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

Record of Decision

Battle Creek Salmon and Steelhead Restoration Project

Final Environmental Impact Statement/
Environmental Impact Report

December 2008

Recommended:

Patrick H. Welch

Acting Regional Environmental Officer

Date 12/29/2008

Approved:

Regional Director

Date 1/20/2009

I. Introduction

This document is the Record of Decision of the U.S. Department of the Interior, Bureau of Reclamation (Reclamation), Mid-Pacific Region, for the proposed Battle Creek Salmon and Steelhead Restoration Project (Restoration Project). The Restoration Project is the subject of a Draft Environmental Impact Statement/Environmental Impact Report (Draft EIS/EIR) dated and released in July 2003, a Draft Supplemental EIS/Revised EIR dated February 2005 and released March 2005, and a Final EIS/EIR dated and released in July 2005. These documents were developed in compliance with the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA).

II. Purpose and Need

Within the past century, anadromous salmonid fish species in the Sacramento River system have declined because of a number of factors, including the loss and degradation of spawning habitat as a result of changes in hydrologic regimes caused by water management for flood control, municipal and industrial uses, irrigation, and hydropower production. In order to preserve and enhance current salmonid populations in the Sacramento River system, habitat restoration efforts are needed. An opportunity to restore uniquely valuable habitat exists in Battle Creek, a tributary to the Sacramento River.

The purpose of the Restoration Project is to restore approximately 42 miles of habitat in Battle Creek and an additional 6 miles of habitat in its tributaries while minimizing the loss of clean and renewable energy produced by the Battle Creek Hydroelectric Project owned and operated by the Pacific Gas & Electric Company (PG&E).

III. Recommended Decision

Reclamation's decision is to proceed with the proposed action, the Five Dam Removal Alternative, as it is identified in the Final EIS/EIR. This decision was made with the direction and guidance of the signatories to the 1999 Memorandum of Understanding (MOU) for the Restoration Project, including Reclamation, the U.S. Fish and Wildlife Service (USFWS), the National Oceanic and Atmospheric Administration National Marine Fisheries Service (NMFS), the California Department of Fish and Game (DFG), and PG&E. Reclamation's decision is to provide for reestablishment of approximately 42 miles of prime salmon and steelhead habitat on Battle Creek, plus an additional 6 miles of habitat on its tributaries. Restoration will be accomplished primarily through the modification of the Battle Creek Hydroelectric Project (Federal Energy Regulatory Commission [FERC] Project No. 1121) (Hydroelectric Project) facilities and operations, including instream flow releases. Because of modifications that would be made under the Restoration Project to the Hydroelectric Project, which is owned and operated by PG&E, PG&E is required to obtain a license amendment from FERC. FERC, a cooperating agency for the EIS/EIR, is responsible for ensuring that proposed changes to the Hydroelectric Project comply with NEPA prior to issuing a license amendment for the Hydroelectric Project.

The proposed action (the Five Dam Removal Alternative) would remove the Wildcat, South, Soap Creek Feeder, Lower Ripley Creek Feeder, and Coleman Diversion Dams and provide new

fish screens and fish ladders at North Battle Creek Feeder, Eagle Canyon, and Inskip Diversion Dams. Fish screens would be designed and installed to meet NMFS and DFG criteria. The proposed action would increase instream flows in Battle Creek to the 1999 MOU recommended flows. Under the proposed action, portions of the existing spring water collection facilities near Eagle Canyon Diversion Dam would be removed, allowing additional cold spring water to enter the Battle Creek system. Additionally, tailrace connectors would be constructed to connect South Powerhouse and Inskip Powerhouse to downstream canals to eliminate the current discharge of North Fork Battle Creek water into the South Fork, and a penstock bypass would be constructed at the Inskip Powerhouse to ensure that no mixing of waters between North Fork and South Fork Battle Creek occurs during high water flows and powerhouse outages. Under the proposed action, portions of the Wildcat and South Canals would be decommissioned and/or filled. The major features associated with the proposed action are summarized in Table 1.

Table 1. Five Dam Removal Alternative Components

Site Name	Component
North Battle Creek Feeder Diversion Dam	55–cubic feet per second (cfs) fish screen*
	Fish ladder*
	Minimum instream flow set for North Battle Creek Feeder reach ranges from 47–88 cfs
	Access road construction and improvements
Eagle Canyon Diversion Dam	70-cfs fish screen*
	Fish ladder*
	Removal of a segment of the Eagle Canyon Spring Collection Facility
	Minimum instream flow set for Eagle Canyon reach ranges from 35–46 cfs
	Improvement of existing access trail
Wildcat Diversion Dam, Pipeline, and Canal	Dam and appurtenant facilities removed
	Improvement of access roads and trail
South Diversion Dam and Canal	Dam and appurtenant facilities removed
	Access road improvements
Soap Creek Feeder Diversion Dam	Dam and appurtenant facilities removed
	Access road improvements
Inskip Diversion Dam and South Powerhouse	220-cfs fish screen*
	Fish ladder*
	Construction of South Powerhouse and Inskip Canal connector (tunnel)
	Minimum instream flow set for Inskip reach ranges from 40–86 cfs
	Access road construction and improvements
Lower Ripley Creek Feeder Diversion Dam	Dam and appurtenant facilities removed
	Access road improvements

Site Name	Component
Coleman Diversion Dam and Inskip Powerhouse	Dam removed Construction of Inskip Powerhouse and Coleman Canal connector Inskip Powerhouse bypass replaced Access road improvements
Asbury Pump Station and Diversion Dam	Reoperate Creek flow and stage recorder installed Minimum instream flow set for Baldwin Creek at 5 cfs

* Reliability and performance standards for fish ladders and fish screens are generally described in the 1999 MOU, Sections 2.10 and 2.11, respectively. More specific information on fish ladders and fish screens is presented in Table 21 and Table 22, respectively, in the Battle Creek Adaptive Management Plan.

Project implementation includes modification of facilities at Battle Creek Hydroelectric Project diversion dam sites located on the North Fork Battle Creek (North Fork), South Fork Battle Creek (South Fork), and Baldwin Creek in three phases (Phases 1A, 1B and 2). Each phase has independent ecological and environmental benefits. Phase 1A includes installing fish screens and ladders at the North Battle Creek Feeder and Eagle Canyon diversion dams and removing Wildcat diversion dam and appurtenant conveyance systems on the North Fork; installing Eagle Canyon Canal pipeline; and modifying Asbury dam on Baldwin Creek. Phase 1B includes installing an Inskip Powerhouse tailrace connector and bypass on the South Fork, and Phase 2 includes installing a fish screen and ladder on Inskip diversion dam, installing a South Powerhouse tailrace connector, and removing Lower Ripley Creek Feeder, Soap Creek Feeder, Coleman and South diversion dams, and appurtenant conveyance systems.

IV. Background

The Restoration Project presents an opportunity to reestablish approximately 42 miles of prime salmon and steelhead habitat on Battle Creek, plus an additional 6 miles of habitat on its tributaries. The Restoration Project is a proactive, cooperative undertaking among the public, interested parties, the Battle Creek Working Group (BCWG) (now the Greater Battle Creek Watershed Working Group [GBCWWG])[1], state and federal agencies, and PG&E to help restore the anadromous fishery in the Sacramento River watershed, where funding and restoration potential are uniquely promising.

Because there will be federal and state actions associated with the Restoration Project, compliance with both NEPA (42 U.S. Code [USC] 4321–4347) and CEQA (Public Resources Code 21000 *et seq.*) is required. The Final EIS/EIR has been prepared to fulfill the requirements of both NEPA and CEQA. The Restoration Project is being proposed as a project to implement a part of the CALFED Program described in the CALFED Programmatic Record of Decision issued August 28, 2000. Chapter 2, Decision, Section 2.2, Plan for Action, 2.2.2 Ecosystem Restoration, of the CALFED Programmatic Record of Decision calls for the improvement of fish

[1] Since commencement of the Restoration Project, the BCWG has evolved to become the GBCWWG; however, it is referred to as the BCWG throughout this document because the referenced activities took place before this change.

passage through modification or removal of eight PG&E diversion dams on Battle Creek. Because the Restoration Project is an action that received funding in 1999 (and may receive additional funding, pursuant to a March 2005 proposal) from the California Bay-Delta Authority (CBDA), which assists with the implementation of the CALFED Bay-Delta Program (CALFED), environmental review of the Final EIS/EIR tiers from the CALFED Final Programmatic EIS/EIR[2].

V. Alternatives Considered

The Final EIS/EIR considered a number of alternatives in addition to the proposed action (the Five Dam Removal Alternative), including the No Action Alternative, No Dam Removal Alternative, Six Dam Removal Alternative, and Three Dam Removal Alternative. Each alternative is described below. Two other alternatives were eliminated from further consideration—the Eight Dam Removal Alternative, which proposed the removal of all diversion dams below the natural fish barriers on North Fork and South Fork Battle Creek, and Alternative 6, which proposed the removal of all Hydroelectric Project facilities, including diversion dams and powerhouses, below the natural fish barriers. The Final EIS/EIR (see pages 3-114 to 3-132 in Chapter 3, Volume I) explains why these alternatives were eliminated from further consideration.

No Action Alternative

The No Action Alternative represents conditions under a "no salmon or steelhead restoration project" or "future without salmon and steelhead restoration project" alternative and is defined as the existing FERC license conditions for the Hydroelectric Project. Instream flow releases under the No Action Alternative are the license-required continuous minimum flows of 3 cfs below the diversion dams on North Fork Battle Creek and 5 cfs below the diversion dams on South Fork Battle Creek. Under the No Action Alternative, existing fish ladders would be operated according to the conditions set forth in the Hydroelectric Project's FERC license. PG&E would continue to maintain license-required stream gages, documentation, and operations criteria.

