

RECLAMATION

Managing Water in the West

Mormon Island Auxiliary Dam Modification Project Final Supplemental Environmental Impact Statement/ Environmental Impact Report to the Folsom Dam Safety and Flood Damage Reduction Project Environmental Impact Statement/Environmental Impact Report

Folsom, California
Mid-Pacific Region



State Clearinghouse # 2009042077



U.S. Department of the Interior, Bureau of Reclamation, Mid-Pacific Region
Sacramento Area Flood Control Agency

May 2010

**Mormon Island Auxiliary Dam Modification Project
Final Supplemental Environmental Impact Statement/
Environmental Impact Report**

Sacramento and El Dorado Counties, California

Lead Agencies: U.S. Department of the Interior, Bureau of Reclamation (Reclamation),
Mid-Pacific Region, Folsom, California; and
Sacramento Area Flood Control Agency (SAFCA), Sacramento, California.

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ABSTRACT

Reclamation has multiple authorized projects addressing hydrologic, seismic, static, and flood management issues at Folsom Dam and its Appurtenant Structures (Folsom Facility). The Mormon Island Auxiliary Dam (MIAD) Modification Project Final Supplemental Environmental Impact Statement/Environmental Impact Report (EIS/EIR) evaluates implementation of the MIAD modifications through identification of a Preferred Alternative (Alternative 4 – Cellular Open Excavation and Overlay) for excavation and replacement of the MIAD foundation, placement of an overlay with filters and drains, and up to 80 acres of habitat mitigation at Mississippi Bar. The Final Supplemental EIS/EIR also provides responses to all comments received on the Draft Supplemental EIS/EIR and describes updates/revisions to the Draft Supplemental EIS/EIR text based on the comments received.

This Final Supplemental EIS/EIR is prepared in compliance with the National Environmental Policy Act (NEPA), Reclamation NEPA procedures, and the California Environmental Quality Act (CEQA) and CEQA guidelines. Reclamation intends to adopt this EIS/EIR to satisfy the requirements of NEPA for the dam safety and habitat mitigation features described in this EIS/EIR.

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U.S Department of the Interior, Bureau of Reclamation

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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.

Sacramento Area Flood Control Agency

To reduce flood risk, thereby minimizing the impacts of floods on human safety, health, and welfare; and, consistent with these flood risk reduction goals, to preserve and enhance the environmental and aesthetic values that floodways and floodplains contribute to the quality of life in the Sacramento region.

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Appendix C.	Fish and Wildlife Coordination Act Report

Abbreviations and Acronyms

ADT	average daily traffic/average daily trips
AQMD	Air Quality Management District
ATCM	Airborne Toxic Control Measure
BACT	Best Available Control Technology
BLUM	Bureau of Land Management
BMPs	best management practices
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
Caltrans	California Department of Transportation
CAPCOA	California Air Pollution Control Officers Association
CAR	Coordination Act Report
CARB	California Air Resources Board
CCAO	Central California Area Office
CEC	California Energy Commission
CEQ	Council on Environmental Quality
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
cfs	cubic feet per second
CH ₄	methane
CMS	cement modified soil
CO	carbon monoxide
CO ₂	carbon dioxide
Corps	United State Army Corps of Engineers
CPUC	California Public Utilities Commission
CVRWQCB	Central Valley Regional Water Quality Control Board
CWA	Clean Water Act
dBA	a weighted decibel
DFG	California Department of Fish and Game
DPM	diesel particulate matter
DPR	California Department of Parks and Recreation
ECC	Environmental Commitments Checklist
EDCAQMD	El Dorado County Air Quality Management District
EGR	exhaust gas re-circulation

EIS/EIR	Environmental Impact Statement/Environmental Impact Report
ESA	Endangered Species Act
FLSRA	Folsom Lake State Recreation Area
Folsom DS/FDR	Folsom Dam Safety and Flood Damage Reduction
FWCAR	Fish and Wildlife Coordination Act Report
GHG	greenhouse gas
g/VMT	gallons per vehicle miles travelled
gpm	gallons per minute
HRA	Health Risk Assessment
HTRW	hazardous, toxic, and radiological waste
ITA	Indian Trust Assets
JFP	Joint Federal Project
lbs	pounds
MBTA	Migration Bird Treaty Act
MCE	maximum credible earthquake
mg	milligrams
µg	micrograms
µg/m ³	micrograms per cubic meter
mph	miles per hour
MIAD	Mormon Island Auxiliary Dam
MT CO ₂ e	metric tons of carbon dioxide equivalent
NAAQS	National Ambient Air Quality Standards
NAGPR	Native American Graves Protection & Repatriation Act
NAHC	Native American Heritage Commission
NCP	Noise Control Plan
NEPA	National Environmental Policy Act
NO ₂	nitrogen dioxide
N ₂ O	Nitrous oxide
NO _x	nitrogen oxides
NOA	Notice of Availability/Naturally Occurring Asbestos
NOI	Notice of Intent
NPDES	National Pollutant Discharge Elimination System
NPS	National Park Service
NRHP	National Register of Historic Places
O ₃	ozone
O&M	operation and maintenance
PERP	Portable Equipment Regulation Program

PM _{2.5}	particulate matter smaller than 2.5 microns
PM ₁₀	particulate matter smaller than 10 microns
PG&E	Pacific, Gas, and Electric
Ppbv	parts per billion by volume
PRPA	Paleontological Resource Preservation Act
Reclamation	United States Department of the Interior, Bureau of Reclamation
ROD	Record of Decision
RWQCB	Regional Water Quality Control Board
SAFCA	Sacramento Area Flood Control Agency
SHPO	State Historic Preservation Office
SMAQMD	Sacramento Metropolitan Air Quality Management District
SO ₂	sulfur dioxide
SVP	Society of Vertebrate Paleontology
SWPPP	Stormwater Pollution Prevention Plan
TAC	toxic air contaminants
Tpy	tons per year
URBEMIS	Urban Emissions
USEPA	United States Environmental Protection Agency
USFS	United States Forest Service
USFWS	United States Fish and Wildlife Service
VELB	valley elderberry longhorn beetle
VOC	Volatile Organic Compounds
WAPA	Western Area Power Authority

Chapter 1

Introduction

On December 3, 2009, the U.S. Department of the Interior, Bureau of Reclamation (Reclamation), acting as the lead National Environmental Policy Act (NEPA) agency and the Sacramento Area Flood Control Agency (SAFCA), acting as the lead California Environmental Quality Act (CEQA) agency, released the Mormon Island Auxiliary Dam (MIAD) Modification Project Draft Supplemental Environmental Impact Statement/Environmental Impact Report (EIS/EIR) for public review and comment.

As required by NEPA, a Notice of Availability was filed in the Federal Register (Vol. 72, No. 227) on Friday November 27, 2009. A Notice of Availability was also published in the State Clearinghouse (State Clearinghouse # 2009042077) on December 3, 2009 according to CEQA.

During the comment period, the lead agencies held two public meetings at the following locations: Folsom Community Center, Folsom, California, December 16, 2009; and El Dorado Hills Community Services District, El Dorado Hills, California, December 17, 2009. Written comments were accepted at both meetings and throughout the comment period. The comment period on the Draft Supplemental EIS/EIR closed on January 19, 2010.

This document provides responses to all comments received during the comment period and updates and corrects portions of the Draft Supplemental EIS/EIR. This document is an abbreviated Final Supplemental EIS/EIR and its contents must be integrated with the Draft Supplemental EIS/EIR to be considered a complete document reflecting the full proposal, its alternatives, and all significant environmental impacts. This document, in conjunction with the Draft Supplemental EIS/EIR, constitutes the Final Supplemental EIS/EIR for the MIAD Modification Project.

1.1 Public Involvement for the Mormon Island Auxiliary Dam Modification Project

This section documents all public involvement that occurred for the MIAD Modification Project to date.

1.1.1 Public Scoping

Reclamation issued a Notice of Intent to prepare an Environmental Impact Statement in the Federal Register (Vol. 73, No. 217) on November 7, 2008. SAFCA published a Notice of Preparation on April 15, 2009 in the State Clearinghouse (State Clearinghouse # 2009042077). In December 2008, three public scoping meetings were held for the project; two in the City of Folsom and one in El Dorado Hills. Public comments were accepted at the three meetings and throughout the scoping period. The results of these scoping meetings, including comments and concerns raised during the meetings, as well as public comments obtained during the public comment period, are presented in the *Mormon Island Auxiliary Dam Modification Project Scoping Meeting Summary Report, 2009* (See Appendix A of the MIAD Modification Project Draft Supplemental EIS/EIR). The scoping comments were considered during development of the Draft Supplemental EIS/EIR.

1.1.2 Draft Environmental Impact Statement/Environmental Impact Report

As noted above, on December 3, 2009, Reclamation and SAFCA released the MIAD Modification Project Draft EIS/EIR for public review and comment. A Notice of Availability was filed in the Federal Register (Vol. 72, No. 227) on Friday November 27, 2009 to comply with NEPA. A Notice of Availability was also published in the State Clearinghouse (State Clearinghouse # 2009042077) on December 3, 2009 to meet the requirements of CEQA

During the comment period, the lead agencies held two public meetings at the following locations: Folsom Community Center, Folsom, California, December 16, 2009; and El Dorado Hills Community Services District, El Dorado Hills, California, December 17, 2009. Written comments were accepted at both meetings and throughout the comment period. The comment period on the Draft Supplemental EIS/EIR closed on January 19, 2010.

A total of twelve comments were received on the Draft Supplemental EIS/EIR, including written comments submitted during the comment period and at the public meetings. Comments were received from Federal, State, and local agencies as well as members of the public. These comments were considered during the development of this Final Supplemental EIS/EIR.

1.2 Contents of this Document

The remainder of this document is as follows:

- **Chapter 2** – presents an overview of the MIAD Modification Project, including the purpose and need/project objectives, the alternatives, potential environmental impacts, and mitigation measures. The

Executive Summary from the Draft Supplemental EIS/EIR has been repeated in its entirety in Chapter 2.

- **Chapter 3** – describes the Preferred Alternative, that is, the alternative selected by the lead agencies for implementation.
- **Chapter 4** – presents responses to all comments received on the Draft Supplemental EIS/EIR.
- **Chapter 5** – presents revisions to the Draft Supplemental EIS/EIR based on issues raised by comments. Changes in the text are signified by strikeouts where text is removed and by italics where text is added.
- **Chapter 6** – contains the list of environmental commitments/mitigation measures for the Preferred Alternative.
- **Chapter 7** – contains the distribution list for the Draft and Final Supplemental EIS/EIR.
- **Chapter 8** – contains the list of preparers.
- **Appendix A** – contains hard copies of all comments received on the Draft Supplemental EIS/EIR.
- **Appendix B** – contains a copy of the current Folsom Dam Safety and Flood Damage Reduction Clean Water Act Section 404 permit and provides an overview of the proposed amendments to the permit for the MIAD Modification Project.
- **Appendix C** – contains the Fish and Wildlife Coordination Act Report.

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Chapter 2

Project Overview

The Executive Summary text from the Draft Supplemental EIS/EIR has been revised based on comments and reproduced in its entirety on the following pages to provide an overview of the MIAD Modification Project, including the purpose and need/project objectives, project description, regulatory requirements, environmental consequences/environmental impacts, and the proposed environmental commitments/mitigation measures.

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Executive Summary

Purpose of Supplemental EIS/EIR

The U.S. Department of the Interior, Bureau of Reclamation (Reclamation) and the Sacramento Area Flood Control Agency (SAFCA) are proposing changes to the dam safety modifications originally selected for Mormon Island Auxiliary Dam (MIAD) in the March 2007 *Folsom Dam Safety and Flood Damage Reduction (DS/FDR) Final Environmental Impact Statement/Environmental Impact Report (EIS/EIR)*. Reclamation's 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 static issues), and to reinforce the MIAD foundation using a construction technique known as jet grouting (to address seismic issues). Subsequent investigations have indicated that jet grouting to stabilize the MIAD foundation is unlikely to meet Reclamation's risk standards. This Supplemental EIS/EIR addresses additional techniques to stabilize the MIAD foundation in order to meet current dam safety standards.

Also proposed in this document is the development of a mitigation site for the Folsom DS/FDR Project. Reclamation is responsible for completing mitigation for habitat impacted by construction of the Folsom DS/FDR Project. When the Records of Decision (RODs) were signed for the project, 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 west shore of Lake Natoma. SAFCA is proposing to enter into an agreement with Reclamation to accept responsibility for long-term operation and maintenance (O&M) of this mitigation site as part of their role in the overall Folsom DS/FDR Project; however no long-term agreement is currently in place. This Supplement addresses impacts associated with the development of Mississippi Bar as a mitigation site.

Seismic and Static Risks at Mormon Island Auxiliary Dam

In the early 1980's Reclamation and the U.S. Army Corps of Engineers (Corps) determined that corrective action was necessary at MIAD. The maximum credible earthquake (magnitude 6.5 at the East Branch of the Bear Mountain Fault, located 8 miles east of MIAD) could cause liquefaction of dredged tailings beneath the dam and could lead to dam failure. Geotechnical studies indicate the slope of MIAD would slump following liquefaction. If a slumping failure occurs when the water level in Folsom Reservoir is high, substantial

flooding (with peak flows of up to 1 million cfs or more) could result. A flood of this magnitude would overtop the levees on the American River. The inundation zone would include parts of the south side of the City of Folsom, most of Rancho Cordova, and a large part of Sacramento. The actual inundation zone becomes less defined the farther downstream from the reservoir the water travels (Reclamation 1991).

In the 1990s, Reclamation, in cooperation with the Corps, began a program to correct the seismic issues identified at MIAD including placement of a new berm on the upstream side of MIAD and dynamic compaction of the upstream foundation. MIAD Modification Phase II occurred from 1993 to 1994 and involved the treatment of the downstream foundation of MIAD by creating stone columns to solidify the foundation. Figure ES-1 shows the previous modifications that have been completed at MIAD. After this work, testing by Reclamation revealed that methods to densify the foundation at MIAD did not fully treat the lower portion of the foundation and the risk for potential liquefaction of the foundation during seismic activity remained great enough to justify further actions (Reclamation 2005).

In 2007, Reclamation completed the Final EIS/EIR for the Folsom DS/FDR Project to address static, seismic, and hydrologic risks at the Folsom Facility. The Preferred Alternative selected for the project involved jet grouting to treat the downstream foundation at MIAD, an overlay to address the upstream foundation issues, and filters and drains to address static issues. A series of jet grout test sections was performed in 2007 but analysis of the test results indicated that jet grouting did not adequately solidify the foundation. Jet grouting to treat the MIAD foundation has been determined to be infeasible; therefore this Supplemental EIS/EIR will address other options to treat the downstream foundation at MIAD, mainly variations of excavating and replacing the downstream foundation to prevent failure of MIAD during seismic activity. The downstream overlay and filters with drains remain the same as originally described for the Folsom DS/FDR Project.

In addition to the seismic issues described above, static issues (seepage and piping) have also been identified at MIAD. All earth dams have seepage resulting from water percolating slowly through the dam and its foundation. Seepage must, however, be controlled in both velocity and quantity. Seepage, if uncontrolled, can erode fine soil material from the downstream slope or foundation and continue moving towards the upstream slope to form a pipe or cavity to the reservoir, often leading to a complete failure of the embankment. In order to prevent seepage and piping, filters and drains are installed. Filters consist of a layer of processed material that will allow water to safely pass through an embankment such as MIAD without resulting in internal soil erosion. Any water collected by the filter is carried to the toe of the earthen structure for discharge away from the dam through a toe drain. Filters and drains are proposed for MIAD to reduce the risk of failure through seepage and piping.

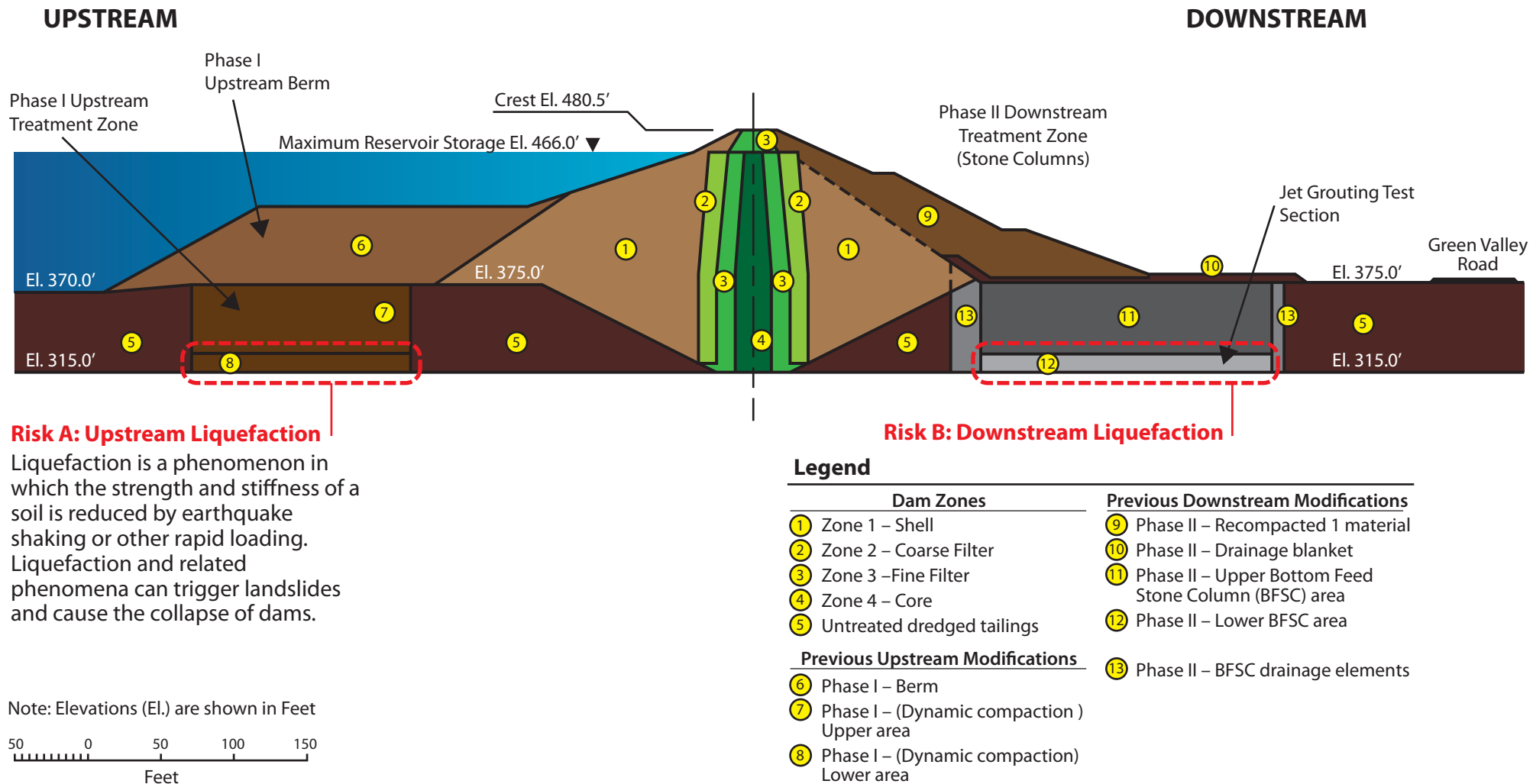


Figure ES-1. Mormon Island Auxiliary Dam Previous Modifications

Study Area

The study area for this Supplemental EIS/EIR includes Federal property surrounding MIAD and directly south of Green Valley Road in the Mormon Island Wetland Preserve area. The majority of the study area around MIAD is in Sacramento County; however the northeastern end of MIAD crosses into El Dorado County. Figure ES-2 presents a map of the MIAD study area.

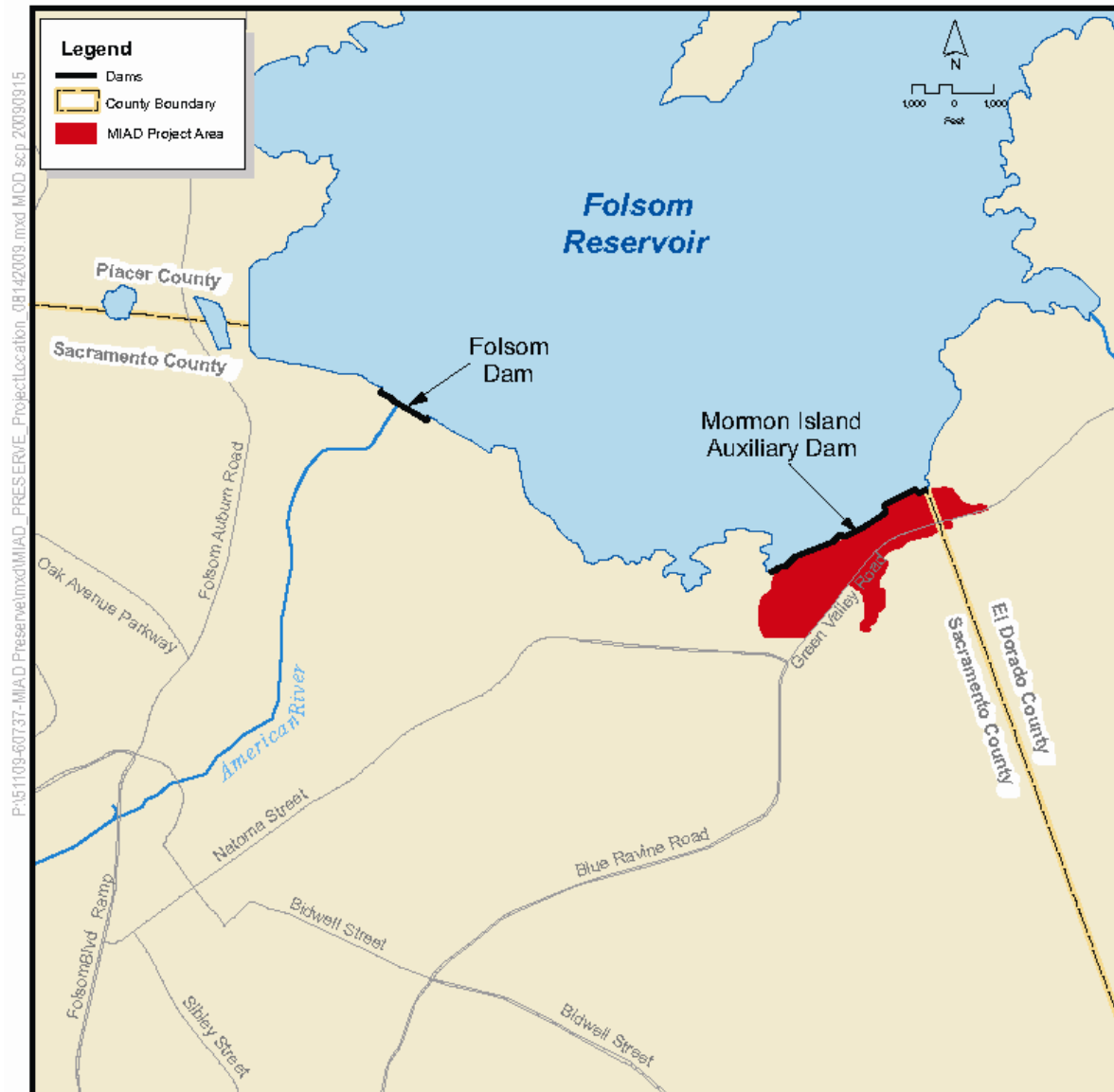


Figure ES-2. Mormon Island Auxiliary Dam Study Area

The study area also includes approximately 141 acres of land at Mississippi Bar on the western shore of Lake Natoma, in Sacramento County. The site is located just east of the Sunset Avenue and Hazel Avenue intersection, south of the community of Orangevale. While only 80 acres of land are proposed for habitat mitigation at this site, the study area for cultural resources was expanded to include 141 acres due to the extent of the historic mine tailings at the site. Figure ES-3 shows the study area for Mississippi Bar.

