RECLAMATION

Managing Water in the West

Record of Decision Mormon Island Auxiliary Dam Modification Project

Folsom, California
Mid-Pacific Region

U.S. Department of the Interior
Bureau of Reclamation
Mid-Pacific Region
Sacramento, California

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Mission Statements

The mission of the Department of the Interior is to protect and provide access to our Nation's natural and cultural heritage and honor our trust responsibilities to Indian Tribes and our commitments to island communities.

The mission of the Bureau of Reclamation is to manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public.

Record of Decision

Mormon Island Auxiliary Dam Modification Project
Folsom, California

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Record of Decision
Mormon Island Auxiliary Dam Modification Project

I. Introduction

This document is the Record of Decision (ROD) of the United States Department of the Interior, Bureau of Reclamation (Reclamation), Mid-Pacific Region, for the Mormon Island Auxiliary Dam (MIAD) Modification Project, a Safety of Dams component of the overall Folsom Dam Safety and Flood Damage Reduction (DS/FDR) Project. The project is the subject of a Draft Supplemental Environmental Impact Statement/Environmental Impact Report (EIS/EIR) [State Clearinghouse #2009042077] dated December 2009, and a Final Supplemental EIS/EIR [FES-20100169] dated May 2010, developed in compliance with the National Environmental Policy Act (NEPA), and the California Environmental Quality Act (CEQA).

Reclamation and the Sacramento Area Flood Control Agency (SAFCA) are proposing changes to the dam safety modifications originally selected for MIAD in the March 2007 *Folsom Dam Safety and Flood Damage Reduction* (DS/FDR) *Final EIS/EIR*. The analysis in the Folsom DS/FDR EIS/EIR considered several methods to modify MIAD to achieve Reclamation's risk standards for dam safety. Reclamation's May 2007 ROD - *Folsom Dam Safety of Dams and Security Upgrades Projects* documented that the preferred alternative for the MIAD modification was to place an overlay and seepage control filters with drains on the downstream (terrestrial) side of MIAD (to address seismic and static issues), and to reinforce the MIAD foundation using a construction technique known as jet grouting (to address seismic issues).

Subsequent investigations into the feasibility of the MIAD Modification Project, as conceived in the Folsom DS/FDR EIS/EIR, indicated that the design needed to be changed to achieve Reclamation's existing risk standards for dam safety. Specifically, the utilization of jet grouting to stabilize the foundation of MIAD is unlikely to meet those risk standards. The MIAD Modification Project Supplemental EIS/EIR addresses additional techniques to stabilize the MIAD foundation in order to meet current dam safety standards.

Also proposed in the document is the development of a mitigation site for the Folsom DS/FDR Project. As described in the 2007 ROD, Reclamation is responsible for completing mitigation for habitat impacted by construction of the Folsom

DS/FDR Project. At the time of the ROD, Reclamation had not identified the location for this mitigation. Reclamation is now proposing to create and/or improve habitat on land owned by the California Department of Parks and Recreation (DPR) at Mississippi Bar, on the western shore of Lake Natoma. The MIAD Modification Project Supplemental EIS/EIR addresses impacts associated with the development of Mississippi Bar as a mitigation site.

The MIAD Modification Project EIS/EIR addressed two separate actions to be implemented by Reclamation.

1. Static and seismic upgrades to MIAD; and

2. Habitat mitigation at Mississippi Bar.

The Preferred Alternative discussed in the Final Supplemental EIS/EIR incorporates aspects of both the MIAD modifications and the habitat mitigation at Mississippi Bar. This Safety of Dams ROD addresses both actions.

II. Decision

Reclamation's decision is to proceed with the dam safety modifications outlined in the Preferred Alternative (Alternative 4), and to proceed with up to 70 acres of riparian woodland habitat and up to 10 acres of seasonal wetland habitat at Mississippi Bar, as identified in the MIAD Modification Project Final Supplemental EIS/EIR. Elements of this decision are highlighted below.

MIAD Dam Safety Modifications – Alternative 4 Cellular Open Excavation and Overlay

To address seismic and static concerns at MIAD, Reclamation will use cellular excavation to excavate and replace the MIAD foundation and add an overlay with filters and drains.

The Preferred Alternative (Alternative 4 – Cellular Open Excavation and Overlay) includes cellular construction to excavate the MIAD foundation and placement of an overlay with filters and drains. The cellular excavation method would involve the creation of "cells" to close off an area that could be excavated independently of other cells. It is expected that a maximum of five cells would be open at any given time. The cells would allow excavation of one small area of the foundation at a time, rather than the larger open cut excavation described under Alternative 1. This alternative would greatly reduce the construction risk as it would limit the size of the open cut excavation; however, it would increase the duration of the excavation.

Based upon the analysis contained in the Draft Supplemental EIS/EIR, Reclamation concluded that Alternative 4 is the environmentally preferred alternative. This

alternative would involve the smallest overall excavation size and would therefore have the least public safety risk during foundation construction. Construction of Alternative 4 could occur year round, unlike some of the other alternatives that would require a seasonal break when the reservoir is full. Alternative 4 would involve the smallest excavation size and would require the least amount of materials to be excavated. It would not require relocation of Green Valley Road. It would have higher air quality impacts as the length of construction would be greater than most alternatives, but it would have a smaller overall construction footprint. This alternative may also allow for the trail on the top of MIAD to remain open longer than under the other alternatives because the reduced size of the excavation.

Site Preparation, Well Installation, and Dewatering System Operation

A series of wells would be installed in the excavation area. Approximately 13 acres of detention ponds would be created at the stockpiling areas or south of Green Valley Road. Groundwater would be pumped from the wells into the detention ponds to allow for settling and treatment as needed. The water would be discharged to the Humbug Creek south of Green Valley Road, which drains to Willow Creek, a tributary of the Lower American River. The dewatering system is expected to run continuously during the excavation of the foundation. The dewatering system and detention ponds would be in use for approximately 18 months.

Excavation, Foundation Replacement, and Backfilling

Construction Method

This alternative includes constructing a dual wall system and excavating from the surface in 60 by 60 foot cellular segments, with up to 5 non-contiguous cells could be in progress at a time. The total amount of cement needed to construct the cells would be approximately 21,000 cubic yards.

The benefit of this alternative would minimize the amount of materials required to be removed at a given time, and would reduce the dependency of the excavation on the dewatering system. It would also reduce construction risk to the dam.

Once the foundation is cleaned and inspected, backfilling would commence. This would require approximately 45,000 cubic yards of flowable concrete. The cell would then be back filled about 30 feet thick, completing the block within a cell. The remainder of cell would be back filled with stockpiled material and compacted in lifts until complete. Assuming staged progressive development,

Equipment

The method for construction if secants are used would most likely require two or three drills. Excavation would require long reach excavator, large diameter drill

augers, or clamshell type shovels. Support compaction equipment, a cement batch plant, water handling infrastructure, and compaction with vibratory rollers would also be required.

Materials

Of the four action alternatives, Alternative 4 would have the smallest quantity of materials to excavate and replace. The offsite materials required for this alternative would be concrete for the foundation replacement and wall construction and sand for the filters.

Reservoir Elevation Constraints

The construction risk under this alternative is greatly reduced as a much smaller continuous open excavation footprint would be required at any given time. No seasonal breaks would be needed; construction could occur year-round.

Overlay Placement with Filters

The downstream shell of MIAD would be removed by excavating the first three to five feet of material on the face of the dam. Filters would then be installed by placing a layer of processed fine and coarse filter materials of specified gradation over the exposed slope of the earthen structure, which would be followed by the placement of the outer shell. Placement of the outer shell of the overlay would re-use excavated material from the MIAD shell that was originally removed and from existing stockpiles that were deposited during excavation of the Joint Federal Project (JFP) Auxiliary Spillway.

Materials, Staging, and Site Development

Staging of equipment and vehicles would occur at the contractor use area in the northeastern portion of the project area and the southwestern stockpile area already in use for Phase II of the JFP. Any necessary stockpiling would occur at existing stockpiles near the southwestern end of MIAD. It is anticipated that off-site materials, including processed material and concrete for the foundation treatment work, would be delivered to the northern contractor use area, off of Green Valley Road.

Construction Sequencing

Alternative 4 is expected to require approximately 22 months for the foundation treatment and 24 months for the overlay. The overlay placement may overlap with the foundation treatment work, which would reduce the duration of construction to about 38 months.

Mississippi Bar Habitat Mitigation

As described in the 2007 ROD, Reclamation is responsible for completing mitigation requirement for habitat impacted by construction of the Folsom DS/FDR Project. Reclamation is proposing to develop up to 80 acres of riparian woodland and up to 5 acres of season wetlands to meet these mitigation requirements. Reclamation has identified Mississippi Bar, located on the western shore of Lake Natoma as the preferred mitigation site. The land at Mississippi Bar is owned by both Reclamation and the California Department of Parks and Recreation (DPR).

Prior to any work on State lands, Reclamation and DPR will need to develop a mutual agreement for the use of State lands, which may or may not include some or all of the proposed actions at Mississippi Bar in the MIAD Modification Project EIS/EIR.

Additionally, SAFCA is proposing to enter into an agreement with Reclamation to take over long-term operation and maintenance (O&M) of the Mississippi Bar mitigation site; however no agreement is currently in place. If SAFCA does not take over long-term O&M, Reclamation will ultimately be responsible for the site.

The final habitat mitigation design plans for the Mississippi Bar Mitigation Site will be reviewed by the U.S. Fish and Wildlife Service (USFWS), the Corps' Regulatory Division, and DPR to assure that recreation will be consistent with mitigation requirements and the agreement between DPR and Reclamation.

Habitat Mitigation Schedule

Table 1 shows the tentative schedule for the Mississippi Bar habitat mitigation. Phase 1 of the riparian woodland mitigation will occur in two parts. The first part will involve planting 10 acres of riparian woodland in Spring of 2011. The remaining riparian woodland acres will be planted by Summer 2012 (up to 70 additional acres). Phase 2 with culvert replacement, channel widening, and mid-channel dredging will occur in the Summer of 2012. Phase 3 includes the seasonal wetland mitigation planting and will occur in the Fall of 2012.

Table 1. Habitat Mitigation Schedule

Date	Phase	Description
Fall 2010	Environmental Permits	Obtain required permits including the CWA 404 permit, and CWA 401 Certification
Spring 2011	Phase 1 Riparian Woodland (10 acres)	Award of Contract for first 10 acres of riparian woodland
Summer 2011		Mobilization and start of construction for first 10 acres of riparian woodland
Spring 2012	Phase 1 Riparian Woodland (70 acres)	Award of Contract for remaining acres of riparian woodland
Summer 2012		Mobilization and start of construction remaining acres of riparian woodland
Summer 2012	Phase 2 Culvert Replacement, Channel Widening, Mid-Channel Dredging	The culvert will be replaced, channel widening will occur, and mid-channel dredging will be completed.
Fall 2012	Phase 3 Seasonal Wetland Mitigation	Seasonal wetland planting will occur.

III. Background and Alternatives Considered

MIAD Dam Safety Modifications – Alternative 4 Cellular Open Excavation and Overlay

No Action/No Project Alternative

No Action/No Project Alternative would result in no construction and no seismic or static improvements to MIAD. This alternative would not meet the current dam safety objectives of Reclamation. No mitigation efforts would occur at Mississippi Bar under the No Action/No Project Alternative; however mitigation would need to be completed elsewhere in order for Reclamation to meet their Folsom DS/FDR Record of Decision requirements.