No Dam Removal Alternative

The No Dam Removal Alternative would provide new fish screens and fish ladders to six diversion dams—North Battle Creek Feeder, Eagle Canyon, Wildcat, South, Inskip, and Coleman Diversion Dams. Fish screens would be designed and installed to meet NMFS and DFG criteria. Additionally, flows within the Battle Creek system would be increased to Anadromous Fish Restoration Program (AFRP) flows. No modifications would be considered for Lower Ripley Creek Feeder, Soap Creek Feeder, and Asbury Diversion Dams, and no diversion dams would be removed from the Hydroelectric Project. No powerhouse tailrace connectors or penstock bypass facilities would be constructed that prevent mixing of North Fork and South Fork Battle Creek flows and spring water would continue to be collected and conveyed through existing canals. This alternative was derived from actions identified in the AFRP.

[2] CBDA, an agency that assists with the implementation of the CALFED Program, was previously known as the CALFED Bay-Delta Program. Documents published before this name change took place are identified in this Final EIS/EIR as being prepared by the CALFED Bay-Delta Program (CALFED). In addition, the term CALFED is often used to refer to the CALFED Program, also known as the CALFED Plan.

Six Dam Removal Alternative

The Six Dam Removal Alternative was developed in response to suggestions that Eagle Canyon Diversion Dam should be included as one of the Hydroelectric Project features to be removed. The Six Dam Removal Alternative is similar to the Five Dam Removal Alternative except that the Six Dam Removal Alternative includes the removal of Eagle Canyon Diversion Dam and its appurtenant facilities. Similar to the Five Dam Removal Alternative, flows in the Battle Creek system would be increased to MOU flows, and powerhouse tailrace connectors and penstock bypass facilities would be constructed at the South and Inskip Powerhouses to prevent mixing of North Fork and South Fork Battle Creek flows. The Six Dam Removal Alternative does not include an adaptive management fund, dedicated water rights, or a water acquisition fund as provided for the Five Dam Removal Alternative.

Three Dam Removal Alternative

The Three Dam Removal Alternative was developed based on "Battle Creek: A Time for Action," a proposal that was developed between late 1997 and early 1998 by stakeholders under the auspices of the BCWG. Under the Three Dam Removal Alternative, Eagle Canyon, Wildcat, and Coleman Diversion Dams would be removed to allow upstream fish passage. South Diversion Dam, Inskip Diversion Dam, and North Battle Creek Feeder Diversion Dam would remain, and fish passage would be accomplished by constructing new fish screens and fish ladders at these facilities. Instream flows in Battle Creek would be increased to AFRP flows. In addition, the minimum instream flow would be set at 10 cfs for Baldwin Creek at Asbury Diversion Dam. Powerhouse tailrace connectors would be installed at the South and Inskip Powerhouses to prevent mixing of North Fork and South Fork Battle Creek flows. No modifications would take place at Lower Ripley Creek Feeder and Soap Creek Feeder Diversion Dams. This alternative would include elements of adaptive management consistent with the overarching principles of adaptive management set forth by the CALFED Science Program. The Three Dam Removal Alternative does not include an adaptive management fund, facilities monitoring and maintenance plan, dedicated water rights, or a water acquisition fund as provided for the Five Dam Removal Alternative.

Environmentally Preferred Alternative

When compared against all the action alternatives, the Six Dam Removal Alternative is identified as the environmentally preferred alternative because of fewer physical impacts on environmental resources compared to the other alternatives. The additional impacts associated with the Five Dam Removal Alternative result from implementing mitigation measures proposed at the MLTF Jeffcoat aquaculture facility. Mitigation at the Jeffcoat facility would temporarily and permanently affect sensitive biological communities because it requires the installation of a new pipeline that would replace a portion of Eagle Canyon Canal. Implementing this mitigation measure is not required for the Six Dam Removal Alternative; therefore, the environmental impacts associated with the Six Dam Removal Alternative are less than those impacts associated with the Five Dam Removal Alternative.

VI. Basis of Decision and Issues Evaluated

The alternatives were evaluated on how well they met the Restoration Project's purpose and need and the following Restoration Project objectives:

- restore self-sustaining populations of Chinook salmon and steelhead by restoring their habitat in the Battle Creek watershed and access to it through a voluntary partnership with state and federal agencies, a third party donor(s), and PG&E;
- establish instream flow releases that restore self-sustaining populations of Chinook salmon and steelhead;
- remove selected dams at key locations in the watershed where the hydroelectric values were marginal as a result of increased instream flow;
- dedicate water diversion rights for instream purposes at dam removal sites;
- construct tailrace connectors and install failsafe[3] fish screens and fish ladders to increase certainty about restoration components;
- restore stream function by structural improvements in the transbasin
- diversion to provide a stable habitat and guard against false attraction of anadromous fish away from their migratory destinations;
- avoid Restoration Project impacts on species of wildlife and native plants and their habitats to the extent practicable, minimize impacts that are unavoidable, and restore or compensate for impacts;
- minimize loss of clean and renewable energy produced by the Battle Creek Hydroelectric Project;
- implement restoration activities in a timely manner;
- develop and implement a long-term adaptive management plan with dedicated funding sources to ensure the continued success of restoration efforts; and
- avoid impacts on other established water users/third parties.

The Final EIS/EIR evaluated a comprehensive set of resource areas for each alternative to comply with NEPA and CEQA. Some of the main issues include effects on:

- the reproductive success of fish and other aquatic species in Battle Creek;
- fish and water quality associated with the spread of serious or catastrophic fish disease from Battle Creek to Mount Lassen Trout Farm (MLTF) and Darrah Springs State Fish Hatchery fish stocking operations;
- riparian and wetland communities;

[3] The MOU defines *failsafe* as a level of performance and reliability. Standards for fish ladders and fish screens are specified in Sections 2.10 and 2.11 of the MOU, respectively. More specific information on fish ladders and fish screens is presented in Table 21 and Table 22, respectively, in the Battle Creek Adaptive Management Plan.

- wildlife and botanical resources;
- water quality conditions in Battle Creek during instream construction;
- aesthetics, visual resources, noise, and recreation in the vicinity of Oasis Springs Lodge;
- sensitive land uses associated with construction-related noises and air quality;
- public health and safety;
- public services and utilities;
- recreational resources and activities during construction;
- cultural resources; and
- local socioeconomics.

Table 3 is a summary comparison of benefits and impacts associated with each action alternative. All of the action alternatives would meet a portion of the Restoration Project purpose, need and objectives, but the Five Dam Removal Alternative is determined to best meet the Restoration Project purpose, need, and objectives to restore salmon and steelhead habitat in a manner that minimizes the loss of clean and renewable energy produced by the Hydroelectric Project. There would be no impacts to Indian Trust Assets from any of the alternatives.

No Dam Removal Alternative

The No Dam Removal Alternative would result in significantly less fish habitat restoration benefit because instream flows would be substantially lower downstream of the diversion dams (i.e., the No Dam Removal Alternative requires AFRP minimum instream flows, which are lower than MOU minimum instream flows). Additionally, the No Dam Removal Alternative does not include releases of cold water from major spring complexes or releases from tributary dams (i.e., Soap Creek Feeder and Lower Ripley Creek Feeder Diversion Dams). Furthermore, no dams would be removed under this alternative and no water rights would be dedicated to the environment; however, because no dams are proposed for removal, this alternative would result in slightly less impact on environmental resources. Although the No Dam Removal Alternative would minimize the loss of clean and renewable energy produced by the Hydroelectric Project, this alternative would not result in a significant increase in reliable restored habitat and ecological function for anadromous fish because cold spring water would continue to be captured by PG&E canals and would not be allowed to spill into Battle Creek and serve as a source of cold water to the creek, which is a beneficial component for anadromous fish habitat. In addition, the No Dam Removal Alternative would continue to experience the destabilizing effects associated with PG&E's powerhouses and transbasin diversions. Therefore, the No Dam Removal Alternative was not selected as the proposed action.

Six Dam Removal Alternative

Compared to the Five Dam Removal Alternative, the Six Dam Removal Alternative would provide slightly more fish habitat restoration benefit, primarily because of the removal of Eagle Canyon Diversion Dam, and slightly less impact on environmental resources, primarily because of impacts associated with implementing the mitigation measures required under the Five Dam Removal Alternative at the MLTF Jeffcoat aquaculture facility. The Six Dam Removal

Alternative, however, would not meet the project objective to minimize loss of renewable energy generated by the Hydroelectric Project in comparison with the Five Dam Removal Alternative because the removal of Eagle Canyon Diversion Dam would result in an increased loss of power production. In addition, the Six Dam Removal Alternative would result in a substantially higher cost to replace this renewable energy source. For these reasons, the Six Dam Removal Alternative was not selected as the proposed action.

Three Dam Removal Alternative

The Three Dam Removal Alternative would provide slightly less fish habitat restoration benefit because instream flows would be substantially lower downstream of the diversion dams (i.e., the No Dam Removal Alternative requires AFRP minimum instream flows, which are lower than MOU minimum instream flows). Additionally, the Three Dam Removal Alternative does not include releases of cold water from major spring complexes or releases from tributary dams (i.e., Soap Creek Feeder and Lower Ripley Creek Feeder Diversion Dams). However, environmental impacts associated with the Three Dam Removal Alternative are similar to those identified for the Five Dam Removal Alternative. Although the Three Dam Removal Alternative would minimize the loss of clean and renewable energy produced by the Hydroelectric Project compared to the Five Dam Removal Alternative, this alternative would result in less restored habitat for anadromous fish and therefore was not selected as the proposed action.