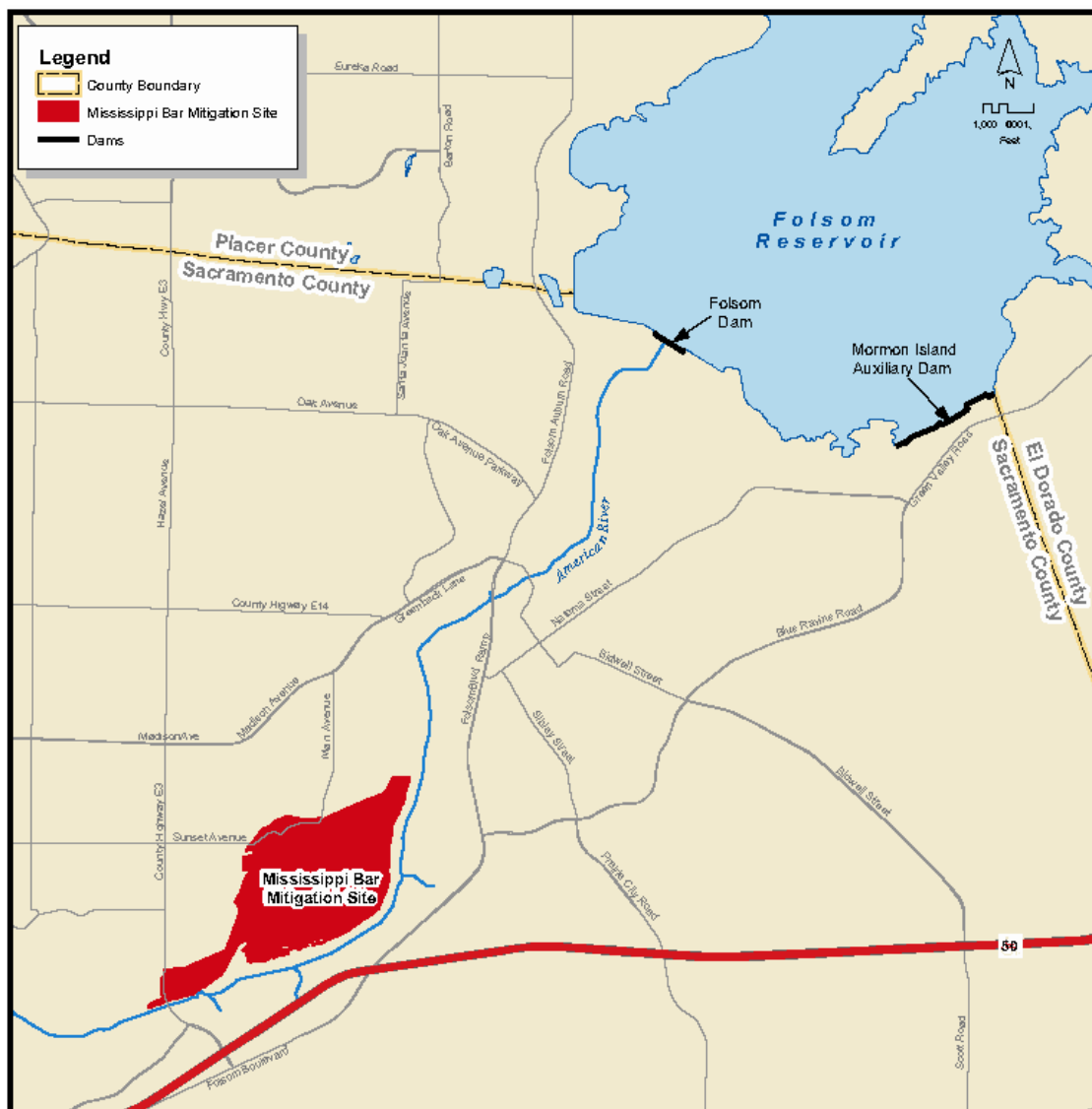


Figure ES-3. Mississippi Bar Study Area

Purpose and Need/Project Objectives

The specific purpose and need for this Supplemental EIS/EIR is presented below. The overall purpose and need for the Folsom DS/FDR Project, including the MIAD Modification Project, remains the same as described in the original Folsom DS/FDR Draft EIS/EIR of December 2006.

Purpose and Need

There is a need to expeditiously implement engineering measures for MIAD in order to reduce potential failure due to seismic and static conditions. There is also a need to complete mitigation measures that Reclamation has committed to in the RODs by developing Mississippi Bar into a habitat mitigation site. The purpose of the MIAD Modification Project is to reduce static and seismic risks associated with MIAD to improve public safety. The purpose of the habitat mitigation at Mississippi Bar is to mitigate for impacts to habitat caused by the overall Folsom DS/FDR Project by improving existing habitat or creating new habitat.

Project Objectives

In addition to the underlying purpose of the project above, specific project objectives were developed to meet California Environmental Quality Act (CEQA) guidelines. The CEQA-related objectives include:

- To reduce the static and seismic risks associated with MIAD.
- To complete a portion of the mitigation requirements adopted in the 2007 RODs.

Development and Screening of Preliminary Alternatives

After years of investigations by both Reclamation and the Corps, a series of engineering measures were developed to address the Safety of Dams objectives of hydrologic, seismic, and static risk reduction at Folsom Reservoir, including risk reduction measures for MIAD. The engineering measures were then combined into a set of preliminary alternatives. Construction risk estimates were completed to evaluate the benefits of the preliminary alternatives and to determine if several of the alternatives could be eliminated from consideration. The following list presents the preliminary alternatives considered to address the seismic and static issues associated with MIAD.

No Foundation Treatment with Large Upstream and Downstream Overlay

This would involve placing a large volume of miscellaneous fill excavated from the new Auxiliary Spillway with filter and drain elements. A very large overlay probably would require realignment of Green Valley Road and would affect the Mormon Island Wetland Preserve.

Large Open Excavation and Overlay

This alternative involves excavation of the foundation down to bedrock and replacement of the foundation with a Cement Modified Soil (CMS). An overlay would be placed on the downstream side to address upstream foundation liquefaction. This option would have the highest construction risk, would require a substantial amount of dewatering, and would need to be completed when the reservoir is low. This option would require the temporary relocation of Green Valley Road.

Open Excavation with Single Wall and Overlay

A variation on the deep excavation being considered includes the construction of a structural wall on the Green Valley Road side of the Large Open Excavation option. The amount of material excavated would be reduced due to construction of the wall and would not require relocation of Green Valley Road.

Open Excavation with a Dual Wall System and Overlay

This variation of the Open Excavation option includes the construction of two walls in an effort to minimize the amount of materials required to be removed, and reduce the amount of dewatering required. This dual wall system could be constructed under the existing toe of the dam or just downstream of the existing toe, thus potentially eliminating the need for excavation of the existing dam. The option would increase the duration of construction but would decrease the time needed for dewatering and subsurface excavation work.

Cellular Open Excavation and Overlay

Using excavation methods similar to those used in top down, coffer box, or shaft construction, cellular or cross-lot bracing could occur. This variation of the walled excavation includes either constructing the dual wall system with excavation from the surface in cellular segments with excavators using alternating cells as insitu ground support, or cellular cross-lot bracing construction of a closed wall (sheet pile or soldier pile) type system. This option would reduce the materials that would need to be removed, reduce the size of the dewatering system, could eliminate the construction risk to the dam, and would have less environmental impacts.

Jet Grouting and Overlay

Jet grouting is a method of increasing the strength of weak or loose materials in the foundation of structures or dams. Jet grouting consists of drilling to the lower zone to be strengthened, and injecting a grout mixture through a rotary nozzle that once sets up, solidifies the material to the foundation.

Alternatives Eliminated from Further Evaluation

The preliminary alternatives were screened and ranked according to cost, feasibility, construction risk, environmental impacts, and ability to meet project objectives. Those that ranked the highest were carried on for further consideration. Jet grouting, large downstream overlay, small downstream overlay, and excavate and replace were the four alternatives that were carried on and analyzed in the Folsom DS/FDR EIS/EIR. After the release of the Folsom DS/FDR EIS/EIR, several additional alternatives were eliminated from further evaluation based on the ranking system and testing that was performed to determine feasibility.

No Foundation Treatment with Large Upstream and Downstream Overlay

The large overlay was determined to be technically infeasible due to the large quantities of material required to construct the large overlay to meet current safety standards. This alternative would still require excavation and replacement of the foundation and would therefore not reduce construction risk. Additionally, the environmental effects of such a large overlay would be high because of the impacts to Mormon Island Wetland Preserve and relocation of Green Valley Road.

Jet Grouting with Overlay

The results of a field program conducted in the summer of 2007 indicated the alternative is technically and economically unviable. A limited field program was initiated in 2007 to optimize design parameters in anticipation of full implementation. Pre-test design assumptions expected the jet grouting method to create overlapping circular cementitious columns with a uniform size from eight to twelve feet in diameter. Actual performance experienced in the field test program was technically insufficient with results of irregular dimensions at less than two feet and significant cracking and migration of the grout under pressure. These results indicated the methodology was not viable at the site, it may have actually increased the dam safety risk, and that the diameters achieved were economically not viable.

Project Description

There are four action alternatives and a No Action/No Project Alternative analyzed in this Supplemental EIS/EIR. Each of the four action alternatives would include the same Mississippi Bar element.

The MIAD modifications would occur in two phases; 1) foundation treatment on the downstream side of MIAD that would involve removal and replacement of the downstream foundation materials, and 2) placement of the overlay with filter and drain elements. The principle difference among the four action alternatives being evaluated is the use of structural walls during excavation to reduce the construction risk, amount of construction water handling, excavated

footprint exposure, and environmental impacts of the excavation. Table ES-1 shows the components of the action alternatives and the No Action/No Project Alternative.

Table ES-1. Alternative Components

Alternative	Excavation Method	Overlay	Temporary Green Valley Road Relocation	Total Duration of Construction (Months)	Maximum Dimension of Open Excavation (at any given time) (LxW in feet)	Maximum Duration of Open Excavation (Months)	Mississippi Bar Mitigation
Alternative 1	Large Open Cut	Yes	Yes	38	2,000 x 350	9	Up to 80 acres
Alternative 2	Open Cut with Single Wall	Yes	No	38	2,000 x 200	9	Up to 80 acres
Alternative 3	Open Cut with Dual Wall System	Yes	No	38	1,500 x 100	18	Up to 80 acres
Alternative 4	Cellular Construction (Multiple Walls)	Yes	No	38	300 x 60 ⁽¹⁾	18	Up to 80 acres
No Action/No Project Alternative	None	None	No	None	None	None	Mitigation fulfilled at another site

⁽¹⁾ There would be a maximum of 5 cells (60 feet x 60 feet for each cell) open at any given time.

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 relocate 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 Mitigation Site

The site at Mississippi Bar would be used to complete riparian woodland and wetland habitat mitigation for the Folsom DS/FDR Project and could also be used to address mitigation that may be required for the actions proposed in this Supplement. Each of the four action alternatives discussed above would include the same Mississippi Bar component. The Mississippi Bar mitigation component would be completed in three phases, discussed below.

Phase 1 Riparian Woodland Mitigation

Reclamation would create up to 80 acres of riparian woodland habitat, mainly on DPR property at Mississippi Bar. Mitigation efforts would concentrate on those areas that have not recovered from past mining activities. Reclamation would re-contour the land to establish more natural drainage patterns and would restore native riparian vegetation. This may be accomplished over several seasons.

Phase 2 Culvert Replacement, Channel Widening, Mid-Channel Dredging

Consistent with creating a functional seasonal wetland, Reclamation proposes to develop approximately five acres of seasonal wetlands by replacing an existing 48 inch diameter culvert with a large arch culvert, widening the channel, dredging mid-channel, and breaching an area under an existing road.

Phase 3 Seasonal Wetland Mitigation

Seasonal wetland vegetation would be enhanced along the margins of the proposed channel widening. All areas would be planted with plant communities similar to existing native vegetation found throughout the Lake Natoma shoreline and lagoons.

The new habitat would be irrigated and monitored for up to five years, until it becomes established.

Environmental Consequences/Environmental Impacts

The environmental consequences of the MIAD modifications are presented in Table ES-2 by alternative. The Mississippi Bar impacts would be the same under each of the four action alternatives and are presented in Table ES-3.

Table ES-2. Environmental Impacts of Mormon Island Auxiliary Dam Modifications

Environmental Consequence/ Environmental Impact	No Action/ No Project Alternative	Significance				Potential Environmental Commitment/ Mitigation Measure
		Alternative 1	Alternative 2	Alternative 3	Alternative 4	
Hydrology, Water Quality, and Flood Control						
Stormwater runoff from the construction site could degrade water quality	NI	LTSWM	LTSWM	LTSWM	LTSWM	WQ-1: NPDES General Construction Permit and SWPPP.
Dewatering activities could result in water quality impacts associated with the discharge of groundwater to surface water	NI	LTSWM	LTSWM	LTSWM	LTSWM	WQ-2: Dewatering Permit and Water Quality Monitoring Program
Replacement of the MIAD foundation could alter existing hydrology	NI	LTSWM	LTSWM	LTSWM	LTSWM	WQ-3: Water Level Monitoring
MIAD modifications would provide beneficial impacts associated with flood control	SU	B	B	B	B	None Required
Groundwater						
Construction could degrade groundwater quality	NI	LTSWM	LTSWM	LTSWM	LTSWM	PHS-5: Spill Plan
Dewatering activities could cause short-term changes in groundwater levels	NI	LTS	LTS	LTS	LTS	None Required
Replacement of the MIAD foundation could permanently decrease aquifer volume and the rate of groundwater movement	NI	LTSWM	LTSWM	LTSWM	LTSWM	GW-1: Groundwater Monitoring Program
Dewatering activities could cause land subsidence	NI	LTSWM	LTSWM	LTSWM	LTSWM	GW-2: Subsidence Monitoring
Air Quality						
Unmitigated Emissions						

Table ES-2. Environmental Impacts of Mormon Island Auxiliary Dam Modifications

Environmental Consequence/ Environmental Impact	No Action/ No Project Alternative	Significance				Potential Environmental Commitment/ Mitigation Measure
		Alternative 1	Alternative 2	Alternative 3	Alternative 4	
Exceed NO _x threshold of 85 lbs per day.	NI	PS	PS	PS	PS	AQ-3: Project wide fleet-average 20 percent NO _x reduction and 45 percent particulate reduction AQ-4: Equipment Inventory to SMAQMD AQ-5: Off-road diesel powered equipment will not exceed 40 percent opacity AQ-6: Exhaust Gas Recirculation Systems AQ-7: Lean NO _x Catalyst in Engine Exhaust Systems
Exceed NO _x and VOC 50 tpy de minimis threshold	NI	LTSWM	LTSWM	PS	PS	AQ-3: Project wide fleet-average 20 percent NO _x reduction and 45 percent particulate reduction AQ-4: Equipment Inventory to SMAQMD AQ-5: Off-road diesel powered equipment will not exceed 40 percent opacity AQ-6: Exhaust Gas Recirculation Systems AQ-7: Lean NO _x Catalyst in Engine Exhaust Systems
Exceed PM ₁₀ 100 tpy de minimis threshold	NI	LTSWM	LTSWM	LTSWM	LTS	AQ-8: Fugitive Dust Control Measures
Exceed CO 100 tpy de minimis threshold	NI	LTS	LTS	LTS	LTS	None Required
Create substantial fugitive dust	NI	LTSWM	LTSWM	LTSWM	LTSWM	AQ-8: Fugitive Dust Control Measures

Table ES-2. Environmental Impacts of Mormon Island Auxiliary Dam Modifications

Environmental Consequence/ Environmental Impact	No Action/ No Project Alternative	Significance				Potential Environmental Commitment/ Mitigation Measure
		Alternative 1	Alternative 2	Alternative 3	Alternative 4	
Emissions from stationary sources (concrete batching plant)	NI	LTSWM	LTSWM	LTSWM	LTSWM	AQ-1: Electric Power for Batch Plant AQ-2: Wet Suppression Dust Control for Batch Plant
Mitigated Emissions						
Exceed NO _x threshold of 85 lbs per day.	NI	SU	SU	SU	SU	AQ-9: NO _x mitigation fee required from SMAQMD
Exceed NO _x and VOC 50 tpy de minimis threshold	NI	SU	LTS	SU	SU	AQ-10: NO _x General Conformity Determination Required
Exceed PM ₁₀ 100 tpy de minimis threshold	NI	LTS	LTS	LTS	LTS	None Required
Exceed CO 100 tpy de minimis threshold	NI	LTS	LTS	LTS	LTS	None Required
Biological Resources						
Impacts to special-status plant species	NI	LTSWM	LTSWM	LTSWM	LTSWM	BIO-2: Habitat Loss Avoidance and Compensation BIO-10: Vernal Pool Mitigation BIO-3: Biological Awareness Training BIO-4: Special Status Plant Surveys
Impacts on special-status vernal pool branchiopods	NI	LTSWM	LTSWM	LTSWM	LTSWM	BIO-2: Habitat Loss Avoidance and Compensation BIO-10: Vernal Pool Mitigation BIO-3: Biological Awareness Training BIO-5: Special Status Vernal Pool Surveys
Impacts to the valley elderberry longhorn beetle	NI	NI	NI	NI	NI	None Required

Table ES-2. Environmental Impacts of Mormon Island Auxiliary Dam Modifications

Environmental Consequence/ Environmental Impact	No Action/ No Project Alternative	Significance				Potential Environmental Commitment/ Mitigation Measure
		Alternative 1	Alternative 2	Alternative 3	Alternative 4	
Impacts on special-status amphibians and reptiles	NI	LTSWM	LTSWM	LTSWM	LTSWM	BIO-2: Habitat Loss Avoidance and Compensation BIO-3: Biological Awareness Training BIO-7: Amphibian and Reptile Survey
Impacts on wildlife including special-status birds and bats	NI	LTSWM	LTSWM	LTSWM	LTSWM	BIO-2: Habitat Loss Avoidance and Compensation BIO-3: Biological Awareness Training BIO-8: Bird and Bat Surveys
Direct and indirect impacts to vegetation	NI	LTSWM	LTSWM	LTSWM	LTSWM	BIO-1: Tree Protection and Revegetation BIO-2: Habitat Loss Avoidance and Compensation BIO-3: Biological Awareness Training
Alteration of existing hydrology may cause long-term impacts to vegetation and wildlife in Mormon Island Wetland Preserve	NI	LTSWM	LTSWM	LTSWM	LTSWM	BIO-9: Monitoring Program for Mormon Island Wetland Preserve
Construction would result in direct impacts to wetlands and other waters of the U.S.	NI	LTSWM	LTSWM	LTSWM	LTSWM	BIO-2: Habitat Loss Avoidance and Compensation BIO-3: Biological Awareness Training
Construction would result in direct impacts to vernal pools	NI	LTSWM	LTSWM	LTSWM	LTSWM	BIO-10: Vernal Pool Mitigation
Interfere with the movement of wildlife species, wildlife corridors, or nursery sites	NI	LTS	LTS	LTS	LTS	None Required
Conflict with local policies or ordinances protecting natural resources	NI	NI	NI	NI	NI	None Required
Conflict with existing conservation plans	NI	NI	NI	NI	NI	None Required
Soils, Minerals, and Geological Resources						

Table ES-2. Environmental Impacts of Mormon Island Auxiliary Dam Modifications

Environmental Consequence/ Environmental Impact	No Action/ No Project Alternative	Significance				Potential Environmental Commitment/ Mitigation Measure
		Alternative 1	Alternative 2	Alternative 3	Alternative 4	
Expose people to adverse effects associated with seismic activity	PS	NI	NI	NI	NI	None Required
Reduce the potential for liquefaction	NI	B	B	B	B	None Required
Result in adverse effects associated with landslides during construction	NI	LTS	LTS	LTS	LTS	None Required
Result in the loss of availability of a known mineral resource	NI	NI	NI	NI	NI	None Required
Result in the substantial loss of topsoil	NI	LTS	LTS	LTS	LTS	None Required
Construction could increase the potential for soil erosion	NI	LTSWM	LTSWM	LTSWM	LTSWM	WQ-1: NPDES Permit and SWPPP
Construction of structures located on a geologic unit that is unstable or on expansive soil that would create a risk to life or property	NI	NI	NI	NI	NI	None Required
Potential disturbance of areas containing naturally-occurring asbestos	NI	LTSWM	LTSWM	LTSWM	LTSWM	GR-1: Compliance with Airborne Toxic Control Measure and Approved Dust Mitigation Plan
Visual Resources						
Construction activities would temporarily affect views of downstream side of MIAD	NI	LTS	LTS	LTS	LTS	None Required.
Removal of vegetation would temporarily affect views of the downstream side of MIAD	NI	LTSWM	LTSWM	LTSWM	LTSWM	BIO-1: Tree Protection and Revegetation
Construction activities would affect views from residential developments in the vicinity	NI	LTS	LTS	LTS	LTS	None Required
Views from MIAD trails would be affected by construction activity	NI	LTS	LTS	LTS	LTS	None Required
Construction would affect views from the reservoir	NI	LTS	LTS	LTS	LTS	None Required

Table ES-2. Environmental Impacts of Mormon Island Auxiliary Dam Modifications

Environmental Consequence/ Environmental Impact	No Action/ No Project Alternative	Significance				Potential Environmental Commitment/ Mitigation Measure
		Alternative 1	Alternative 2	Alternative 3	Alternative 4	
Modification of the MIAD foundation could affect water supply to bordering wetlands and could result in visual impacts	NI	LTSWM	LTSWM	LTSWM	LTSWM	GW-1: Groundwater Monitoring Program WQ-3: Water Level Monitoring BIO-9: Monitoring Program for Mormon Island Wetland Preserve
Relocation of Green Valley Road would temporarily alter the visual character of the area, including the Mormon Island Wetland Preserve	NI	SU during construction; LTSWM after construction	NI	NI	NI	BIO-1: Tree Protection and Revegetation
Construction of dewatering ponds would impact views along Green Valley Road.	NI	LTS	LTS	LTS	LTS	None Required
Views from MIAD trails would be affected from construction activities	NI	LTS	LTS	LTS	LTS	None Required
Transportation and Circulation						
Disruption of traffic from relocation of Green Valley Road	NI	LTS	NI	NI	NI	None Required
ADT Increase above 2%	NI	LTS	LTS	LTS	LTSWM	T-1: Peak Hour Capacity Analysis, Roadway Improvements, Traffic Modifications T-2: Transportation Management Plan T-3: Signage
V/C Increase greater than 0.05. for any roads currently experiencing LOS F	NI	NI	NI	NI	NI	None Required
Increase risk of collisions	NI	LTSWM	LTSWM	LTSWM	LTSWM	T-1: Peak Hour Capacity Analysis, Roadway Improvements, Traffic Modifications T-2: Transportation Management Plan T-3: Signage
Noise						
Construction Noise						

Table ES-2. Environmental Impacts of Mormon Island Auxiliary Dam Modifications

Environmental Consequence/ Environmental Impact	No Action/ No Project Alternative	Significance				Potential Environmental Commitment/ Mitigation Measure
		Alternative 1	Alternative 2	Alternative 3	Alternative 4	
Incremental daytime noise increases that exceed 5dBA	SU	LTS	LTS	LTS	LTS	N-1: Noise Control Plan
Incremental nighttime noise increases that exceed 5dBA	SU	LTSWM	LTSWM	LTSWM	LTSWM	N-1: Noise Control Plan
Exceed local daytime noise standards	SU	LTSWM	LTSWM	LTSWM	LTSWM	N-1: Noise Control Plan
Exceed local nighttime noise standards	SU	LTSWM	LTSWM	LTSWM	LTSWM	N-1: Noise Control Plan
Result in substantial vibration to nearby sensitive receptors	NI	LTS	LTS	LTS	LTS	None Required
Transportation Noise						
Increase noise levels from construction traffic by 12dBA or increase peak hour noise levels by 5 dBA	LTS	LTS	LTS	LTS	LTS	None Required
Cultural Resources						
Project construction could lead to adverse effects to known historic properties and/or historical resources	NI	NI	NI	NI	NI	None Required
Project construction could lead to the inadvertent discovery of cultural resources	NI	LTSWM	LTSWM	LTSWM	LTSWM	CR-1: Inadvertent Discovery Plan
Land Use, Planning, and Zoning						
Conflict with land use plans, policies, or zoning	SU	LTSWM	NI	NI	NI	BIO-1: Tree Protection and Revegetation BIO-2: Habitat Loss Avoidance and Compensation
Impacts to existing easements or right-of-ways	NI	LTSWM	LTS	LTS	LTS	LU-1: Coordination with City of Folsom and PG&E
Recreation						
Temporary closure or restricted access to Folsom-Brown's Ravine Trail atop MIAD	NI	LTSWM	LTSWM	LTSWM	LTSWM	RC-1: Restoration of any damaged trails after construction RC-3: Establish detours with appropriate signage
Temporary closure or restricted access to Mormon Island Wetland Preserve from Green Valley Road temporary relocation	NI	SU during construction, LTSWM after construction.	NI	NI	NI	RC-1: Restoration of any damaged trails after construction