Alternative 1 – Large "Open Cut" Excavate and Replace and Overlay

Alternative 1 – Large "Open Cut" Excavate and Replace and Overlay would require excavation of a very large trench approximately 2,000 feet long and 350 feet wide, with a varying depth (from existing dam surface to bottom of trench) of approximately 50 to 70 feet. The foundation would be replaced with CMS and compacted fill. A large dewatering well system would be constructed to continuously dewater the MIAD foundation throughout excavation and replacement of the foundation. This alternative would result in the largest open trench of the four action alternatives. It is the only alternative that would require the temporary relocation of

Green Valley Road south into the Mormon Island Wetland Preserve area. Excavation under Alternative 1 is expected to take 10 months to complete, but may require up to an eight month break for safety reasons if reservoir water elevations are high. Timing of this alternative would be crucial to ensure public safety as construction would need to be completed when the reservoir is low.

After the foundation replacement, placement of the overlay, filters, and drains would commence. The existing downstream shell would be removed and the filters would be installed by placing a layer of processed fine and coarse filter materials of specified gradation over the exposed slope of the earthen structure. After the filters and drains are installed, placement of material for the overlay would occur. This material would be obtained from existing stockpiles.

Alternative 2 – Single Wall Excavate and Replace and Overlay

Alternative 2 – Single Wall Excavate and Replace and Overlay involves a variation on the open excavation being considered under Alternative 1; construction of a structural wall on the Green Valley Road side of the open excavation. The wall would prevent relocation of Green Valley Road and would decrease the size of the excavation. The wall would also help to reduce the quantity of groundwater that would need to be removed to keep the excavation dry. The placement of the overlay with filters and drains would remain the same as described for Alternative 1.

Alternative 3 – Open Cut Excavation with Dual Wall System and Overlay

Alternative 3 - Open Cut Excavation with Dual Wall System and Overlay includes the construction of two walls (one near Green Valley Road, and one closer to MIAD) in an effort to substantially minimize dewatering and the amount of materials required to be removed. The MIAD wall would contribute to supporting MIAD, and may eliminate the need to strip off a portion of the downstream dam toe, if the block can be shifted south. The Green Valley Road wall would eliminate the need to relocated Green Valley Road. The wall system would require modification of the means and methods of excavation. This would increase the total excavation time (21 months) compared to Alternatives 1 and 2 (10 months), but it could be completed year round regardless of reservoir elevations.

Alternative 4 – Cellular Open Excavation and Overlay

Alternative 4 – Cellular Open Excavation and Overlay would involve the creation of "cells" to close off an area that could be excavated independently of other cells. It is expected that a maximum of five cells would be open at any given time. The cells would allow excavation of one small area of the foundation at a time, rather than the larger open cut excavation described under Alternative 1. This alternative would greatly reduce the construction risk as it would limit the size of the open cut

excavation; however, it would increase the duration of the excavation compared to Alternatives 1 and 2.

Mississippi Bar Habitat Mitigation

Reclamation has considered a variety of potential mitigation sites to fulfill their mitigation requirements from the Folsom DS/FDR Project. There were a total of 14 potential sites considered for Folsom DS/FDR habitat mitigation: Kanaka Valley, Stathos Parcels, Mississippi Bar, Sacramento River Ranch Mitigation Bank, Woodlake, Auburn Project Lands in Cool, Minner-Schulz Property, American River Restoration Site, Carriage Hill, Weiner Property, Knickerbocker Flats, Consumnes River, Sutter Basin Conservation Bank, Old Auburn Dam Staging Area.

Each of these sites was initially screened based on its location relative to the affected site (Folsom Reservoir), the size of the site, the potential for targeted habitat creation or preservation, economic feasibility, technical feasibility, environmental effects, potential to be protected in perpetuity, and USFWS and Corps approval. The USFWS gives fewer mitigation credits for sites that already contain good habitat value because any planned mitigation efforts will not substantially improve these areas above baseline conditions to compensate for habitat losses from the project. Reclamation would prefer to find a site with poorer quality habitat as it would allow them to obtain more mitigation credits to complete their mitigation in a shorter timeframe and would have the potential to substantially improve vegetation and habitat for wildlife in the area.

IV. Basis of Decision and Issues Evaluated

MIAD Dam Safety Modifications

The purpose and need for the Federal Action takes into consideration Reclamation's statutory, regulatory, contractual, policies, mission and authority for the operation, maintenance, safety and security associated with MIAD, as part of the Folsom Facility. In the EIS/EIR, the four action alternatives were evaluated on how well they met the project's purpose and need as well as their environmental consequences.

Public input received during the scoping process, comments at the public hearings, and comments on the Draft Supplemental EIS/EIR were considered by Reclamation during alternatives selection. Alternative 4 was identified as the Preferred Alternative in the Final Supplemental EIS/EIR. No public comments were received following the circulation of the Final Supplemental EIS/EIR on May 14, 2010.

The impacts of each of the alternatives were evaluated in the EIS/EIR in the following environmental resource areas:

- Hydrology, Water Quality, and Flood Control

- Groundwater
- Air Quality
- Biological Resources
- Soils, Minerals, and Geological Resources
- Visual Resources
- Transportation and Circulation
- Noise
- Cultural Resources
- Land Use, Planning, and Zoning
- Recreation
- Public Services and Utilities
- Public Health and Safety
- Indian Trust Assets
- Environmental Justice
- Climate Change

Mississippi Bar Habitat Mitigation

Sites Eliminated from Further Consideration

Reclamation eliminated several potential mitigation sites for various reasons. The sites eliminated from further consideration are Minner-Schulz Property, American River Restoration Site, Carriage Hill, Weiner Property, Knickerbocker Flats, Consumnes River, Sutter Basin Conservation Bank, and Old Auburn Dam Staging Area. For more information regarding the reasons these site were eliminated please see Section 2.8.1.2 of the MIAD Modification Draft EIS/EIR.

Sites Retained for Further Consideration

Reclamation will retain six sites for further consideration to assess their suitability for meeting the mitigation requirements of the Folsom DS/FDR Project. The six sites retained for consideration are Kanaka Valley, Stathos Parcels, Mississippi Bar,

Sacramento River Ranch Mitigation Bank, Woodlake, and Auburn Project Lands in Cool, California.

The Mississippi Bar site has been selected for immediate implementation as a mitigation site because it is considered to have the least amount of constraints and can be completed in a reasonable timeframe.

V. Compliance with Federal Regulations

In accordance with Section 7 of the Endangered Species Act, Reclamation requested formal consultation with the United States Fish and Wildlife Service (USFWS) on March 21, 2010. The consultation requested an amendment to the original Folsom DS/FDR Project Biological Opinion, originally issued in April 2007. The amended Biological Opinion for this project was received from the USFWS on April 28, 2010. In compliance with the Incidental Take Statement, the non-discretionary mitigation measures listed in the BO will be implemented by Reclamation.

In compliance with the Fish and Wildlife Coordination Act, USFWS submitted the Fish and Wildlife Coordination Act Report (FWCAR) for the MIAD Modification Project to Reclamation on April 30, 2010. All recommendations from the FWCAR will be adopted in the Mitigation Monitoring and Reporting Program (MMRP):

1. Follow the avoidance and minimization measures proposed in Reclamation's Biological Assessment and detailed in the Service's April 28, 1010 amended biological opinion (8I420-2010-F-0437-5) for the MIAD work.

2. Avoid or minimize adverse impacts to fish and wildlife resources and their habitat when selecting locations for staging material, equipment and establishing access routes. To assist in avoidance or minimization of adverse impacts, it is important to choose sites with infrastructure in place and with existing access points or roads (to be able to perform routine maintenance activities with little or no adverse impact to fish and wildlife resources).

3. Avoid impacts to migratory birds nesting in trees along the access routes and adjacent to the proposed repair sites (mainly Mormon Island Wetland Preserve) by conducting pre-construction surveys for active nests along proposed haul roads, staging areas, and construction sites. This would especially apply if construction begins in the spring. Work activity around active nests should be avoided until the young have fledged. The following protocol from the California Department of Fish and Game (DFG) for Swainson's hawk would suffice for the pre-construction surveys for raptors.

   A focused survey for Swainson's hawk nests will be conducted by a qualified biologist during the nesting season (February 1 to August 31) to

identify active nests within 0.25 miles of the project area. The survey will be conducted no less than 14 days and no more than 30 days prior to the beginning of construction. If nesting Swainson's hawks are found within 0.25 miles of the project area, no construction will occur during the active nesting season of February 1 to August 31, or until the young have fledged (as determined by a qualified biologist), unless otherwise negotiated with the DFG. If work is begun and completed between September 1 and February 28, a survey is not required.

4. Minimize impacts to all disturbed areas at the construction easement, staging, and stockpiling areas, and along access routes by re-seeding grasslands with native annual grasses at the completion of construction or when disturbed areas are going to be fallow for the growing season.

5. Minimize the effects to woody vegetation and shrub habitats by fencing off areas to prevent construction equipment from entering and implementing Best Management Practices to prevent degraded material from eroding or slipping down the slopes.

6. Consult with DFG regarding potential impacts to state listed threatened and endangered species.

7. Monitor the Mormon Island Wetland Preserve during construction and continue for 4 years after construction has been completed. Post-construction surveys should monitor for potential changes in wetland hydrology, water quality, and vegetation. If changes in wetland hydrologic function are detected from the baseline condition, implement adaptive management mitigation to return affected systems to baseline conditions considering the long-term conservation of the Mormon Island Preserve.

8. Compensation for the loss of 0.263 acre of seasonal wetland habitat by developing 1.052 acre (4 to 1 ratio as established in the 2007 Fish and Wildlife Coordination Act Report for the Folsom Dam Safety and Flood Damage Reduction Project) of seasonal wetland habitat at the detention pond site or at a Service approved mitigation bank. The remainder of the 13 acre site should be restored to contain riparian woodland, emergent wetland, and seasonal swale vegetation. The restoration plan should be developed in coordination with the DFG, the Service, and California State Parks.

In compliance with the Clean Air Act, Reclamation completed a general conformity applicability analysis of the project, demonstrating that the project can conform to the Clean Air Act because emissions were less than the de minimis thresholds identified in 40 CFR 93.153.

In compliance with the Clean Water Act, Reclamation will obtain any necessary discharge permits, ensure compliance with permit requirements, and require their respective construction contractors to develop and adhere to respective Storm Water Pollution Prevention Plans.

In compliance with the National Historic Preservation Action, Section 106, Reclamation will initiate consultation with the State Historic Preservation Officer (SHPO). Reclamation will complete consultation with the SHPO prior to award of construction contracts related to this ROD.

VI. Implementing Decision and Environmental Commitments

Project planning, as described in the Final Supplemental EIS/EIR, included all practicable means of avoiding adverse environmental impacts. Where avoidance is not possible, Reclamation has committed to environmental mitigation measures, where appropriate and necessary, to ensure the protection of environmental resources and to implement the appropriate level of mitigation for impacts resulting from the project. All applicable mitigation measures pertaining to construction of the Preferred Alternative in the Final Supplemental EIS/EIR have been adopted in this ROD as environmental commitments. The Environmental Commitments Checklist in Appendix A of this ROD briefly summarizes the following:

- Each of the environmental commitments;
- The corresponding impact(s) being mitigated;
- The entity(s) responsible for implementing the mitigation;
- The mitigation implementation and monitoring phase(s);
- The monitoring action(s) or plan(s) to be followed;
- The entity(s) responsible for enforcing mitigation;
- The entity(s) responsible for mitigation monitoring; and
- The compliance completion date.