Table 3. Comparison of Beneficial Effects and Impacts Associated with Each Action Alternative[4]

Impact/Effect	Five Dam Removal Alternative	No Dam Removal Alternative	Six Dam Removal Alternative	Three Dam Removal Alternative
BENEFICIAL EFFECTS				
Section 4.1, Fish				
Increased survival of adults and increased spawning success because removal of dams and the construction of more reliable, effective fish ladders would facilitate passage of Chinook salmon and steelhead.	Impact 4.1-15 Beneficial		Impact 4.1-52 Beneficial	Impact 4.1-72 Beneficial
Increased survival of adults and increased spawning success because the construction of more effective fish ladders on North Battle Creek Feeder, Eagle Canyon, Wildcat, South, Inskip, and Coleman Diversion Dams would facilitate passage of Chinook salmon and steelhead.		Impact 4.1-34 Beneficial		
Potentially increased spawning success and fry production because separating the powerhouse water discharge from the normal stream channel would facilitate the return of adult Chinook salmon and steelhead to natal spawning habitat in South Fork and North Fork Battle Creek.	Impact 4.1-16 Beneficial		Impact 4.1-53 Beneficial	Impact 4.1-73 Beneficial
Substantially increased survival of juvenile steelhead and Chinook salmon during downstream movement and migration as a result of eliminating some diversions and constructing fish screens at the remaining diversions from North Fork and South Fork Battle Creek.	Impact 4.1-18 Beneficial		Impact 4.1-55 Beneficial	Impact 4.1-75 Beneficial
Substantially increased survival of juvenile steelhead and Chinook salmon during downstream movement and migration as a result of constructing fish screens at the existing diversions from North Fork and South Fork Battle Creek.		Impact 4.1-35 Beneficial		
Reduction of predation-related mortality as a result of removing dams and improving fish ladders.	Impact 4.1-19 Beneficial		Impact 4.1-56 Beneficial	Impact 4.1-76 Beneficial

[4] This table lists only those impacts that are different among the alternatives. Impacts that are shared by all alternatives are not listed in this table.

Table 3. Continued

Impact/Effect	Five Dam Removal Alternative	No Dam Removal Alternative	Six Dam Removal Alternative	Three Dam Removal Alternative
Substantially increased production of food for fish resulting from increased minimum instream flows.	Impact 4.1-20 Beneficial	Impact 4.1-37 Beneficial	Impact 4.1-57 Beneficial	Impact 4.1-77 Beneficial
Section 4.2, Botanical, Wetland, and Wildlife Resources				
Substantial increase in quantity of bat roosting habitat in the South Canal tunnels as a result of termination of water flow through the tunnels.	Impact 4.2-18 Beneficial		Impact 4.2-52 Beneficial	
Section 4.3, Hydrology				
Coleman Diversion Dam removal could reduce the 10-, 25-, and 50-year floodwater surface profiles at Inskip Powerhouse.	Impact 4.3-2 Beneficial		Impact 4.3-6 Beneficial	Impact 4.3-9 Beneficial
IMPACTS				
Section 4.1, Fish				
Mortality of fish eggs and larvae and reduced reproductive success of fish and other aquatic species as a result of removing South, Coleman, and Eagle Canyon Diversion Dams, which would release currently stored fine sediment to the stream channel.	Impact 4.1-3 Significant *(Coleman and South Diversion Dams)*		Impact 4.1-40 Significant *(Eagle Canyon, Coleman, and South Diversion Dams)*	Impact 4.1-60 Significant *(Eagle Canyon and Coleman Diversion Dams)*
Increased risk of a serious or catastrophic fish disease spreading from Battle Creek to fish communities throughout the state through stocking with MLTF and Darrah Springs State Fish Hatchery fish. *Note: Mitigation at the Jeffcoat site is not required for the Six Dam Removal and Three Dam Removal Alternatives.*	Impact 4.1-8 Significant *(Jeffcoat, Willow Springs, and Asbury Diversion Dam)*	Impact 4.1-27 Significant *(Jeffcoat, Willow Springs, and Asbury Diversion Dam)*	Impact 4.1-45 Significant *(Willow Springs and Asbury Diversion Dam)*	Impact 4.1-65 Significant *(Willow Springs and Asbury Diversion Dam)*
Section 4.2, Botanical, Wetland, and Wildlife Resources				
Potential disturbance or loss of woody riparian vegetation and associated wildlife habitat.	Impact 4.2-1 Significant *(4.18 acres)*	Impact 4.2-19 Significant *(1.87 acres)*	Impact 4.2-35 Significant *(4.18 acres)*	Impact 4.2-53 Significant *(3.81 acres)*

Table 3. Continued

Impact/Effect	Five Dam Removal Alternative	No Dam Removal Alternative	Six Dam Removal Alternative	Three Dam Removal Alternative
Potential loss or disturbance of waters of the United States, including wetlands.	Impact 4.2-3 Significant *(18.86 acres)*	Impact 4.2-21 Significant *(14.57 acres)*	Impact 4.2-37 Significant *(16.43 acres)*	Impact 4.2-55 Significant *(12.07 acres)*
Potential disturbance of breeding habitat for yellow-breasted chat and little willow flycatcher. *Note: Breeding habitat for little willow flycatcher would not be affected under the Three Dam Removal Alternative.*	Impact 4.2-8 Significant	Impact 4.2-26 Significant	Impact 4.2-42 Significant	Impact 4.2-60 Significant *(only yellow-breasted chat)*
Possible loss of woody riparian vegetation along PG&E canals.	Impact 4.2-12 Less than significant *(includes Wildcat, South, and a portion of Eagle Canyon Canals)*	Impact 4.2-30 Less than significant *(includes a portion of Eagle Canyon Canal)*	Impact 4.2-46 Less than significant *(includes Wildcat, South, and Eagle Canyon Canals)*	Impact 4.2-64 Less than significant *(includes Wildcat and Eagle Canyon Canals)*
Section 4.3, Hydrology				
Removal of Eagle Canyon Diversion Dam could result in minor increases to downstream bed elevations.			Impact 4.3-4 Less than significant	Impact 4.3-7 Less than significant
Section 4.4, Water Quality				
Removal of South and Coleman Diversion Dams could cause erosion of minor amounts of sediment from behind the dam.	Impact 4.4-5 Less than significant		Impact 4.4-16 Less than significant	Impact 4.4-23 Less than significant *(only Coleman Diversion Dam)*
Minor amounts of sediment released by the removal of Coleman Diversion Dam would be deposited at the County Road Bridge.	Impact 4.4-6 Less than significant		Impact 4.4-17 Less than significant	Impact 4.4-24 Less than significant
Short-term increased turbidity and settleable material load on the Coleman National Fish Hatchery water treatment plant as a result of removing Coleman Diversion Dam.	Impact 4.4-7 Less than significant		Impact 4.4-18 Less than significant	Impact 4.4-25 Less than significant

Table 3. Continued

Impact/Effect	Five Dam Removal Alternative	No Dam Removal Alternative	Six Dam Removal Alternative	Three Dam Removal Alternative
Section 4.8, Visual Resources				
Construction of the channel with armoring or revetment would alter views of the South Fork creek bank.				Impact 4.8-16 Significant and unavoidable
Potential reduction in scenic resources visible from canals caused by closure of PG&E canals.	Impact 4.8-4 Less than significant *(Includes Wildcat, South, and a portion of Eagle Canyon Canals)*	Impact 4.8-9 Less than significant *(Includes a portion of Eagle Canyon Canal)*	Impact 4.8-14 Less than significant *(Includes Wildcat, South, and Eagle Canyon Canals)*	Impact 4.8-19 Less than significant *(Includes Wildcat, and Eagle Canyon Canals)*
Temporarily reduced scenic resources along the Eagle Canyon Canal as a result of construction of Eagle Canyon pipeline.	Impact 4.8-5 Less than significant	Impact 4.8-10 Less than significant		
Section 4.15, Cultural Resources				
Removal of historic properties.	Impact 4.15-1 Significant and unavoidable		Impact 4.15-8 Significant and unavoidable	Impact 4.15-11 Significant and unavoidable
Potential impact on cultural resources at the Jeffcoat Aquaculture Facility. Note: Since issuance of the Final EIS/EIR, Reclamation has completed compliance for activities associated with the Jeffcoat Aquaculture facility. In a November 6, 2006 letter, the State Historic Preservation Office concurred that the actions planned at Jeffcoat would result in no historic properties affected.	Impact 4.15-4 Significant	Impact 4.15-7 Significant		

Table 3. Continued

Impact/Effect	Five Dam Removal Alternative	No Dam Removal Alternative	Six Dam Removal Alternative	Three Dam Removal Alternative
Section 4.16, Other NEPA Analyses				
Power Generation and Economics: Increased cost of project power.	Effect 4.16-1 *($12.6 million)*	Effect 4.16-2 *($5.0 million)*	Effect 4.16-3 *($16.8 million)*	Effect 4.16-4 *($13.7 million)*
Power Generation and Economics: Indirect environmental effects associated with the loss of hydropower and renewable replacement power.	Effect	Effect *(some degree of magnitude less than the Five Dam Removal Alternative)*	Effect *(some degree of magnitude greater than the Five Dam Removal Alternative)*	Effect *(some degree of magnitude less than the Five Dam Removal Alternative)*
Socioeconomics: Potential socioeconomic risk to MLTF fish marketing program.	Effect 4.16-5	Effect 4.16-10	Effect 4.16-15 *(some degree of magnitude less than the Five Dam Removal Alternative)*	Effect 4.16-20 *(some degree of magnitude less than the Five Dam Removal Alternative)*
Totals for each Alternative				
Beneficial effects	**7**	**3**	**7**	**6**
Significant impacts	**6**	**5**	**5**	**5**
Significant and unavoidable impacts	**1**	**0**	**1**	**2**
Less than significant impacts	**6**	**3**	**6**	**6**
Social, economic, power effects	**3**	**3**	**3**	**3**

VII. Environmental Commitments and Mitigation Measures

Reclamation has adopted all practicable means to avoid or minimize adverse effects on the environment that would result from the implementation of the proposed action. Reclamation has incorporated environmental commitments as part of the project description for the proposed action (see pages 3-69 to 3-78 in Chapter 3, Volume I, of the Final EIS/EIR). In addition, where feasible and appropriate, Reclamation will implement the mitigation measures as specified in the attached Mitigation Monitoring and Reporting Plan for the proposed action (Appendix A). Specific mitigation and monitoring requirements are described in detail in the Final EIS/EIR. The implementation of any mitigation measure by Reclamation, as described in Appendix A, is subject to authorization and appropriations under federal law.