Table ES-2. Environmental Impacts of Mormon Island Auxiliary Dam Modifications

Environmental Consequence/ Environmental Impact	No Action/ No Project Alternative	Significance				Potential Environmental Commitment/ Mitigation Measure
		Alternative 1	Alternative 2	Alternative 3	Alternative 4	
Temporary closure or restricted access to Mormon Island Cove	NI	LTS	LTS	LTS	LTS	None Required
Detention ponds would result in closure or restricted access to trails west of Mormon Island Wetland Preserve	NI	LTSWM	LTSWM	LTSWM	LTSWM	RC-3: Establish detours with appropriate signage
Displace visitors and substantially contribute to overcrowded conditions at other local and regional recreation sites	NI	LTS	LTS	LTS	LTS	None Required
Public Services and Utilities						
Need for electricity during construction	NI	LTS	LTS	LTS	LTS	None Required
Relocation of PG&E gas lines	NI	LTSWM	NI	NI	NI	UT-1: Coordination with City of Folsom and PG&E prior to relocation of gas line
Impacts to existing security services	NI	NI	NI	NI	NI	None Required
Impacts to existing fire services	NI	NI	NI	NI	NI	None Required
Impacts to existing recreation services	NI	NI	NI	NI	NI	None Required
Temporary generation of solid waste during construction	NI	LTS	LTS	LTS	LTS	None Required
Public Health and Safety						
Construction hazards to public safety	NI	LTSWM	LTSWM	LTSWM	LTSWM	PHS-1: Public Safety Management Plan
Hazards associated with dam safety	SU	LTSWM	LTSWM	LTSWM	LTSWM	PHS-2: Evaluation of weather and reservoir conditions
Release of HTRW encountered in soil	NI	LTSWM	LTSWM	LTSWM	LTSWM	PHS-1: Public Safety Management Plan PHS-3: Worker Health and Safety Plan and GR-1: Asbestos Dust Mitigation Plan WQ-1: NPDES Permit and SWPPP
Accidental release of construction-related HTRW	NI	LTSWM	LTSWM	LTSWM	LTSWM	PHS-4: Spill Plan
Wildland Fires	NI	LTSWM	LTSWM	LTSWM	LTSWM	PHS-5: Fire Management Plan

Table ES-2. Environmental Impacts of Mormon Island Auxiliary Dam Modifications

Environmental Consequence/ Environmental Impact	No Action/ No Project Alternative	Significance				Potential Environmental Commitment/ Mitigation Measure
		Alternative 1	Alternative 2	Alternative 3	Alternative 4	
Emit hazardous emissions or handle hazardous materials within one-quarter mile of a school	NI	NI	NI	NI	NI	None Required
Indian Trust Assets						
Impacts to Indian Trust Assets	NI	NI	NI	NI	NI	None Required
Environmental Justice						
Disproportionate impacts to low income and minority populations	NI	NI	NI	NI	NI	None Required
Efforts to include low income and minority populations in public outreach activities	NI	NI	NI	NI	NI	None Required

Key:

NPDES = National Pollution Discharge Elimination System
SWPPP = Storm Water Pollution Prevention Plan
HTRW = Hazardous, Toxic, and Radiological Waste
SMAQMD = Sacramento Metropolitan Air Quality Management District

NI = No Impact
LTS = Less Than Significant
LTSWM = Less Than Significant with Mitigation
SU = Significant and Unavoidable
B = Beneficial
PS = Potentially Significant After Mitigation
ADT = Average daily traffic
V/C = volume to capacity

Table ES-3. Environmental Impacts of Mississippi Bar Habitat Mitigation

Environmental Consequence/ Environmental Impact	Level of Significance	Potential Environmental Commitment/ Mitigation Measure
Hydrology, Water Quality, and Flood Control		
Stormwater runoff from Mississippi Bar mitigation site could degrade water quality	LTSWM	WQ-1: NPDES General Construction Permit and SWPPP
Installation of a larger culvert at Mississippi Bar could degrade water quality in Lake Natoma	LTS	None Required
Installation of a larger culvert at Mississippi Bar would alter hydrology	LTS	None Required
Installation of a culvert at Mississippi Bar would change water levels in the lagoons	LTS	None Required
Groundwater		
Use of groundwater for irrigation at Mississippi Bar would affect groundwater levels	LTS	None Required
Air Quality		
Temporary air quality impacts from Mississippi Bar mitigation actions.	LTS	None Required
Biological Resources		
Impacts to special-status plant species	LTSWM	BIO-2: Habitat Loss Avoidance and Compensation BIO-3: Biological Awareness Training BIO-4: Special Status Plant Surveys
Impacts on special-status vernal pool branchiopods	LTSWM	BIO-3: Biological Awareness Training BIO-5: Special Status Vernal Pool Surveys
Impacts to the valley elderberry longhorn beetle	LTSWM	BIO-2: Habitat Loss Avoidance and Compensation BIO-3: Biological Awareness Training BIO-6: VELB Avoidance and Compensation
Impacts on special-status amphibians and reptiles	LTSWM	BIO-2: Habitat Loss Avoidance and Compensation BIO-3: Biological Awareness Training BIO-7: Amphibian and Reptile Survey
Impacts on wildlife including special-status birds and bats	LTS	BIO-3: Biological Awareness Training BIO-8: Bird and Bat Surveys
Direct and indirect impacts to vegetation	LTSWM	BIO-1: Tree Protection and Revegetation BIO-2: Habitat Loss Avoidance and Compensation BIO-3: Biological Awareness Training
Construction would result in direct impacts to wetlands and other waters of the U.S.	LTSWM	BIO-2: Habitat Loss Avoidance and Compensation BIO-3: Biological Awareness Training
Construction would result in direct impacts to vernal pools	NI	None Required
Interfere with the movement of wildlife species, wildlife corridors, or nursery sites	LTS	None Required
Conflict with local policies or ordinances protecting natural resources	NI	None Required
Conflict with existing conservation plans	NI	None Required

Table ES-3. Environmental Impacts of Mississippi Bar Habitat Mitigation

Environmental Consequence/ Environmental Impact	Level of Significance	Potential Environmental Commitment/ Mitigation Measure
Soils, Minerals, Geological Resources		
Impacts to geology, soils, and mineral resources at Mississippi Bar	LTS	None Required
Visual Resources		
Seasonal wetland and riparian habitat improvements at Mississippi Bar would impact views in the southern portion of Lake Natoma	LTS/B	None Required
Transportation and Circulation		
Temporary traffic from Mississippi Bar habitat mitigation	LTS	None Required
Noise		
Temporary construction noise from Mississippi Bar mitigation actions.	LTS	None Required
Temporary transportation noise from Mississippi Bar mitigation actions.	LTS	None Required
Cultural Resources		
Project construction could lead to adverse effects to known historic properties and/or historical resources	LTSWM	CR-1: Development of Agreement Document
Project construction could lead to the inadvertent discovery of cultural resources	LTSWM	CR-2: Inadvertent Discovery Plan
Land Use, Planning, and Zoning		
Conflict with land use plans, policies, or zoning	NI	None Required
Impacts to existing easements or right-of-ways	LTS	None Required
Recreation		
Temporary area closures at Mississippi Bar during construction.	LTSWM	RC-2: Signage and public announcements of all closures during construction.
Temporary closure of existing bike trail at Mississippi Bar	LTSWM	RC-3: Establish detours with appropriate signage
Installation of fencing may restrict recreation at Mississippi Bar	LTS	None Required
Removal and/or relocation of informal trails at Mississippi Bar	LTSWM	RC-3: Establish detours with appropriate signage
Creation of new recreation opportunities at Mississippi Bar	B	None Required
Public Services and Utilities		
Impacts to utilities and services	NI	None Required
Public Health and Safety		
Construction hazards to public safety	LTSWM	PHS-1: Public Safety Management Plan
Release of HTRW encountered in soil	LTSWM	PHS-1: Public Safety Management Plan PHS-3: Worker Health and Safety Plan
Accidental release of construction-related HTRW	LTSWM	PHS-4: Spill Plan
Wildland Fires	LTSWM	PHS-5: Fire Management Plan
Emit hazardous emissions or handle hazardous materials within one-quarter mile of a school	NI	None Required

Table ES-3. Environmental Impacts of Mississippi Bar Habitat Mitigation

Environmental Consequence/ Environmental Impact	Level of Significance	Potential Environmental Commitment/ Mitigation Measure
Indian Trust Assets		
Impacts to Indian Trust Assets	NI	None Required
Environmental Justice		
Disproportionate impacts to low income and minority populations	NI	None Required
Efforts to include low income and minority populations in public outreach activities	NI	None Required

Key:

NI = No Impact

LTS = Less Than Significant

LTSWM = Less Than Significant with Mitigation

SU = Significant and Unavoidable

B = Beneficial

NPDES = National Pollutant Discharge Elimination System

SWPPP = Storm Water Pollution Prevention Plan

HTRW = Hazardous, Toxic, and Radiological Wastes

Compliance with Applicable Laws and Regulations

This Supplemental EIS/EIR has been developed to comply with National Environmental Policy Act (NEPA) and CEQA requirements. The MIAD Modification Project would comply with all Federal, State, and local laws and permitting requirements as shown in Table ES-4 below.

Table ES-4. Applicable Laws, Regulations, and Executive Orders, Plans, and Policies

Applicable Laws, Regulations, Executive Orders, Plans, and Policies	Method of Compliance
Federal	
National Environmental Policy Act	Supplemental EIS/EIR
Endangered Species Act	Consultation with USFWS, Amendment to existing Biological Opinion
Fish and Wildlife Coordination Act	Consultation with USFWS, Amendment to existing Coordination Act Report
National Historic Preservation Act	Consultation with SHPO
Clean Air Act	Addressed in Supplemental EIS/EIR
Executive Order 12898 – Environmental Justice	Addressed in Supplemental EIS/EIR
Clean Water Act	CWA 404, 401, 402 permits
Migratory Bird Treaty Act	Addressed in Supplemental EIS/EIR
Bald and Golden Eagle Protection Act	Addressed in Supplemental EIS/EIR
Executive Order 11990 – Protection of Wetlands	Addressed in Supplemental EIS/EIR, CWA 404 permit
State	
California Environmental Quality Act	Supplemental EIS/EIR
California Endangered Species Act	Addressed in Supplemental EIS/EIR
Porter-Cologne Water Quality Control Act	Addressed in Supplemental EIS/EIR, CWA 401, 402 permits
Airborne Toxic Control Measures	Addressed in Supplemental EIS/EIR, Approved Dust Plan
California Fish and Game Code Section 1800-1802	Addressed in Supplemental EIS/EIR
California Fish and Game Code Section 3503	Addressed in Supplemental EIS/EIR
California Fish and Game Code Section 3511 and 5050	Addressed in Supplemental EIS/EIR
Native Plant Protection Act (California Fish and Game Code Section 1900 et Seq.)	Addressed in Supplemental EIS/EIR
Lake and Streambed Alteration Agreement (California Fish and Game Code Section 1602)	Addressed in Supplemental EIS/EIR
California Clean Air Act	Addressed in Supplemental EIS/EIR
Local	
City of Folsom General Plan (Noise and Traffic)	Addressed in Supplemental EIS/EIR
Sacramento County General Plan (Noise and Traffic)	Addressed in Supplemental EIS/EIR
El Dorado County General Plan (Noise and Traffic)	Addressed in Supplemental EIS/EIR
El Dorado County Air Quality Management District Fugitive Dust and Asbestos Rules	Approved Dust Plan
Sacramento Metropolitan Air Quality Management District Fugitive Dust and Asbestos Rules	Approved Dust Plan

Key:

CWA = Clean Water Act

EIS/EIR = Environmental Impact Statement/Environmental Impact Report

SHPO = State Historic Preservation Office

USFWS = U.S. Fish and Wildlife Service

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Chapter 3

Preferred Alternative

This chapter describes the elements of the Preferred Alternative that has been selected by the lead agencies for implementation.

3.1 Introduction

As described in Chapter 2, four action alternatives and a No Action/No Project Alternative were analyzed in the Draft Supplemental EIS/EIR. The action alternatives consisted of different construction methods to excavate and replace the MIAD foundation. Each action alternative included the same habitat mitigation component at Mississippi Bar. Based on the analysis in the Draft Supplemental EIS/EIR, Alternative 4 – Cellular Open Excavation and Overlay has been selected as the Preferred Alternative with up to 80 acres of riparian and wetland habitat mitigation at Mississippi Bar.

3.2 Rationale for Selection of the Preferred Alternative

This section describes the rationale for the selection of Alternative 4 – Cellular Open Excavation and Overlay as the Preferred Alternative.

3.2.1 Public Safety

The MIAD work poses a public safety risk simply because excavation of the MIAD foundation would temporarily weaken the structure and reduce its overall mass. If the reservoir were to suddenly rise while a large portion of the foundation was excavated, MIAD could fail. Alternative 4 would involve the smallest excavation size and would therefore have the least public safety risk during foundation construction.

3.2.2 Reservoir Elevation Restrictions

Alternative 4 would involve the smallest excavation size and would not need to be performed when the reservoir is low. Construction could occur year round, unlike some of the other alternatives that would require a seasonal break when the reservoir is full.

3.2.3 Environmental Effects

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.

3.3 Elements of 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.

3.3.1 Site Preparation, Well Installation, and Dewatering System Operation

The site dewatering system for Alternative 4 would be designed to handle a peak flow of 1,000 gallons per minute (gpm), and a sustained flow of 200 gpm. An additional 250 gpm of capacity would be needed for the waste process water outflow from excavation activities. A series of wells would be installed in the excavation area. Up to 20, 50 to 150 gpm electric pump wells and three large 1,000 gpm diesel powered pumps would be required. Approximately 13 acres of detention ponds would be created at the stockpiling areas or south of Green Valley Road. Approximately 10,000 cubic yards of material would be excavated south of Green Valley Road and would be placed around the edge of the ponds to create berms. Groundwater in the trench would be pumped from the wells into the detention ponds to allow settling. 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. When the trench is backfilled with material, the dewatering system would be dismantled. The dewatering system and detention ponds would be in use for approximately 18 months. Reclamation is currently evaluating the possibility of modifying the dewatering ponds after the completion of modifications to MIAD, to provide long-term riparian and seasonal wetland habitat to satisfy MIAD or overall dam

safety project mitigation requirements. Consultation from the appropriate regulatory agencies would be completed before the habitat modifications occur.

3.3.2 Excavation, Foundation Replacement, and Backfilling

3.3.2.1 Construction Method

This alternative includes either constructing a dual wall system and excavating from the surface in cellular segments with excavators using alternating cells as insitu ground support, or cellular cross-lot bracing construction of a closed wall (sheet pile or soldier pile) type system (See Figures 3-1, 3-2 and 3-3). Cells could be square, rectangular, hexagonal or circular. It is assumed that approximately 18,000 square feet will be the maximum continuous limit of excavation exposure.

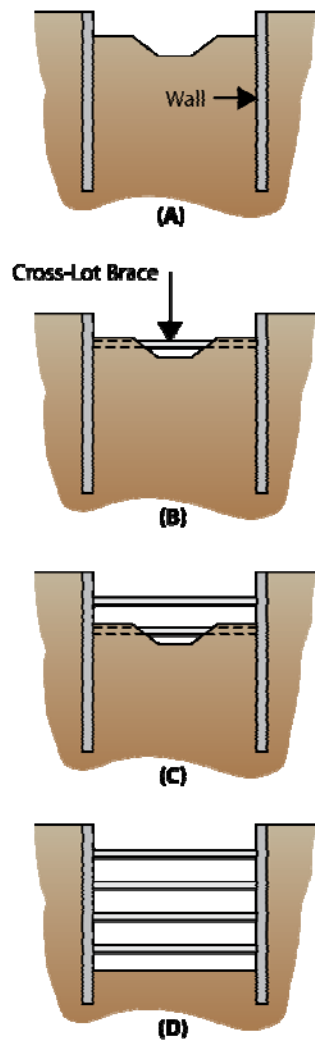


Figure 3-1. Cellular Open Construction with Cross Lot Bracing

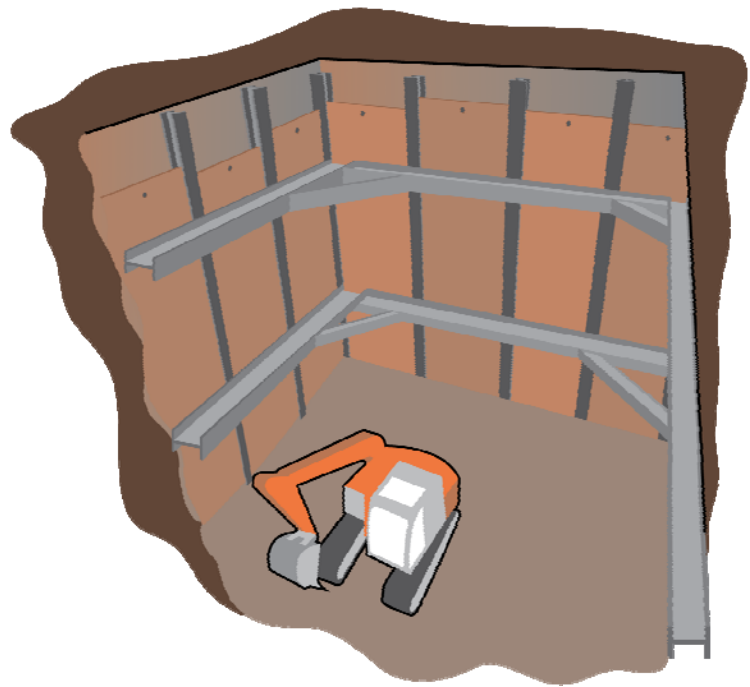


Figure 3-2. Cellular Open Construction

W:\REPORTS\US BoRe\MAD_09\Graphics\FigX Alternative 4 - Cellular Open Excavation v2.dwg 8/27/09 TC

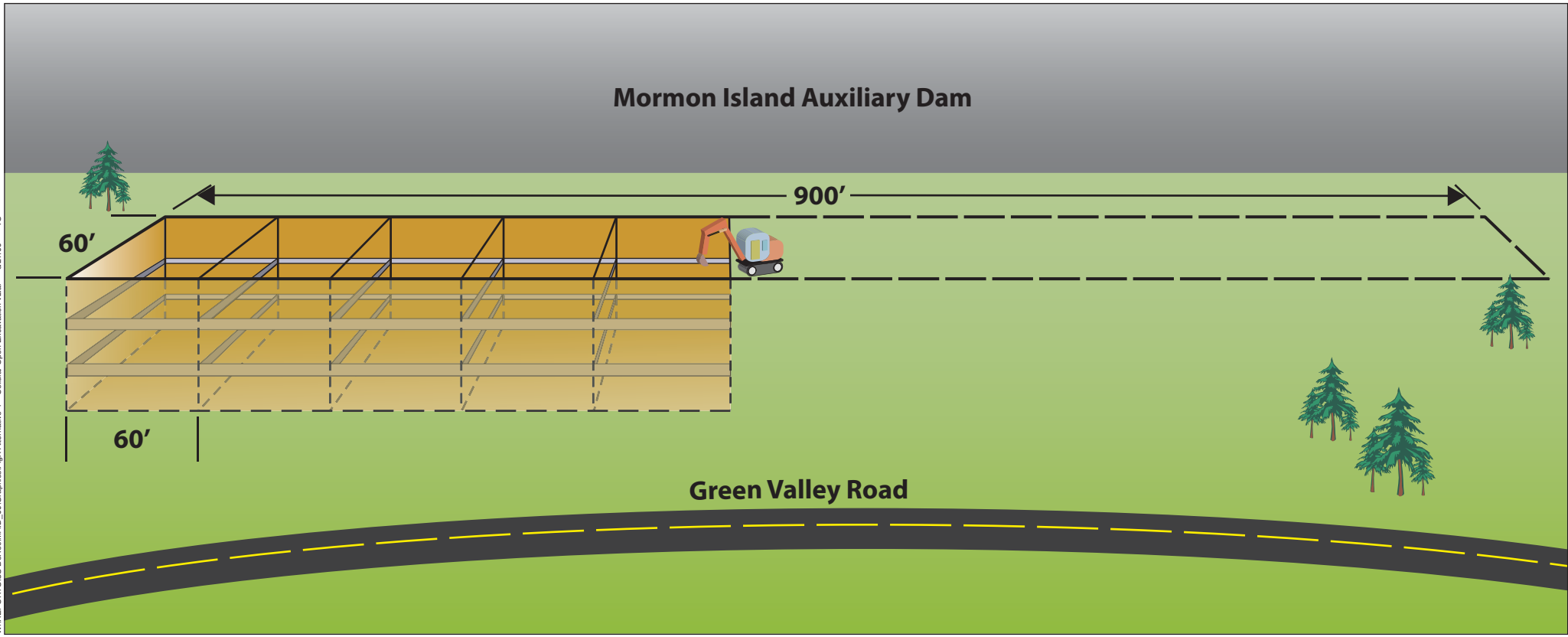


Figure 3-3. Alternative 4 – Cellular Open Excavation

The benefit of this system is that it 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 eliminate construction risk to the dam. The key block (area to be excavated) could also be shifted just downstream of the existing toe, eliminating the need for excavation of the face of the existing dam and helping to preserve its integrity during construction.

The baseline construction method assumed for analysis would be secant walls, although other wall options may be selected. Construction would commence with two or three drills constructing the secant walls. For conceptual purposes, two long, continuous, walls parallel to the dam would be constructed spaced 60 feet with cross walls every 60 feet forming a total of 15, 60 by 60 foot cells.

Once the cement has reached its design strength excavation would follow. Excavation could commence with long reach excavator, large diameter drill augers or clamshell type shovels. The total amount of cement needed to construct the cells would be approximately 21,000 cubic yards.

Once the foundation is cleaned and inspected, backfilling would commence. A flowable concrete could be used as opposed to drier materials in the other three alternatives. 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. Once flowable fill has set up (approximately 2- 5 days), the remainder of cell would be back filled with stockpiled material and compacted in lifts until complete. Assuming staged progressive development, up to 5 non-contiguous cells could be in progress at a time.

3.3.2.2 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.

3.3.2.3 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. Table 3-1 presents the material quantities needed to implement Alternative 4.

3.3.2.4 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.

Table 3-1. Quantity of Materials Handled under Alternative 4

Material Type	Quantity (Cubic Yards)
Total Excavated Material	
Embankment material	5,000
Deep Excavation	110,500
Detention Pond Excavation	10,000
Trench Backfill Material	
Material from existing stockpiles (from Phase II Excavation of JFP Spillway)	22,950
Re-used excavated material	47,550
Other Materials	
Imported Sand	9,000
Cement (foundation replacement)	45,000
Cement (wall construction)	21,000
Temporary road construction materials (Green Valley Road)	0
Road Removal Materials (Green Valley Road)	0
Overlay	
Sand for filters (imported)	350,000
Total Excavated Material	250,000
Overlay Placement: Existing stockpiles from Phase II Excavation of JFP Spillway	775,000
Overlay Placement Re-used excavated material	225,000
Total Materials Handled:	1,871,100

JFP = Joint Federal Project

3.3.3 Overlay Placement with Filters

Construction of the overlay would commence with any needed clearing of vegetation and pre-stripping, which is expected to take approximately one month. The downstream shell of MIAD would be removed by excavating the first three to five feet of material on the face of the dam. A total of approximately 250,000 cubic yards of material would be removed and stockpiled at either the northeast or southwest of MIAD. This amount of material would likely be placed on top of existing stockpiles.

The next portion of the work would be placement of the filters and the shell for the overlay. 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, and then replacing the outer shell. Approximately 350,000

cubic yards of processed material would be acquired from a local (Sacramento area) commercial source and delivered to site. The processed material is expected to be delivered to the site throughout the excavation and foundation replacement work and would be stockpiled until needed for the overlay phase. Placement of the outer shell of the overlay would re-use 225,000 cubic yards of material from the MIAD shell that was originally excavated. An additional 775,000 cubic yards of material would be obtained from existing stockpiles that were deposited during excavation of the Joint Federal Project (JFP) Auxiliary Spillway. The material would be compacted as it is placed and would extend the length of the downstream slope of MIAD to near Green Valley Road. The purpose of the MIAD overlay would be strictly for seismic and static concerns, and would not provide additional hydrologic control.

Equipment necessary to complete the overlay work would include dozers, scrapers, excavators or loaders, and dump trucks.

3.3.4 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. Soil material for the excavation backfill and the overlay would be obtained from these staging areas. 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.