With implementation of Alternative 4, impacts could occur related to excavation, hauling, stockpiling of materials, and dewatering activities. Mitigation measures proposed in the Final Supplemental EIS/EIR and carried forward in this ROD are included in Appendix A.

With implementation of habitat mitigation at Mississippi Bar, impacts could occur related to excavation and grading activities; construction staging; tree and vegetation

removal; temporary closure of recreation areas during construction; and removal and/or relocation of informal trails. Mitigation measures proposed in the Final Supplemental EIS/EIR and carried forward in this ROD are included in Appendix A.

The Central California Area Office (CCAO) Area Manager will establish and facilitate a continuing forum to promote communication, coordination and cooperation among the Partner Agencies and local governments throughout the construction of the MIAD modifications and other ongoing projects and improvements at the Folsom Facility. The primary objective of this forum will be to facilitate timely completion of all projects on an integrated basis with minimum impact on Reclamation's continuing obligation to deliver water, generate power and manage and perform related programs and activities.

Glossary

These terms have the following meaning for the purposes of the Mormon Island Auxiliary Dam Modification Project Record of Decision:

MIAD	Mormon Island Auxiliary Dam (MIAD) is an earthen dam constructed across the historic Blue Ravine channel. MIAD is a component of the Folsom Facility.
Folsom Facility	Refers to Folsom Dam and Appurtenant Facilities including the Main Concrete Dam, Left Wing Dam (LWD), Right Wing Dam (RWD), Dikes 1 through 8, and Mormon Island Auxiliary Dam (MIAD).
Partner Agencies	The Partner Agencies refer to the agencies involved in the overall Folsom Dam Safety and Flood Damage Reduction Project and include United States Department of the Interior, Bureau of Reclamation, United States Army Corps of Engineers (Corps), and the Corps' non-Federal sponsors, the Sacramento Area Flood Control Agency and the Central Valley Flood Protection Board.
Preferred Alternative	The Preferred Alternative for the MIAD Modifications Project involves cellular construction to excavate and replace the MIAD downstream foundation with placement of an overlay inclusive of filters and drains.

List of Acronyms

ADT	Average Daily Traffic
APE	Area of Potential Effect
BMP	Best Management Practice
BO	Biological Opinion
CAR	Coordination Act Report
CARB	California Air Resources Board
CASQA	California BMP Construction Handbooks
CCAO	Central California Area Office
CEQ	Council on Environmental Quality
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
Corps	United States Army Corps of Engineers
CVRWQCB	Central Valley Regional Water Quality Control Board
CWA	Clean Water Act
DFG	California Department of Fish and Game
DPR	California Department of Parks and Recreation
DS/FDR	Dam Safety and Flood Damage Reduction
ECC	Environmental Commitments Checklist
EDCAQMD	El Dorado County Air Quality Management District
EGR	Exhaust Gas Recirculation
EIS/EIR	Environmental Impact Statement/Environmental Impact Report
FLSRA	Folsom Lake State Recreation Area
FMP	Fire Management Plan
FWCAR	Fish and Wildlife Coordination Act Report
HTRW	Hazardous, Toxic, and Radiological Waste
JFP	Joint Federal Project
LWD	Left Wing Dam
MBTA	Migratory Bird Treaty Act of 1918
MIAD	Mormon Island Auxiliary Dam
MMRP	Mitigation Monitoring and Reporting Program
NAGPRA	Native American Graves Protection and Repatriation Act
NAHC	Native American Heritage Commission
NCP	Noise Control Plan
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NOI	Notice of Intent
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places

O&M	Operation and Maintenance
Reclamation	United States Department of the Interior, Bureau of Reclamation
Reclamation Board	State Reclamation Board
ROD	Record of Decision
RWD	Right Wing Dam
SAFCA	Sacramento Area Flood Control Agency
SHPO	State Historic Preservation Officer
SMAQMD	Sacramento Metropolitan Air Quality Management District
SWPPP	Storm Water Pollution Prevention Plan
TAC	Toxic Air Contaminant
URBEMIS	Urban Emissions
USFWS	United States Fish and Wildlife Service
VELB	valley elderberry longhorn beetle
VOC	Volatile Organic Compounds
WAPA	Western Area Power Authority

List of Abbreviations

dBA	weighted decibel
CO	carbon monoxide
gpm	gallons per minute
lbs	pounds
NO_x	nitrogen oxides
$PM_{2.5}$	fine particulate matter of 2.5 microns in size
PM_{10}	inhalable particulate matter of 10 microns in size
tpy	tons per year

Appendix A
Environmental Commitments Checklist

Appendix A: Environmental Commitments Checklist

Reclamation has adopted the mitigation measures outlined in Section V of the Record of Decision (ROD) that are within its respective responsibility to implement as binding conditions of approval. Project-specific mitigation measures will be implemented as part of design development of the project, during project construction, and/or after completion of construction of the project. These mitigation measures have been described in the Mormon Island Auxiliary Dam (MIAD) Modification Project Final Supplemental Environmental Impact Statement/ Environmental Impact Report (EIS/EIR), dated May 2010.

Under the National Environmental Policy Act (NEPA), the ROD must identify the proposed monitoring and enforcement program for each mitigation measure (40 CFR Section 1505.2(c)). The Council on Environmental Quality (CEQ) Regulations for NEPA state that, "Agencies may provide for monitoring to assure that their decisions are carried out and should do so in important cases. Mitigation and other conditions established in the environmental impact statement or during its review and committed as part of the decision shall be implemented by the lead agency or other appropriate consenting agency. The lead agency shall:

(a) Include appropriate conditions in grants, permits or other approvals.

(b) Condition funding of actions on mitigation.

(c) Upon request, inform cooperating or commenting agencies on progress in carrying out mitigation measures which they have proposed and which were adopted by the agency making the decision.

(d) Upon request, make available to the public the results of relevant monitoring" (40 CFR Section 1505.3).

Although none of the actions proposed under the ROD will be implemented by a State agency, approvals and permits from State agencies will be necessary for some construction actions. Consequently, commitments in this ROD include measures to comply with the California Environmental Quality Act (CEQA). Section 21081.6 of CEQA requires public agencies to adopt a reporting and monitoring program for the changes to the project that have been adopted to mitigate or avoid significant effects on the environment. A Mitigation Monitoring and Reporting Program (MMRP) is implemented to ensure that a project complies with all environmental commitments and mitigation measures proposed in its Environmental Impact Statement (EIS) or Environmental Impact Report (EIR), and as adopted in the project's ROD.

This Environmental Commitments Checklist (ECC), which provides an overview of the MMRP, contains the elements required by NEPA and CEQA for the MIAD Modification Project. The ECC briefly summarizes the following:

- A summary of the environmental commitment;
- The corresponding impact(s) being mitigated,
- The entity(s) responsible for implementing the mitigation,
- The time frame for the mitigation implementation and monitoring phase(s),
- The monitoring action(s), plan(s), and/or regulations to be followed,
- The entity(s) responsible for enforcing mitigation,
- The entity(s) responsible for monitoring adherence to the mitigation requirement, and
- The compliance completion date (note this column will be completed at the time the mitigation measure is successful or no longer needed).

The ECC identifies Reclamation's mitigation and monitoring commitments as part of their responsibilities related the MIAD Modification Project actions. Reclamation is the responsible Federal agency for impacts and all corresponding mitigation related to construction.

The purpose of the MMRP is to provide sufficient detail for each measure, as described in the Final EIS/EIR and adopted in the ROD, to ensure successful mitigation of significant adverse environmental impacts resulting from the project. The MMRP will also provide feedback to agency staff and decision makers about the effectiveness of the mitigation measures and will help to identify the need for action before irreversible environmental damage occurs. Specifically, the intent of this program is to:

- Provide guidance to document and implement the required mitigation;
- Identify the agency(s) responsible for monitoring/reporting;
- Identify the frequency and duration of monitoring/reporting;
- Establish a record of the monitoring/reporting; and
- Ensure compliance with those mitigation measures that are within the responsibility of Reclamation to implement.

Table A-1. Mormon Island Auxiliary Dam Modification Project Environmental Commitments Checklist

Environmental Commitment	Impact(s) being Mitigated	Implementation Responsibility	Project Phase of Mitigation	Monitoring Action or Plan	Enforcement Responsibility	Monitoring Responsibility	Compliance (Date)
Hydrology, Water Quality, and Flood Control							
WQ-1: NPDES General Permit for Construction A NPDES permit will be obtained prior to construction activities, commencing by filing a NOI with the CVRWQCB and preparing a SWPPP. As required under the General Permit, the SWPPP will identify implementation measures necessary to mitigate potential water quality degradation as a result of construction. These measures will include BMPs and other standard pollution prevention actions such as erosion and sediment control measures, proper control of non-stormwater discharges, and hazardous spill prevention and response. The SWPPP will also include requirements for BMP inspections, monitoring, and maintenance. The following items are examples of BMPs that could be implemented during construction to avoid causing water quality degradation: • Erosion control BMPs such as use of mulches or hydroseeding to prevent detachment of soil following guidance presented in the California BMP Handbooks – Construction (CASQA 2003). A detailed site map will be included in the SWPPP outlining specific areas where soil disturbance may occur, and drainage patterns associated with excavation and grading activities. In addition, the SWPPP will provide plans and details for the BMPs to be implemented prior, during and after construction to prevent erosion of exposed soils and to treat sediments before they are transported offsite. • Sediment control BMPs such as silt fencing or detention basins that trap soil particles. • Construction staging areas designed so that stormwater runoff during construction will be collected and treated in a BMP such as a detention basin. • Management of hazardous material and wastes to prevent spills. • Vehicle and equipment fueling BMPs so these activities occur only in designated staging areas with appropriate spill controls. • Maintenance checks of equipment and vehicles to prevent spills or leaks of liquids of any kind.	Stormwater runoff from the MIAD construction site could degrade water quality. Construction could increase the potential for soil erosion. Release of HTRW encountered in soil.	Reclamation/Construction Contractor	Before, during and following construction until site restoration	NPDES Permit requirements, SWPPP, Plans and Specifications	CVRWQCB	Reclamation CCAO	
WQ-2: Dewatering Permit and Water Quality Monitoring Program Reclamation will obtain the appropriate dewatering permit from the CVRWQCB prior to the discharge of any groundwater to surface waters. It is expected that measures to control groundwater quality will be included in the dewatering permit conditions to ensure the discharge meets the appropriate water quality objectives for the receiving waters. Water quality sampling will be conducted to determine if the water in the detention basin meets the applicable water quality objectives for discharge to Humbug Creek. If sampling results do not meet applicable water quality objectives, no discharges will occur and Reclamation will determine appropriate corrective measures. These measures may include treating the water, increasing the residency time in the detention ponds, blending the water with an additional water source, and/or using the water as dust control to reduce or eliminate the need for discharge to surface waters. The sampling program and corrective measures will be coordinated with the CVRWQCB.	Dewatering activities could result in water quality impacts associated with the discharge of groundwater to surface water.	Reclamation/Construction Contractor	Before the discharge of groundwater to surface waters	Dewatering Permit	CVRWQCB	Reclamation CCAO	
WQ-3: Water Level Monitoring Reclamation will monitor surface and groundwater levels in wetlands downstream of MIAD and within the Mormon Island Wetland Preserve during and after construction of MIAD. This monitoring will occur in conjunction with mitigation measure **BIO-9,** Biological Resources, and **GW-1**, Groundwater. If water levels decrease, Reclamation will be responsible for completing corrective actions such as supplying additional water to the wetlands or completing appropriate mitigation for any resulting impacts.	Replacement of the MIAD foundation could alter existing hydrology. Modification of the MIAD foundation could affect water supply to bordering wetlands and could result in visual impacts.	Reclamation	During and after construction	Water Quality Monitoring Plan	Reclamation CCAO	Reclamation CCAO	