Reclamation has completed consultations pursuant to the federal Endangered Species Act with USFWS and NMFS. Non-jeopardy opinions were received from both agencies. Reclamation will implement those recommendations presented in the USFWS biological opinions, which also include commitments identified in the Action Specific Implementation Plan (ASIP) and ASIP addendum, insofar as they address actions to be taken by Reclamation. The biological opinions received from USFWS and NMFS are summarized below.

Biological Opinion Received from USFWS

USFWS issued its biological opinion (1-1-04-F-190) on June 20, 2005, covering construction of the Restoration Project through formal consultation. The biological opinion addresses effects of the Restoration Project on the threatened valley elderberry longhorn beetle and the threatened bald eagle, in accordance with Section 7 of the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531 *et seq*.). Reclamation will implement the mitigation measures recommended by USFWS in its biological opinion to avoid or minimize effects on the valley elderberry longhorn beetle and the bald eagle.

Biological Opinion Received from NMFS

NMFS issued its biological opinion on June 22, 2005, covering construction and operation of the Restoration Project through formal consultation. The biological opinion addresses effects of the Restoration Project on the federally listed endangered Sacramento River winter-run Chinook salmon, threatened Central Valley spring-run Chinook salmon, threatened Central Valley steelhead, and proposed critical habitat for Central Valley spring-run chinook salmon and Central Valley steelhead, in accordance with Section 7 of the ESA of 1973, as amended (16 U.S.C. 1531 *et seq*.). According to the biological opinion, NMFS believes that all measures that are necessary and appropriate to minimize take of Sacramento River winter-run Chinook salmon, Central Valley spring-run Chinook salmon, and Central Valley steelhead have already been incorporated into the plan for the Restoration Project. As required by the biological opinion, Reclamation will conduct thorough monitoring and report to NMFS on the efficacy of the proposed conservation measures and any documented take that result from construction of the Restoration Project.

VIII. Adaptive Management Plan

The Battle Creek Adaptive Management Plan (AMP) was prepared under the direction of the Adaptive Management Parties (PG&E, DFG, USFWS, and NMFS) by Terraqua, Inc. Two scientific Technical Panels established by CBDA provided important comments regarding adaptive management theory and practice, which prompted substantial revisions of earlier drafts. Members of the BCWG provided reviews and additional policy suggestions.

The AMP was developed by consensus between the parties under the Adaptive Management Policy Team (AMPT) and the Adaptive Management Technical Team (AMTT). The AMPT consists of management-level representation from each of the resource agencies (DFG, USFWS, and NMFS) and PG&E and is authorized to make all final decisions regarding the implementation of the AMP and to provide policy direction and dispute resolution on issues forwarded to it by the AMTT. The AMTT consists of technical experts from each of the resource agencies and PG&E and is responsible for the development and implementation of the adaptive management portion of the Restoration Project once it has been approved by FERC. The revised draft AMP was completed in April 2004.

Adaptive Management Plan Objectives

The primary reason for using an adaptive management process is to allow changes to restoration strategies or actions that may be needed to achieve the long-term goals and/or biological objectives and to ensure the likelihood of the survival and recovery of naturally spawning Chinook salmon and steelhead. Under adaptive management, restoration activities in Battle Creek would be monitored and analyzed to determine whether they are producing the desired results (i.e., properly functioning habitats).

The AMP for the Restoration Project may only implement modifications to PG&E's Hydroelectric Project facilities and operations, as explained in the 1999 MOU (see Appendix A in Volume II of the Final EIS/EIR), and does not include other related actions in the Battle Creek Watershed. The GBCWWG is working to create an adaptive management effort for the greater Battle Creek watershed. Because the GBCWWG also supports integrated adaptive management efforts, the group will likely prepare their plan to be as compatible as possible with the Restoration Project AMP.

As implementation proceeds, results would be monitored and assessed. If the anticipated goals and objectives are not being achieved, adjustments in the restoration strategy or actions would be considered through the AMP. Additional NEPA compliance may be necessary if new information gathered during these assessments requires reconsideration of Reclamation's decision on the Restoration Project.

Monitoring

The AMP includes several focused monitoring studies. These studies are focused primarily in the following areas of study: sediment, riparian, juvenile habitat use, coldwater refuges, life history, and fish community structure evaluation.

Sediment monitoring activities have been designed to establish improved conceptual models of sediment transport dynamics and channel morphological response and ultimately quantify the short- and longer-term spatial habitat responses following dam removal. Riparian monitoring activities will record any effects on the riparian corridor from increased baseflows. Habitat units normally used by juvenile salmonids will be monitored to determine relative abundance and juvenile distribution and verify microhabitat suitability indices. A focused study of coldwater refuges will attempt to quantify the contribution of the release of cold spring water to Battle Creek to increases in production of adult and juvenile salmonids. Life history studies will be completed to distinguish the four runs of salmon during the adult life stage to improve escapement estimates, juvenile production estimates, and fishery management. The fish community structure evaluation will estimate changes in the distribution of fish species in anadromous reaches of Battle Creek and estimate the feasibility of making abundance estimates for a few species. The parties responsible for implementing each adaptive management monitoring task are listed in Table 25 on pages 84 to 90 in the April 2004 revised draft AMP.

Reporting

Data collected from studies conducted under the AMP will be reported to the AMTT in a timely fashion as determined by the AMPT. An Adaptive Management Report will be prepared each year by the AMTT and approved by the AMPT. This annual report will:

- document monitoring and data assessment approaches and results from the previous year;
- identify any possible trigger events that occurred that require an adaptive response;
- propose the adaptive response to be taken;
- report on results of adaptive responses taken since the most recent report; and
- evaluate spending guidelines involved in categorizing major, minor, and emergency responses.

This report also may include any results from diagnostic or focused studies conducted as part of the adaptive responses. Documentation of monitoring and data assessment approaches, and diagnosis of focused studies, will be achieved by compiling field study reports prepared by AMP parties that conducted or funded individual field studies. The AMTT and AMPT chairpersons or their designees will oversee the joint compilation of these field study reports and preparation of report sections identifying trigger events and adaptive responses. The annual Adaptive Management Report will be presented to the Battle Creek Watershed Conservancy, GBCWWG, and other stakeholders at the annual meeting of the AMPT.

Timeframe

Table 25 in the AMP outlines adaptive management monitoring tasks and their respective timelines. All AMP activities are expected to occur by the year 2026, coinciding with the expiration of PG&E's FERC license for the Hydroelectric Project.

IX. Comments Received on the Final EIR/EIS

After the Final EIS/EIR was filed on July 29, 2005, two comment letters were received on the final document. One letter dated August 26, 2005, was received from Kerry L. Burke, and one letter dated August 29, 2005, was received from the U.S. Environmental Protection Agency (EPA).

The comment letter from EPA indicated it is pleased that the recommendations identified in their review of the Draft EIS/EIR were incorporated into the Final EIS/EIR. No further comments were received from EPA. The comments provided by Ms. Burke fall into three main topics: Memorandum of Understanding, Project Alternatives, and Restoration Project Impacts. Significant issues related to the environmental analysis in the Final EIS/EIR that were raised under each topic in the comment letter received from Ms. Burke on the Final EIS/EIR are summarized below. A brief response follows the description of each of the relevant issues raised. Comments not applicable to the Final EIS/EIR are not addressed.

Memorandum of Understanding

Ms. Burke's Comment: The 1999 Memorandum of Understanding (MOU) describes specific project elements that determined the outcome of the Restoration Project. No real alternative to the Restoration Project exists since PG&E requires compliance with the MOU. Additionally, the project alternatives were designed not to include the necessary elements that are included as part of the Proposed Action (i.e., the MOU alternative or Five Dam Removal Alternative). Therefore all project alternatives are meaningless and the NEPA/CEQA exercise has been a very expensive waste of time and effort. This exercise has been intellectually dishonest and has not provided the public with the opportunity to comment on acceptable alternatives to the Proposed Action.

Response to Ms. Burke's Comment: The selection of the Five Dam Removal Alternative as the proposed action (i.e., the preferred alternative) was not determined by the MOU. The purpose of the MOU is to define the roles and responsibilities of the MOU Parties—Reclamation, the California Department of Fish and Game, National Marine Fisheries Service, the U.S. Fish and Wildlife Service, and PG&E—regarding actions that will be undertaken as part of the proposed Restoration Project and commitments regarding costs and implementation of the Restoration Project. The MOU Parties provided input on the selection and design of the proposed action. In addition, several feasible alternatives were analyzed in the EIS/EIR through a cooperative effort among the Project Management Team, Technical Team, and Project Manager, as described in the MOU. As a result of this cooperative effort, the teams determined that the Five Dam Removal Alternative best meets the project's goals and objectives. As described on page 2-9 in Volume I of the Final EIS/EIR, if an alternative other than the Proposed Action were selected through the NEPA/CEQA process, a new MOU would be negotiated.

Project Alternatives

Interim Flow Agreement

Ms. Burke's Comment: Why was the interim flow agreement designed to be short term? It has been in place for 10 years; however, it was not considered as an alternative for the Restoration Project in the EIS/EIR.