3.3.5 Construction Sequencing

Alternative 4 is expected to require approximately 22 months for the foundation treatment (from clearing of construction site and installation of well system through backfilling the trench) and 24 months for the overlay (from dam stripping to shell placement). Because the overlay placement would overlap with the foundation treatment work, the total amount of construction would be about 38 months. Work would begin with two months of site preparation and clearing, and three months for well installation and the construction of detention ponds for the dewatering system. The cellular construction would allow excavation and backfilling of the cells to occur quickly, with a total construction time of approximately 20 months. The overlay process would commence approximately 12 months after the start of the foundation treatment work, and would likely be completed concurrent with excavation and backfilling work. The overlay process is expected to take approximately 24 months.

3.3.6 Mississippi Bar Habitat Mitigation

Reclamation is proposing to increase the acreage of wetland and riparian vegetation in three phases on approximately 80 acres at Mississippi Bar.

Mississippi Bar is located on the west shore of Lake Natoma in Sacramento County. The land at Mississippi Bar is owned by both Reclamation and the California Department of Parks and Recreation (DPR). Reclamation has entered into discussions with DPR for the use of State lands at Mississippi Bar for mitigation purposes, but at this time no formal agreement has been completed. Reclamation and DPR will need to reach a formal agreement on the terms and conditions for the use of State lands, which may or may not include some or all of the proposed actions at Mississippi Bar in this document. If an agreement is not reached, Reclamation will begin to explore alternative mitigation options.

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 would ultimately be responsible for the site, but would likely enter into an agreement with another willing entity.

The Mississippi Bar habitat mitigation would be the same under each of the four action alternatives for the MIAD Modification Project. Under the No Action/No Project Alternative, it is assumed that no mitigation activities would occur at Mississippi Bar as part of the MIAD Modification Project. However, Reclamation would still be obligated to fulfill their mitigation requirements for the Folsom Dam Safety and Flood Damage Reduction (DS/FDR) Project and such mitigation would occur independently of the MIAD Modification Project.

All four action alternatives proposed in this Supplemental EIS/EIR would include the same Mississippi Bar elements; creation/restoration of riparian woodland on approximately 80 acres, replacement of a culvert, and creation of seasonal wetland. Because this site is part of the Folsom Lake State Recreation Area, Reclamation has been actively coordinating with DPR to ensure the mitigation is consistent with DPR's future recreation plans for the site.

The U.S. Army Corps of Engineers (Corps) will be providing final habitat mitigation design plans for the Mississippi Bar Mitigation Site (riparian woodland, seasonal wetland) in spring 2010, which will be reviewed by the U.S. Fish and Wildlife Service (USFWS) and the Corps' Regulatory Division. Once the final habitat mitigation design plans are complete, DPR will meet with USFWS and Corps to provide assurances that recreation will be consistent with mitigation requirements to maintain the Mississippi Bar mitigation site (riparian woodland and seasonal wetland habitats) in perpetuity.

3.3.7 Phase 1 Riparian Woodland Mitigation

Riparian woodland habitat creation efforts would concentrate on those areas that have not recovered from past mining activities. Reclamation would re-contour the land to establish more natural drainage patterns and would restore native riparian vegetation. Mitigation activities would avoid all identified mine tailings, wetlands, and elderberry shrubs. All areas would be planted with native

vegetation similar to that found along Lake Natoma and the Lower American River.

3.3.7.1 Site Preparation

Avoidance Measures All biologically sensitive areas would be avoided during mitigation activities. Consistent with the avoidance and minimization measures in the biological opinion for the Folsom DS/FDR project, a 100 foot buffer would be established around all existing elderberry shrubs. Coordination with the USFWS would occur for any work within the 100 foot buffer zones. All existing wetlands and other sensitive habitats would be fenced or flagged to ensure avoidance. Existing native trees would be removed but re-planted on-site.

Grading and Re-Contouring Excavation and grading would be necessary in areas to create the depressions and to encourage sediment accumulation often associated with riparian vegetation. Deep ripping would occur where acceptable soil is encountered within 3 feet of the ground surface. Excavated material would be re-used as part of the re-contouring, if possible. Re-contouring would include removing soil where unacceptable cobble/aggregate depths are encountered and bringing in acceptable soil. Soils for re-contouring would be hauled by truck from a local source, and may include excess soil material excavated from MIAD. If any MIAD material is to be used at Mississippi Bar, it will be the first 1-2 inches of topsoil from the MIAD shell. If there is not enough soil on MIAD to warrant transporting it to Mississippi Bar, soil will come from an off-site source. Materials brought to the site would use existing surface streets. Once at the site, trucks would use existing roads and paths to avoid impacts to vegetation and wildlife. Staging for equipment, vehicles, and materials would occur in disturbed areas without vegetation. The area would then be seeded with native grasses listed in Table 3-2.

Soil Treatment Soil treatment may include incorporating sandy loam soil into the existing soil and would consist of applying a mulch and tackifier over seeded areas to help vegetation establish. Additional best management practices may be implemented as approved by USFWS and the Corps' Regulatory Division.

3.3.7.2 Vegetation and Planting Plan

In the fall, native seedlings such as those listed in Table 3-2, would be planted at a density of approximately 290 plants per acre on up to 80 acres around the Mississippi Bar area. A water basin would be formed around each plant to help preserve moisture and a geotextile fabric would be stapled over each water basin to moderate soil temperature and suppress weed growth. A browse guard would be placed around each seedling to protect from herbivores. The browse guard would be removed when the seedling becomes too large for the guard. Poultry-wire baskets would be formed and placed in the planting pit around the seedling rootball to protect the plant from gophers. These gopher baskets would

degrade over time. An 8 foot high deer fence would be constructed around the new planting sites. The fences would be designed and placed to maintain recreation access and would eventually be removed when the plants are well established. With DPR's approval, Reclamation would likely remove some user-made trails in the Mississippi Bar area.

Table 3-2. Plant Species Proposed for Mitigation Site

Botanical Name	Common Name
<i>Acer negundo</i> subsp. <i>californicum</i>	Box Elder
<i>Fraxinus latifolia</i>	Oregon Ash
<i>Populus fremontii</i>	Freemont Cottonwood
<i>Platanus racemosa</i>	Western Sycamore
<i>Quercus wislizenii</i>	Interior Live Oak
<i>Salix gooddingii</i>	Black willow
<i>Salix laevigata</i>	Red willow
<i>Rubus ursinus</i>	California blackberry
<i>Symphoricarpos albus</i>	Snowberry
<i>Elymus glaucus</i>	Blue wildrye
<i>Leymus triticoides</i>	Creeping wildrye
<i>Nassella pulchra</i>	Purple needlegrass
<i>Nassella cernua</i>	Nodding needlegrass
<i>Hordeum californicum</i>	California barley
<i>Baccharis pilularis</i> subsp. <i>cosanuinea</i>	Coyote Brush
<i>Rhamnus crocea</i> subsp <i>ilicifolia</i>	Hollyleaf Redberry
<i>Rosa californica</i>	California wild rose

Additional species that could be planted in the area that may be conducive to riparian habitat include *Fraxinus latifolia* (Oregon Ash), *Acer negundo* subsp *californicum* (Box elder), and *Quercus lobata* (Valley oak).

Nature and Source of Propagules Container stock plants would likely be 4 inch x 14 inch "Treepot4" or 2-1/2 inch x 10 inch "Deepot 40" for tree and shrub species and 2-1/4 inch x 5 inch "Tree Bands" for herbaceous species. All container plant material would be delivered to the project site in a covered vehicle. All additional plant material required due to vandalism or loss during delivery would be the responsibility of Reclamation. The container stock seed would be collected from within the vicinity of the site and propagated in a local native plant nursery. Pole cuttings for species would be collected within 2 miles of the Project area. Cuttings would be harvested in the vicinity of the Mississippi Bar site or in the watershed of American River at the same elevation. If required, a plant collection permit would be the responsibility of the installation contractor. Cuttings would occur from healthy material, roughly 6 feet in length, approximately 1/2-2 inches in diameter, and true to specified species. All cuttings would be protected and kept moist at all times before planting, including during transport and storage. Cuttings would be stored in a cool/dark location, soaking in water. Cuttings would be planted within 24 hours of harvesting. Some seeding would be anticipated. The exact seed mix, rate,

and methodology would be determined based on site conditions. Plants would be planted deep enough to be in contact with sandy loam soil.

Irrigation An existing well on DPR property may be used for irrigation. In the event that the existing well cannot be used, a new well would be installed. Irrigation of plantings would occur the first three to five years from April 1 through October 31 to facilitate plant and root establishment and connection with underlying water sources.

Survival Rate The plantings would need to be self-sustaining with an 80 percent survival rate for at least three years, with a maximum maintenance period of five years. This includes the woody species only.

Maintenance Weeding, mowing, and herbicide applications are expected to occur periodically, although this would not occur near existing elderberry shrubs or other sensitive habitats unless otherwise permitted by the USFWS. Removal of pests and/or invasive plants would occur as needed if their presence is determined to have a negative effect on the success of the plantings, including but not limited to disease, leaf damage, defoliation, herbivory, or outcompeting the plantings. The maintenance period would be up to five years.

Monitoring A qualified job inspector/construction monitor would be onsite during plantings. The monitor would have in-depth knowledge of the excavation and planting contract specifications, would have the authority to direct equipment operators, and would document any problems that arose. After the initial plantings the site would be irrigated and monitored for up to five years or until it reaches the survival rates noted above. After the site has been established it could be turned over for long-term O&M to SAFCA or another willing entity.

Reporting An annual report documenting the results of an annual plant survey would be submitted to USFWS and the Corps' Regulatory Division each year of the five year establishment period.

3.3.8 Phase 2 Culvert Replacement, Channel Widening, Mid-Channel Dredging

In 2003, DPR proposed adding a second access point from Lake Natoma to the existing Mississippi Bar lagoons to provide a loop "water trail" for canoes, kayaks, and other small paddle boats. DPR prepared and approved a "Notice of Exemption" under the California Environmental Quality Act for this project (State Clearinghouse # 2003118411). The project was stalled due to contract bids that were in excess of funding. Reclamation proposes to complete the proposed DPR project as part of mitigation for the Folsom DS/DFR Project and, in turn, assist DPR with their program goals. As noted above, this phase of the mitigation work would not be implemented until a formal agreement is in place with DPR.

Consistent with creating a functional seasonal wetland, Reclamation proposes to develop approximately 5 acres of seasonal wetlands by replacing an existing 48 inch diameter culvert, widening the channel, dredging mid-channel and breaching an area under an existing road.

An existing 48 inch diameter culvert under the paved American River Bike Trail would be replaced with a new arch culvert, thus improving the exchange of water between Lake Natoma and the lagoons, and creating a second entrance into the lagoons from lake. The location for the proposed large arch culvert is approximately 100 yards east of an existing arch culvert. In addition to installing the new oversized culvert, some dredging and excavation would be required in the channel that leads from the lake to the second oversized culvert location. Each aspect of the work is described in detail below.

Area 1 - Oversized Culvert The proposed new culvert would be 23 feet wide, 14 feet high, and 50 feet long. Installing the culvert would require excavating approximately 1,500 cubic yards of material (see Figure 3-4). Of this, 1,200 cubic yards of material would be excavated on dry ground and 300 cubic yards of material would be excavated in the channel between the lagoons and the lake. This work would involve temporarily closing the American River Bike Trail, then removing a section of the bike trail and the existing culvert (see Figure 3-5).

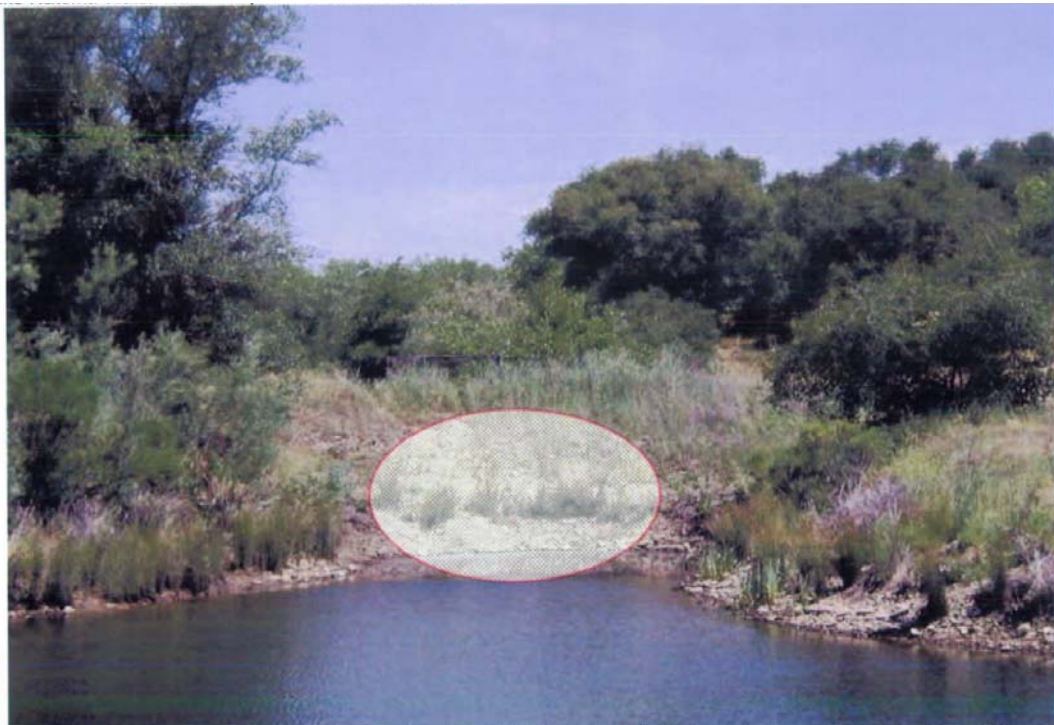


Figure 3-4. Oversized Culvert Location



Figure 3-5. Culvert Alignment under Bike Trail

A temporary trail detour would be established prior to closure of the trail and construction activities. Signs would be posted to inform the public of the trail detour and construction schedule. The trail detour would be coordinated with DPR. The bike trail would be replaced across the top of the new culvert and railings would be installed on either side of the bike trail where it would cross the new culvert.

Area 2 - Western Area Power Authority Service Road Channel Widening

Currently, a service road used by Western Area Power Authority (WAPA) to access their power lines crosses the channel between Lake Natoma and the location of the proposed new culvert. A culvert allows water to pass under the road where it crosses this channel. In order to improve water flow and create access for paddlers, a channel would need to be cut through this service road, the culvert would be removed, and this portion of the road abandoned (see Figure 3-6). WAPA has access to all of their towers and lines without this portion of the service road. In DPR's initial discussions with WAPA, they have indicated that the break in the service road would not impede their operations. Confirmation from WAPA will be obtained to ensure they no longer require use of this road. The new channel would be approximately 20 feet wide, two to three feet deep (from normal high water) and 45 feet long. Cutting the channel across this dirt service road would require excavating approximately 150 cubic

yards of material. Of this, 90 cubic yards would be excavated from dry ground and 60 cubic yards would involve excavation in the water. Disposal of excavated materials would occur on areas without vegetation.



Figure 3-6. WAPA Service Road Crossing

Area 3 - Mid-Channel Dredging Some dredging would be required in the channel to be cut across the service road and in the location of the new oversize culvert where the existing channel becomes narrow and shallow. This work would involve excavating approximately 10 cubic yards of material in the water (see Figure 3-7). Dredged materials would be stockpiled in areas where no vegetation currently exists or incorporated into soil material and used for the riparian woodland mitigation. Dredging and culvert installation would be limited to periods of low stream flow and dry weather (May to October).

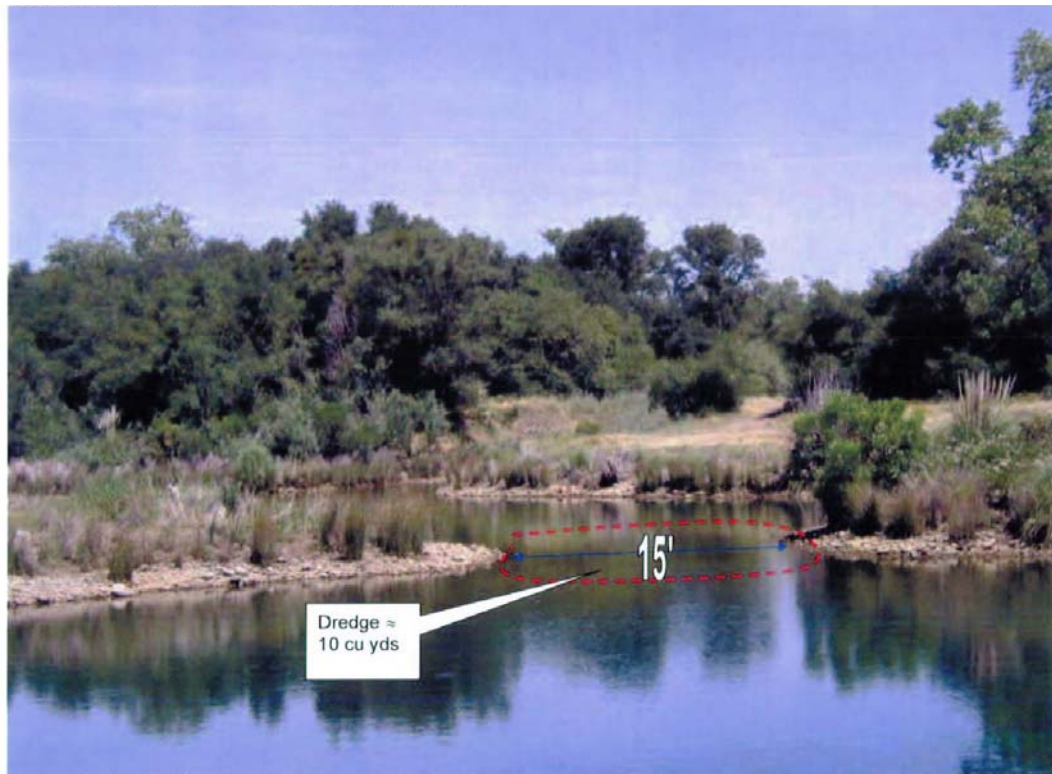


Figure 3-7. Mid-Channel Dredging

3.3.9 Phase 3 Seasonal Wetland Mitigation

For the proposed seasonal wetland mitigation, seasonal wetland vegetation would be enhanced along the margins of the proposed channel widening. All areas would be planted with plant communities similar to existing native vegetation found throughout the Lake Natoma shoreline and lagoons.

Mitigation activities would avoid elderberry bushes and established trees. The lagoon would not be cleared of downed logs used by turtles for sunning unless it totally blocks a channel or creates a hazard to people or boats. Special status species and habitat would be avoided.

As noted above, dredging and culvert installation would be limited to periods of low stream flow and dry weather (May to October). Wetland planting would not be confined to this time period. Work would not be completed in a live (wet and flowing) waterway. If work in a live stream is unavoidable, the work site would be completely dewatered and the entire stream flow diverted around or through the work site. Best management practices would be implemented to control sedimentation and erosion.

Planting/Re-seeding A qualified job inspector/construction monitor would be onsite during plantings. The monitor would have in-depth knowledge of the

excavation and planting contract specifications, would have the authority to direct equipment operators, and would document any problems that arose.

Nature and Source of Propagules Container stock plants would likely be 4 inch x 14 inch “Treepot4” or 2-1/2 inch x 10 inch “Deepot 40” for tree and shrub species and 2-1/4 inch x 5 inch “Tree Bands” for herbaceous species. Plants would be planted deep enough to be in contact with sandy loam soil. Plants would be randomly placed within the site. The container stock seed would be collected from within the vicinity of the site and propagated in a local native plant nursery.

Pole cuttings for species would be collected within two miles of the site. Cuttings would be harvested in the vicinity of the site or in the watershed of American River at the same elevation as the site. If required, a plant collection permit would be the responsibility of the installation contractor. Cuttings would be from healthy material, roughly six feet in length, approximately 1/2-2 inches in diameter, and true to specified species. All cuttings would be protected and kept moist at all times before planting, including during transport and storage. Cuttings would be stored in a cool/dark location, soaking in water. Cuttings would be planted within 24 hours of harvesting.

Some seeding would be anticipated. The exact seed mix, rate, and methodology would be determined based on site conditions and in consultation with USFWS and the Corps.

Delivery of Propagules All container plant material would be delivered to the project site in a covered vehicle. All additional plant material required due to vandalism or loss during delivery would be the responsibility of Reclamation.

Irrigation Given the operations of the reservoir, which result in annual inundation and drying of the shoreline, irrigation of plantings would occur the first three to five years to facilitate plant and root establishment and connection with underlying water sources. The design and type of irrigation would be similar to that described above for the riparian woodland mitigation.

3.3.10 Construction Equipment and Staging

The habitat mitigation at Mississippi Bar would require the use of the heavy duty loaders, dump trucks, a D-8 Caterpillar, and a road grader. All staging of equipment and vehicles would occur on previously disturbed areas that do not have any vegetation or mine tailings. The area would then be seeded with native grasses listed in Table 3-3.

3.3.11 Habitat Mitigation Schedule

Table 3-3 shows the proposed schedule for the Mississippi Bar habitat mitigation. Phase 1 of the riparian woodland mitigation would occur in two parts. The first part would involve planting 10 acres of riparian woodland in Spring/Summer of 2010. The 10 acres of riparian woodland mitigation must be completed by January 31, 2011 to meet the Clean Water Act (CWA) 404 permit conditions. The remaining riparian woodland acres would be planted by summer 2011 (up to 70 additional acres). Phase 2 with culvert replacement, channel widening, and mid-channel dredging would occur in the late summer and early fall of 2011. Phase 3 includes the seasonal wetland mitigation planting and would occur in the fall of 2011.

Table 3-3. Habitat Mitigation Schedule

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

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Chapter 4

Comments and Responses

This chapter contains responses to all comments received on the MIAD Modification Project Draft Supplemental EIS/EIR, including all written comments received during the comment period and those submitted at the public meetings. Appendix A of this Final EIS/EIR contains hard copies of all comments.

4.1 Comment Responses

The MIAD Modification Project Draft Supplemental EIS/EIR was released on December 3, 2009 for 45 days of public review and comment. All comments on the MIAD Modification Project Draft EIS/EIR were due by January 19, 2009. All forms of written comments were accepted during the comment period, including e-mails and letters. In addition, Reclamation and SAFCA conducted two public meetings in December 2009 and accepted written comments.

A total of twelve comments were received on the Draft Supplemental EIS/EIR from Federal, State, and local agencies as well as individuals. Three comments were submitted at the public meetings, and nine comments were received during the comment period. Table 4-1 below lists the name of each person who submitted a comment, their affiliations, and the section in which their comment and response can be found.

Table 4-1. Comments on Draft Supplemental EIS/EIR

Name	Affiliation	Section
Federal Agencies		
Kathleen M. Goforth	Environmental Protection Agency	4.1.1.1
State Agencies		
Scott Nakaji	California Department of Parks and Recreation	4.1.2.1
Local Agencies		
Molly Wright	Sacramento Metropolitan Air Quality Management District	4.1.3.1
Individuals		
Laurette J. Laurent ¹	Individual	4.1.4.1
Linda Smith ¹	Individual	4.1.4.2
Unknown ¹	Individual	4.1.4.3
Michael Harris	Negro Hill Burial Ground Project	4.1.4.4
Dr. Lanny H. Fisk	Individual	4.1.4.5
Oliver Deegan	Individual	4.1.4.6
Dave Castro	Golden State Bass Club	4.1.4.7
Patricia Gibbs	Individual	4.1.4.8
Dave Comstock	Individual	4.1.4.9

Notes: ¹Comments received at public meetings for Draft Supplemental EIS/EIR.

4.1.1 Federal Agency Comments

This section includes responses to all comments received from Federal agencies.

4.1.1.1 Kathleen M. Goforth, Environmental Protection Agency

Comment 1: While the [U.S. Environmental Protection Agency] EPA supports actions to reduce seismic and static risks at MIAD, we have rated the Draft Supplemental EIS/EIR as Environmental Concerns – Insufficient Information (EC-2) (see enclosed “Summary of Rating Definitions”) because of our concerns regarding the significant and unavoidable air quality impacts of construction emissions and potential impacts to vernal pools, wetlands, and riparian habitat.