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Groundwater							
GW-1: Groundwater Monitoring Program Reclamation will develop a groundwater monitoring program for MIAD and the Mormon Island Wetland Preserve. Groundwater elevations will be monitored via a network of monitoring wells during and after construction. If substantial water level decreases are observed, Reclamation will be responsible for providing sufficient water to maintain groundwater elevations and preserve the existing wetlands. This mitigation will be completed in conjunction with mitigation measures **WQ-3**, Hydrology, Water Quality, and Flood Control, and **BIO-9**, Biological Resources.	Replacement of the MIAD foundation could permanently decrease aquifer volume and the rate of groundwater movement. Modification of the MIAD foundation could affect water supply to bordering wetlands and could result in visual impacts.	Reclamation	During and after construction	Water Quality Monitoring Plan	Reclamation CCAO	Reclamation CCAO	
GW-2: Subsidence Monitoring Reclamation will develop a subsidence monitoring plan for MIAD and Green Valley Road. Subsidence in the immediate area of MIAD and along Green Valley Road will be monitored during construction via a network of extensometers tied into a global positioning system. If significant indications of subsidence are observed, dewatering will cease until corrective measures are taken. Corrective measures could include decreasing dewatering cell sizes or utilizing groundwater recharge trenches. Additionally, if any damage occurs to Green Valley Road from subsidence, Reclamation will provide adequate compensation to the City of Folsom.	Dewatering activities could cause land subsidence.	Reclamation	During construction	Subsidence Monitoring Plan	Reclamation CCAO	Reclamation CCAO	
Air Quality							
AQ-1: Concrete Batching Plant Power Facility power will come from the electric utility grid, not on-site diesel-powered generators and pumps. Using grid power eliminates the on-site emissions associated with both the gaseous pollutants from diesel engines, as well as diesel particulate matter, which is a listed TAC in California.	Emissions from stationary sources (concrete batching plant).	Reclamation/Construction Contractor	During construction	Plans and Specifications	SMAQMD	Reclamation CCAO	
AQ-2: Concrete Batching Plan Dust Suppression Wet suppression will be used to reduce plant dust emissions. For this analysis, the controlled emissions are based on AP-42 controlled emission factors for batch plants.	Emissions from stationary sources (concrete batching plant).	Reclamation/Construction Contractor	During construction	Plans and Specifications	SMAQMD	Reclamation CCAO	
The standard CEQA mitigation measures for construction equipment emissions are (SMAQMD 2004): **AQ-3: Fleet-Average 20 Percent NO_x Reduction and 45 Percent Particulate Reduction** The Project Agencies will provide a plan for approval by SMAQMD, demonstrating that the heavy-duty (> 50 horsepower) off-road vehicles to be used in the construction project, including owned, leased and subcontractor vehicles, will achieve a project wide fleet-average 20 percent NO_x reduction and 45 percent particulate reduction compared to the most recent CARB fleet average at time of construction; and **AQ-4: Off-Road Equipment Inventory** The Project Agencies will submit to the 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 SMAQMD with the anticipated construction timeline including start date, and name and phone number of the project manager and on-site foreman. **AQ-5:Off-Road Diesel Powered Equipment** The Project Agencies will ensure that emissions from all off-road diesel powered equipment used on the project site do not exceed 40 percent opacity for more than three minutes in any one hour. Any equipment found to exceed 40 percent opacity (or Ringelmann 2.0) will be repaired immediately, and SMAQMD will be notified within 48 hours of identification of non-compliant equipment. A visual survey of all in-operation equipment will be made at least weekly, and a monthly summary of the visual survey results will be submitted throughout the duration of the project, except that the monthly summary will not be required for any 30-day period in which no construction activity occurs. The monthly summary will include the	Exceed NO_x and VOC 50 tpy de minimis threshold. Exceed NO_x threshold of 85 lbs per day.	Reclamation/Construction Contractor	Prior to and during construction	Plans and Specifications	SMAQMD	Reclamation CCAO	

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Environmental Commitment	Impact(s) being Mitigated	Implementation Responsibility	Project Phase of Mitigation	Monitoring Action or Plan	Enforcement Responsibility	Monitoring Responsibility	Compliance (Date)
quantity and type of vehicles surveyed as well as the dates of each survey. It is the Project Agencies' understanding that SMAQMD may conduct periodic site inspections to determine compliance. **NOx Mitigation** Several mitigation measures applicable to mobile construction equipment engines to reduce NO_x emissions are described below. The specific measures to be employed will be based on discussions with the SMAQMD. **AQ-6: Exhaust Gas Recirculation** Use of equipment with engines that incorporate exhaust gas recirculation (EGR) systems. EGR systems will need to be part of the engine design for a substantial portion of the existing construction equipment fleet in the region to be effective. While EGR systems can provide reductions of NO_x, PM_{10}, CO, and VOC emissions, it is not likely that enough available construction equipment have EGR engines to provide any real reductions for the MIAD Modification Project. However, the availability of construction equipment with EGR systems will need to be reviewed in detail prior to the final decision to incorporate or drop this option. **AQ-7: Lean NO_x Catalyst Filters** Installation of a lean NO_x catalyst in the engine exhaust system. Lean NO_x catalyst filters may be available for construction equipment exhaust. However, these units will need to be certified by CARB before being installed on specific construction equipment engines.							
AQ-8: Fugitive Dust Control Fugitive dust control will be applied to reduce PM_{10} and $PM_{2.5}$ emissions. Typical dust mitigation measures include: • Wet suppression and soil stabilization • Wind fencing around active area • Paving on-site roadways • Truck wheel washing facilities at site exits onto public roadways • Maintaining minimum truck bed freeboard or covering haul truck beds More than half of PM emissions result from exposed grading operations. Fugitive dust from exposed grading operations can be suppressed more effectively than other sources such as hauling roads and operations. The SMAQMD CEQA Guidelines estimate the effectiveness of watering exposed soil in suppressing fugitive dust to be 37 percent if exposed soil is watered twice a day or 75 percent if the exposed soil is continuously moist. The MIAD Modification Project will employ some combination of these measures as appropriate for the area and equipment operating on a given feature. The URBEMIS modeling completed for this project specifically used the following mitigation measures during its analysis: • Apply soil stabilizers to inactive areas; • Replace ground cover in disturbed areas quickly; • Water exposed surfaces twice daily; and • Equipment loading/unloading These mitigation measures will fulfill EDCAQMD's requirement for fugitive dust prevention. (EDCAQMD 2005). The EDCAQMD assumes that fugitive dust emissions from project construction are not significant if the project commits to implementing fugitive dust control measures sufficient to prevent visible dust beyond the project lines. The dust control measures to be implemented to meet SMAQMD requirements are assumed to be sufficient to control visible dust emissions; therefore, not further mitigation is required for EDCAQMD.	Create substantial fugitive dust. Exceed PM_{10} 100 tpy de minimis threshold.	Reclamation/Construction Contractor	During construction	Plans and Specifications	SMAQMD	Reclamation CCAO	
AQ-9: NO_x Mitigation Fee Required NO_x emissions with all feasible mitigation measures will remain significant under CEQA; therefore, the payment of a mitigation fee to the SMAQMD will be required to offset emissions in another portion of the air basin.	Exceed NO_x threshold of 85 lbs per day.	Reclamation	Prior to construction	Plans and Specifications	SMAQMD	Reclamation CCAO	

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AQ-10: NO_x General Conformity Determination Required Mitigated NO_x would be greater than the 50 tpy General Conformity de minimis threshold for Alternatives 1, 3, and 4. Therefore, a full NO_x general conformity determination will need to be developed before a ROD could be issued for the MIAD Modification Project if either Alternative 1, 3, or 4 is the preferred alternative.	Exceed NO_x and VOC 50 tpy de minimis threshold.	Reclamation	Prior to ROD	Plans and Specifications	SMAQMD, CARB	Reclamation CCAO	
Biological Resources							
BIO-1: Tree Protection and Re-Vegetation In order to minimize direct impacts to trees located within the construction area, tree protection measures will be implemented prior to construction and re-vegetation will occur immediately following construction. Tree protection measures will reduce impacts to trees during construction and may include the following measures: • Protective fencing will be installed at the Root Protection Zone of trees that will be directly affected by construction. The Root Protection Zone is defined as the area within a circle with a radius equal to the greatest distance from the trunk to any overhanging foliage in the tree canopy. Posts will be placed where they will not harm tree roots. • No construction staging or disposal of construction materials or byproducts including but not limited to paint, plaster, or chemical solutions will be allowed in the Root Protection Zone. • All work conducted in the ground within the Root Protection Zone of any protected tree will be accomplished with hand tools to the extent feasible. • "Natural" or pre-construction grade will be maintained in the Root Protection Zone. • In areas where the grade around the protected tree will be lowered, some root cutting may be unavoidable. Cuts will be clean and made at right angles to the roots. When practical, roots will be cut back to a branching lateral root. Any necessary root pruning to be conducted by a certified arborist. Cut roots subject to open air conditions longer than a few hours should be covered with burlap and maintained in a moist condition until covered by soil. • Root damage and soil compaction caused by heavy equipment traversing the Root Protection Zone in locations where it is unavoidable will be mitigated by applying plywood or mulch in the Root Protection Zone to avoid soil compaction. • All pruning will be conducted by a certified arborist. • If necessary, permits for tree removal or trimming will be obtained from appropriate entities. Once construction has been completed, re-vegetation will occur within the project footprint. Vegetated areas disturbed during construction will be restored to pre-construction conditions, to the extent feasible. Native plant species used for re-vegetation will be selected based on existing vegetation in the project area and consultation with USFWS.	Direct and indirect impacts to vegetation. Removal of vegetation will temporarily affect views of the downstream side of MIAD.	Reclamation/ Construction Contractor	Prior to and during construction	Plans and Specifications	Reclamation	Reclamation CCAO	
BIO-2: Habitat Loss Avoidance and Compensation Reclamation will avoid and compensate for habitat loss by: • Minimizing the project footprint where possible; • Staging all equipment at least 25 feet from sensitive habitats such as wetlands; • Fencing all sensitive habitats to be avoided such as vernal pools, elderberry shrubs, and wetlands according to USFWS recommendations; • Notifying DFG of the work at Mississippi Bar and obtaining a Lake and Streambed Alteration Agreement, if necessary; • Amending the current Folsom DS/FDR CWA Section 404 permit to address any additional impacts to wetlands and other waters of the U.S.; and • Amending the current 401 water quality certification or obtaining new 401 water quality certification from the CVRWQCB, as required for the 404 permit; and • Amending the Folsom DS/FDR CAR to address any new habitat impacts and compensating for impacts at a ratio stipulated in the CAR by USFWS.	Impacts to special-status plant species. Impacts on special-status vernal pool branchiopods. Impacts on special-status amphibians and reptiles. Impacts on wildlife including special-status birds and bats. Direct and indirect impacts to vegetation. Construction will result in direct impacts to wetlands and other waters of the U.S..	Reclamation/Construction Contractor	Prior to and during construction	CWA 404 permit, 401 Water Quality Certification, FWCAR, Streambed Alteration Agreement, Plans and Specifications	USFWS, DFG, CVRWQCB, Corps	Reclamation CCAO	