Response to Ms. Burke's Comment: The interim flow agreement was designed to temporarily increase instream flows to benefit fish until a long-term restoration project could be designed and implemented on Battle Creek. The interim flow agreement represents a short-term set of resource conditions that are not guaranteed to continue and are not conditions of PG&E's current FERC license for the Hydroelectric Project (FERC Project No. 1121). The interim flow agreement was not analyzed as a feasible alternative in the EIS/EIR because it is a temporary solution to improve fish habitat and does not meet all project objectives as described in Chapter 2 of the Final EIS/EIR, "Purpose and Need, Project Description, and Project Background."

No Dam Removal Alternative's Effect on Power Generation Costs

Ms. Burke's Comment: How can implementation of the No Dam Removal Alternative create an adverse effect on the cost of hydroelectric power generation?

Response to Ms. Burke's Comment: Implementation of the No Dam Removal Alternative would increase the cost of power production for the Hydroelectric Project because of increased operation and maintenance costs associated with new fish ladder and fish screening facilities proposed at six diversion dams (North Battle Creek Feeder, Eagle Canyon, Wildcat, South, Inskip, and Coleman Diversion Dams). Additionally, implementation of the No Dam Removal Alternative would reduce Hydroelectric Project annual energy production because PG&E would be required to meet AFRP instream flow requirements, which would reduce the amount of water diverted to PG&E's power-production facilities.

Proposed Action vs. Environmentally Preferred Alternative

Ms. Burke's Comment: The Five Dam Removal Alternative has been identified as the proposed action throughout the Final EIS/EIR; however, the Six Dam Removal Alternative is identified as the "environmentally preferred alternative" in the Final EIS/EIR. Which alternative is under consideration to be funded?

Response to Ms. Burke's Comment: Reclamation's decision is to proceed with the proposed action, the Five Dam Removal Alternative, as it is identified in the Final EIS/EIR. Chapter 7, pages 7-19 to 7-21 in Volume I of the Final EIS/EIR explains why the Six Dam Removal Alternative is the environmentally preferred alternative; however, this alternative does not meet one of the primary project objectives, which is to "minimize loss of clean and

renewable energy produced by the Battle Creek Hydroelectric Project" (page 2-3 in Volume I of the Final EIS/EIR). Additionally, according to NEPA, the federal lead agency is not obligated to select the environmentally preferred alternative as the proposed action.

Restoration Project Impacts

Effects on the Community

Ms. Burke's Comment: Will the loss of hydropower tax revenues adversely affect the Manton School District? Why was this not addressed in the Final EIS/EIR?

Response to Ms. Burke's Comment: PG&E's property is valued annually based on changes throughout its entire service territory. In other words, PG&E is valued as a whole entity and is not valued based only on its activity in Shasta and Tehama Counties. Therefore, the tax benefit cannot be determined specifically for the Manton School District. Additionally, when valuing PG&E property, the California State Board of Equalization (BOE) does not take into account electric generation sales because PG&E does not derive income from hydropower generation sold to its customers. In other words, the BOE does not rely on revenues to value PG&E's property. Instead, BOE relies on the historical cost less depreciation approach because PG&E is regulated by the California Public Utilities Commission. For these reasons, effects on the Manton School District associated with PG&E's loss of hydropower revenues were not addressed in the Final EIS/EIR.

Loss of Riparian Habitat and Waters of the United States

Ms. Burke's Comment: How will the government compensate for the loss of riparian vegetation and associated wildlife habitat on the lands of Outfitter Properties? How will the government compensate for the loss of waters of the United States and revegetate lost habitat on lands of Outfitter Properties? How can a loss of 18.86 acres of waters of the United States be considered a restoration project? Where is the one-for-one replacement?

Response to Ms. Burke's Comment: Mitigation measures addressing the loss of riparian vegetation and associated wildlife habitat are described under Impact 4.2-1 (see pages 4.2-68 through 4.2-71 in Volume I of the Final EIS/EIR). Riparian habitat addressed under Impact 4.2-1 is considered upland habitat and does not fall under jurisdiction of the U.S. Army Corps of Engineers (Corps), which regulates activities that result in the discharge of dredged or fill material into wetlands and other waters of the United States through the authority of Section 404 of the Clean Water Act. As described in the Final EIS/EIR, where woody riparian habitat loss is temporary, compensation will include full restoration of the affected habitat. In addition to restoration of the affected area, on-site or off-site compensation or enhancement would be completed at a ratio of 2:1 (2 acres enhanced for every 1 acre affected). The compensation for permanent loss of woody riparian habitat will be provided at a minimum ratio of 3:1 (3 acres of compensation for every 1 acre affected). As recommended by USFWS, compensation would in part or in full be credited through the use

of habitat credits from a CBDA–funded conservation easement located within the project area.

Mitigation measures addressing the loss of and temporary disturbance to waters of the United States are described under Impact 4.2-3 (see pages 4.2-72 through 4.2-74 in Volume I of the Final EIS/EIR). According to the Final EIS/EIR, a total of approximately 18.86 acres of waters of the United States, including wetlands, would be affected by implementing the Proposed Action; however, only 1.88 acres of wetlands and other waters of the United States would be permanently affected. The remaining acreage affected by the Proposed Project, approximately 11.79 acres, is attributable to temporary impacts on waters of the United States, which would be restored following project construction. Permanent impacts are associated primarily with instream construction and the installation of fish passage facilities, such as fish ladders and fish screens. Reclamation will compensate for permanent impacts on waters of the United States as recommended by the Corps to ensure no net loss of habitat functions and values.

Instream Flow Disruption

Ms. Burke's Comment: Why is diverting flows on the South Fork of Battle Creek during the construction period considered a less-than-significant impact? The construction of a 13-foot cofferdam in the stream will significantly impact resident trout and other associated species, not to mention significantly reduce the amount of fishable water adjacent to the trout lodge.

Response to Ms. Burke's Comment: Adverse effects on special-status fish species and their spawning habitat as a result of dewatering portions of the stream channel will be avoided or minimized with implementation of the environmental commitments described in Chapter 3, "Project Alternatives" (see pages 3-71 through 3-73 in Volume I of the Final EIS/EIR). These environmental commitments include armoring spawning gravel with temporary mats or other armoring devices that would prevent spawning by Chinook salmon and steelhead or other resident fish. Additionally, instream construction activities will be limited to the time of the year that is least detrimental to fish. Reclamation also will implement a fish rescue operation in isolated pools that may harbor stranded fish. For more information related to impacts as a result of dewatering portions of the stream channel, please see Impact 4.1-5 on page 4.1-44 in Volume I of the Final EIS/EIR. Reclamation acknowledges that construction activities at Inskip Diversion Dam could result in a significant and unavoidable impact on recreational opportunities at the Oasis Springs Lodge (see Impact 4.14-1, page 4.14-10 in Volume I of the Final EIS/EIR).

Traffic Generation

Ms. Burke's Comment: Why does the environmental document consider traffic generation to be less than significant when it will add 20,000+ trips to Rocky Springs Ranch alone, not to mention other project areas? This will severely impact the use of Rocky Springs Ranch, degrade air quality, increase noise, adversely impact grazing operation, limit private use and enjoyment of the property, and pose a significant fire hazard.

Response to Ms. Burke's Comment: During construction, a temporary access road will be established to avoid impacts on the residential area west of South Powerhouse Road. As described on page 4.9-8 in Volume I of the Final EIS/EIR, the presently abandoned Old Ranch Road, approximately 2,000 feet east of the residential area along South Powerhouse Road, would be improved to allow construction equipment to safely avoid the residential area near South Powerhouse Road where Rocky Springs Ranch is located (see also Figure 4.9-2 in Volume I of the Final EIS/EIR). Impact 4.12-3 addresses vehicle traffic impacts that could endanger residents and domestic animals (see pages 4.12-9 and 4.12-10 in Volume I of the Final EIS/EIR). In addition, as described on pages 4.12-1 and 4.12-2, construction would comply with Occupational Safety and Health Administration workplace rules and Reclamation's own *Reclamation Safety and Health Standards* to avoid risks of incidental injuries, including injury associated with fire hazards.

Dynamite Blasting for 1 Year

Ms. Burke's Comment: The response to comments in the Final EIS/EIR indicates that dynamite blasting will occur for 1 full year adjacent to the Oasis Springs Fishing Lodge. The mitigation for this dangerous and intrusive activity is totally unacceptable.

Response to Ms. Burke's Comment: The blasting impacts referred to in Ms. Burke's comment are analyzed in Section 4.10, "Noise," and Section 4.14, "Recreation," in Volume I of the Final EIS/EIR. Under Impact 4.14-1, construction-related impacts on recreational opportunities at Oasis Springs Lodge are identified as significant and unavoidable, even with the implementation of mitigation measures for Impact 4.14-1 (see page 4.14-10 in Volume I of the Final EIS/EIR). Mitigation measures to address noise impacts are described under Impact 4.10-1 (see page 4.10-10 through 4.10-12) and are sufficient to reduce noise impacts associated with blasting to a less-than-significant level.

X. Areas of Potential Controversy

An area of potential controversy exists with the Battle Creek landowner who owns Rocky Springs Ranch and Oasis Springs Lodge. Both properties are located near the Inskip Diversion Dam/South Powerhouse project site for the Restoration Project. The landowner is concerned that the Restoration Project would adversely affect this property and in particular may adversely affect the success of the business at Oasis Springs Lodge and the recreational opportunities available there. Kerry Burke with Outfitter Properties represents the landowner and has provided comments on the Final EIS/EIR. Ms. Burke's comments applicable to the Final EIS/EIR are summarized in Section IX. Reclamation is committed to work with the landowner and Outfitter Properties to resolve their concerns related to the Restoration Project.