We acknowledge the temporary nature of the above adverse effects and the challenges of implementing a major construction project in an Air Basin that is in non-attainment for ozone and particulate matter smaller than 10 microns (PM₁₀), and a site at which may contain Naturally Occurring Asbestos (NOA). To minimize exceedances of nitrogen oxides (a precursor for ozone), particulate matter, and NOA thresholds, we recommend continued coordination with the Sacramento Metropolitan Air Quality Management District and El Dorado County Air Quality Management District on implementation measures that will avoid and minimize emissions and NOA exposure. All air quality mitigation measures and commitments should be described and listed in the Final EIS/EIR and Record of Decision.

Response 1: Reclamation recognizes that the MIAD Modification Project is occurring in an Air Basin that is in non-attainment for ozone and PM₁₀ and would have substantial emissions. As described in the Air Quality chapter of the MIAD Modification Project Draft Supplemental EIS/EIR (Chapter 6), Reclamation has implemented a wide range of mitigation measures recommended and/or required by SMAQMD and EDCAQMD to reduce air quality impacts. Additionally, Reclamation and their construction contractor will be responsible for developing and submitting a NOA dust plan that must be approved by SMAQMD and EDCAQMD to minimize effects associated with NOA. Reclamation has received comments on the Draft Supplemental EIS/EIR from SMAQMD and has revised the Air Quality discussion in response to these comments (See Section 4.1.3.1 and Chapter 5 in this Final Supplemental EIS/EIR). Reclamation will continue to coordinate with SMAQMD and EDCAQMD on this construction project.

Potential impacts to vernal pools, wetlands, and riparian habitat are addressed throughout Chapter 7 of the Draft EIS/EIR. Applicable mitigation measures discussed in that section, including BIO-2 through BIO-5, BIO-9 and BIO-10, would reduce potential impacts associated with the project to a level that is less than significant. The comment by the USEPA does not indicate what specific concerns the Agency has regarding how these resources are addressed in the

Draft EIS/EIR. As such, it is not possible to provide a specific response to that aspect of their comment.

Comment 2: We recommend including in an appendix the Clean Water Act Section 404 Permit for the Folsom Dam Safety and Flood Damage Reduction Project. Provide a summary of its specific requirements and a description of the anticipated 404 permit amendments for the MIAD Modification Project in the Final EIS/EIR.

Response 2: Appendix B of this document contains a summary of the Clean Water Act Section 404 Permit for the Folsom DS/FDR Project and describes the proposed amendments for the MIAD Modification Project. The MIAD Modification Project Preferred Alternative (Alternative 4) would affect an additional 2.41 acres of freshwater marsh and 0.0823 acres of seasonal wetlands/vernal pools. These acres would be added to the existing 404 Permit through an amendment. Mitigation for impacts to these wetlands would be coordinated with the Corps' Regulatory Division in a manner consistent with that generally described in Chapter 7 of the Draft Supplemental EIS/EIR.

4.1.2 State Agency Comments

This section includes responses to all comments received from State agencies.

4.1.2.1 Scott Nakaji, California Department of Parks and Recreation

Comment 1: The Draft Supplemental EIS/EIR proposes habitat mitigation on both State-owned and Federal land at Mississippi Bar along Lake Natoma. As noted in the Draft EIS/EIR, Reclamation and State Parks have entered into discussions regarding the use of State land for mitigation purposes, but no formal agreement has yet been completed. Because the mitigation is a permanent commitment of land for the mitigation purposes, in order to accept off site mitigation, State parks policies require some clear benefit to the State Park System. State Parks does have some key interests with regards to this potential use of State land for mitigation.

The entire Mississippi Bar area was mined in the late 19th and 20th centuries, most notably by large gold mining dredger operations which have left tailing piles of river cobble across much of the area. More recently, the State owned portion of Mississippi Bar was mined for aggregate from 1959 to the early 1990's. As part of the reclamation plan for the aggregate mining, a series of linked lagoons and channels were created which are connected to Lake Natoma. However, much of the property was never restored, including a roughly 40-acre area that was graded flat and is devoid of tailings and top soil. In addition to the lagoons and the flat area, the balance of the property contains tailing piles with pockets of habitat, including oak woodland and riparian habitat and a few small ponds or seasonal wetlands.

While much of the Mississippi Bar area is undeveloped, existing facilities include: a small equestrian boarding and stable concession located adjacent to the large barren flat area; the Snowberry trailhead and parking area; a portion of the paved bike path which crosses Mississippi Bar; several recognized system single track dirt trails and a number of user-created trails. Existing uses of the area include the equestrian use generated by the stables, other trail uses including road bikes, mountain bikes, pedestrians and equestrians on the trails in the area. Canoes and kayaks tour the lagoons and channels and anglers fish in these same ponds. There is a lot of informal use of the general area by the immediate community for walking dogs, jogging, and walking.

The development and management of Folsom Lake [State Recreation Area] SRA is guided by a General Plan. State Parks and Reclamation have been working on an updated General Plan/Resource Management Plan. State Parks approved this Plan in October 2009 and Reclamation approval of this Plan is pending. This new Plan provides specific direction regarding the development and management of the Mississippi Bar area. This direction includes restoration of riparian and floodplain habitat in those portions of the area which have not recovered (and are not likely to recover without active restoration) from past aggregate mining activities. The Plan also provides for the development of new day use facilities including picnic sites, restrooms, limited vehicle access and parking, expansion of the existing system of lagoons and channels for canoes and kayaks, development of additional trails, potential improvements associated with the horse stable concession, and the interpretation of cultural resources in the area including the historic gold mining dredger tailings.

Because new recreational uses and facilities are proposed for the Mississippi Bar area, mitigation planning will need to consider where these future recreational facilities and uses will be located and accommodated. Some level of specific site planning for the area will be required. This site planning in particular needs to consider access roads, parking areas, picnic sites and trails. The areas to be set aside for these future facilities need to be incorporated into the mitigation plans to avoid future conflicts between recreation use of the area and the proposed mitigation. State Parks believes the lead agencies for this project need to provide the resources required to complete this site specific planning.

State Parks is interested in focusing much of the proposed mitigation on the large flat (approximately 40 acres) which is unlikely to recover without active restoration. State Parks believes that the mitigation in this area would need to include excavation and grading to create topography, possible restoration of natural drainage patterns, importation of top soil and planting of riparian woodland species. There are a few small pockets of mature cottonwoods in the area which need to be protected and incorporated into the mitigation and restoration design for this area.

The Draft EIS/EIR includes the potential to make modifications to the existing lagoons and channels at Mississippi Bar as part of the mitigation proposal. This part of the proposed mitigation includes a second over-sized culvert and some channel widening and dredging which would create a “paddling loop” through the area. State Parks is supportive of this portion of the mitigation proposal.

Presuming an agreeable plan can be developed for the mitigation at Mississippi Bar, State Parks would not be responsible for any of the costs of constructing or maintaining this mitigation in the future. State Parks is also researching the appropriate compensation for the permanent commitment of State lands for mitigation.

Response 1: Reclamation has been actively coordinating with DPR during the development of habitat mitigation at Mississippi Bar. Reclamation will continue to engage DPR in the habitat mitigation development process to ensure mitigation actions avoid existing recreation resources as well as any future planned recreation resources. The focus of the habitat mitigation would be to restore areas that currently do not have native vegetation; therefore, all efforts will be made to preserve existing native habitat.

Reclamation would be responsible for the costs of constructing and maintaining the mitigation site until the mitigation plantings are self sustaining or 5 years after installation. Reclamation is aware that an agreement needs to be developed with DPR before any mitigation actions may occur on State property at Mississippi Bar.

Comment 2: The Draft EIS/EIR acknowledges potential impacts to trail access and trail use at Mormon Island Auxiliary Dam (MIAD) and provides mitigation measures (RC-1, RC-2, and RC-3) to address these impacts. State Parks is supportive of these mitigation measures, in particular, mitigation measure RC-3, which indicates that trail detours will be established where trails are impacted by construction and if detours are not possible, other options including development of new trails will be pursued as a means of mitigation the impacts to trails.

Given the physical constraints of the reservoir, the MIAD construction area and Green Valley Road, it is likely not possible to re-route trail traffic around the construction site. However, there are nearby options to mitigate the loss of trailhead parking and trail use opportunities. State Parks is interested in working with the lead agencies further to define the specific mitigation measures to be implemented to address the loss of the trail use across the top of MIAD and the potential loss of the trailhead parking at Mormon Island Cove during construction.

Response 2: Reclamation will coordinate with DPR on the location of trail detours and/or development of new trails to mitigate recreation impacts of the MIAD Modification Project, including the temporary loss of the trail across the top of MIAD and the potential loss of the trailhead parking at Mormon Island Cove during construction.

Comment 3: State Parks manages Federal lands within Folsom Lake SRA through an agreement with Reclamation. Within the larger State Recreation Area, State Parks has designated some specific limited areas as Natural Preserves, which is a designation used to provide a higher level of protection to areas with specific unique resources within a State Park unit. The Mormon Island Wetland Natural Preserve is an area with this Natural Preserve designation. The specific resources for which the Preserve was designated are riparian habitat, wetlands, and vernal pools. According to the California Public Resources Code, these areas are to be managed to protect the resources for which they were designated and manipulation of the habitat is to be permitted only in those areas where scientific analysis indicates manipulation is necessary to preserve the species or associations that constitute the basis for the establishment of the natural preserve.

State Parks recognizes the Mormon Island Wetlands Natural Preserve, a State designation, is on Federal land which was acquired for the purposes of the Folsom Dam Project. Our request is that work within the Natural Preserve area be limited to the minimum necessary to complete the MIAD Modification Project and that any areas disturbed are restored to habitat or uses appropriate for the Natural Preserve designation.

Common to all of the alternatives in the Draft EIS/EIR is the use of a portion of the Mormon Island Wetlands Natural Preserve area to create 13 acres of detention ponds in conjunction with the dewatering of the project area. Reclamation has discussed with DPR the possibility of utilizing the top of the berms created as part of the ponds as trails after the conclusion of the project. If a portion of Mormon Island Wetlands is utilized for detention ponds, following the work on MIAD, State Parks is interested in seeing these ponds restored or modified to create wetland and riparian habitat and the berms along these ponds utilized as trails. State Parks is interested in working further with the lead agencies on this aspect of the MIAD project.

Response 3: Reclamation will limit activities in the Mormon Island Wetland Preserve to what is necessary to complete the MIAD Modifications. Reclamation will coordinate with DPR regarding future use of the detention ponds for trails and development of wetland and riparian habitat.

4.1.3 Local Agency Comments

This section presents responses to comments received from local agencies.

4.1.3.1 Molly Wright, Sacramento Metropolitan Air Quality Management District

Comment 1: Mitigation measures are provided for emissions estimated to be significant and mitigated emissions estimates are quantified in Table 6-17. [Nitrous Oxide] NO_x emissions exceed District thresholds of significance and are found significant and unavoidable – significant even after mitigation – for all alternatives. When the standard mitigation does not reduce the impact to below the threshold a mitigation fee is required. The current mitigation fee rate is \$16,000 per ton of emissions. Please calculate this fee for the significant and unavoidable emissions, and include the fee as a mitigation measure in the Final Environmental Impact Report. Deferring the fee calculation to the time of construction will require an additional emissions analysis be performed and the mitigation fee determined will have to be paid at the fee rate at the time of construction, which may be higher than \$16,000 per ton of emissions.

Response 1: Preliminary mitigation fees have been calculated for each alternative and are presented in this Final Supplemental EIS/EIR as a revised mitigation measure for Air Quality (See Chapter 5 of this Final Supplemental EIS/EIR). Final fees will be prepared by the construction contractors when the actual equipment fleet mix is known.

Comment 2: Additionally, the District provides standard construction mitigation language for reducing NO_x emissions from off-road diesel powered equipment, and controlling visible emissions from off-road diesel powered equipment. This document, entitled [Sacramento Metropolitan Air Quality Management District] SMAQMD Recommended Mitigation for Reducing Emissions from Heavy Duty Construction Vehicles, is attached for your reference. The mitigation for reducing NO_x emissions from off-road diesel powered equipment is included in the mitigation measures for this project. Please include the mitigation for controlling visible emissions from off-road diesel powered equipment (which is category 2 in the attachment).

Response 2: Section 6.4.2 of Air Quality has been updated to include mitigation for controlling visible emissions from off-road construction equipment as a mobile source mitigation requirement. Chapter 5 of this Final EIS/EIR describes the revisions made to this section.

Comment 3: Local permitting requirements must be followed for emissions associated with any equipment considered to be a stationary source. This includes California Air Resources Board (CARB) Portable Equipment Regulation Program (PERP). More information on PERP is available at www.arb.ca.gov/portable/perp/perp.htm

Response 3: All portable equipment used during construction will comply with PERP. Any necessary permits will be obtained from the SMAQMD by the construction contractor if any stationary equipment is to be operated at the site. Section 6.2.1 of Air Quality was updated with the applicable permitting requirements. Chapter 5 of this Final EIS/EIR describes the revisions made to this section.

Comment 4: Please accurately reflect the availability and capabilities of existing protocols for the study of Toxic Air Contaminant (TAC) emissions. The second paragraph on TAC states “There is currently no adequate methodology to assess TACS from mobile sources because the existing models and procedures are based on stationary sources that emit a constant rate.” The District’s Recommended Protocol for Evaluating the Location of Sensitive Land Uses Adjacent to Major Roadways (Protocol), and [California Air Pollution Control Officers Association] CAPCOA’s Heath Risk Assessment [HRA] Guidelines have California-specific mobile source emissions concentrations models. Although these models do not directly apply to a construction project such as this one, it is important to acknowledge their existence.

Response 4: The text of this Final Supplemental EIS/EIR has been updated to reflect the various protocols available for the quantification of TAC emissions. The limitations of these protocols in regards to temporary construction projects, such as the one described in the EIS/EIR, were also described. Section 6.2.2 of Air Quality was updated to clarify the significance associated with TAC emissions. Chapter 5 of this Final EIS/EIR describes the revisions made to this section.

Comment 5: The first paragraph on TACs states “If a complete HRA is not completed, then emissions from mobile and stationary sources may be conservatively considered to be significant and unavoidable.” For clarification, adequate analysis is required to make the finding that emissions are significant and unavoidable; we do not support any findings that are not demonstrated with adequate analysis. Moreover, environmental review for projects generating significant and unavoidable TACs must fully disclose the health impacts of those TACs.

Response 5: The statement that TAC emissions would be significant and unavoidable was a conservative assumption based on the nature and level of TAC emissions, particularly diesel particulate matter (DPM), which would be emitted from the construction site. As indicated in the SMAQMD’s CEQA Guide, “The District has not established a quantitative threshold of significance for construction-related TAC emissions. Therefore, the District recommended that lead agencies address this issue on a case-by-case basis, taking into consideration the specific construction-related characteristics of each project and its proximity to off-site receptors.” The air quality analysis presented in Chapter 6 of the Draft EIS/EIR, and the associated technical appendix with the air pollutant calculation data, accounts for over 50 pieces of heavy-duty diesel-

powered construction equipment operating in 10-hour shifts during peak daily construction activity. As indicated in Chapter 2 of the Draft EIS/EIR construction activities associated with the proposed project would occur over an approximately 3-year period. Residential uses are located to the south and southeast of the MIAD construction site and to the north and west of the Mississippi Bar mitigation area. Based on the above information, all of which is reflected in the Draft EIS/EIR (including technical appendices), and the absence of any quantitative significance thresholds and adopted health risk assessment methodology for construction-related TACs, Reclamation considers the impacts associated with the proposed project to be significant.

Comment 6: The second paragraph on TACs states “The primary TAC associated with the project construction is expected to be diesel particulate matter (DPM) generated during the operation of the construction equipment.” Although we appreciate that this document identifies DPM as a TAC, please include a discussion of DPM health impacts in the analysis, including identification of any sensitive receptors within 1,000 feet of the project.

Response 6: Section 6.2.2 of Air Quality has been updated to identify the location of sensitive receptors in the vicinity of the project. A discussion of the possible health risk impacts of DPM has also been provided. Chapter 5 of this Final EIS/EIR describes the revisions made to this section.

Comment 7: Further, significant and unavoidable findings are appropriate only in the context of all feasible mitigation. Please demonstrate that all feasible mitigation will be provided to reduce health impacts related to TACs. Mitigation measures are available in the District’s updated Guide to Air Quality Assessment, available at this website:
<http://www.airquality.org/ceqa/ceqaguideupdate.shtml>

Response 7: The mitigation measures included in this Final Supplemental EIS/EIR have been updated to reflect mitigation necessary to reduce health impacts related to TACs (See Chapter 5 of this Final EIS/EIR). The mitigation measures described in Section 6.4 of the Air Quality chapter in the Draft EIS/EIR for criteria pollutants will also provide a co-benefit by reducing emissions of toxic air contaminants.

Comment 8: The number of employees is stated as 100 earlier in the DEIS/EIR, but not in the Climate Change analysis. Stating the number of employees in the Climate Change analysis discussion of employee commute emissions would provide more clarity.

Response 8: The number of employees commuting to the site each day varies based on the needs of a particular construction phase and the amount of overlap occurring between multiple phases. Section 19.2.4.1 of Climate Change has been updated to reflect the maximum number of construction expected to be

commuting during a single day. Chapter 5 of this Final EIS/EIR describes the revisions made to this section.

Comment 9: The measurement “gallons per vehicle miles travelled” is used to quantify emissions, in Table 19-3 and 19-4, as opposed to “grams per miles travelled.” If grams per miles traveled were the intended measurement, please clarify.

Response 9: The emissions were quantified as grams per vehicle miles traveled. This typographical error has been corrected in the Final Supplemental EIS/EIR. Chapter 5 of this Final EIS/EIR describes these revisions.

4.1.4 Individual Comments

This section presents responses to individuals who commented on the Draft Supplemental EIS/EIR.

4.1.4.1 Linda Smith

Comment: Matt gave us lots of information and answered all of our questions. Great photos and handouts. Thank you for the opportunity to see what’s in store for the future.

Response: Thank you for your comment. Copies of the public meeting handouts can be found on Reclamation’s website at:
<http://www.usbr.gov/mp/jfp/mormon/index.html>

4.1.4.2 Laurette J. Laurent

Comment 1: If construction safety and efficiency requires relocation of Green Valley Road, that should occur.

Response 1: Only Alternative 1 would require the temporary relocation of Green Valley Road. The road would be replaced to its original location after construction is complete. The remaining alternatives include excavation methods that would reduce the size of the excavation and would therefore eliminate the need to temporarily relocate Green Valley Road.

Comment 2: If you can create more Sacramento County pedestrian access (from Natoma Street/ Green Valley Road) that would be desirable. Sacramento County has only one tiny access to Folsom Reservoir, despite its large urban population. Please – more Sacramento County foot access.

Response 2: Reclamation does not have the authority to create recreation improvements such as adding additional pedestrian access to Folsom Lake State Recreation Area. Reclamation is only responsible for any impacts to existing recreation resources that would occur from construction of the MIAD

modifications. Measures to mitigate recreation impacts will be coordinated with DPR.

4.1.4.3 Unknown

Comment: I am interested in the amount of information. Thank you. Everyone is very helpful and friendly.

Response: Thank you for your comment. Information on the MIAD modifications and the overall Folsom Dam Safety and Flood Damage Reduction Project can be found on Reclamation's website:
<http://www.usbr.gov/mp/jfp/mormon/index.html>

4.1.4.4 Michael Harris, Negro Hill Burial Ground Project

Comment: Please share the process for submitting comments for the record to the Environmental Impact Report.

My concern is including the missing contributions of the Black California Pioneers, including Leidesdorff Ranch, Historic Negro Hill town and residents of the many other Gold Rush era towns not mentioned in the EIR.

The town of Mormon Island burned to the ground in the mid 1800's and the region history is incomplete.

This background is essential to even consider mitigation of past egregious mistake with Folsom Dam was originally built.

Today in Mormon Island Relocation Cemetery, 36 grave markers read, Unknown, moved from Nigger Hill Cemetery, by the U.S. Government in 1954.

The U.S. Civil Rights at was signed in 1957 and today the Civil Rights Division of the U.S. Attorney General Office may find a violation in need of correction.

The many positive benefits of the needed repairs could include repairing dignity and respect for the contributions of California Black Pioneers in the Gold Rush Era.

Response: The MIAD Modification Project will not affect the Mormon Island Relocation Cemetery. Reclamation appreciates and understands your concerns and the need to recognize the historical contributions of Black Pioneers in California Heritage.

4.1.4.5 Dr. Lanny H. Fisk

Comment: I have reviewed the Mormon Island Auxiliary Dam (MIAD) Modification Project Draft Environmental Impact Statement/Environmental Impact Report (DEIS/EIR) and wish to comment on the inadequacy of the

environmental impact analyses. My comments below specifically address the absence of any discussion of potential impacts to paleontological resources (fossils). Paleontological resources appear to have been inadvertently overlooked in the DEIS/EIR for this Project. The Project description and brief discussion of the geology in the Project DEIR make it clear that the Project may include major excavations in presumably Pleistocene (“Ice Age”) sediments that could contain the fossil remains of extinct Ice Age mammals. Thus, I was surprised to find that the DEIS/EIR contains no discussion of potential impacts to paleontological resources. This certainly must be an oversight that needs to be addressed and corrected in the Final EIS/EIR (FEIS/EIR).

The MIAD DEIS/EIR should document Project compliance with all relevant Federal and State laws and regulations. The regulatory requirements specifically pertaining to paleontological resources applicable to this Project include the Paleontological Resource Preservation Act (PRPA) of 2009. The PRPA directs the Secretary of the Interior to manage and protect paleontological resources on Federal land. The potentially significant adverse impacts on paleontological resources require at a minimum that a preconstruction paleontological resource impact survey and assessment be done by a qualified professional paleontologist and incorporated into the FEIS/EIR before its approval.

I strongly recommend that the standard guidelines developed by the Society of Vertebrate Paleontology (SVP) for the mitigation of construction-related adverse impacts on paleontological resources be adopted for this Project. The SVP standard guidelines represent a consensus of professional paleontologists in the United States. They have been widely accepted by Federal agencies ([Bureau of Land Management] BLUM [sic], [U.S. Forest Service] USFS, [National Park Service] NPS, [Federal Energy Regulatory Commission] FERC, etc.), California State agencies ([California Energy Commission] CEC, [California Public Utilities Commission] CPUC, CalTrans, etc), and the planning departments of numerous California counties and municipalities with responsibility to protect paleontological resources. A copy of the SVP standard guidelines are appended to this letter. Briefly, the SVP guidelines require that each project have a paleontological resource impact assessment, including literature and museum archival reviews and a field survey, before a project begins. Then, if the assessment concludes that there is a high potential for disturbing significant fossils during project construction, a mitigation plan is prepared that includes monitoring by a qualified paleontologist to salvage fossils uncovered, identification of any salvaged fossils, determination of their significance, and placement of curated fossil specimens into a permanent public museum.

The SVP’s standard mitigation measures ensure that adverse impacts to paleontological resources will be less than significant. Without an impact assessment by a qualified professional paleontologist before a project begins and appropriate mitigation measures during project construction, adverse impacts to significant paleontological resources are NOT reduced to a less than

significant level as required by CEQA. Therefore, I strongly recommend that before the FEIS/EIR for the MIAD Project is prepared and approved that the SVP standard guidelines be studied and included as part of the environmental mitigation measures.

To allow the Project to be moved forward without further delays while still providing adequate protection and mitigation of potential impacts to paleontological resources, I suggest that it may be possible to simply include in the FEIS/EIR or approval decision language similar to the following: ***Prior to the start of project construction, a paleontological resource survey and impact assessment will be completed by a qualified professional paleontologist. If the survey and impact assessment concludes that the project could have adverse impacts on significant paleontological resources, to effectively reduce these potential impacts to a less than significant level, the standard mitigation measures established by the Society of Vertebrate Paleontology will be adopted.*** In my professional opinion, inclusion of such a statement in the FEIS/EIR or decision regarding this Project would demonstrate Reclamation's intention to provide adequate protection and mitigation of impacts to paleontological resources.

Thank you for the opportunity to participate in the environmental review process for the MIAD Project. If you have any questions regarding my comments, please feel free to contact me via either e-mail (Lanny@PaleoResource.com) or phone (530-885-9696 or 916-947-9594). I am a local resident concerned that the record of our prehistoric past be protected and preserved for my children and my children's children to enjoy in the future. As the area becomes covered with reservoirs, dams, buildings, concrete, and asphalt, our fossil record is rapidly being either destroyed or rendered inaccessible. **Thus, impacts on paleontological resources from developed projects are cumulatively considerable.** Adequate mitigation measures could easily and inexpensively reduce the direct, indirect, and cumulative adverse impacts on paleontological resources to a less than significant level and, in fact, could provide beneficial impacts by uncovering and then preserving this fossil record in public museums where it will be available for scientific study in the future.