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Environmental Commitment	Impact(s) being Mitigated	Implementation Responsibility	Project Phase of Mitigation	Monitoring Action or Plan	Enforcement Responsibility	Monitoring Responsibility	Compliance (Date)
BIO-3: Biological Resources Awareness Training Prior to construction, including clearing of vegetation and grading, mandatory training regarding the biological resources present at the project site will be provided to all construction personnel. The training will be developed and provided by a qualified biologist familiar with the sensitive habitats and species that may occur in the project area and will provide educational information on the natural history of these habitats and species, reporting sightings, required mitigation measures to avoid impacts, and penalties for not complying with biological mitigation requirements. All project personnel will be required to receive training before they start working.	Impacts to special-status plant species. Impacts on special-status vernal pool branchiopods. Impacts on special-status amphibians and reptiles. Impacts on wildlife including special-status birds and bats. Direct and indirect impacts to vegetation. Construction will result in direct impacts to wetlands and other waters of the U.S..	Reclamation/Construction Contractor	Prior to construction	Plans and Specifications	Reclamation	Reclamation CCAO	
BIO-4: Conduct Special-Status Plant Surveys Prior to project construction, a qualified biologist will conduct surveys to ensure no special-status plants are present within or near the project area. If any special-status plants are observed within or near the project area, Reclamation will: • Have survey biologists identify locations of special status plant species; • Consult with the appropriate resource agency; and • Take necessary measures to provide protection, including having a biological monitor available to inspect any protection measures such as fencing.	Impacts to special-status plant species	Reclamation	Prior to construction	ECC	USFWS, DFG	Reclamation CCAO	
BIO-5: Conduct Special-Status Vernal Pool Branchiopod Surveys Prior to project construction, a qualified biologist will conduct surveys to ensure no special-status vernal pool branchiopods are present within or near the project area. If any special-status vernal pool branchiopods are observed within or near the project area, Reclamation will consult with the appropriate resource agency.	Impacts on special-status vernal pool branchiopods.	Reclamation	Prior to construction	ECC	USFWS	Reclamation CCAO	
BIO-7: Conduct Special-Status Amphibian and Reptile Surveys Prior to project construction, a USFWS-approved biologist will conduct surveys to ensure no special-status amphibians or reptiles are present within or near the project area. If any special-status amphibians or reptiles are observed within or near the project area, Reclamation will: • Have survey biologists identify locations of special status amphibian and reptile species; • Consult with the appropriate resource agency; and • Take necessary measures to provide protection, including having a biological monitor available to oversee construction and remove the species from the construction zone, in consultation with the appropriate agency.	Impacts on special-status amphibians and reptiles.	Reclamation	Prior to construction	ECC	USFWS	Reclamation CCAO	

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Environmental Commitment	Impact(s) being Mitigated	Implementation Responsibility	Project Phase of Mitigation	Monitoring Action or Plan	Enforcement Responsibility	Monitoring Responsibility	Compliance (Date)
BIO-8: Conduct Nesting Bird Surveys, Roosting Bat Surveys, and Establish No-Disturbance Buffers, as Appropriate, for Special-Status Species To the extent possible, removal of trees and potential bird breeding habitat in the project area will occur between September 1 and January 31, when birds are not expected to be nesting, in order to comply with the MBTA. Prior to any tree removal and construction, a qualified biologist or ornithologist will conduct preconstruction field surveys in and adjacent to the project area for nesting migratory birds, including raptors. Surveys will be conducted during the season immediately preceding tree removal and grading operations when birds are building and defending nests or when young are still in nests and dependent on the parents. If no nests are found during the surveys, tree removal and grading may proceed. Additionally, if construction activities, including tree removal, must occur during the breeding season for special-status birds and/or bats (February 1–August 31), the following measures will be implemented: • Retain a qualified wildlife biologist who is experienced in identifying special-status birds and bats and their habitat to conduct nesting-bird surveys and bat roosting surveys in and within 500 feet of the project site. These surveys must be conducted within one week prior to initiation of construction activities at any time between February 1 and August 31. • If no active nests or roosts are detected during surveys, then no additional mitigation measures are required. • If special-status birds or bats are found in the construction area or in the adjacent surveyed area, a no-disturbance buffer will be established around the nesting/roosting location to avoid disturbance or destruction of the nest site/roost site until after the breeding season or after a wildlife biologist determines that the young have fledged (usually late-June through mid-July). The extent of these buffers will be determined by a wildlife biologist in consultation with the applicable resource agencies (i.e., USFWS and/or DFG) and will depend on the level of noise or construction disturbance, line of site between the nest/roost and the disturbance, ambient levels of noise and other disturbances, and other topographical or artificial barriers. These factors will be analyzed and used by a qualified wildlife biologist to assist the USFWS and/or DFG in making an appropriate decision on buffer distances.	Impacts on wildlife including special-status birds and bats.	Reclamation	Prior to construction	ECC	USFWS	Reclamation CCAO	
BIO-9: Monitoring Program for Mormon Island Wetland Preserve Reclamation will establish a monitoring program to monitor groundwater levels, vegetation, and wildlife species within the Mormon Island Wetland Preserve, during and after construction. If groundwater levels decline and vegetation and wildlife impacts are observed or anticipated, Reclamation will consult with USFWS to determine appropriate mitigation. Reclamation has existing rights to water in Folsom Reservoir that could be used for supplying water to the wetlands and existing wells on their property that may also be used. Use of this water for the wetlands could require permits or other approvals that will be obtained prior to implementation. This may include supplying additional water to the Mormon Island Wetland Preserve area or completing appropriate mitigation. This mitigation will be completed in conjunction with mitigation measures **WQ-3**, Hydrology, Water Quality, and Flood Control and **GW-1**, Groundwater.	Alteration of existing hydrology may cause long-term impacts to vegetation and wildlife in Mormon Island Wetland Preserve. Modification of the MIAD foundation could affect water supply to bordering wetlands and could result in visual impacts.	Reclamation	Prior to construction	ECC	USFWS	Reclamation CCAO	
BIO-10: Vernal Pool Mitigation Adverse impacts to potential vernal pool habitat will be compensated in a manner agreed upon by Reclamation and the USFWS. For example, for habitat that is directly or indirectly affected, vernal pool credits will be dedicated within a USFWS-approved ecosystem preservation bank. Based on a USFWS evaluation of conservation values of the affected habitat, vernal pool habitat will be preserved, or created and monitored, on-site, or on another non-bank site approved by the USFWS. Vernal pool habitat and associated upland habitat used as on-site mitigation will be protected from adverse effects and managed in perpetuity or until Reclamation and USFWS agree on a process to exchange such areas for credits within a USFWS-approved mitigation banking system.	Impacts to special-status plant species. Impacts on special-status vernal pool branchiopods. Construction will result in direct impacts to vernal pools.	Reclamation	Prior to construction	ECC	USFWS	Reclamation CCAO	

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Soils, Minerals, and Geological Resources							
GR-1: Compliance with Airborne Toxic Control Measure and Approved Dust Mitigation Plan In order to comply with the Airborne Toxic Control Measure for naturally occurring asbestos, a county approved Dust Mitigation Plan will be prepared and submitted to El Dorado and Sacramento Counties. The Dust Mitigation Plan will specify the activities and best management practices (BMPs) required to minimize disturbance and potential impacts of naturally-occurring asbestos. These BMPs may include, but are not limited to, the following: • Pre-wet work area and keep area sufficiently wet during construction operations. An approved palliative material may also be used to seal loose fibers to the parent material; • Limit vehicle access and speed on serpentine and other materials containing asbestos; • Limit number and size of staging areas and entrances/exits; • Cover material during transfer and stockpiles of loose material; keep adequately wet, or sealed by an approved palliative; • Cover areas that are exposed to vehicle travel; • Visible trackout must be immediately removed from roads using manual wet sweeping or HEPA filter device, or flushing with water where the water will not cause adverse effects on storm drainage systems or violate NPDES permit program; • For large operations or sites with more than 150 vehicles per day, installation of devices designed to remove dirt/mud from tires, installation of gravel pads, or paving of interior roads; • Establish vegetative cover after construction is complete; and • Consider worker safety precautions and monitoring. Written employee notifications should be provided, notifying employees of the potential health risk and requirements of the asbestos dust mitigation plan (El Dorado County 2003).	Potential disturbance of areas containing naturally-occurring asbestos. Release of HTRW encountered in soil.	Reclamation/Construction Contractor	Prior to and during construction	Dust Mitigation Plan	SMAQMD EDCAQMD	Reclamation CCAO	
Visual Resources							
None.							
Transportation and Circulation							
T-1: Peak Hour Capacity Analysis, Roadway Improvements, and Traffic Modifications In conjunction with the development and review of more detailed project design and construction specifications, a peak hour capacity analysis will be performed on specific intersections to evaluate the need for changes to traffic signal timing, phasing modification, provision of additional turn lanes through restriping or physical improvements, as necessary and appropriate to reduce project-related impacts to an acceptable level. In conjunction with that assessment, the potential need for roadway improvements or operation modifications (i.e., temporary restrictions on turning movements, on-street parking, etc.) to enhance roadway capacity in light of additional traffic from the project will be evaluated. The completion of these evaluations and the identification of specific traffic improvement measures, as deemed necessary and appropriate in light of the temporary nature of impacts, will be coordinated with the transportation departments of the affected jurisdictions.	Average Daily Traffic Increase above 2%. Increase risk of collisions.	Reclamation/Construction Contractor	Prior to and during construction	Transportation Management Plan	City of Folsom	Reclamation CCAO	
T-2: Transportation Management Plan Construction contractor will prepare a transportation management plan, outlining proposed routes to be approved by the appropriate local entity, and will implement it. High collision intersections will be identified and avoided if possible. Drivers will be informed and trained on the various types of haul routes, and areas that are more sensitive (e.g., high level of residential or education centers, or narrow roadways).	Average Daily Traffic Increase above 2%. Increase risk of collisions.	Reclamation/Construction Contractor	Prior to construction	Transportation Management Plan	City of Folsom	Reclamation CCAO	
T-3: Signage Construction contractor will develop and utilize appropriate signage to inform the general public of the haul routes and route changes, if applicable.	Average Daily Traffic Increase above 2%. Increase risk of collisions.	Reclamation/Construction Contractor	Prior to and during construction	Transportation Management Plan	City of Folsom	Reclamation CCAO	