APPENDIX A

MITIGATION MONITORING AND REPORTING PLAN

FOR THE

BATTLE CREEK SALMON AND STEELHEAD RESTORATION PROJECT

Mitigation, Monitoring, and Reporting Plan for the Battle Creek Salmon and Steelhead Restoration Project[a]

Environmental Commitment/Mitigation Measure	Impact/Effect Being Mitigated	Programs, Plans, and Reports	Timing	Responsibility for Implementation	Responsibility for Oversight and Monitoring
Mitigation Measure 1: Develop and Implement a Worker Environmental Education Program Reclamation is responsible for ensuring that contractors and subcontractors implement all mitigation measures as required. Reclamation shall develop and implement a Worker Environmental Education Program to ensure that contractors and subcontractors implement the required mitigation measures. Reclamation shall require that the construction contractor and subcontractor personnel participate in and comply with this program. The program shall include, but is not limited to, awareness regarding: 1) federal, state, and local environmental laws and regulations and permits, as well as the penalties for noncompliance with environmental requirements and conditions; 2) threatened and endangered species and special-status species, as well as their habitats; 3) environmentally sensitive areas; 4) cultural resource sites; 5) weed abatement; and 6) environmental mitigation, compensation, and restoration measures. Reclamation shall require a member of the contractor's management staff to participate in the training sessions to discuss the contractor's environmental commitment plans. Upon completion of each training session, Reclamation shall require each employee to sign a statement indicating that he/she has received the training. The program must cover the relevant requirements detailed in the following Mitigation Measures: 2 (Exclusion and Work Zones); 7, 9, 29, 35, 36 (Spill Pollution Prevention Plan); 15 (Comprehensive Habitat Mitigation and Monitoring Plan or "Comprehensive HMMP"); 18 (noxious weed control); 22	Environmental Commitment Addresses potential impacts on listed and special-status species, as well as their habitats; waters of the United States; and cultural resource sites	Program: Worker Environmental Education Program Developed by: Reclamation in coordination with the signatories to the 1999 MOU[b], the State Water Board, and FERC	Before and during construction	Reclamation (Environmental Contractor)	Reclamation in coordination with the State Water Board, FERC, and signatories to the 1999 MOU[b]

Environmental Commitment/Mitigation Measure	Impact/Effect Being Mitigated	Programs, Plans, and Reports	Timing	Responsibility for Implementation	Responsibility for Oversight and Monitoring
(valley elderberry longhorn beetle habitat protection); 38 (protection against mosquitoes); and 39 (Fire Prevention and Control Plan).					
Mitigation Measure 2: Designate Exclusion and Work Zones To safeguard environmentally sensitive areas during construction activities, exclusion zones and work zones shall be designated in the field. Exclusion zones shall include all areas identified for exclusion in this MMRP, which include the following plans, programs, and measures: Spill Pollution Prevention Plan (Mitigation Measure 7); Erosion and Sediment Control Plan (Mitigation Measure 10); nonjurisdictional riparian habitat (Mitigation Measure 14); Comprehensive HMMP (Mitigation Measure 15); Migratory Bird Treaty Act Compliance Program (Mitigation Measure 17); noxious weeds (Mitigation Measure 18); jurisdictional wetlands and other waters of the United States (Mitigation Measure 20); nonjurisdictional oak woodland habitat (Mitigation Measure 21); special status species protection (Mitigation Measures 22–28); and cultural resources (Mitigation Measure 44). Reclamation shall prepare a Vegetation Protection Plan to clearly describe exclusions zones that will protect all sensitive habitat types. The Vegetation Protection Plan will include buffer assumptions according to the habitat type that is being protected. As an example, for oak woodland habitat, the Vegetation Protection Plan will identify the exclusion boundary for individual oak tree root zones as extending 5 feet from the dripline of the tree (Mitigation Measure 21). The MOA between the SHPO and Reclamation (SHPO MOA) describes exclusions zones that will protect cultural resources (Mitigation Measure 44). Reclamation shall ensure that exclusion zones are designated in the field. Exclusion zones shall be identified by a qualified	Environmental Commitment *Addresses potential impacts on listed and special-status species, as well as their habitats; waters of the United States; and cultural resource sites*	Plan: Vegetation Protection Plan Developed by: Reclamation in coordination with the signatories to the 1999 MOU[b], State Water Board, and FERC	*Before construction*	Reclamation (Environmental Contractor)	Reclamation in coordination with NMFS, USFWS, and DFG

Environmental Commitment/Mitigation Measure	Impact/Effect Being Mitigated	Programs, Plans, and Reports	Timing	Responsibility for Implementation	Responsibility for Oversight and Monitoring
biologist or cultural resources specialist using the Vegetation Protection Plan and SHPO MOA, respectively, and GPS units to determine appropriate distances from sensitive resources. Although the Vegetation Protection Plan will be prepared using the most current data on location of special resources, it will be important to have the biologist confirm in the field that locations of special-status species have not changed since the Vegetation Protection Plan was prepared. If special-status species locations have changed, the biologist can adjust the exclusion zones shown on the Vegetation Protection Plan using GPS and later update the Vegetation Protection Plan to reflect the changes. Flagging or staking shall be installed at the GPS locations to guide the installation of orange construction fencing around the exclusion zones. All orange construction fencing around exclusion zones shall have signs attached that identify each area as an *Environmentally Sensitive Area*. The orange construction fencing shall be installed around the exclusion zones before construction activities begin and shall be maintained throughout the construction period. Reclamation shall also ensure that work zones are designated in the field. Work zones shall be identified by Reclamation's construction contractor using the contractor use area limits identified in the construction documents. Before construction activities begin, orange construction fencing shall be installed around the work zones and maintained throughout the construction period. Construction equipment use and storage and associated activities, staging areas, borrow material sites, parking locations, stockpile areas, and storage areas shall be confined to the work zone (including access roads) at each project site. To the extent feasible, these activities should be located in annual grassland habitat within the work zones. Cattle shall be excluded from the work zone and kept from entering the site during construction.					

Environmental Commitment/Mitigation Measure	Impact/Effect Being Mitigated	Programs, Plans, and Reports	Timing	Responsibility for Implementation	Responsibility for Oversight and Monitoring
As part of the Worker Environmental Education Program (Mitigation Measure 1), Reclamation shall inform construction personnel about the importance of avoiding ground-disturbing activities outside the work zone. During construction, the construction monitors and resource monitors shall ensure that construction equipment use and storage and associated activities avoid any disturbance of sensitive resources outside the work zones, especially in the exclusion zones (e.g., oak woodland habitat, riparian habitat, wetland habitats). Reclamation shall ensure that construction personnel avoid all marked environmentally sensitive areas and cultural resources locations (i.e., exclusion zones) within and outside the work zones. To further protect sensitive resources, Reclamation shall ensure that construction personnel use existing roads and access points to the extent possible to minimize disturbance to wildlife and their habitats, as well as conduct excavating, filling, and other earth-moving activities gradually within the work zones to allow wildlife to escape in advance of machinery and grading.					
Mitigation Measure 3: Identify Anadromous Fish Spawning Exclusion Areas A qualified fish biologist, designated by Reclamation in consultation with NMFS and DFG, shall identify spawning gravels in the stream channel area that have the potential to be directly disturbed by construction and dam removal activities during Phase 1 at Wildcat and Eagle Canyon Diversion Dams, and during Phase 2 at Coleman Diversion Dam (i.e., downstream of existing blocked fish ladders). The qualified fish biologist shall determine the need for temporary armoring to exclude spawning at construction locations prior to any construction activity. The spawning gravel shall be armored with temporary mats or other armoring devices that will prevent spawning by Chinook salmon and steelhead. The gravels shall be armored at least 2 months before construction and demolition activities that could kill or injure eggs and larvae of steelhead	Environmental Commitment Addresses potential impacts on federally listed anadromous fish species	None	Before construction	Reclamation (Environmental Contractor)	Reclamation in coordination with NMFS and DFG

Environmental Commitment/Mitigation Measure	Impact/Effect Being Mitigated	Programs, Plans, and Reports	Timing	Responsibility for Implementation	Responsibility for Oversight and Monitoring
and Chinook salmon in the gravel. The armoring materials shall be installed in areas where heavy equipment may be operated within the stream channel or in the vicinity of potential blasting. The temporary mats or other armoring devices shall be removed after instream construction and blasting have been completed.					
Mitigation Measure 4: Remove Debris in the Stream Channel Construction activities would occur during Phase 1 at North Battle Creek Feeder, Eagle Canyon, Wildcat, and Asbury Diversion Dams and during Phase 2 at Coleman, Lower Ripley Creek Feeder, Inskip, Soap Creek Feeder, and South Diversion Dams. Wildcat, Coleman, South, Lower Ripley Creek Feeder, and Soap Creek Feeder Diversion Dams will be removed under the Restoration Project. Reclamation shall remove debris in the stream channel resulting from construction and dam removal activities and deposit it off site. To the extent practicable, Reclamation shall remove debris in a way that will not affect conditions supporting upstream migration of adult steelhead and Chinook salmon at minimum flow releases from upstream dams and will not adversely modify spawning (e.g., armoring) or rearing habitat. Reclamation shall ensure that any material left in the stream will not impair flows or fish passage. A qualified fish biologist shall inspect the stream channel and confirm the restoration of habitat conditions. Reclamation shall include its plans for debris removal in the Erosion and Sediment Control Plan required by Mitigation Measures 10 and 19.	Environmental Commitment Addresses potential impacts on resident fish and federally listed anadromous fish species and waters of the United States	Plan: Dam Decommissioning Plan Developed by: Reclamation in coordination with the signatories to the 1999 MOU[b], State Water Board, and FERC	During construction	Reclamation (Construction Contractor)	Reclamation (Environmental Contractor) in coordination with NMFS and DFG
Mitigation Measure 5: Implement Environmental Timeframes Reclamation shall complete all activities in a timely manner to minimize the duration and impacts resulting from construction. In addition, all activities shall occur during the times of the year	Environmental Commitment Addresses potential impacts on federally listed anadromous fish species	None	Before, during, and after construction	Reclamation (Construction Contractor)	Reclamation (Environmental Contractor) in coordination with NMFS, USFWS,