Thank you for listening and responding to my concerns. Please add my name and address to your mailing list for all future communication regarding this and related projects.

Response: Reclamation has determined the MIAD Modification Project will not result in an impact to paleontological resources given the past mining activities and geologic investigations in the proposed project area. Reclamation has thoroughly researched these past activities and no occurrences of paleontological resources were discovered.

The alluvial areas proposed for excavation were mechanically dredged during three different eras within the early to mid 1900's by the Natomas Dredge Company. The last era of dredging involved the use of the most modern dredging equipment at the time, which reached to depths as great as 100 feet. This dredge was reportedly used to process about a 1,000 to 1,200 foot wide section of the ancient alluvial channel and excavated into the underlying bedrock. The amount of placer gold recovered during this last era of dredging led the Natomas Dredge Company to thoroughly dredge the deepest portions of ancient channel three times before the operations were ceased. Then during the construction of the Folsom Project, the U.S. Army Corps of Engineers excavated the core trench for MIAD into bedrock confirming the extent of the dredge deposits in this area. Reclamation has drilled more than 600 drill holes within the MIAD area to characterize the site and has confirmed the extent of the past dredging operations.

Review of all past activities occurring within the area proposed for excavation indicates the absence of paleontological resources in the project site. As with all protected resources, Reclamation's onsite construction representatives will cease all activities in the immediate area and report any unknown discovery to the appropriate personnel. Evaluation of the discovery will then occur in accordance with applicable requirements and mitigation. Data recovery, management, and documentation, will be completed as necessary and appropriate.

4.1.4.6 Oliver Deegan

Comment: I read with great interest the article in the Sacramento Bee on Dec. 18 re. the upgrade of the Mormon Island Dam. I don't have any comments about that project, but I do have some input re. the Warm Springs Dam in Sonoma County and I thought that the USBR might be interested.

I am a retired U.S. Probation Officer, now living in Placer county, and in my work as a USPO, many years ago I was assigned the case (false information on a loan application, I believe) of an individual who had worked on the building of the Sonoma County dam. He disclosed to me that when the dam was under construction, the soil compaction was found to be unstable in several areas. He stated that when such areas were found the area was supposed to be re-compacted for at least 100 feet in diameter. This was not done, he said. The areas were only re-compacted for up to 10 feet in diameter. He was concerned that an earthquake would cause serious problems. At the time, I reported this information to the U.S. Attorney's Office in the N.D. of CA, San Francisco, and to the then Congressman's Office. To my understanding, no new action was undertaken following this disclosure.

Response: Reclamation will have construction personnel onsite for the duration of the modifications to ensure that all requirements of the specifications are met by the construction contractor. Reclamation has

thoroughly studied potential corrective actions and has engineered a series of corrective actions that will meet Reclamation's dam safety standards.

4.1.4.7 Dave Castro

Comment: It was good to meet you at the December Mormon Island Auxiliary Dam community meeting in Folsom. I recall discussing lake levels with you, regarding my involvement with bass fishing tournaments on Folsom Lake, and hearing that the MIAD Safety project would **not** drive the lake levels.

Our annual bass fishing tournament counts on the lifting of water speed limits (5 mph) that are imposed when the lake levels are below 400 ft elevation, so understanding the plans is key for us to determine whether we will be able to hold a tournament (fundraiser) this year.

Could you please let me know whom the best contact would be for finding out what the plans are for the lake levels this Spring? Also, would you please confirm that.

Response: The MIAD Modification Project would not require any changes to the water levels in Folsom Reservoir. Throughout the MIAD construction work, the reservoir would continue to be operated as it is currently. The MIAD modifications would not require a change to the Water Control Manual, the current manual that guides operation of the reservoir. The manner in which water is stored and released from Folsom Reservoir, for water supply, hydropower, and flood storage space would not need to change with the proposed MIAD modifications.

The lake levels in Folsom Reservoir are dependent on the amount of rain and snow received in the upper American River Watershed. At this time Reclamation cannot determine what the exact lake levels will be this spring. If you have additional questions please call Reclamation's Central California Area Office at (916) 988-1707.

4.1.4.8 Patricia Gibbs

Comment 1: As I mentioned in my March 26, 2008 letter, I applaud those individuals that had the fortitude to get this much needed project into the actual construction stage. Flood control and dam safety are obvious priorities. However, the obligations for public access and recreation around the reservoir must also be addressed.

Please retain the user designation on trails rerouted as a result of the MIAD Project, either equestrian/hiking only or multiuse. If multiuse, then the reroute trail should be constructed with safety in mind, i.e. a good dirt base, a very wide trail width to accommodate not only passage of different users but also escape zones, and good site distances.

Response 1: Reclamation will coordinate with DPR to ensure all trail detours retain the appropriate user designations and safety requirements.

Comment 2: This letter also serves to inform and provide notice to the overarching lead agencies of the entire Folsom Dam Raise/ Folsom Bridge Project that an important trail segment relative to the historical Trail System on the west side of Folsom Reservoir and the American River has been cut off and destroyed due to the construction of the new Folsom Dam Bridge. This segment is located under the west end of the new Folsom Dam Bridge. A class 1, paved two lane bike trail has been built in the area but the dirt equestrian/hiker trail has not been rebuilt. The Trail that has now been cut off has historical roots. Whether this is the exact location of the original Pioneer Trail or the reroute due to the building of Folsom Dam in the 1950's is not clear. While records from the 1850's are difficult to locate, what we do know is that the American River and human activity via trails are inexorably linked throughout the length of the this River. The historical importance and longevity of this Trail is evidenced by California Historical Landmark #585 "Pioneer Express Trail" near mile marker 33 placed May 5, 1957 and references in the National Trail data base as "Western States Pioneer Trail", designated December 5, 1975, 50 miles linear, Sacramento.

This trail has been in constant use for at least 50 years and serves as the southern portion of the route of the American River endurance ride, the oldest endurance ride in the United States, I believe in it's 50th year as well.

The American River/ Middle Fork American River Watershed Trail System in the Folsom Lake Recreation Area connects south to Sacramento and north to nationally known trails such as the Pacific Crest Trail, the Western States Trail, and the Tahoe Rim Trail. Thus the loss of this local trail segment not only creates a multitude of local problems but also has a regional impact.

I request that the agencies responsible for the American River Watershed Project/ Folsom Dam Raise/Folsom Bridge Project rebuild the destroyed hiker/equestrian trail in a timely manner.

Response 2: The MIAD Modification Project would not affect any trails on the western side of Folsom Reservoir. The MIAD Modification Project would result in the temporary closure of the trail on top of MIAD for up to 24 months. After construction is complete the trail on top of MIAD would be replaced and re-opened for use. Several trails in the Mormon Island Wetland Preserve area south of Green Valley Road would be removed for the creation of detention ponds for the dewatering system. Reclamation is coordinating with DPR to create new trails to replace these lost trails.

The New Folsom Bridge (Folsom Lake Crossing) was completed by the City of Folsom and the U.S. Army Corps of Engineers (Corps). While Reclamation appreciates your concerns, we are unable to assist in remediating this issue. For

more information on Folsom Lake Crossing, we suggest contacting the Public Works Department for the City of Folsom at (916) 355-7272.

4.1.4.9 Dave Comstock

Comment 1: The two articles I've read about the upgrades to the Mormon Island Dam indicate two separate projects with the first one taking about two years. I don't remember seeing anything on the time needed for the second part.

I walk on the top of the current dam almost every day and I'd like to know if there are any plans to keep some part open for walking, biking etc. during construction. If not, does this mean it will be totally off limits to the public for several years and no way to get between Browns Ravine and Folsom Point?

Response 1: There are two key components to the MIAD modifications: 1) excavation and replacement of the MIAD foundation, and 2) placement of an overlay with filters and drains. Because Reclamation has selected Alternative 4 – Cellular Open Excavation and Overlay as the Preferred Alternative, the trail on the top of MIAD would likely remain open for the duration of the foundation replacement, which would be approximately 15 months. The placement of the overlay with filters and drains involves stripping the material off the face of MIAD and replacing it with new material. During this portion of the work, the trail on top of MIAD would need to be closed for public safety reasons. The overlay work would take approximately 24 months; therefore the trail would need to be closed for up to 24 months. A trail detour is not possible in this area because it would reroute the trail along Green Valley Road and would pose a safety hazard to trail users and vehicles. Reclamation is coordinating with DPR to determine the potential for new trails to replace the trail that would be closed during construction; however it is likely that movement between Folsom Point and Brown's Ravine would be restricted during construction of the overlay. The trail on top of MIAD would be replaced after construction is complete.

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Chapter 5

Revisions to the Draft Supplemental EIS/EIR

This chapter contains all changes to the text of the Draft Supplemental EIS/EIR including changes based on public comments and editorial corrections/clarifications. The changes to the text are signified by strikeouts where text is removed and by italics where text is added.

5.1 Executive Summary

Page ES-2

The last paragraph is revised as follows:

In addition to the seismic issues described above, static issues (seepage and piping) have also *been* identified at MIAD. All earth dams have seepage resulting from water percolating slowly through the dam and its foundation. Seepage must, however, be controlled in both velocity and quantity. Seepage, if uncontrolled, can erode fine soil material from the downstream slope or foundation and continue moving towards the upstream slope to form a pipe or cavity to the reservoir, often leading to a complete failure of the embankment. In order to prevent seepage and piping, filters and drains are installed. Filters consist of a layer of processed material that will allow water to safely pass through an embankment such as MIAD without resulting in internal soil erosion. Any water collected by the filter is carried to the toe of the earthen structure for discharge away from the dam through a toe drain. Filters and drains are proposed for MIAD to reduce the risk of failure through seepage and piping.

Page ES-9

The last paragraph is revised as follows:

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 (~~See Figure ES-4~~).

5.2 Chapter 6, Air Quality

Page 6-3

Note 3 under Table 6-1 is revised as follows:

In July 2009, the EPA proposed to supplement the current annual NO₂ standard by establishing a new short-term NO₂ standard based on the 4th highest 1-hour daily maximum concentration (74 FR 34404). EPA proposes to set the level of this new standard within the range of 80 to 100 parts per billion by volume (ppbv). For comparison, this would be more stringent than the current California 1-hour standard of 180 ppbv.

Page 6-15

The following text is revised as follows:

The following sections provide additional discussion of emission estimation methodologies used for each source group.

Any necessary permits will be obtained from the SMAQMD by the construction contractor if any stationary equipment is to be operated at the site. In addition, portable equipment used during construction will comply with CARB's Statewide Portable Equipment Registration Program (PERP).

Page 6-22 to 6-23

The following text is revised as follows:

Toxic Air Contaminants If the proposed action would emit TACs, such as diesel particulate matter from diesel-fueled construction equipment, then the health risk associated with these compounds must be assessed. The California Air Pollution Control Officers Association (CAPCOA) and CARB have developed TAC health risk assessment (HRA) guidelines that must be followed to judge the impacts associated with TAC emissions. If a complete HRA is not completed, then emissions from mobile and stationary sources may be *used to conservatively estimate the significance of TAC impacts.* ~~considered to be significant and unavoidable.~~

The recommended significance thresholds for TACs include:

- Lifetime probability of contracting cancer is greater than 10 in one million;
- Ground-level concentration of non-carcinogenic toxic air pollutants would result in a Hazard Index of greater than 1.

The primary TAC associated with the project construction is expected to be diesel particulate matter generated during the operation of the construction

equipment. Diesel PM can contribute to several adverse health effects, including premature deaths, lung cancer, decreased lung function in children, chronic bronchitis, increased respiratory and cardiovascular hospitalizations, aggravated asthma, and increased respiratory symptoms (CARB n.d.). Chapter 11 (Noise) identifies the locations of the sensitive receptors in the vicinity of the construction site; the closest receptors are over 1,000 feet from the dam construction site.

Several protocols are available to discuss possible health impacts of TAC emissions from mobile sources. The SMAQMD's Recommended Protocol for Evaluating the Location of Sensitive Land Uses Adjacent to Major Roadways (2009c) recommends using the CAL3QHR model to evaluate emissions of diesel particulate matter (DPM) from roadways. While the protocol provides a sound basis for modeling linear sources of mobile vehicles, it does not directly apply to a construction project like the proposed project, which features mobile sources operating intermittently over a large area.

The California Air Pollution Control Officers Association (CAPCOA) also published Health Risk Assessments for Proposed Land Use Projects (2009), which provided limited guidance on TAC emissions from mobile sources. While the document acknowledges the same thresholds of significance identified in this section, it does not provide a method for quantifying the health risk impacts.

There is currently no adequate methodology to assess TACs from mobile sources because the existing models and procedures are based on stationary sources that emit at a constant rate. Furthermore, the models typically assume a 70-year lifetime exposure to the pollutants, which does not reflect the temporary and highly variable nature of mobile construction emissions.

Although an HRA could demonstrate that a project is less than significant, an HRA was not completed for the reasons stated in the previous paragraph. ~~As a result, TAC emissions were assumed to be significant and unavoidable and no further analysis was completed.~~ Notwithstanding, Reclamation has taken into consideration the nature, extent, and duration of construction activity involving heavy-duty diesel powered equipment along with the location of sensitive receptors in the general vicinity of the project, and has determined that the health risk impact associated with DPM emissions should, conservatively, be considered significant. The air quality mitigation measures proposed for the project represent all feasible measures to reduce air quality impacts and would also apply to reducing TAC emissions. Even with all mitigation, emissions would remain significant and unavoidable.

Page 6-28

Table 6-16 is revised as follows:

Environmental Consequence/ Environmental Impact	Significance					Environmental Commitment/ Mitigation Measure
	No Action/ No Project Alternative	Alternative 1	Alternative 2	Alternative 3	Alternative 4	
Exceed NO _x threshold of 85 lbs per day.	NI	PS	PS	PS	PS	AQ-3: Project wide fleet- average 20 percent NO _x reduction and 45 percent particulate reduction AQ-4: Equipment Inventory to SMAQMD AQ-5: <i>Off-road diesel powered equipment will not exceed 40 percent opacity</i> AQ- 5 6: Exhaust Gas Recirculation Systems AQ- 6 7: Lean NOX Catalyst in Engine Exhaust Systems
Exceed NO _x and VOC 50 tpy de minimis threshold	NI	LTSWM	LTSWM	PS	PS	AQ-3: Project wide fleet- average 20 percent NO _x reduction and 45 percent particulate reduction AQ-4: Equipment Inventory to SMAQMD AQ-5: <i>Off-road diesel powered equipment will not exceed 40 percent opacity</i> AQ-5 6: Exhaust Gas Recirculation Systems AQ- 6 7: Lean NO _x Catalyst in Engine Exhaust Systems
Exceed PM ₁₀ 100 tpy de minimis threshold	NI	LTSWM	LTSWM	LTSWM	LTS	AQ- 7 8: Fugitive Dust Control Measures

Environmental Consequence/ Environmental Impact	Significance					Environmental Commitment/ Mitigation Measure
	No Action/ No Project Alternative	Alternative 1	Alternative 2	Alternative 3	Alternative 4	
Exceed CO 100 tpy de minimis threshold	NI	LTS	LTS	LTS	LTS	None Required
Create substantial fugitive dust	NI	LTSWM	LTSWM	LTSWM	LTSWM	AQ- 7 8: Fugitive Dust Control Measures
Emissions from stationary sources (concrete batching plant)	NI	LTSWM	LTSWM	LTSWM	LTSWM	AQ-1: Electric Power for Batch Plant AQ-2: Wet Suppression Dust Control for Batch Plant
Temporary air quality impacts from Mississippi Bar mitigation actions	NI	LTS	LTS	LTS	LTS	None Required

Key:

LTS = Less Than Significant

LTSWM = Less than Significant with Mitigation

SU = Significant and Unavoidable

NI = No Impact

B = Beneficial

N/A = Not Applicable

PS = Remains Potentially Significant (even with mitigation)

Page 6-28

The text is revised as follows:

6.4.1 Stationary Source Mitigation Options

The stationary sources associated with the MIAD Modification Project would include the concrete batching process. Because the concrete batching process would be subject to air quality permitting by one or more of the local air districts, ~~it is assumed that~~ the following controls will be installed:

AQ-1 - 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.

AQ-2 - 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.

These controls are included as part of the MIAD Modification Project design for the stationary plants.

Page 6-31

The text is revised as follows:

6.4.2 Mobile Source Mitigation Options

The standard CEQA mitigation measures for construction equipment emissions are (SMAQMD 2004):

- **AQ-3** - 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** - 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** - *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 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.*

Page 6-32

The text is revised as follows:

NO_x Mitigation Options Several mitigation measures ~~options that may be~~ 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- 5 6** - Use of equipment with engines that incorporate exhaust gas recirculation (EGR) systems. EGR systems would 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, PM₁₀, 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- 6-7** - 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 would need to be certified by CARB before being installed on specific construction equipment engines.

NO_x emissions that exceed 85 lbs/day after installation of control devices and/or implementation of other administrative controls will be subject to a mitigation implementation fee used to control other emission sources in the proposed action region. This fee, currently \$16,000 per ton of NO_x in excess of the 85 lbs/day significance threshold plus a 5 percent administrative fee, represents the final mitigation measure used to reduce the NO_x impact to a level of insignificance.

The EDCAQMD does not provide specific requirements for measures that must be used to mitigate NO_x emissions; rather, it provides a menu of options to be considered. The mitigation provided to meet SMAQMD requirements is assumed to be sufficient to meet EDCAQMD requirements and no further action is required.

PM Mitigation Options

AQ-- 7 8 Fugitive dust control will be applied to reduce PM₁₀ 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

Page 6-33

The text after the third paragraph is revised as follows:

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.

To control emissions of diesel particulate matter, the following control measure will also be used:

- *Install diesel particulate filters or implement other ARB-verified diesel emission control strategies on all construction equipment to further reduce diesel PM emission beyond the 45% reduction required by the District's Enhanced Exhaust Control Practices;*
- *Establish staging areas for the construction equipment that are as distant as possible from off-site receptors;*
- *Establish an electricity supply to the construction site and use electric powered equipment instead of diesel-powered equipment or generators, where feasible; and*
- *Use haul trucks with on-road engines instead of off-road engines even for onsite hauling.*

Page 6-36

The text in Section 6.5 is revised as follows:

Daily emissions of NO_x would exceed the SMAQMD's threshold of significance for CEQA for all four alternatives, even with all feasible mitigation. The SMAQMD will allow the project to proceed if a required mitigation fee (\$16,000 per ton of emissions plus 5 percent administrative costs) is paid. This air quality impact would be significant and unavoidable for all four alternatives. *The fees for Alternatives 1 through 4 are estimated to be \$709,726, \$814, 827, \$1,149,150, \$596,406, respectively. This fee is subject to actual emissions of NO_x based on equipment specified by the contractor. The final fee will be calculated once the contractor begins to mobilize construction equipment.*

Page 6-37 and 6-38

The following references are added to Section 6.7:

California Air Pollution Control Officers Association (CAPCOA). 2009. Health Risk Assessments for Proposed Land Use Projects. July.

CARB. n.d. Health Effects of Diesel Exhaust Particulate Matter. Accessed on: 01 29 2010. Available online at:
http://www.arb.ca.gov/research/diesel/dpm_health_fs.pdf.

SMAQMD. 2009c. Recommended Protocol for Evaluating the Location of Sensitive Land Uses Adjacent to Major Roadways. Version 2.2. March. Accessed on: 01 29 2010. Available at:
<http://www.airquality.org/ceqa/RoadwayProtocol.shtml>

5.3 Chapter 7, Biological Resources

Page 7-27

The text is revised as follows:

Mitigation efforts could result in direct and indirect impacts to existing habitat at Mississippi Bar.

Phase 1 of the Mississippi Bar mitigation would avoid direct impacts to native vegetation. ~~No trees or other existing vegetation would be removed. Any native trees that need to be removed for recontouring would be transplanted.~~ Excavation and recontouring would only occur in areas with mine tailings that currently ~~do not~~ have ruderal vegetation. Any indirect impacts to vegetation would be temporary and would be limited to dust, noise, and vibration associated with construction vehicles and equipment.

Page 7-37

The mitigation measure BIO-9 is revised as follows:

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. This may include supplying additional water to the Mormon Island Wetland Preserve area or completing 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 would be obtained prior to implementation.*

This mitigation will be completed in conjunction with mitigation measures WQ-3 in Chapter 4, Hydrology, Water Quality, and Flood Control and GW-1 in Chapter 5, Groundwater.

5.4 Chapter 15, Public Services and Utilities

Page 15-4

Section 15.2.4 is revised as follows:

Construction of Alternative 1 would affect existing electrical system utilities.

Alternative 1 would require electricity to power the MIAD dewatering system pumps and batch plant. This electricity would be obtained by tapping in to existing lines around MIAD that supply power to FLSRA and Reclamation facilities. ~~are owned and operated by PG&E and SMUD.~~ The construction contractor would be responsible for obtaining this electricity from the appropriate provider. The use of electricity would be temporary and would last for the duration of construction.

This impact would be less than significant.

Page 15-5

Section 15.2.5 is revised as follows:

Construction of Alternative 2 would affect existing electrical system utilities.

Alternative 2 would require electricity to power the MIAD dewatering system pumps and batch plant. This electricity would be obtained by tapping in to existing lines around MIAD that supply power to FLSRA and Reclamation facilities. ~~are owned and operated by PG&E and SMUD.~~ The construction contractor would be responsible for obtaining this electricity from the appropriate provider. The use of electricity would be temporary and would last for the duration of construction.

This impact would be less than significant.

5.5 Chapter 16, Public Health and Safety

Page 16-12

Table 16-1 is revised as follows:

Table 16-1. Comparative Analysis of Alternatives

Impact	Significance					Environmental Commitment/ Mitigation Measure
	No Action/ No Project Alternative	Alternative 1	Alternative 2	Alternative 3	Alternative 4	
MIAD						
Construction hazards to public safety	NI	LTSWM	LTSWM	LTSWM	LTSWM	PHS-1: Public Safety Management Plan
Hazards associated with dam safety	SU	LTSWM	LTSWM	LTSWM	LTSWM	PHS-2: Evaluation of weather and reservoir conditions
Release of HTRW encountered in soil	NI	LTSWM	LTSWM	LTSWM	LTSWM	PHS-1: Public Safety Management Plan PHS-3: Worker Health and Safety Plan and GR-1: Asbestos Dust Mitigation Plan WQ-1: NPDES Permit and SWPPP
Accidental release of construction-related HTRW	NI	LTSWM	LTSWM	LTSWM	LTSWM	PHS-4: Spill Plan
Wildland Fires	NI	LTSWM	LTSWM	LTSWM	LTSWM	PHS-5: Fire Management Plan
Emit hazardous emissions or handle hazardous materials within one-quarter mile of a school	NI	NI	NI	NI	NI	None required
Mississippi Bar						
Construction hazards to public safety	NI	LTSWM	LTSWM	LTSWM	LTSWM	PHS-1: Public Safety Management Plan
Release of HTRW encountered in soil	NI	LTSWM	LTSWM	LTSWM	LTSWM	PHS-1: Public Safety Management Plan PHS-3: Worker Health and Safety Plan and GR-1: Asbestos Dust Mitigation Plan WQ-1: NPDES Permit and SWPPP
Accidental release of construction-related HTRW	NI	LTSWM	LTSWM	LTSWM	LTSWM	PHS-4: Spill Plan
Wildland Fires	NI	LTSWM	LTSWM	LTSWM	LTSWM	PHS-5: Fire Management Plan
Emit hazardous emissions or handle hazardous materials within one-quarter mile of a school	NI	NI	NI	NI	NI	None required

Key:

NI = No Impact

SU = Significant and Unavoidable

LTSWM = Less than Significant with Mitigation

5.6 Chapter 19, Climate Change

Page 19-9

The key under Table 19-3 is revised as follows:

Table 19-3. Heavy Duty Diesel Truck Emission Factors for Sacramento Valley (g/VMT)

Year	CO ₂	CH ₄	N ₂ O
2010	1,924	0.044	0.0048
2011	1,924	0.041	0.0048
2012	1,924	0.037	0.0048
2013	1,924	0.034	0.0048

Source: EMFAC2007, CCAR General Reporting Protocol (2009).

