural production, but also to control invasive vegetation. **Flood protection for surrounding farmland in project area.** Implementation of the project will provide an overall net benefit for agriculture by providing additional flood protection for surrounding farmland in the project area.	DWR may implement agricultural practices on Grizzly Slough and DWR and TNC may implement agricultural practices on McCormack-Williamson Tract in conjunction with the flood protection and ecosystem restoration actions.	DWR Project Manager	Final design and during construction Post-construction

Mitigation	*Implementing Responsibility*	*Monitoring Responsibility*	*Mitigation Timing*
5.6 Public Health and Environmental Hazards			
Mitigation Measure PH-1: Properly Dispose of Contaminated Materials. If evidence of contaminated materials is encountered during construction, construction will cease immediately and applicable requirements of the CERCLA and the California Code of Regulations (CCR) Title 22 regarding the disposal of waste will be implemented. In addition, a contingency plan will be prepared to address the actions that will be taken during construction in the event that unexpected contaminated soil or groundwater is discovered. The plan will include health and safety considerations, instructions on handling and disposal of wastes, reporting requirements, and emergency procedures.	DWR, or its construction monitor will develop a contingency plan to address the actions to be taken should contaminated groundwater or soil is discovered.	DWR Project Manager	During Construction
5.7 Cultural Resources			
Mitigation Measure CR-1: DESTRUCTION OF ARCHEOLOGICAL SITES . Several mitigation strategies listed in the August 2000 CALFED Programmatic ROD are feasible mitigation measures for impacts incurred on P-39-324, P-39-4419, and P-39-4420, namely mitigation strategies 3–5 and 7–8. Prior to approval and final design of the downstream levee modifications, DWR will authorize qualified archaeologists to map the sites (mitigation strategy 3), conduct surface collections and perform test excavations at the sites (mitigation strategies 4 and 5), and prepare a report to document the results of mitigation strategies 3–5 above (mitigation strategy 7). Based on the findings of these mitigation strategies, DWR will determine whether the sites are historical resources or unique archaeological resources for the purposes of CEQA, or are not significant cultural resources. If DWR determines the sites to be non-significant, no additional mitigation is required, and this impact will be reduced to a less-than-significant level. Conversely, if DWR determines that the any or all of the sites qualify as historical resources or unique archaeological resources, DWR will authorize qualified archaeologists to conduct full-scale excavations of the site(s) deemed significant (mitigation strategy 8), prepare public interpretive documents (mitigation strategy 9), and prepare a report to document mitigation work (mitigation strategy 7), as appropriate to the	DWR, or its construction monitor, will authorize qualified archaeologists to map the sites, conduct surface collections, and prepare a report to document the results. The report shall also include cultural resource protection measures in educational sessions, and ensure that this measure is followed.	DWR Project Manager	Pre-construction During Construction

Mitigation	*Implementing Responsibility*	*Monitoring Responsibility*	*Mitigation Timing*
qualities of the sites.			
Mitigation Measure CR-2: Destruction of Unevaluated Isolated Finds Mitigation strategies 1 and 3, listed in the August 2000 CALFED Programmatic ROD, are feasible mitigation measures for impacts incurred on P-39-4421, P-39-4427, P-39-4428, P-39-4429, and P-39-4438. Prior to approval and final design of the downstream levee modifications, DWR will authorize qualified archaeologists to survey the isolate vicinities and map all archaeological materials identified to determine whether additional archaeological materials are present. If no additional archaeological materials are present, isolates P-39-4421, P-39-4427, P-39-4428, P-39-4429, and P-39-4438 would not qualify as historical resources or unique archaeological resources for the purposes of CEQA, and implementation of mitigation measures 1 and 3 would reduce this impact to a no-impact level. If additional archaeological materials are identified at any or all of the isolated finds, they will be considered archaeological sites and DWR will authorize qualified archaeologists to conduct surface collections and perform test excavations at the sites (mitigation strategies 4 and 5), and prepare a report to document the results of mitigation strategies 3–5 above (mitigation strategy 7). Based on the findings of these mitigation strategies, DWR will determine whether the sites are historical resources or unique archaeological resources for the purposes of CEQA, or are not significant cultural resources. If DWR determines the sites to be non-significant, no additional mitigation is required and this impact will be reduced to a less-than-significant level. Conversely, if DWR determines that the any or all of the sites qualify as historical resources or unique archaeological resources, DWR will authorize qualified archaeologists to conduct full-scale excavations of the site(s) deemed significant (mitigation strategy 8), prepare public interpretive documents (mitigation strategy 9), and prepare a report to document mitigation work (mitigation strategy 7), as appropriate to the qualities of the sites.	DWR, or its construction monitor, will authorize qualified archaeologists to map the sites, conduct surface collections, and prepare a report to document the results. The report shall also include cultural resource protection measures in educational sessions, and ensure that this measure is followed.	DWR Project Manager	Pre-construction During Construction