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Noise							
N-1: Noise Control Plan A Noise Control Plan (NCP) will be developed to address increased noise levels as a result of the MIAD modifications. The NCP will identify the procedures for predicting construction noise levels at sensitive receptors and will describe the reduction measures required to minimize construction noise. The NCP will be prepared by, and will require the signature of, the Acoustical Engineer. The noise mitigation measures in the NCP will include, but are not limited to: • Appropriate level of sound attenuation will be utilized or constructed to minimize noise. Potential sound attenuation measures could include, but are not limited to stationary equipment, or otherwise placed between the source(s) of construction noise and noise-sensitive receptors, as appropriate. • Equipment will be maintained to comply with noise standards and minimize noise (e.g., exhaust mufflers, acoustically attenuating shields, shrouds, or enclosures). • If necessary, above-ground conveyor systems will be enclosed in acoustically-treated enclosures. • If necessary, hoppers, conveyor transfer points, storage bins and chutes will be lined or covered with sound-deadening material. • For nighttime or after-hour construction, Reclamation will coordinate with the local jurisdictions to minimize noise. • Truck loading, unloading, and hauling operations will be scheduled so as to reduce nighttime noise impacts to less than noticeable levels • In the event that blasting is required, the blasting schedule will be coordinated with local jurisdictions to minimize noise. • The examination of any properties, structures and conditions where complaints and damages have been filed will be performed within three weeks of any work causing excessive vibration.	Incremental daytime noise increases that exceed 5dBA. Incremental nighttime noise increases that exceed 5dBA. Exceed local daytime noise standards. Exceed local nighttime noise standards.	Reclamation/Construction Contractor	Prior to construction	Noise Control Plan	Reclamation/City of Folsom	Reclamation CCAO	
Cultural Resources							
CR-1*:* Mitigation (Treatment) of Impacts to Historic Properties and/or Historical Resources. A memorandum of agreement will be developed, in consultation with SHPO and consulting parties, to mitigate impacts to any identified historic properties or historic resources. The implementation of the agreement document will reduce impacts to historic properties or historic resources to less than significant levels, per NEPA and CEQA. To mitigate adverse impacts, important information contained in affected resources will be recovered by treatment and mitigation required by Section 106 of the NRHP and Reclamations Directives and Standards LND P01, LND-02, and LND 10-01.	Project construction could lead to adverse effects to known historic properties and/or historical resources.	Reclamation	Prior to construction	SHPO Agreement	SHPO	Reclamation CCAO	
CR-2: Inadvertent Discovery Plan In order to minimize the potential for significant impacts on as of yet undiscovered historic properties and/or historical resources, the following measures will be required: a) Prior to construction, if deemed appropriate by Reclamation, sensitivity training to all contractors involved in subsurface work in the project area will be conducted. Workers involved in ground disturbing activities should be trained in: the recognition of archaeological resources (e.g., historic and prehistoric artifacts typical of the general area), procedures to report such discoveries, and other appropriate protocols to ensure that construction activities avoid or minimize impacts to potentially significant cultural resources. Reclamation will have the authority to halt or redirect construction if potentially significant archaeological features or materials are uncovered; b) In the event that as of yet undiscovered archaeological artifacts or cultural deposits are encountered during ground disturbing activities, stop all work in the immediate vicinity of the find, notify Reclamation. As appropriate, conduct additional cultural resources survey and inventory within areas disturbed during construction, or conduct subsurface exploration if there is the assessed potential for buried artifacts or cultural deposits consistent with guidelines found in 36 CFR Part 800.13; and, c) In the event that human skeletal remains are discovered anywhere in the project area, discontinue work in the vicinity of the discovery and contact the Reclamation Area Manager or Regional Archaeologist who will contact the county coroner, for El Dorado, Placer, or	Project construction could lead to the inadvertent discovery of cultural resources.	Reclamation	Prior to and during construction	Inadvertent Discovery Plan	SHPO	Reclamation CCAO	

Table A-1. Mormon Island Auxiliary Dam Modification Project Environmental Commitments Checklist

Environmental Commitment	Impact(s) being Mitigated	Implementation Responsibility	Project Phase of Mitigation	Monitoring Action or Plan	Enforcement Responsibility	Monitoring Responsibility	Compliance (Date)
Sacramento County, as appropriate. If skeletal remains are found to be prehistoric Native American (not modern), the coroner should call the Native American Heritage Commission (NAHC) in Sacramento within 24 hours, as provided in California Health and Safety Code Section 7050.5. Since the project is located on Federal lands, provisions set out in the Native American Graves Protection and Repatriation Act (NAGPRA) and its implementing regulations at 43 CFR Part 10 and Reclamations Directives and Standards LND 10-01will apply. Reclamation will follow, as deemed appropriate by the agency, Federal regulations (43 CFR Part 10) and Reclamation's LND 10-01 for the inadvertent discovery of NAGPRA related cultural items. Reclamation has not completed the Section 106 process. Prior to project implementation, Reclamation commits to completing the Section 106 process as outlined in the regulations at 36 CFR Part 800.3(a)(1) including mitigation of adverse effects if necessary.							
Land Use, Planning, and Zoning							
None.							
Recreation							
RC-1: Repair Damages Any damage to existing improved trails from construction will be repaired in kind after construction is completed by the Reclamation, per agency policy and guidance.	Temporary closure or restricted access to Folsom-Brown's Ravine Trail atop MIAD	Reclamation	After construction	ECC	DPR	Reclamation CCAO	
RC-3: Detours Suitable detours will be established, with appropriate signage, for any bike, equestrian, or pedestrian trails that are interrupted by construction, per Reclamation guidance and policy. In the event that detours are not feasible (such as the Brown's Ravine Trail on the top of MIAD) other options will be developed in coordination with DPR, including developing new trails or improving existing unimproved trails elsewhere in the FLSRA. Public service announcements will be distributed and posted to inform the public of route changes. Development of detours or creation of new trails will be sited so as to minimize vegetation clearing and environmental disturbance. Because the locations for these trails have not yet been selected; additional environmental compliance will be completed for these actions, as necessary and required.	Temporary closure or restricted access to Folsom-Brown's Ravine Trail atop MIAD. Detention ponds will result in closure or restricted access to trails west of Mormon Island Wetland Preserve.	Reclamation	Prior to construction	ECC	DPR	Reclamation CCAO	
Public Services and Utilities							
None.							
Public Health and Safety							
PHS-1: A Public Safety Management Plan will be prepared and implemented to maintain public safety during all phases of construction. The plan will address: • Public notification of the location and duration of construction activities, pedestrian/bicycle path/trail closures, and restrictions on parking lot use; • Verification with local jurisdictions that construction blockage of existing roadways will not interfere with existing emergency evacuation plans; • Adequate signage regarding the location of construction sites and warning of the presence of construction equipment; • Fencing of construction staging areas and of construction areas if dangerous conditions exist when construction is not occurring; • Temporary walkways and bike paths where an existing sidewalk or pedestrian/bicycle path/trail will be closed during construction. • Appropriate markings, barriers, and signage will be used to create a safe separation between recreational visitors and vehicular traffic; and • Emergency response procedures in the event of dam failure during construction.	Construction hazards to public safety. Release of HTRW encountered in soil.	Construction Contractor	Prior to construction	Plans and Specifications	Reclamation	Reclamation CCAO	
PHS-2: An evaluation of weather and reservoir conditions will be conducted to determine the optimal timing and duration for construction to minimize risks to integrity of the dam facilities. Based on the evaluation, all work will be performed during the time period for optimal weather and reservoir conditions. Work will be designed by California-licensed professional civil and structural engineers and the construction work performed by licensed professional contractors. Designs and plans will also be reviewed, approved, and permitted in accordance with local, State and Federal laws.	Hazards associated with dam safety.	Reclamation/Construction Contractor	Prior to and during construction	Plans and Specifications	Reclamation	Reclamation CCAO	

Table A-1. Mormon Island Auxiliary Dam Modification Project Environmental Commitments Checklist

Environmental Commitment	Impact(s) being Mitigated	Implementation Responsibility	Project Phase of Mitigation	Monitoring Action or Plan	Enforcement Responsibility	Monitoring Responsibility	Compliance (Date)
PHS-3: A Worker Health and Safety Plan will be prepared by the construction contractor and implemented prior to the start of construction activities. All workers will be required to review and sign the plan prior to starting work. The Health and Safety Plan should, at a minimum, identify the following: • All contaminants that could be encountered during excavation activities (e.g., mercury and naturally-occurring asbestos and arsenic); • All appropriate worker, public health, and environmental protection equipment and procedures; • Emergency response procedures; • Most direct route to a hospital; and • Site Safety Officer.	Release of HTRW encountered in soil.	Construction Contractor	Prior to construction	Plans and Specifications	Reclamation	Reclamation CCAO	
PHS-4: Prior to initiation of construction activities, the Contractor will be required to prepare a Spill Plan to reduce the potential impacts from accidental release of construction-related hazardous materials. The Spill Plan will: • Describe spill prevention and control measures and designate a supervisor to oversee and enforce their implementation; • Provide for spill response and prevention education for employees and subcontractors; • Require stocking appropriate clean-up materials onsite near material storage, unloading and use areas; • Designate hazardous waste storage areas away from storm drains or watercourses; • Minimize production or generation of hazardous materials onsite or substituting chemicals used onsite with less hazardous chemicals; • Designate areas for construction vehicle and equipment maintenance and fueling with appropriate control measures; and • Arrange for regular hazardous waste removal to minimize onsite storage.	Accidental release of construction-related HTRW.	Construction Contractor	Prior to construction	Plans and Specifications	Reclamation	Reclamation CCAO	
PHS-5: A Fire Management Plan will be prepared to outline the measures to be taken to reduce the risk of wildland fires caused by construction activities. The plan will require that, prior to construction, all staging areas, welding areas, or areas slated for development using spark-producing equipment will be cleared of dried vegetation or other material that could ignite. Any construction equipment that includes a spark arrestor shall be equipped with a spark arrestor in good working order. During construction, all vehicles and crews working at the project site(s) will have access to functional fire extinguishers at all times. In areas where risk of wildland fires is high, construction crews will be required to have a spotter during welding activities to look out for potentially dangerous situations, including accidental sparks.	Wildland Fires.	Construction Contractor	Prior to construction	Plans and Specifications	Reclamation	Reclamation CCAO	
Indian Trust Assets							
None.							
Environmental Justice							
None.							
Climate Change							
None.							

Key:
BMP = best management practice
CAR = Coordination Act Report
CARB = California Air Resources Board
CCAO = Central California Area Office
CEQA = California Environmental Quality Act
CO = Carbon Monoxide
CVRWQCB = Central Valley Regional Water Quality Control Board
CWA = Clean Water Act
dBA = A-weighted decibel
DFG = California Department of Fish and Game
DPR = California Department of Parks and Recreation
DS/FDR = Dam Safety and Flood Damage Reduction
ECC = Environmental Commitments Checklist
EDCAQMD = El Dorado County Air Quality Management District
EGR = exhaust gas recirculation
FLSRA = Folsom Lake State Recreation Area
HTRW = Hazardous, Toxic, and Radiological Waste
lbs = pounds
MBTA = Migratory Bird Treaty Act
MIAD = Mormon Island Auxiliary Dam
NAGPRA = Native American Graves Protection and Repatriation Act
NAHC = Native American Heritage Commission
NCP = Noise Control Plan
NEPA = National Environmental Policy Act
NOI = Notice of Intent
NO_x = Nitrous Oxide
NDPES = National Pollutant Discharge Elimination System
NRHP = National Register of Historic Places
$PM_{2.5}$ = particulate matter smaller than 2.5 microns
PM_{10} = particulate matter smaller than 10 microns
SHPO = State Historic Preservation Office
SMAQMD = Sacramento Metropolitan Air Quality Management District
SWPPP = Storm Water Pollution Prevention Plan
TAC = toxic air contaminant
tpy = tons per year
URBEMIS = Urban Emissions
USFWS = U.S. Fish and Wildlife Service
VOC = volatile organic compounds