Key:

CH₄ = methane

CO₂ = carbon dioxide

g/VMT = ~~gallons~~ grams per vehicle miles traveled

N₂O = nitrous oxide

Page 19-9

The text of Section 19.2.4.1 is revised as follows:

Emissions from employee commuting were calculated based on EMFAC2007 emission factors for passenger cars and light duty trucks in Sacramento County, CCAR General Reporting Protocol emission factor for N₂O, and estimates of total vehicle miles traveled per day. The URBEMIS default assumption of 50 percent passenger cars and 50 percent light duty trucks was used; for each vehicle class all fleet types (catalytic, non-catalytic, diesel) were used. Daily roundtrip distance for employee commute was estimated to be 40 miles. The average vehicle speed was assumed to be 55 mph.

Approximately 100 employees will be needed for each of the alternatives; however, not all employees will be present at the site on a particular day. Different variables, such as the number of employees needed for each particular construction phase and the extent to which the phases overlap, affect the number of employees commuting. One the worst day of construction (i.e., the day with the maximum number of employees commuting) for Alternatives 1 and 2, approximately 80 employees will be present at the site. The worst day of construction for Alternatives 3 and 4 will require approximately 75 employees.

Page 19-9

The key under Table 19-4 is revised as follows:

Table 19-4. Emission Factors for Employee Commuting¹ in Sacramento Valley (g/VMT)

Year	CO ₂	CH ₄	N ₂ O
2010	346.5	0.0215	0.0841
2011	346.2	0.0195	0.0841
2012	346.0	0.0175	0.0841
2013	345.9	0.0160	0.0841

Source: EMFAC2007, CCAR General Reporting Protocol (2009).

Notes:

¹ Fleet mix for "all" used (i.e., catalytic, non-catalytic, and diesel). Vehicle Class of 50 percent passenger cars (LDA) and 50 percent light-duty trucks (LDT1) assumed.

² 1993 N₂O emissions were used as a conservative estimate.

Key:

CH₄ = methane

CO₂ = carbon dioxide

g/VMT = ~~gallons~~ grams per vehicle miles traveled

N₂O = nitrous oxide

5.7 Chapter 22, Cumulative Effects and Other Disclosures

Page 22-1

Section 22.1 is revised as follows:

Cumulative effects are those environmental effects that on their own, may not be considered adverse, but when combined with similar effects over time, result in substantial adverse effects. Cumulative effects are an important part of the environmental analysis because they allow decision makers to look not only at the impacts of an individual proposed project, but the overall impacts to a specific resource, ecosystem, or human community over time from many different projects. This section describes the cumulative effects analysis for the ~~two~~ alternatives proposed in this Supplemental EIS/EIR including the regulatory requirements, the methodology, the projects considered in the analysis, and the potential cumulative effects for each environmental resource.

Page 22-9

These revisions to the cumulative analysis apply to both Chapter 22 and the cumulative analysis found in each individual resource chapter. Section 22.1.4 is revised as follows:

22.1.4 Cumulative Effects

A cumulative impact analysis has been completed for each individual resource and can be found in Chapters 4 through 21. This section summarizes cumulative effects for each environmental resource.

22.1.4.1 Hydrology, Water Quality, and Flood Control

The geographic scope for the hydrology and water quality cumulative effects analysis includes Humbug Creek because groundwater would be discharged to this creek from the dewatering system. Humbug Creek discharges into the Lower American River so the Lower American River upstream of Lake Natoma has been included in this analysis. In addition, the scope includes the Mormon Island Wetland Preserve as construction may affect water supply to this wetland and may result in the discharge of fill or an increase in sediment. The scope of analysis for flood control includes the entire Sacramento region as Folsom Reservoir provides flood protection for this region.

Construction of the MIAD Modification Project would result in increased dam safety and flood damage reduction. This impact would be beneficial to the surrounding urban areas. The other remaining components of the Folsom DS/FDR Project have the potential to collectively increase the flood damage reduction through additional improvements. These projects would culminate in beneficial cumulative impacts for flood damage reduction and dam safety.

~~Construction of the MIAD Modification Project, in combination with existing and probable future projects, could affect hydrology and water quality. This cumulative impact would be significant but mitigation measures would reduce these impacts to a less than significant level. When combined with construction of the cumulative projects described in Table 22-1, there is a possibility that water resources would be affected. However, each project's associated SWPPPs, BMPs, pertinent permits, and appropriate monitoring and testing would ensure that measures are implemented to avoid hydrologic resource impairment including water quality degradation and detrimental effects to wetlands. This would result in effective mitigation of any potentially significant cumulative impacts.~~

Construction of the MIAD Modification Project, in combination with existing and probable future projects, could affect hydrology and water quality in the area surrounding MIAD. *The Folsom DS/FDR construction of the new Auxiliary Spillway, as well as the Raw Water Bypass Pipeline and CCAO Building Replacement Project all have the potential to create stormwater runoff that could be discharged to the Lower American River. This could adversely affect water quality. The MIAD Modification Project would discharge groundwater to Humbug Creek, a tributary of the Lower American River. Together, these projects and the MIAD Modification Project could result in a cumulatively significant effect on water quality. This The MIAD Modification Project's cumulative contribution to the impact would be considerable. Implementation of the MIAD Modification Project's mitigation measures which include implementation of SWPPP, BMPs, pertinent permits, and appropriate monitoring and testing would ensure degradation of receiving water quality is limited. Therefore, with implementation of mitigation proposed in this EIS/R, the MIAD Modification Project's contribution to the cumulative effect would be*

reduced to less than considerable and this cumulative impact would be less than significant.

The MIAD Modification Project may have the potential to affect the hydrology of the Mormon Island Wetland Preserve by reducing or changing the water supply to the wetlands. The City of Folsom is proposing in the future to widen Green Valley Road, presumably south into the Mormon Island Wetland Preserve. This road widening project could also affect the hydrology of the wetlands. Together, these projects have the potential to create significant cumulative impacts to the wetlands. The MIAD Modification Project's contribution to the cumulative effect would be considerable. Mitigation for the MIAD Modification Project would include monitoring the wetlands to determine the hydrologic effects, and corrective actions to either provide additional water to the wetlands, or mitigate for any unavoidable impacts. This would adequately mitigate the effects of the MIAD Modification Project associated with the wetlands at the Mormon Island Wetland Preserve. Therefore, with the implementation of mitigation, the MIAD Modification Project's contribution to the cumulative impact would be reduced to less than considerable and this cumulative impact would be less than significant.

~~When combined with construction of the cumulative projects described in Table 22-1, there is a possibility that water resources would be affected. However, each project's associated SWPPPs, BMPs, pertinent permits, and appropriate monitoring and testing would ensure that measures are implemented to avoid hydrologic resource impairment including water quality degradation and detrimental effects to wetlands. This would result in effective mitigation of any potentially significant cumulative impacts.~~

The geographic scope of the cumulative effects analysis for Mississippi Bar includes Lake Natoma, as this is the only waterbody that could be affected by the Mississippi Bar mitigation actions. No other known projects would affect water quality at Lake Natoma; therefore there would be no cumulative effects to hydrology or water quality at Mississippi Bar.

22.1.4.2 Groundwater

The geographic scope of the cumulative analysis for groundwater includes the South American groundwater subbasin as this is where groundwater would be extracted as part of the dewatering process for MIAD.

There are no other known groundwater extraction projects in the vicinity of MIAD that when added to the MIAD dewatering would create a greater significant impact. Given that the MIAD dewatering action is temporary and mitigation for wetlands impacts is being considered, no cumulative impacts are probable to groundwater resources.

The geographic scope of the Mississippi Bar cumulative area of analysis includes the North American groundwater subbasin. Groundwater from this subbasin could be pumped for use as irrigation for wetland and riparian habitat mitigation at Mississippi Bar.

One other project, the Gravel Augmentation Program, could also require the use of groundwater from the Mississippi Bar area. Reclamation's geologists have determined that the temporary use of groundwater for irrigation at Mississippi Bar and for the Gravel Augmentation Project would not substantially change groundwater levels. Pump tests completed in April 2009 by Reclamation showed the existing Mississippi Bar well is able to produce 500 gallons per minute for 8 hours per day, for a two weeks interval and would produce a sufficient quantity of water for both projects. The recover test showed that the well fully recovered to its static water level in about 6.3 hours, after being pumped for 8 hours (Reclamation 2009a). There would be no cumulative groundwater effects at Mississippi Bar.

22.1.4.3 Air Quality

The geographic scope for the air quality cumulative effects analysis includes the Sacramento Valley Air Basin for portions of the project located in Sacramento County and the Mountain Counties Air Basin for portions of the project located in El Dorado County. Construction emissions that would occur as a result of the proposed project would be contained within these two air districts, with the majority expected to occur in Sacramento County. Both MIAD and Mississippi Bar are within Sacramento County, so this cumulative analysis applies to both actions.

Construction of the MIAD Modification Project, in combination with existing and probable future projects (see Table 22-1), could affect air quality in the area surrounding MIAD. Although these projects are expected to have negligible long-term operational emissions (if any), emissions would occur during the construction of the projects. ~~Construction of the projects listed in Table 22-1 would increase emissions of criteria pollutants from onsite construction and transport of materials.~~ The combination of the significant emissions from the MIAD Modification Project and emissions from the other cumulative projects at Folsom Reservoir and surrounding areas would contribute to cumulatively significant air quality impacts. The MIAD Modification Project's contribution to the impact would be considerable. Mitigation measures proposed as part of the project would not be sufficient to reduce the air quality impacts to a less than considerable. ~~These cumulative impacts would be significant and unavoidable because they would occur even after all feasible mitigation has been implemented.~~ Air quality impacts that would occur as a result of the MIAD Modification Project would therefore remain considerable and this cumulative impact would remain significant and unavoidable.

22.1.4.4 Biological Resources

The geographic scope of the cumulative analysis for biological resources includes the MIAD construction area and the Mormon Island Wetland Preserve as well as the surrounding FLSRA area, because these areas provide important habitat for wildlife.

Vegetation and Wildlife The Raw Water Bypass Pipeline Project, CCAO Building Replacement Project, the Green Valley Road Widening Project, and the MIAD Modification Project are all expected to result in impacts to vegetation and wildlife, including wetlands. *These projects could result in significant cumulative impacts associated with habitat loss and harassment of wildlife.* However, ~~each the MIAD Modification Project~~ will implement mitigation measures to reduce effects on vegetation and wildlife ~~to less than significant levels by restoring disturbed areas, mitigating for permanent vegetation loss, and implementing avoidance measures for wildlife species found in the project area.~~ Therefore, the implementation of the MIAD Modification Project with mitigation measures would not have a significant contribution to the cumulative impact. *Cumulative impacts from the MIAD Modification Project would be less than significant.* ~~, along with the Raw Water Bypass Pipeline Project, CCAO Building Replacement Project, and the Green Valley Road Widening Project would not result in cumulatively considerable impacts with implementation of proper mitigation.~~

Special-Status Plant Species ~~The Raw Water Bypass Pipeline Project will not affect special-status plant species.~~ The CCAO Building Replacement Project, the Green Valley Road Widening Project, and MIAD Modifications Project may result in impacts to special-status plant species. *This could result in a significant cumulative impact on special-status plant species.* However, *the MIAD Modification Project would implement measures to avoid special-status plant species through pre-construction surveys and consultation with appropriate agencies to determine mitigation for any impacts that cannot be avoided.* ~~each project will implement mitigation measures to reduce effects on special-status plant species to less than significant levels.~~ Therefore, implementation of the MIAD Modification Project would not result in a cumulatively considerable impact. *The cumulative impacts would be less than significant.* ~~s Project, along with the CCAO Building Replacement Project and the Green Valley Road Widening Project would not result in cumulatively considerable impacts.~~

Special-Status Wildlife Species The Raw Water Bypass Pipeline Project, CCAO Building Replacement Project, the Green Valley Road Widening Project, and the MIAD Modifications Project are all expected to result in impacts to special-status wildlife species. *Together, these projects would result in significant cumulative impacts on special-status wildlife species.* However, *the MIAD Modification Project would include measures such as pre-construction surveys to identify locations of species, avoidance measures, and mitigation for impacts that cannot be avoided* ~~each project will implement~~

~~mitigation measures to reduce effects on special status wildlife species to less than significant levels.~~ Therefore, the implementation of the MIAD Modification Project, ~~along with the Raw Water Bypass Pipeline Project, CCAO Building Replacement Project, and the Green Valley Road Widening Project~~ would not ~~result~~ *contribute in* cumulatively considerable impacts. *The MIAD Modification Project would have less than significant cumulative impacts with implementation of mitigation.*

Overall, the effects of these projects ~~in combination with the MIAD Modification Project~~ would not ~~be~~ *have* cumulatively considerable *impacts* for any specific biological resources.

22.1.4.5 Soils, Geology, and Mineral Resources

The geographic scope of the cumulative effects analysis for soils, geology, and mineral resources includes the entire MIAD construction area on Reclamation's property. All ground disturbing activities would occur in this area. For the naturally-occurring asbestos impacts, this cumulative analysis only considers projects that would be under construction or would disturb soils at the same time that the MIAD Modification Project would be under construction.

Table 22-1 presents the list of cumulative projects considered in the cumulative analysis. Although the construction activities associated with the MIAD Modification Project would involve a substantial amount of soil and material displacement, the potential for landslides within the study area is low and construction techniques would be implemented to minimize the potential for landslides. No other cumulative projects would have the potential to induce landslides in the project area. There would be no cumulative effects associated with landslides.

~~Although the construction of the MIAD Modification Project would involve a substantial amount of soil moving activities, impacts associated with soil erosion and loss of topsoil would be mitigated. Other projects in the vicinity, including other Folsom DS/FDR activities, the CCAO Building Replacement Project, and the Bypass Pipeline Project could all result in loss of topsoil and erosion. These projects and the MIAD Modification Project would be responsible for mitigating their effects. Any cumulative effects associated with loss of topsoil resources would be less than significant with proper mitigation by project proponents.~~

The MIAD Modification Project and the ongoing Folsom DS/FDR activities as well as the relocation of Green Valley Road could all result in the loss of topsoil. Together, these projects could result in cumulatively significant impacts associated with loss of topsoil. The majority of the topsoil removed for the MIAD modifications would be stockpiled and replaced on the MIAD structure once the project is complete. A minimal amount of topsoil may be transported to

Mississippi Bar; however this would only be excess material left over after soil on MIAD has been completely replaced. Therefore, because the MIAD Modification Project would not result in a substantial loss of topsoil, it's contribution would be less than considerable and this would be a less than significant cumulative impact.

Construction activities for the MIAD Modification Project could expose asbestos-bearing materials through stripping and excavation as well as through the use of staging/processing areas and movement of large construction equipment. No other projects besides the ongoing JFP are expected to complete construction in the areas with naturally-occurring asbestos at the same time that the MIAD Modification Project would be completing ground disturbing activities. These two construction actions could result in cumulatively significant impacts by disturbing naturally occurring asbestos and making it airborne, posing a health risk to the public. ~~Both the~~ The MIAD Modification Project's contribution to the cumulative impact would be cumulatively considerable. However, the MIAD Modification Project is required to implement a dust control plan that includes measures to adequately minimize/avoid the potential for disturbing naturally-occurring asbestos and posing a health risk to the public. ~~and the JFP are required to submit and implement a Dust Mitigation Plan to minimize the impacts. Implementation of the Dust Mitigation Plan would reduce any impacts associated with asbestos.~~ With implementation of a dust control plan, the MIAD Modification Project's contribution to cumulative impacts associated with naturally-occurring asbestos would be less than considerable and this cumulative impact would be less than significant.

Construction activities associated with the MIAD Modification Project would not result in any significant cumulative effects on soils, minerals, and geological resources.

The geographic scope for the Mississippi Bar cumulative analysis includes the Mississippi Bar area on DPR and Reclamation property where soil would be disturbed as part of mitigation actions.

The Mississippi Bar mitigation actions would require some grading and earth moving; however this would not remove a substantial amount of topsoil as the area contains mainly cobbles and any topsoil would be preserved for mitigation planting. The only other project in the general vicinity that could affect geology and soils is the Gravel Augmentation Program. This would involve removing cobbles from mine tailings at Mississippi Bar. Together, the MIAD Modification Project and Gravel Augmentation Project would not contribute to a cumulative loss of topsoil. No other cumulative soils, geology, or mineral resource impacts would occur.

22.1.4.6 Visual Resources

The geographic scope for the visual resources cumulative analysis includes the entire construction area on Reclamation property, including the Mormon Island Wetland Preserve, as these are the areas that could have visual changes.

The only project with the potential to have cumulative impacts on visual resources in the vicinity of MIAD is the Green Valley Road Widening Project. The Green Valley Road Widening Project is a project being planned by the City of Folsom to widen Green Valley Road from two to four lanes. It is assumed that the road would be widened south of its existing location, into the Mormon Island Wetland Preserve. This would presumably affect portions of the Mormon Island Wetland Preserve. When taken into consideration with the effects of the MIAD Modification Project's impacts to wetlands through temporary relocation of the road and the potential reduction in the water source for the wetlands, this could lead to a cumulatively significant visual impact if all projects result in vegetation loss. *The MIAD Modification Project's contribution to the cumulative impact would be considerable.* While both Reclamation and the City of Folsom would mitigate for the impacts to wetlands according to current wetland regulations, they may have to mitigate off-site. If this is the case, the visual impacts ~~could~~ would be cumulatively significant and unavoidable in the Mormon Island Wetland Preserve

The geographic scope for the Mississippi Bar cumulative analysis includes the Mississippi Bar area on DPR and Reclamation property where visual impacts could occur from planting and culvert replacement. The Mississippi Bar actions would have minimal visual impacts and may improve the visual character by increasing the amount of vegetation in the area. The Gravel Augmentation Program would remove cobble but would be unlikely to cause any permanent noticeable changes in the visual character of the area. Therefore, cumulative impacts would be less than significant.

22.1.4.7 Transportation and Circulation

The geographic scope for the transportation and circulation cumulative analysis includes all roads that would be used by construction traffic to access the MIAD site. These roads are described and analyzed in Chapter 10.

Several of the cumulative projects in Table 22-1 include construction within the project area that will require transport of materials to and from Folsom Reservoir. In addition, population is increasing in the region, which will further increase traffic congestion in the study area. *The MIAD Modification Project and other projects could have a cumulatively significant impact on traffic in the Folsom area.* Modeling results for the MIAD Modification Project alternatives suggest that there is a potential for the alternatives to contribute to significant cumulative impacts on transportation and circulation at select roads from increased trip generation; *therefore the MIAD Modification Project's contribution to this cumulative impact would be considerable* ~~Other cumulative~~

~~projects will also have the potential for significant cumulative transportation and circulation effects should construction activities occur concurrently. To minimize these traffic impacts, specific mitigation measures would be implemented, including a peak hour capacity analysis, roadway improvements/traffic modifications, a traffic management plan, and appropriate signage. Reclamation and its construction contractor will would monitor for traffic problems at the identified locations and adjust travel schedules and sequencing accordingly. Reclamation will would also continue coordinate with other ongoing construction projects to minimize traffic congestion. With implementation of these mitigation measures, the MIAD Modification Project's contribution to the cumulative traffic impacts effect would be less than considerable and this cumulative impact would be less than significant.~~

The geographic scope for the transportation and circulation cumulative analysis for Mississippi Bar includes the roads that would be used by construction traffic to access the site. These roads are described and analyzed in Chapter 10.

The Mississippi Bar mitigation would require approximately 39 truck trips for soil and materials as well as several worker trips to the site. These trips would be spread out over 24 months. The Gravel Augmentation Program is the only other project that would have traffic impacts at Mississippi Bar. Traffic for this project would also be spread out over several years. Overall, the temporary nature of these projects and the minimal traffic that would be spread out over several years would not result in a significant cumulative impact. Cumulative traffic impacts would be temporary and less than significant.

22.1.4.8 Noise

The geographic scope for the noise cumulative analysis includes the entire construction area on Reclamation property, the Mormon Island Wetland Preserve, and all sensitive receptors in the nearby vicinity that would have the potential to be affected by construction noise. This analysis only considers projects that would occur at the time when MIAD construction occurs and noise would be generated.

Table 22-1 presents the projects that were considered in the analysis of cumulative effects. The other projects that would contribute to noise at the same time as the MIAD Modification Project are Phase II and Phase III of the JFP Auxiliary Spillway. These projects would involve trucking excess materials to be stockpiled in an area adjacent to MIAD. Together, these projects could result in significant cumulative noise impacts to the nearby sensitive receptors, especially the neighborhoods directly south of MIAD. ~~Construction of these projects could increase construction noise; however, all projects would be responsible for mitigating noise to less than significant levels. Furthermore, the MIAD Modification Project is not expected to result in significant impacts of noise after implementation of mitigation measures. Since all projects will~~

~~mitigate noise impacts, the cumulative effects would not be significant. As part of the MIAD Modification Project, a noise control plan would be developed that contains specific measures to reduce noise and ensure noise levels remain within local noise standards. In addition, coordination with local jurisdictions will occur for any nighttime construction that is required, to determine appropriate noise control measures and noise standards. With implementation of measures outlined in the noise control plan, the MIAD Modification Project's contribution to the cumulative noise impact would be less than considerable and this cumulative impact would be less than significant.~~

The geographic scope for the noise cumulative analysis at Mississippi Bar includes the entire Mississippi Bar recreation area and sensitive receptors around the area that would have the potential to be affected by construction noise.

The Mississippi Bar habitat mitigation activities would involve a minimal amount of construction equipment and activities would be spread out over 24 months. The Gravel Augmentation Program would involve processing, washing, and transporting gravel and would occur over a one month period each year (Reclamation 2008). A front end loader would be used to move the gravel into trucks for transportation offsite. No permanent, long-term noise impacts would occur. Because these projects are both temporary and will use a minimal amount of equipment, no significant cumulative noise impacts would occur.

22.1.4.9 Cultural Resources

The geographic scope for the cultural resources cumulative analysis includes the entire MIAD construction area on Reclamation property, the Mormon Island Wetland Preserve area, and the Mississippi Bar area.

Table 22-1 presents the projects that were considered in the analysis of cumulative effects. For the Federal cumulative projects, the lead Federal agency ~~would~~ *is required* to carry out any necessary inventories and evaluations of NRHP significance; consultation with the SHPO and Native American groups and interested parties; and treatment/mitigation required by Section 106 of the NRHP. These projects would contribute a less than significant cumulative impact because they would require mitigation to adequately avoid or minimize cultural resource impacts.

In addition to these projects, continued county, municipal, and private development in the region surrounding Folsom Reservoir is also considered in this analysis. Non-Federal development in the surrounding region has resulted in impacts to historic and prehistoric resources. Cultural resources have been affected by past actions since Folsom Dam was constructed in 1956. Identified resources could be subject to damage from ongoing maintenance, new construction, demolition, rehabilitation of existing facilities, and natural processes (e.g. wave erosion). ~~Alternatives 1 through 4~~ The MIAD

Modification Project alternatives have the potential to contribute to the loss of regional cultural resources as a consequence of disturbance or degradation of previously undiscovered archaeological sites. *The MIAD Modification Project, and other past, present, and future cumulative projects could result in significant cumulative effects on cultural resources.*

To mitigate adverse impacts associated with the MIAD Modification Project, important information contained in affected resources would 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. *In addition, an inadvertent discovery plan would be developed to minimize impacts to undiscovered historic properties and/or cultural resources. With the implementation of these measures, the MIAD Modification Project's contribution to the cumulative effect would be less than considerable and this cumulative impact would be less than significant.*

~~Private development in El Dorado and Sacramento Counties may lead to incremental adverse impacts to cultural resources. However, provided that proper mitigation consistent with Section 106 of the NHPA for Federal actions and CEQA for State, county and municipal actions, is implemented in conjunction with development of related projects in these counties and the surrounding region, no significant cumulative impacts are anticipated.~~

22.1.4.10 Land Use, Planning, and Zoning

The geographic scope for the land use, planning, and zoning cumulative analysis includes the entire construction area on Reclamation property, as well as the Mormon Island Wetland Preserve. Permanent changes to the land would occur in these areas.

The MIAD Modification Project could result in the temporary relocation of Green Valley Road into the Mormon Island Wetland Preserve, resulting in a loss of riparian habitat. This loss is considered inconsistent with the GP/RMP. The widening of Green Valley Road would also likely require loss of riparian habitat in the Mormon Island Wetland Preserve. This would result in significant cumulative impact as it would be inconsistent with an existing land use plan. However, the road relocation as part of the MIAD Modification Project would be temporary. All vegetation impacts would be mitigated and the land would be restored. With mitigation, the MIAD Modification Project would not have a cumulatively considerable contribution to this cumulative impact; therefore, this cumulative impact would be less than significant.