Environmental Commitment/Mitigation Measure	Impact/Effect Being Mitigated	Programs, Plans, and Reports	Timing	Responsibility for Implementation	Responsibility for Oversight and Monitoring
that are least detrimental to the environment. Instream work shall be conducted during periods of low streamflow (May–October; see also "Timeframes for Instream Work" identified in the NMFS biological opinion). In addition, construction activities that could adversely affect nesting birds and their habitat shall be limited to the nonbreeding period (Mitigation Measures 17, 25, 26, and 27), and construction activities that could adversely affect bat colonies and their habitat shall be limited to the nonhibernation, nonmaternity colony period (August–October) (Mitigation Measure 28). Reclamation shall also implement the timeframes required under the Corps Jurisdictional HMMP (Mitigation Measure 20).					and DFG
Mitigation Measure 6: Develop and Implement a Stormwater Pollution Prevention Plan Reclamation shall prepare and implement a SWPPP as part of the NPDES General Permit for Storm Water Discharges Associated with Construction Activities (General Permit). The SWPPP shall include, as a component, the Erosion and Sediment Control Plan developed in coordination with the CVRWQCB (Mitigation Measures 10 and 19). The SWPPP shall contain measures to minimize erosion and sediment transport to Battle Creek, including BMPs (e.g., sediment containment devices, protection of construction spoils, proper installation of cofferdams); site restoration; postconstruction monitoring of the effectiveness of BMPs; contingency measures; details about contractor responsibilities; a list of responsible parties; and a list of agency contacts. The SWPPP shall also contain the requirements developed under Mitigation Measures 4 (debris removal) and 18 (noxious weeds). The plan shall include, at a minimum, the following measures: • avoiding work or equipment operation in flowing water during in-channel activities by constructing cofferdams and	Environmental Commitment Addresses potential impacts on drainages and waterways	Plan: SWPPP, Erosion and Sediment Control Plan Developed by: Reclamation in coordination with the CVRWQCB Approval by: State Water Board	Before and during construction	Reclamation (Construction Contractor)	Reclamation (Environmental Contractor) in coordination with the State Water Board and CVRWQCB

Environmental Commitment/Mitigation Measure	Impact/Effect Being Mitigated	Programs, Plans, and Reports	Timing	Responsibility for Implementation	Responsibility for Oversight and Monitoring
diverting all flows around construction sites; • conducting all construction work according to site-specific construction plans that minimize the potential for sediment input to the aquatic system, including constructing silt barriers immediately downstream of the construction site and minimizing disruption of the streambed at and adjacent to the construction site; • using sedimentation fences, hay bales certified as weed-free, sandbags, water bars, and baffles as additional sources of protection for waters, ditches, and wetlands; • identifying all areas requiring clearing, grading, revegetation, and recontouring and minimizing the areas to be cleared, graded, and recontoured; • storing construction spoils out of the stream (above the ordinary high-water mark) and protecting receiving waters from these erosion source areas with sedimentation fences or other effective sediment control devices; • grading spoil sites to minimize surface erosion; and • covering bare areas with mulch and revegetating all cleared areas with appropriate native, noninvasive species. Reclamation shall file an application for a waste discharge permit with the CVRWQCB, and comply with the monitoring and reporting requirements for project construction as necessary. The CVRWQCB will monitor compliance with the NPDES General Permit.					

Environmental Commitment/Mitigation Measure	Impact/Effect Being Mitigated	Programs, Plans, and Reports	Timing	Responsibility for Implementation	Responsibility for Oversight and Monitoring
Mitigation Measure 7: Develop and Implement a Spill Pollution Prevention Plan Before construction begins, Reclamation shall prepare a Spill Pollution Prevention Plan. (The Spill Pollution Prevention Plan is referenced as a "Spill Pollution and Countermeasure Plan" in the Final EIS/EIR [See Final EIS/EIR, page 3-75]. This simplification of the name of the plan is a nonsubstantive change.) The plan shall be prepared in consultation with the CVRWQCB and approved by the State Water Board, Chief of the Division of Water Rights, before beginning construction. The Spill Pollution Prevention Plan shall include strict on-site handling rules to keep construction and maintenance materials out of drainages and the waterway. The Spill Pollution Prevention Plan shall also include additional requirements identified in Mitigation Measures 29 and 35. Goals of this plan shall be to: • prevent contamination of streamside soil and the watercourse from cement; concrete or concrete washing; asphalt, paint, or other coating materials; oil or other petroleum products; and hazardous materials; • clean up spills immediately and notify DFG immediately of any spill and cleanup procedures; • restrict the volume of petroleum products allowed on site to the volume that can be addressed by the spill control and response measures included in the Spill Pollution Prevention Plan; • provide staging and storage areas outside the stream zone for equipment, construction materials, fuels, lubricants, solvents, and other possible contaminants; • store hazardous substances in staging areas at least 100 feet from stream and other water surfaces; • perform refueling and vehicle maintenance at least 100 feet from receiving waters;	Environmental Commitment Addresses potential impacts on drainages and waterways Impact 4.1-1. Mortality and lowered growth rates and reproductive success of fish and other aquatic species in Battle Creek from an accidental spill of petroleum products and other construction-related materials	Plan: Spill Pollution Prevention Plan Developed by: Reclamation in coordination with CVRWQCB Approval by: State Water Board	Before and during construction	Reclamation (Construction Contractor)	Reclamation (Environmental Contractor) in coordination with the State Water Board and CVRWQCB

Environmental Commitment/Mitigation Measure	Impact/Effect Being Mitigated	Programs, Plans, and Reports	Timing	Responsibility for Implementation	Responsibility for Oversight and Monitoring
• minimize equipment operations in flowing water and remove vehicles from the normal high-water area before refueling and lubricating; and • inspect equipment to ensure that seals prevent any fuel, engine oil, or other fluids from leaking. The measures listed above shall be implemented to prevent contamination, clean up spills, provide staging and storing areas, and minimize equipment operations in flowing water. The State Water Board shall monitor compliance with these measures and the Spill Pollution Prevention Plan.					
Mitigation Measure 8: Develop and Implement an Environmental Compliance Monitoring Program Reclamation shall develop an environmental compliance construction monitoring program to ensure that the mitigation measures are implemented in an appropriate and timely manner. As part of this construction monitoring program, Reclamation shall retain qualified biologists, environmental resource specialists, and archeologists to monitor construction activities near environmentally sensitive areas, including areas that support threatened, endangered, and special-status species; migratory bird nesting; woody riparian vegetation; wetlands and perennial drainage crossings; and cultural sites. Construction monitors shall be hired and trained by Reclamation prior to construction and shall be responsible for conducting daily preconstruction surveys, staking resources, on-site monitoring, clearing equipment and vehicle staging areas, documenting violations and compliance, coordinating with construction inspectors, and postconstruction documentation. Resource monitors shall patrol work zones and work with construction inspectors to ensure that barrier fencing, stakes, and required setback buffers are maintained. Reclamation shall develop a mitigation, compensation,	Environmental Commitment Addresses potential impacts on various environmental resources	Plan: Environmental Monitoring Program Implementation Plan Developed by: Reclamation in coordination with the signatories to the 1999 MOU[b], State Water Board, and FERC Approval by: DFG and State Water Board	Before, during, and after construction	Reclamation (Environmental Contractor)	Reclamation in coordination with the State Water Board, FERC, and signatories to the 1999 MOU[b]

Environmental Commitment/Mitigation Measure	Impact/Effect Being Mitigated	Programs, Plans, and Reports	Timing	Responsibility for Implementation	Responsibility for Oversight and Monitoring
restoration, and reporting plan called the Environmental Monitoring Program Implementation Plan. Reclamation shall clearly outline the roles of the resource monitors and other individuals on the Restoration Project, compliance documentation, and other elements of the environmental compliance monitoring program in the Environmental Monitoring Program Implementation Plan. The Environmental Monitoring Program Implementation Plan shall include a provision for periodic reporting to the DFG Regional Manager, NCNCR, and the State Water Board, Chief of the Division of Water Rights. Reclamation shall submit the Environmental Monitoring Program Implementation Plan to the DFG Regional Manager, NCNCR, and the State Water Board, Chief of the Division of Water Rights, for advanced approval before beginning construction, so that these agencies can determine that the plan is in compliance with CEQA and all applicable Clean Water Act requirements.					
Mitigation Measure 9: Develop and Implement a Construction Area Fish Management Program Reclamation shall develop and implement a Construction-Area Fish Management Program to emphasize the importance of protecting Chinook salmon and steelhead trout and their habitat. The Construction-Area Fish Management Program should include, at a minimum, information regarding the Worker Environmental Education Program (Mitigation Measure 1) specific to anadromous fish, anadromous fish spawning exclusion areas (Mitigation Measure 3), debris removal from the stream channels (Mitigation Measure 4), timeframes for instream construction (Mitigation Measure 5), and fish rescue operations (Mitigation Measure 12).	Impact 4.1-1. Mortality and lowered growth rates and reproductive success of fish and other aquatic species in Battle Creek from an accidental spill of petroleum products and other construction-related materials	Program: Construction Area Fish Management Program Developed by: Reclamation in coordination with the signatories to the 1999 MOU[b], State Water Board, and FERC	Before and during construction	Reclamation (Environmental Contractor)	Reclamation in coordination with NMFS, USFWS, and DFG