Table B-2. Mississippi Bar Habitat Mitigation Environmental Commitment Checklist

Environmental Commitment	Impact(s) being Mitigated	Implementation Responsibility	Project Phase of Mitigation	Monitoring Action or Plan	Enforcement Responsibility	Monitoring Responsibility	Compliance (Date)
Hydrology, Water Quality, and Flood Control							
WQ-1: NPDES General Permit for Construction A NPDES permit will be obtained prior to construction activities, commencing by filing a NOI with the CVRWQCB and preparing a SWPPP. As required under the General Permit, the SWPPP will identify implementation measures necessary to mitigate potential water quality degradation as a result of construction. These measures will include BMPs and other standard pollution prevention actions such as erosion and sediment control measures, proper control of non-stormwater discharges, and hazardous spill prevention and response. The SWPPP will also include requirements for BMP inspections, monitoring, and maintenance. The following items are examples of BMPs that could be implemented during construction to avoid causing water quality degradation: • Erosion control BMPs such as use of mulches or hydroseeding to prevent detachment of soil following guidance presented in the California BMP Handbooks – Construction (CASQA 2003). A detailed site map will be included in the SWPPP outlining specific areas where soil disturbance may occur, and drainage patterns associated with excavation and grading activities. In addition, the SWPPP will provide plans and details for the BMPs to be implemented prior, during and after construction to prevent erosion of exposed soils and to treat sediments before they are transported offsite. • Sediment control BMPs such as silt fencing or detention basins that trap soil particles. • Construction staging areas designed so that stormwater runoff during construction will be collected and treated in a BMP such as a detention basin. • Management of hazardous material and wastes to prevent spills. • Vehicle and equipment fueling BMPs so these activities occur only in designated staging areas with appropriate spill controls. • Maintenance checks of equipment and vehicles to prevent spills or leaks of liquids of any kind.	Stormwater runoff from Mississippi Bar mitigation site could degrade water quality	Reclamation/Construction Contractor	Before, during and following construction until site restoration	NPDES Permit requirements, SWPPP, Plans and Specifications	CVRWQCB	Reclamation CCAO	
Groundwater							
None.							
Air Quality							
None.							
Biological Resources							
BIO-1: Tree Protection and Re-Vegetation In order to minimize direct impacts to trees located within the construction area, tree protection measures will be implemented prior to construction and re-vegetation will occur immediately following construction. Tree protection measures will reduce impacts to trees during construction and may include the following measures: • Protective fencing will be installed at the Root Protection Zone of trees that will be directly affected by construction. The Root Protection Zone is defined as the area within a circle with a radius equal to the greatest distance from the trunk to any overhanging foliage in the tree canopy. Posts will be placed where they will not harm tree roots. • No construction staging or disposal of construction materials or byproducts including but not limited to paint, plaster, or chemical solutions will be allowed in the Root Protection Zone. • All work conducted in the ground within the Root Protection Zone of any protected tree will be accomplished with hand tools to the extent feasible. • "Natural" or pre-construction grade will be maintained in the Root Protection Zone. • In areas where the grade around the protected tree will be lowered, some root cutting may be unavoidable. Cuts will be clean and made at right angles to the roots. When practical, roots will be cut back to a branching lateral root. Any necessary root pruning to be conducted by a certified arborist. Cut roots subject to open air conditions longer than a few hours should be covered with burlap and maintained in a moist condition until covered by soil.	Direct and indirect impacts to vegetation. Removal of vegetation will temporarily affect views of the downstream side of MIAD.	Reclamation/ Construction Contractor	Prior to and during construction	Plans and Specifications	Reclamation	Reclamation CCAO	

Table B-2. Mississippi Bar Habitat Mitigation Environmental Commitment Checklist

Environmental Commitment	Impact(s) being Mitigated	Implementation Responsibility	Project Phase of Mitigation	Monitoring Action or Plan	Enforcement Responsibility	Monitoring Responsibility	Compliance (Date)
• Root damage and soil compaction caused by heavy equipment traversing the Root Protection Zone in locations where it is unavoidable will be mitigated by applying plywood or mulch in the Root Protection Zone to avoid soil compaction. • All pruning will be conducted by a certified arborist. • If necessary, permits for tree removal or trimming will be obtained from appropriate entities. Once construction has been completed, re-vegetation will occur within the project footprint. Vegetated areas disturbed during construction will be restored to pre-construction conditions, to the extent feasible. Native plant species used for re-vegetation will be selected based on existing vegetation in the project area and consultation with USFWS.							
BIO-2: Habitat Loss Avoidance and Compensation Reclamation will avoid and compensate for habitat loss by: • Minimizing the project footprint where possible; • Staging all equipment at least 25 feet from sensitive habitats such as wetlands; • Fencing all sensitive habitats to be avoided such as vernal pools, elderberry shrubs, and wetlands according to USFWS recommendations; • Notifying DFG of the work at Mississippi Bar and obtaining a Lake and Streambed Alteration Agreement, if necessary; • Amending the current Folsom DS/FDR CWA Section 404 permit to address any additional impacts to wetlands and other waters of the U.S.; and • Amending the current 401 water quality certification or obtaining new 401 water quality certification from the CVRWQCB, as required for the 404 permit; and • Amending the Folsom DS/FDR CAR to address any new habitat impacts and compensating for impacts at a ratio stipulated in the CAR by USFWS.	Impacts to special-status plant species. Impacts on special-status amphibians and reptiles. Impacts on wildlife including special-status birds and bats. Direct and indirect impacts to vegetation. Construction will result in direct impacts to wetlands and other waters of the U.S. Impacts to the valley elderberry longhorn beetle.	Reclamation/Construction Contractor	Prior to and during construction	CWA 404 permit, 401 Water Quality Certification, FWCAR, Streambed Alteration Agreement, Plans and Specifications	USFWS, DFG, CVRWQCB, Corps	Reclamation CCAO	
BIO-3: Biological Resources Awareness Training Prior to construction, including clearing of vegetation and grading, mandatory training regarding the biological resources present at the project site will be provided to all construction personnel. The training will be developed and provided by a qualified biologist familiar with the sensitive habitats and species that may occur in the project area and will provide educational information on the natural history of these habitats and species, reporting sightings, required mitigation measures to avoid impacts, and penalties for not complying with biological mitigation requirements. All project personnel will be required to receive training before they start working.	Impacts to special-status plant species. Impacts on special-status vernal pool branchiopods. Impacts on special-status amphibians and reptiles. Impacts on wildlife including special-status birds and bats. Direct and indirect impacts to vegetation. Construction will result in direct impacts to wetlands and other waters of the U.S. Impacts to the valley elderberry longhorn beetle.	Reclamation/Construction Contractor	Prior to construction	Plans and Specifications	Reclamation	Reclamation CCAO	

Table B-2. Mississippi Bar Habitat Mitigation Environmental Commitment Checklist

Environmental Commitment	Impact(s) being Mitigated	Implementation Responsibility	Project Phase of Mitigation	Monitoring Action or Plan	Enforcement Responsibility	Monitoring Responsibility	Compliance (Date)
BIO-4: Conduct Special-Status Plant Surveys Prior to project construction, a qualified biologist will conduct surveys to ensure no special-status plants are present within or near the project area. If any special-status plants are observed within or near the project area, Reclamation will: • Have survey biologists identify locations of special status plant species; • Consult with the appropriate resource agency; and • Take necessary measures to provide protection, including having a biological monitor available to inspect any protection measures such as fencing.	Impacts to special-status plant species	Reclamation	Prior to construction	ECC	USFWS	Reclamation CCAO	
BIO-5: Conduct Special-Status Vernal Pool Branchiopod Surveys Prior to project construction, a qualified biologist will conduct surveys to ensure no special-status vernal pool branchiopods are present within or near the project area. If any special-status vernal pool branchiopods are observed within or near the project area, Reclamation will consult with the appropriate resource agency.	Impacts on special-status vernal pool branchiopods.	Reclamation	Prior to construction	ECC	USFWS	Reclamation CCAO	
BIO-6: Implement Appropriate Valley Elderberry Longhorn Beetle (VELB) Avoidance and Minimization Measures The following measures are subject to and contingent upon a Section 7 consultation with the USFWS. Reclamation will implement the following measures proposed in the VELB Conservation Guidelines (USFWS 1999). Where possible, complete avoidance of elderberry shrub will be enforced. Avoidance measures will include the establishment and maintenance of a 100 foot buffer zone surrounding elderberry shrubs containing stems measuring 1.0 inches or greater in diameter at ground level. The proposed staging area and access roads contain elderberry shrubs that will be within 20 feet of project activities. These shrubs; however, are currently exposed to ongoing FLSRA operation and maintenance (O&M) activities similar to the proposed project. All elderberry shrubs within 20 feet of project activities will also be flagged or fenced for easy identification. Construction crews will be briefed on the need to avoid elderberry shrubs and no vehicles will enter within the 20 feet buffer zone. Additionally, the following dust control measures will be implemented: • Water or otherwise stabilize the soil prior to ground disturbance; • Cover haul trucks; • Employ speed limits on unpaved roads; • Apply dust suppressants; • Physically stabilize soil with vegetation, gravel, recrushed/recycled asphalt or other forms of physical stabilization; • Minimize the number of vehicle trips; • Install one or more grizzlies, gravel pads, and/or wash down pads adjacent to the entrance of a paved public roadway to control carry-out and trackout; and • Minimize vegetation clearing. While Reclamation expects to avoid elderberry shrubs, any elderberry shrubs that cannot be avoided will be transplanted if technically feasible. All elderberry shrubs containing stems measuring 1.0 inch or greater in diameter at ground level will be transplanted to a USFWS approved conservation area between November 1 and February 15. Each elderberry shrub with stem measuring 1.0 inch or greater in diameter at ground level that is adversely affected will be compensated with elderberry seedlings or cuttings in accordance with the USFWS 1999 VELB Guidelines (Guidelines). Elderberry shrubs that cannot be feasibly transplanted will be compensated at a ratio two-times the normal amount. A minimum survival rate of at least 60 percent of the elderberry shrubs will be maintained throughout the monitoring period. If survival drops below this level, additional seedlings will be planted. Stock for plantings will be obtained from local sources. Native plants associated with elderberry shrubs at the project area or similar reference sites will be planted in accordance with the Guidelines. A minimum survival rate of at least 60 percent of	Impacts to the valley elderberry longhorn beetle.	Reclamation	Prior to construction	ECC	USFWS	Reclamation CCAO	