Mitigation	*Implementing Responsibility*	*Monitoring Responsibility*	*Mitigation Timing*
Mitigation Measure CR-3: Destruction of Cultural Resources along Unexamined Portions of the Downstream Levees Because the progress in defining this project action is provisional, mitigation strategies 1 and 7 listed in the August 2000 CALFED Programmatic ROD, are feasible mitigation measures for this impact, provided no cultural resources are identified as a result. Prior to approval and final design of the downstream levee modifications, DWR will authorize qualified cultural resource specialists to survey the areas slated for improvements (mitigation strategy 1). If no cultural resources are identified in the improvement areas, implementation of mitigation strategies 1 and 7 (report preparation) will reduce this impact to a no-impact level. If archaeological resources are identified as a result of survey work, DWR will authorize qualified archaeologists to conduct surface collections and perform test excavations at the sites (mitigation strategies 4 and 5) and prepare a report to document the results of mitigation strategies 3–5 above (mitigation strategy 7). Based on the findings of these mitigation strategies, DWR will determine whether the sites are historical resources or unique archaeological resources for the purposes of CEQA, or are not significant cultural resources. If DWR determines the sites to be non-significant, no additional mitigation is required and this impact will be reduced to a less-than-significant level. Conversely, if DWR determines that the any or all of the sites qualify as historical resources or unique archaeological resources, DWR will authorize qualified archaeologists to conduct full-scale excavations of the site(s) deemed significant (mitigation strategy 8), prepare public interpretive documents (mitigation strategy 9), and prepare a report to document mitigation work (mitigation strategy 7), as appropriate to the qualities of the sites. If historic architectural resources are identified as a result of survey work, DWR will authorize qualified architectural historians to conduct an oral history research to determine, in consultation with DWR, whether the resources constitute historical resources for the purposes of CEQA. The results will be documented in an evaluation report (mitigation strategy 7).	DWR, or its construction monitor, will authorize qualified archaeologists to map the sites, conduct surface collections, and prepare a report to document the results. The report shall also include cultural resource protection measures in educational sessions, and ensure that this measure is followed.	DWR Project Manager	Pre-construction

Mitigation	*Implementing Responsibility*	*Monitoring Responsibility*	*Mitigation Timing*
If DWR determines the historic architectural resources to be historical resources for the purposes of CEQA, DWR will authorize qualified architectural historians to document historic structures by preparing Historic American Engineering Records of Historic American Building Surveys (mitigation strategy 10), prepare public interpretive documents (mitigation strategy 9), and prepare mitigation reports (mitigation strategy 7). Options for avoidance through project design should be contemplated as well (mitigation strategy 2).			
Mitigation Measure CR-4: Destruction of Cultural Resources along Unexamined Portions of the Downstream Levees Two mitigation strategies listed in the August 2000 CALFED Programmatic ROD are feasible mitigation measures for impacts incurred on P-34-37, namely mitigation strategies 2 and 3. Prior to approval and final design of the grading of the proposed borrow site, DWR will authorize qualified archaeologists to map the site (mitigation strategy 3) and fence the site boundaries for avoidance during construction (mitigation strategy 2). DWR should task a qualified archaeologist with periodic examinations of the fencing to ensure that the barrier is not crossed and clearly delimits the site boundaries throughout the duration of grading.	DWR, or its construction monitor, will will authorize qualified archaeologists to map the sites, conduct surface collections, and prepare a report to document the results. The report shall also include cultural resource protection measures in educational sessions, and ensure that this measure is followed.	DWR Project Manager	Pre-construction During Construction