The temporary relocation of Green Valley Road as part of the MIAD Modification Project could require relocation of an existing PG&E natural gas line within the City of Folsom's road easement. No other known project would affect the existing easement. There would be no cumulative effects associated with the PG&E easement.

~~The projects identified in Table 22-1 would not affect land use or zoning in the area around MIAD, with the exception of the widening of Green Valley Road, which would affect an existing easement held by the City of Folsom. Reclamation is aware of this future project and has been coordinating MIAD work with the City of Folsom. Work on the road widening project would not begin until after MIAD modifications have been completed to ensure the road widening does not encroach upon the MIAD foundation and overlay. The temporary relocation of Green Valley Road during the MIAD work would have no permanent land use effects as it would be restored to its previous condition after construction.~~

The geographic scope for the land use, planning, and zoning cumulative analysis for Mississippi Bar includes the Mississippi Bar area that would be affected by mitigation actions, on both DPR and Reclamation property.

The Mississippi Bar mitigation actions would not change the existing land use of the area. The mitigation would be consistent with the GP/RMP. There would be no cumulative impacts associated with land use or existing land use plans. The Mississippi Bar actions may require removal of an existing WAPA access road for a WAPA power line easement; however, other access is available. No other known projects would affect this easement; therefore there would be no cumulative effects.

~~There are no cumulative projects that would affect land use at Mississippi Bar. Therefore, the cumulative effect of the MIAD Modification Project actions and the projects presented in Table 22-1 would be less than significant.~~

22.1.4.11 Recreation

The geographic scope for the recreation cumulative analysis includes the entire construction area on Reclamation property and Reclamation property south of Green Valley Road that includes the Mormon Island Wetland Preserve. Construction actions that could interrupt recreation would occur in these areas.

The MIAD Modification Project would result in the closure of several recreation areas in and around MIAD (Brown's Ravine Trail, Sophia parking lot) for the length of construction, but these areas would be restored and re-opened after construction is complete. No other known projects would directly affect recreation in and around MIAD; therefore there would be no cumulative impacts.

The MIAD Modification Project could result in the permanent closure of several trails at the west side of Mormon Island Wetland Preserve. No other known projects would directly affect the trails on the west side of the preserve; therefore there would be no cumulative impacts.

Alternative 1 of the MIAD Modification Project would require temporary relocation of the road into the Mormon Island Wetland Preserve and would likely reduce access to *this area* for the length of construction. After construction is complete, the area would be restored to its previous condition. The Green Valley Road Widening Project would involve widening Green Valley Road from two lanes to four lanes. Because the road could not be widened north as it would encroach upon *the MIAD overlay*, it is expected to be widened south, presumably into the Mormon Island Wetland Preserve. This could permanently reduce recreation opportunities. ~~have a~~ There would be no cumulative effects on recreation at the preserve because the MIAD Modification Project impacts would only be temporary and all recreation facilities would be restored prior to the Green Valley Road Widening Project. ~~The City of Folsom would be responsible for mitigating their project's impacts.~~ No cumulative impacts are expected to recreation opportunities at the preserve.

The geographic scope for the recreation cumulative analysis at Mississippi Bar includes the entire Mississippi Bar recreation area. Recreation in this area has the potential to be affected by habitat mitigation activities.

Reclamation's Gravel Augmentation Program would be occurring during mitigation development at Mississippi Bar. The Gravel Augmentation Program involves harvesting, washing, and transporting gravel and may require fencing during construction. The fencing would occur in an area that is not highly visited by recreationists as it contains mine tailings. *The project would be unlikely to affect recreation activities.* The MIAD Modification Project actions at Mississippi Bar would involve temporary restrictions (*temporary fencing and/or area closures*) to recreation during construction and plant establishment; however after the plants are established no recreation restrictions are expected. *No adverse cumulative impacts to recreation are expected. Additionally, several actions at Mississippi Bar would increase the potential for aquatic recreation.* ~~The MIAD Modification Project is not expected to result in cumulative recreation impacts at Mississippi Bar.~~

22.1.4.12 Public Services and Utilities

No cumulative projects in the area of analysis would have the potential to affect the PG&E gas line beneath Green Valley Road; therefore, there would be no cumulative impacts to this utility. No other cumulative impacts are expected to affect public services and utilities.

22.1.4.13 Public Health and Safety

The geographic scope for the public health and safety cumulative analysis includes the entire construction area on Reclamation property and the Mormon Island Wetland Preserve. The geographic scope also includes nearby sensitive receptors (other portions of the FLSRA and nearby residences) that may be

affected by wildland fires or dust carrying naturally-occurring asbestos. Cumulative projects considered in this analysis are those that would be occurring at the same time as the MIAD construction actions.

There is a potential for ~~adverse~~ significant cumulative impacts related to public safety, as ~~several construction projects listed in Table 22-1 would occur near the MIAD Modification Project and the ongoing Folsom DS/FDR construction actions would both occur in the MIAD area recreational areas and~~ would involve the use of heavy equipment and potentially dangerous materials. In addition, there is potential for significant cumulative impacts associated with hazardous materials, as ~~many of the projects listed in Table 22-1 the MIAD Modification Project and the Folsom DS/FDR activities~~ involve ground-disturbing construction that may encounter naturally occurring-asbestos, mercury, and arsenic or may involve the use of hazardous materials that could have health risks if spilled or released to the environment. Finally, the potential also exists for significant cumulative impacts associated with wildland fires started by the various ongoing construction projects in the area.

~~Concurrent~~ The MIAD Modification P projects would be required to comply with Federal, State, and local laws and regulations related to hazardous materials and ~~The MIAD Modification Project~~ would implement mitigation measures outlined in Chapter 16, Section 16.4, to ensure that ~~potential cumulative impacts related to public health and safety would be less than significant~~ reduced or avoided. Additionally, Reclamation is a lead agency in both large construction projects and has been actively managing the various construction activities to ensure public safety. ~~All other cumulative projects would be responsible for implementing their own public health and safety measures.~~ With the mitigation measures described in Chapter 16, Section 16.4, the ~~project~~ MIAD Modification Projects' contribution to the cumulative effect would ~~not contribute to any significant cumulative impacts.~~ be less than significant.

The geographic scope for the public health and safety cumulative analysis at Mississippi Bar includes the entire Mississippi Bar recreation area. Cumulative projects considered in this analysis are those that would be occurring at the same time as the Mississippi Bar construction actions.

The mitigation actions at Mississippi Bar and the Gravel Augmentation Program have the potential to result in significant cumulative impacts associated with hazardous materials, wildland fires, and construction hazards such as large equipment. However, mitigation measures would be implemented to reduce or avoid any potential public safety impacts by fencing off construction areas, developing safety plans, and keeping fire suppression equipment onsite. With this mitigation, Mississippi Bar mitigation actions would not result in a significant contribution to the cumulative effect. The impact would be less than significant.

22.1.4.14 Indian Trust Assets

The MIAD Modification Project would have no ITA impacts and would not contribute to any cumulative ITA impacts.

22.1.4.15 Environmental Justice

The MIAD Modification Project would have no environmental justice impacts and would not contribute to any cumulative environmental justice impacts.

22.1.4.16 Climate Change

The geographic scope for the GHG cumulative analysis includes the Sacramento Valley Air Basin for all activities that occur within Sacramento County and the Mountain Counties Air Basin for all activities that occur within El Dorado County. Because both MIAD and Mississippi Bar are within the same air basin, this cumulative analysis applies to both actions.

Many of the projects include construction within the surrounding region. Construction of these projects would increase emissions of GHG pollutants from onsite construction and transport of materials. *Although these projects are expected to have negligible long-term operational emissions (if any), GHG emissions would occur during the construction of the projects. Each project would need to mitigate individual climate change effects, which would decrease overall cumulative effects. However, without consideration of scheduling and sequence of activities, concurrent construction projects within and adjacent to MIAD would have significantly increased GHG emissions.*

The SMAQMD recommends that thresholds of significance for GHG emissions should be related to AB 32's GHG reduction goals (i.e., approximately a 30 percent reduction from projected 2020 emissions). The combination of emissions from the MIAD Modification Project and emissions from the other cumulative projects at Folsom Reservoir and surrounding areas would contribute to cumulatively significant climate change impacts because they would result in a net increase in emissions, rather than a decrease. The MIAD Modification Project's contribution to the impact would be considered cumulatively considerable, and mitigation measures proposed as part of the project would not be sufficient to reduce climate change impacts to a less than significant level. Climate change impacts that would occur as a result of the MIAD Modification Project would therefore be cumulatively significant and unavoidable.

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Chapter 6

Environmental Commitments/Mitigation Measures

This chapter presents the environmental commitments (referred to as mitigation measures under CEQA) that will be used to develop the overall Environmental Commitment Plan (referred to as a Mitigation Monitoring and Reporting Plan under CEQA) for the MIAD Modification Project and the Mississippi Bar Habitat Mitigation. These measures are specific to the Preferred Alternative (Alternative 4 – Cellular Open Construction with Overlay).

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Table 6-1. Mormon Island Auxiliary Dam Modification Project Environmental Commitments/Mitigation Measures

Environmental Commitment/Mitigation Measure	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			
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			

Table 6-1. Mormon Island Auxiliary Dam Modification Project Environmental Commitments/Mitigation Measures

Environmental Commitment/Mitigation Measure	Impact(s) being Mitigated	Implementation Responsibility	Project Phase of Mitigation	Monitoring Action or Plan	Enforcement Responsibility	Monitoring Responsibility	Compliance (Date)
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			
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		
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		

Table 6-1. Mormon Island Auxiliary Dam Modification Project Environmental Commitments/Mitigation Measures

Environmental Commitment/Mitigation Measure	Impact(s) being Mitigated	Implementation Responsibility	Project Phase of Mitigation	Monitoring Action or Plan	Enforcement Responsibility	Monitoring Responsibility	Compliance (Date)
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 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. NO_x 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 would 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, PM₁₀, 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 would need to be certified by CARB before being installed on specific construction equipment engines.	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	

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AQ-8: Fugitive Dust Control Fugitive dust control will be applied to reduce PM₁₀ 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 PM₁₀ 100 tpy de minimis threshold.	Reclamation/Construction Contractor	During construction		SMAQMD		
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				
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 would 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				

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Environmental Commitment/Mitigation Measure	Impact(s) being Mitigated	Implementation Responsibility	Project Phase of Mitigation	Monitoring Action or Plan	Enforcement Responsibility	Monitoring Responsibility	Compliance (Date)
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 would 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 would temporarily affect views of the downstream side of MIAD.	Reclamation/ Construction Contractor	Prior to and during construction	Plans and Specifications	Reclamation	Reclamation	
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 would 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		

Table 6-1. Mormon Island Auxiliary Dam Modification Project Environmental Commitments/Mitigation Measures

Environmental Commitment/Mitigation Measure	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 would result in direct impacts to wetlands and other waters of the U.S..	Reclamation/Construction Contractor	Prior to construction	Plans and Specifications	Reclamation	Reclamation	
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	
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	
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	

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Environmental Commitment/Mitigation Measure	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 would occur between September 1 and January 31, when birds are not expected to be nesting, in order to comply with the MTBA. Prior to any tree removal and construction, a qualified biologist or ornithologist would conduct preconstruction field surveys in and adjacent to the project area for nesting migratory birds, including raptors. Surveys would 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	
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 would 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	
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 would result in direct impacts to vernal pools.	Reclamation	Prior to construction	ECC	USFWS	Reclamation	

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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	
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	
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	
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	

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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	
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 would 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	

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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 would be required: a) Prior to construction, if deemed appropriate by Reclamation, sensitivity training to all contractors involved in subsurface work in the project area would 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 would 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 would 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	
Land Use, Planning, and Zoning							
None.							
Recreation							
RC-1: Repair Damages Any damage to existing improved trails from construction would 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	
RC-3: Detours Suitable detours would 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 would be developed in coordination with DPR, including developing new trails or improving existing unimproved trails elsewhere in the FLSRA. Public service announcements would be distributed and posted to inform the public of route changes. Development of detours or creation of new trails would 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 would result in closure or restricted access to trails west of Mormon Island Wetland Preserve.	Reclamation	Prior to construction	ECC	DPR	Reclamation	
Public Services and Utilities							
None.							

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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 would 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	
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	
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	
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 would: - 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	
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	

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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
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
PM₁₀ = 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

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Table 6-2. Mississippi Bar Habitat Mitigation Environmental Commitments/Mitigation Measures

Environmental Commitment/Mitigation Measure	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.							

Table 6-2. Mississippi Bar Habitat Mitigation Environmental Commitments/Mitigation Measures

Environmental Commitment/Mitigation Measure	Impact(s) being Mitigated	Implementation Responsibility	Project Phase of Mitigation	Monitoring Action or Plan	Enforcement Responsibility	Monitoring Responsibility	Compliance (Date)
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 would 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 would temporarily affect views of the downstream side of MIAD.	Reclamation/ Construction Contractor	Prior to and during construction	Plans and Specifications	Reclamation	Reclamation	
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 would 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		

Table 6-2. Mississippi Bar Habitat Mitigation Environmental Commitments/Mitigation Measures

Environmental Commitment/Mitigation Measure	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 would 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	
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	
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	

Table 6-2. Mississippi Bar Habitat Mitigation Environmental Commitments/Mitigation Measures

Environmental Commitment/Mitigation Measure	Impact(s) being Mitigated	Implementation Responsibility	Project Phase of Mitigation	Monitoring Action or Plan	Enforcement Responsibility	Monitoring Responsibility	Compliance (Date)
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 would be enforced. Avoidance measures would 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 would 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 would be transplanted if technically feasible. All elderberry shrubs containing stems measuring 1.0 inch or greater in diameter at ground level would 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 would 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 would be maintained throughout the monitoring period. If survival drops below this level, additional seedlings would be planted. Stock for plantings would be obtained from local sources. Native plants associated with elderberry shrubs at the project area or similar reference sites would be planted in accordance with the Guidelines. A minimum survival rate of at least 60 percent of the associated native plants would be maintained throughout the monitoring period. If survival drops below this level, additional seedlings or cuttings would be planted. Only stock from local sources would be used, unless such stock is not available, per the Guidelines.	Impacts to the valley elderberry longhorn beetle.						
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	

Table 6-2. Mississippi Bar Habitat Mitigation Environmental Commitments/Mitigation Measures

Environmental Commitment/Mitigation Measure	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 would occur between September 1 and January 31, when birds are not expected to be nesting, in order to comply with the MTBA. Prior to any tree removal and construction, a qualified biologist or ornithologist would conduct preconstruction field surveys in and adjacent to the project area for nesting migratory birds, including raptors. Surveys would 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	
Soils, Minerals, and Geological Resources							
None.							
Visual Resources							
None.							
Transportation and Circulation							
None.							
Noise							
None.							
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 would 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	

Table 6-2. Mississippi Bar Habitat Mitigation Environmental Commitments/Mitigation Measures

Environmental Commitment/Mitigation Measure	Impact(s) being Mitigated	Implementation Responsibility	Project Phase of Mitigation	Monitoring Action or Plan	Enforcement Responsibility	Monitoring Responsibility	Compliance (Date)
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 would be required: a) Prior to construction, if deemed appropriate by Reclamation, sensitivity training to all contractors involved in subsurface work in the project area would 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 would 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 would 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	
Land Use, Planning, and Zoning							
None.							
Recreation							
RC-2: Reclamation would post signage and public announcements to inform the public of the dates/times of construction activities and closures. The signs would 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.						
RC-3: Detours Suitable detours would 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 would be developed in coordination with DPR, including developing new trails or improving existing unimproved trails elsewhere in the FLSRA. Public service announcements would be distributed and posted to inform the public of route changes. Development of detours or creation of new trails would 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	
Public Services and Utilities							
None.							

Table 6-2. Mississippi Bar Habitat Mitigation Environmental Commitments/Mitigation Measures

Environmental Commitment/Mitigation Measure	Impact(s) being Mitigated	Implementation Responsibility	Project Phase of Mitigation	Monitoring Action or Plan	Enforcement Responsibility	Monitoring Responsibility	Compliance (Date)
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 would 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	
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	
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 would: - 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	
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	
Indian Trust Assets							
None.							
Environmental Justice							
None.							
Climate Change							
None.							

Table 6-2. Mississippi Bar Habitat Mitigation Environmental Commitments/Mitigation Measures

Environmental Commitment/Mitigation Measure	Impact(s) being Mitigated	Implementation Responsibility	Project Phase of Mitigation	Monitoring Action or Plan	Enforcement Responsibility	Monitoring Responsibility	Compliance (Date)
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Key:
BMP = best management practice
CAR = Coordination Act Report
CCAO = Central California Area Office
CEQA = California Environmental Quality Act
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
tpy = tons per year
USFWS = U.S. Fish and Wildlife Service
VELB = Valley Elderberry Longhorn Beetle

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Chapter 7

Distribution List

This chapter describes the distribution list for the MIAD Modification Project Supplemental EIS/EIR.

7.1 Document Availability

The Draft Supplemental EIS/EIR was made available for review and comment for 45 days following filing of the Notice of Availability of the EIS in the Federal Register and the Notice of Completion of the EIR with the California State Clearinghouse. Hard copies of the document were made available for viewing at the libraries listed in Section 7.1.1. An electronic version of the document was posted to Reclamation's website listed in Section 7.1.2.

This Final Supplemental EIS/EIR will be made available for 30 days of public review and comment. A Notice of Availability will be filed in the Federal Register and a Notice of Completion will be submitted to the State Clearinghouse, according to NEPA and CEQA requirements. Hard copies of this document will be available for viewing at the libraries listed in Section 7.1.1. An electronic version of the document will be posted to Reclamation's website listed in Section 7.1.2.

To request a copy of the Draft or Final Supplemental EIS/EIR, please contact:

Matthew See
Natural Resource Specialist
Bureau of Reclamation
7794 Folsom Dam Road
Folsom, CA 95630

Phone: (916) 989-7198
E-mail: msee@usbr.gov
Fax: (916) 989-7208

7.1.1 Libraries

Copies of the Draft and Final Supplemental EIS/EIR are available for public review at the following libraries:

- Bureau of Reclamation, Mid-Pacific Regional Office Library, 2800 Cottage Way, W-1825, Sacramento, CA 95825-1898
- El Dorado County Library, 345 Fair Lane, Placerville, CA 95667-5699
- Folsom Public Library, 300 Persifer Street, Folsom, CA 95630

- Natural Resources Library, U.S. Department of the Interior, 1849 C Street NW, Main Interior Building, Washington, DC 20240-0001
- Roseville Public Library, 311 Vernon Street, Roseville, CA 95678
- Sacramento Central Library, 828 I Street, Sacramento, CA 95814-2589

7.1.2 Project Website

The Draft and Final Supplemental EIS/EIR are available in electronic format on Reclamation's website:

http://www.usbr.gov/mp/nepa/nepa_projdetails.cfm?Project_ID=1808

7.2 List of Recipients

Various elected officials and representatives, government departments and agencies, private organizations and businesses, and members of the public have received a copy of the Draft and Final Supplemental EIS/EIR or a notification of document availability.

7.2.1 Elected Officials and Representatives

Governor of California

Honorable Arnold Schwarzenegger

United States Senate

Honorable Barbara Boxer

House of Representatives

Honorable Dan Lungren

Honorable Doris Matsui

Honorable Tom McClintock

California Senate

Honorable Dave Cox

California Assembly

Honorable Roger Niello

7.2.2 Government Departments and Agencies

7.2.2.1 U.S. Government

Advisory Council on Historic Preservation

Army Corps of Engineers

Bureau of Land Management

Bureau of Reclamation

Council on Environmental Quality
Environmental Protection Agency
Federal Emergency Management Agency
Fish and Wildlife Service
Geological Survey
National Marine Fisheries Service
Office of Environmental Project Review
Western Area Power Administration

7.2.2.2 State of California

Air Resources Board
California Water Commission
Central Valley Regional Water Quality Control Board
Department of Conservation
Department of Corrections
Department of Fish and Game
Department of Parks and Recreation
Department of Transportation
Department of Water Resources
Native American Heritage Preservation
Office of Transportation Planning
Office of Historic Preservation
Central Valley Flood Protection Board
State Clearinghouse
State Lands Commission
Water Resources Control Board

7.2.2.3 Regional, County, and City

City of Folsom
El Dorado County
Granite Bay Advisory Council
El Dorado County Air Pollution Control District
Placer County
Sacramento County
Sacramento Area Flood Control Agency
Sacramento Metropolitan Air Quality Management District

7.2.3 Private Organizations and Businesses

SARA – Save the American River Association
Friends of the River
LARTF – Lower American River Task Force
Brother Boats
Sporting Edge Ski and Marine
Folsom Lake Yacht Club

7.2.4 Members of the Public

Reclamation continues to update a project mailing list that currently contains over 2,000 names and addresses. In addition to the regulatory agencies, agencies with special expertise or interest in evaluating environmental issues related to the project are included. Private agencies, organizations, and individuals who may be affected by the project or who have expressed an interest in the project through the public involvement process are also included. Notifications of document availability have been mailed out to all those on the project mailing list. All members of the public that submit comments on this document will be added to the mailing list and will receive future notifications.

Chapter 8

List of Preparers

Name/Professional Discipline	Expertise and Experience	Role in Preparation
Bureau of Reclamation Preparers		
Larry Hobbs Safety of Dams Project Manager	15 years of project development experience	Project Description, Document Review
Elizabeth Vasquez Natural Resource Specialist	8 years of natural resources experience	Project Description, Document Review
Matthew See Natural Resource Specialist	4 years of natural resources experience	Project Description, Document Review
Sacramento Area Flood Control Agency Preparers		
Pete Ghelfi	20 years of experience in civil engineering	Project Description, Document Review
Tim Washburn	20 years of legal and planning experience	Project Description, Document Review
CDM Preparers		
John Wondolleck Associate	33 years of experience in resource development, toxic substance releases, and environmental planning	EIS Project Manager, Technical Direction, Document Preparation, and Review
Hank Boucher Associate	30 years of experience as an environmental engineer and planner with expertise in impact assessment, planning, transportation, and land use development	Noise, Technical Review
Stacy Porter Environmental Planner	5 years of experience in water resources planning and environmental compliance	EIS/EIR Task Leader, Introduction, Project Description, Cumulative Effects, Public Utilities, Geology and Soils
Gina Veronese Environmental Planner	8 years experience in resource economics and environmental compliance	Economics, Recreation
Patricia Reed Environmental Scientist	10 years experience in natural resources	Biological Resources VELB Surveys, Wetland Delineation
Sean Murphy Civil Engineer	3 years of experience in traffic modeling and analysis	Transportation and Circulation
Gwen Pelletier Environmental Scientist	8 years of experience working on air quality projects and compliance	Air Quality, Climate Change, Noise
Charles Kincaid Senior Transportation	27 years experience in transportation planning , design	Transportation and Circulation

MIAD Modification Project
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Name/Professional Discipline	Expertise and Experience	Role in Preparation
Manager	and construction for highway and bridge projects	
Margaret Bloisa Hydrogeologist	20 years experience in groundwater studies	Groundwater
Chris Park Environmental Planner	4 years of experience in water resources planning and environmental compliance	Water Quality, Hydrology, and Flood Control
Robert Saikaly Scientist	6 years experience conducting noise assessments for NEPA and DOE road improvement projects	Noise
Asami Tanimoto Junior Engineer	2 years of experience working on air quality and GHG projects	Air Quality, Climate Change
Alexandra Kleyman Environmental Planner	2 years of experience in environmental planning and NEPA/CEQA analyses	Growth Inducing, Visual Resources
Brian Heywood Water Resources Engineer	12 years of experience in groundwater and water resources projects	Groundwater
Jennifer Jones Environmental Scientist	Over 16 years of experience as a land use and environmental planner.	Biological Resources, Public Health and Safety
Suzanne Wilkins Environmental Engineer	12 years experience in water resource consulting	Land Use, Planning, and Zoning, Environmental Justice, Indian Trust Assets
Julie Hinchcliff Administrative Assistant	30 years of word processing and production experience	Word Processing and Production
Juan Tijero Lead Graphic Designer	13 years of experience in graphic design	Graphics
Pacific Legacy Preparers		
John Holson Pacific Legacy Senior Archaeologist	30 years of experience in cultural resources management	Cultural Resources
Hannah Ballard Senior Historical Archaeologist	16 years experience in cultural resources management	Cultural Resources
Melinda McCrary Archaeological Technician	5 years experience in cultural resources management	Cultural Resources