Table B-2. Mississippi Bar Habitat Mitigation Environmental Commitment Checklist

Environmental Commitment	Impact(s) being Mitigated	Implementation Responsibility	Project Phase of Mitigation	Monitoring Action or Plan	Enforcement Responsibility	Monitoring Responsibility	Compliance (Date)
the associated native plants will be maintained throughout the monitoring period. If survival drops below this level, additional seedlings or cuttings will be planted. Only stock from local sources will be used, unless such stock is not available, per the Guidelines.							
BIO-7: Conduct Special-Status Amphibian and Reptile Surveys Prior to project construction, a USFWS-approved biologist will conduct surveys to ensure no special-status amphibians or reptiles are present within or near the project area. If any special-status amphibians or reptiles are observed within or near the project area, Reclamation will: • Have survey biologists identify locations of special status amphibian and reptile species; • Consult with the appropriate resource agency; and • Take necessary measures to provide protection, including having a biological monitor available to oversee construction and remove the species from the construction zone, in consultation with the appropriate agency.	Impacts on special-status amphibians and reptiles.	Reclamation	Prior to construction	ECC	USFWS	Reclamation CCAO	
BIO-8: Conduct Nesting Bird Surveys, Roosting Bat Surveys, and Establish No-Disturbance Buffers, as Appropriate, for Special-Status Species To the extent possible, removal of trees and potential bird breeding habitat in the project area will occur between September 1 and January 31, when birds are not expected to be nesting, in order to comply with the MBTA. Prior to any tree removal and construction, a qualified biologist or ornithologist will conduct preconstruction field surveys in and adjacent to the project area for nesting migratory birds, including raptors. Surveys will be conducted during the season immediately preceding tree removal and grading operations when birds are building and defending nests or when young are still in nests and dependent on the parents. If no nests are found during the surveys, tree removal and grading may proceed. Additionally, if construction activities, including tree removal, must occur during the breeding season for special-status birds and/or bats (February 1–August 31), the following measures will be implemented: • Retain a qualified wildlife biologist who is experienced in identifying special-status birds and bats and their habitat to conduct nesting-bird surveys and bat roosting surveys in and within 500 feet of the project site. These surveys must be conducted within one week prior to initiation of construction activities at any time between February 1 and August 31. • If no active nests or roosts are detected during surveys, then no additional mitigation measures are required. • If special-status birds or bats are found in the construction area or in the adjacent surveyed area, a no-disturbance buffer will be established around the nesting/roosting location to avoid disturbance or destruction of the nest site/roost site until after the breeding season or after a wildlife biologist determines that the young have fledged (usually late-June through mid-July). The extent of these buffers will be determined by a wildlife biologist in consultation with the applicable resource agencies (i.e., USFWS and/or DFG) and will depend on the level of noise or construction disturbance, line of site between the nest/roost and the disturbance, ambient levels of noise and other disturbances, and other topographical or artificial barriers. These factors will be analyzed and used by a qualified wildlife biologist to assist the USFWS and/or DFG in making an appropriate decision on buffer distances.	Impacts on wildlife including special-status birds and bats.	Reclamation	Prior to construction	ECC	USFWS	Reclamation CCAO	
Soils, Minerals, and Geological Resources							
None.							
Visual Resources							
None.							
Transportation and Circulation							
None.							
Noise							
None.							

Table B-2. Mississippi Bar Habitat Mitigation Environmental Commitment Checklist

Environmental Commitment	Impact(s) being Mitigated	Implementation Responsibility	Project Phase of Mitigation	Monitoring Action or Plan	Enforcement Responsibility	Monitoring Responsibility	Compliance (Date)
Cultural Resources							
CR-1*:* Mitigation (Treatment) of Impacts to Historic Properties and/or Historical Resources. A memorandum of agreement will be developed, in consultation with SHPO and consulting parties, to mitigate impacts to any identified historic properties or historic resources. The implementation of the agreement document will reduce impacts to historic properties or historic resources to less than significant levels, per NEPA and CEQA. To mitigate adverse impacts, important information contained in affected resources will be recovered by treatment and mitigation required by Section 106 of the NRHP and Reclamations Directives and Standards LND P01, LND-02, and LND 10-01.	Project construction could lead to adverse effects to known historic properties and/or historical resources.	Reclamation	Prior to construction	SHPO Agreement	SHPO	Reclamation CCAO	
CR-2: Inadvertent Discovery Plan In order to minimize the potential for significant impacts on as of yet undiscovered historic properties and/or historical resources, the following measures will be required: a) Prior to construction, if deemed appropriate by Reclamation, sensitivity training to all contractors involved in subsurface work in the project area will be conducted. Workers involved in ground disturbing activities should be trained in: the recognition of archaeological resources (e.g., historic and prehistoric artifacts typical of the general area), procedures to report such discoveries, and other appropriate protocols to ensure that construction activities avoid or minimize impacts to potentially significant cultural resources. Reclamation will have the authority to halt or redirect construction if potentially significant archaeological features or materials are uncovered; b) In the event that as of yet undiscovered archaeological artifacts or cultural deposits are encountered during ground disturbing activities, stop all work in the immediate vicinity of the find, notify Reclamation. As appropriate, conduct additional cultural resources survey and inventory within areas disturbed during construction, or conduct subsurface exploration if there is the assessed potential for buried artifacts or cultural deposits consistent with guidelines found in 36 CFR Part 800.13; and, c) In the event that human skeletal remains are discovered anywhere in the project area, discontinue work in the vicinity of the discovery and contact the Reclamation Area Manager or Regional Archaeologist who will contact the county coroner, for El Dorado, Placer, or Sacramento County, as appropriate. If skeletal remains are found to be prehistoric Native American (not modern), the coroner should call the Native American Heritage Commission (NAHC) in Sacramento within 24 hours, as provided in California Health and Safety Code Section 7050.5. Since the project is located on Federal lands, provisions set out in the Native American Graves Protection and Repatriation Act (NAGPRA) and its implementing regulations at 43 CFR Part 10 and Reclamations Directives and Standards LND 10-01would apply. Reclamation will follow, as deemed appropriate by the agency, Federal regulations (43 CFR Part 10) and Reclamation's LND 10-01 for the inadvertent discovery of NAGPRA related cultural items. Reclamation has not completed the Section 106 process. Prior to project implementation, Reclamation commits to completing the Section 106 process as outlined in the regulations at 36 CFR Part 800.3(a)(1) including mitigation of adverse effects if necessary.	Project construction could lead to the inadvertent discovery of cultural resources.	Reclamation	Prior to and during construction	Inadvertent Discovery Plan	SHPO	Reclamation CCAO	
Land Use, Planning, and Zoning							
None.							
Recreation							
RC-2*:* Reclamation will post signage and public announcements to inform the public of the dates/times of construction activities and closures. The signs will direct visitors to other areas of Mississippi Bar that remain open and will provide comparable recreation activities.	Temporary area closures at Mississippi Bar during construction.	Reclamation	Prior to construction	ECC	DPR	Reclamation CCAO	

Table B-2. Mississippi Bar Habitat Mitigation Environmental Commitment Checklist

Environmental Commitment	Impact(s) being Mitigated	Implementation Responsibility	Project Phase of Mitigation	Monitoring Action or Plan	Enforcement Responsibility	Monitoring Responsibility	Compliance (Date)
RC-3: Detours Suitable detours will be established, with appropriate signage, for any bike, equestrian, or pedestrian trails that are interrupted by construction, per Reclamation guidance and policy. In the event that detours are not feasible (such as the Brown's Ravine Trail on the top of MIAD) other options will be developed in coordination with DPR, including developing new trails or improving existing unimproved trails elsewhere in the FLSRA. Public service announcements will be distributed and posted to inform the public of route changes. Development of detours or creation of new trails will be sited so as to minimize vegetation clearing and environmental disturbance. Because the locations for these trails have not yet been selected; additional environmental compliance will be completed for these actions, as necessary and required.	Temporary closure of existing bike trail at Mississippi Bar. Removal and/or relocation of informal trails at Mississippi Bar.	Reclamation	Prior to construction	ECC	DPR	Reclamation CCAO	
Public Services and Utilities							
None.							
Public Health and Safety							
PHS-1: A Public Safety Management Plan will be prepared and implemented to maintain public safety during all phases of construction. The plan will address: • Public notification of the location and duration of construction activities, pedestrian/bicycle path/trail closures, and restrictions on parking lot use; • Verification with local jurisdictions that construction blockage of existing roadways will not interfere with existing emergency evacuation plans; • Adequate signage regarding the location of construction sites and warning of the presence of construction equipment; • Fencing of construction staging areas and of construction areas if dangerous conditions exist when construction is not occurring; • Temporary walkways and bike paths where an existing sidewalk or pedestrian/bicycle path/trail will be closed during construction. • Appropriate markings, barriers, and signage will be used to create a safe separation between recreational visitors and vehicular traffic; and • Emergency response procedures in the event of dam failure during construction.	Construction hazards to public safety. Release of HTRW encountered in soil.	Construction Contractor	Prior to construction	Plans and Specifications	Reclamation	Reclamation CCAO	
PHS-3: A Worker Health and Safety Plan will be prepared by the construction contractor and implemented prior to the start of construction activities. All workers will be required to review and sign the plan prior to starting work. The Health and Safety Plan should, at a minimum, identify the following: • All contaminants that could be encountered during excavation activities (e.g., mercury and naturally-occurring asbestos and arsenic); • All appropriate worker, public health, and environmental protection equipment and procedures; • Emergency response procedures; • Most direct route to a hospital; and • Site Safety Officer.	Release of HTRW encountered in soil.	Construction Contractor	Prior to construction	Plans and Specifications	Reclamation	Reclamation CCAO	
PHS-4: Prior to initiation of construction activities, the Contractor will be required to prepare a Spill Plan to reduce the potential impacts from accidental release of construction-related hazardous materials. The Spill Plan will: • Describe spill prevention and control measures and designate a supervisor to oversee and enforce their implementation; • Provide for spill response and prevention education for employees and subcontractors; • Require stocking appropriate clean-up materials onsite near material storage, unloading and use areas; • Designate hazardous waste storage areas away from storm drains or watercourses; • Minimize production or generation of hazardous materials onsite or substituting chemicals used onsite with less hazardous chemicals; • Designate areas for construction vehicle and equipment maintenance and fueling with appropriate control measures; and • Arrange for regular hazardous waste removal to minimize onsite storage.	Accidental release of construction-related HTRW.	Construction Contractor	Prior to construction	Plans and Specifications	Reclamation	Reclamation CCAO	

Table B-2. Mississippi Bar Habitat Mitigation Environmental Commitment Checklist

Environmental Commitment	Impact(s) being Mitigated	Implementation Responsibility	Project Phase of Mitigation	Monitoring Action or Plan	Enforcement Responsibility	Monitoring Responsibility	Compliance (Date)
PHS-5: A Fire Management Plan will be prepared to outline the measures to be taken to reduce the risk of wildland fires caused by construction activities. The plan will require that, prior to construction, all staging areas, welding areas, or areas slated for development using spark-producing equipment will be cleared of dried vegetation or other material that could ignite. Any construction equipment that includes a spark arrestor shall be equipped with a spark arrestor in good working order. During construction, all vehicles and crews working at the project site(s) will have access to functional fire extinguishers at all times. In areas where risk of wildland fires is high, construction crews will be required to have a spotter during welding activities to look out for potentially dangerous situations, including accidental sparks.	Wildland Fires.	Construction Contractor	Prior to construction	Plans and Specifications	Reclamation	Reclamation CCAO	
Indian Trust Assets							
None.							
Environmental Justice							
None.							
Climate Change							
None.							

Key:
BMP = best management practice
CAR = Coordination Act Report
CCAO = Central California Area Office
CEQA = California Environmental Quality Act
CFR = Code of Federal Regulations
Corps = U.S. Army Corps of Engineers
CVRWQCB = Central Valley Regional Water Quality Control Board
CWA = Clean Water Act
DFG = California Department of Fish and Game
DPR = California Department of Parks and Recreation
ECC = Environmental Commitments Checklist
FLSRA = Folsom Lake State Recreation Area
Folsom DS/FDR = Folsom Dam Safety and Flood Damage Reduction
HTRW = Hazardous, Toxic, and Radiological Waste
MBTA = Migratory Bird Treaty Act
MIAD = Mormon Island Auxiliary Dam
NEPA = National Environmental Policy Act
NDPES = National Pollutant Discharge Elimination System
NOI = Notice of Intent
O&M = operation and maintenance
Reclamation = U.S. Department of the Interior, Bureau of Reclamation
SHPO = State Historic Preservation Office
SWPPP = Storm Water Pollution Prevention Plan
USFWS = U.S. Fish and Wildlife Service
VELB = Valley Elderberry Longhorn Beetle