Environmental Commitment/Mitigation Measure	Impact/Effect Being Mitigated	Programs, Plans, and Reports	Timing	Responsibility for Implementation	Responsibility for Oversight and Monitoring
Mitigation Measure 10: Develop and Implement an Erosion and Sediment Control Plan in Coordination with the Central Valley Regional Water Quality Control Board That Will Include Measures to Avoid Impacts on the Aquatic System To avoid or minimize potential impacts related to erosion and subsequent discharge of settleable material and runoff, Reclamation shall develop an Erosion and Sediment Control Plan in compliance with the State Water Board's Section 401 water quality certification. The Erosion and Sediment Control Plan will be part of the SWPPP (Mitigation Measure 6) and shall minimize the potential for sediment input to the aquatic system. The Erosion and Sediment Control Plan will also incorporate the provisions required under Mitigation Measure 2 (Exclusion and Work Zones) to avoid sensitive biological resources and Mitigation Measure 19 (Erosion and Sediment Control Plan Measures to Avoid Soil Impacts) to control sediment discharge during construction of roads and excavation and other activities in the stream channel during installation of fish screens and fish ladders and during dam removal. The Erosion and Sediment Control Plan shall be prepared in coordination with the CVRWQCB and will be included as a component of the SWPPP. The SWPPP must be approved by the State Water Board, Chief of the Division of Water Rights, prior to ground-disturbing activities. The Erosion and Sediment Control Plan shall include, but may not be limited to, the following BMPs for all areas disturbed by the Restoration Project: • Monitoring of water turbidity shall be conducted immediately above and 500 feet downstream of the construction site a minimum of two times each workday. If daily average downstream turbidity levels are found to exceed a turbidity increase of 20% over background turbidity, construction activities shall cease until turbidity	Impact 4.1-2. Mortality of fish eggs and larvae and reduced reproductive success of fish and other aquatic species because of increased sedimentation to North Fork and South Fork Battle Creek as a result of construction activities Impact 4.4-1. Increased erosion and subsequent discharge of settleable material into Battle Creek as a result of removing diversion dams and constructing fish screens and ladders	Plan: Erosion and Sediment Control Plan Developed by: Reclamation in coordination with CVRWQCB Approval by: State Water Board	Before and during construction	Reclamation (Construction Contractor)	Reclamation (Environmental Contractor) in coordination with State Water Board and CVRWQCB

Environmental Commitment/Mitigation Measure	Impact/Effect Being Mitigated	Programs, Plans, and Reports	Timing	Responsibility for Implementation	Responsibility for Oversight and Monitoring
decreases to acceptable levels. The State Water Board may provide exemptions to the above turbidity standards for dredging and other operations that would include removing material from the streambed using heavy equipment. In these cases, as stated in Chapter 3 of the Water Quality Control Plan (Basin Plan) for the CVRWQCB (1998), an allowable zone of dilution within which turbidity in excess of these limits that may be tolerated shall be defined for the operation and prescribed in a discharge permit (Clean Water Act Section 401 Water Quality Certification). • During work in a flowing stream, the entire streamflow shall be diverted around or under the work area by a barrier, culvert, channel, or berm constructed of clean gravel 1 to 6 inches in diameter (clean is defined as meeting the California Department of Transportation's cleanliness specification 85). The barrier and/or new channel shall be constructed in a manner that will minimize sediment discharges and allow fish to escape from the work area and facilitate any necessary fish rescue operations. • Temporary sediment control measures shall be located downslope of disturbed areas to act as sediment traps. These measures will detain sediment-laden runoff until disturbed areas are stabilized. Small sediment catchment basins or traps shall be installed to prevent sediment from being transported away from development sites. These basins shall be sized and sited to minimize any impacts on riparian areas and wet areas. Types of sediment traps to be considered shall include filter berms, straw bales, filter inlets, vegetative filter strips, and culvert risers. • Disturbed soils shall be revegetated and stabilized. Reseeding and mulching work shall be completed by October 1 of the year following the completion of activities at each dam site. If erosion control practices are not implemented by that date, exposed soils could require additional treatment following seasonal rains and					

Environmental Commitment/Mitigation Measure	Impact/Effect Being Mitigated	Programs, Plans, and Reports	Timing	Responsibility for Implementation	Responsibility for Oversight and Monitoring
subsequent erosion. • Disturbed areas shall be seeded with native plant species approved by a revegetation specialist or erosion control specialist. Special emphasis shall be given to native plant assemblages that were characteristic of the site prior to construction. These erosion control measures identified in the Erosion and Sediment Control Plan shall be completed as directed in the SWPPP approved by the CVRWQCB in coordination with the revegetation activities needed to mitigate impacts on native vegetation.					
Mitigation Measure 11: Remove Diversion Dams during Low-Flow Season and Construct Pilot Channels Reclamation shall remove diversion dams during low-flow conditions to minimize the downstream transport of fine sediment consistent with the Timeframes for Instream Work identified in the NMFS biological opinion. Fine sediment subsequently would be mobilized and transported by higher flows during winter storms, minimizing deposition in gravel substrates and potential adverse effects on egg and larvae of Chinook salmon and steelhead and other aquatic organisms dependent on clean gravel. Reclamation shall also mitigate some of the potential sediment impacts by constructing pilot channels to facilitate the downstream distribution of sediment behind the dams. This requirement shall be incorporated into a Dam Decommissioning Plan, developed by Reclamation, in coordination with NMFS, USFWS, DFG, PG&E, and FERC. The adequacy of this requirement shall be subject to approval by the State Water Board, Chief of the Division of Water Rights prior to construction.	Impact 4.1-3. Mortality of fish eggs and larvae and reduced reproductive success of fish and other aquatic species as a result of removing South, Coleman, and Wildcat Diversion Dams, which would release currently stored fine sediment to the stream channel	Plan: Dam Decommissioning Plan Developed by: Reclamation in coordination with the signatories to the 1999 MOU[b], State Water Board, and FERC	During construction	Reclamation (Construction Contractor)	Reclamation in coordination with State Water Board, FERC, and signatories to the 1999 MOU[b]

Environmental Commitment/Mitigation Measure	Impact/Effect Being Mitigated	Programs, Plans, and Reports	Timing	Responsibility for Implementation	Responsibility for Oversight and Monitoring
Mitigation Measure 12: Implement a Fish Rescue Operation Stream channel segments may be isolated from the streamflow during construction. Reclamation, in consultation with NMFS and DFG, shall ensure that a fish biologist is on site to implement a fish rescue operation in isolated pools that may harbor stranded fish. Fish will be removed from isolated pools by seining or electroshocking. Reclamation, in consultation with NMFS and DFG, will also ensure that the electroshocking or seining team includes at least one person with a 4-year college degree in fisheries or biology, or a related degree. The person must also have at least 2 years of professional experience in fish field surveys and the use of electroshocking equipment. Fish collection assumes a 2- to 4-person team per electroshocker or seine to facilitate safe and efficient collection and transport. Up to two electroshocking or seining teams may be used to facilitate efficient fish removal, particularly in reaches where the average width of the channel is more than 20 feet or where an abundance of instream cover makes fish capture difficult. The electroshocking team will complete a minimum of three passes through each isolated pool. The number of electroshocking passes may exceed three if necessary to remove most fish. Captured fish will be placed in 5-gallon buckets. At the end of each pass, captured fish shall be transferred into buckets with aerated water or into in-river holding tanks (e.g., buckets with small holes or other similar containers). Water temperature in holding buckets will be monitored and river water will be added or replaced as needed to maintain fish in good condition. Fish shall be counted and recorded by species. All fish will be released in the live channel upstream of the construction area unless it is determined these fish are downstream migrants that should be released downstream of the affected areas. The number of Chinook salmon and steelhead captured and the number of Chinook salmon and steelhead accidentally killed	Environmental Commitment Addresses potential impacts on resident fish and federally listed anadromous fish species	None	During construction	Reclamation (Environmental Contractor)	Reclamation in coordination with NMFS and DFG

Environmental Commitment/Mitigation Measure	Impact/Effect Being Mitigated	Programs, Plans, and Reports	Timing	Responsibility for Implementation	Responsibility for Oversight and Monitoring
before release will be reported by email to NMFS within 5 working days. All dead Chinook salmon and steelhead will be frozen and retained until NMFS provides direction for disposition or until 6 months following fish capture.					
Mitigation Measures 13: Implement Mitigation at MLTF's Jeffcoat and Willow Springs Aquaculture Facilities and at the Darrah Springs State Fish Hatchery to Reduce the Potential Impact of Increased Risk of a Serious or Catastrophic Fish Disease Spreading from Battle Creek to Fish Communities throughout the State of California Mitigation options for each facility are described below and shall be implemented when appropriate to reduce the potential increased risk of serious or catastrophic fish disease spreading from Battle Creek to fish communities throughout the state of California. The potential increased risk of fish disease is contingent on three assumptions: completion of the Restoration Project, subsequent increases in the populations of naturally spawning anadromous fish, and communicability of fish disease via hydrologic connectivity.	**Impact 4.1-8**. Increased risk of a serious or catastrophic fish disease spreading from Battle Creek to fish communities throughout the state through stocking with MLTF and Darrah Springs State Fish Hatchery fish **Impact 4.4-3**. Potential reduction in beneficial uses of waters used at MLTF and Darrah Springs State Fish Hatchery **Impact 4.4-4**. Potential reduction in beneficial uses of California waters from the distribution of infected MLTF and Darrah Springs State Fish Hatchery fish **Effect 4.16-5**. Potential socioeconomic risk to MLTF fish-marketing program				

Environmental Commitment/Mitigation Measure	Impact/Effect Being Mitigated	Programs, Plans, and Reports	Timing	Responsibility for Implementation	Responsibility for Oversight and Monitoring
MLTF's Jeffcoat Aquaculture Facilities Reclamation shall divert canal water from Eagle Canyon Canal into a new watertight pipeline (e.g., high-density polyethylene with heat-welded joints) at a point along the canal that is sufficiently far enough upstream of the spring area to prevent canal water from mixing with the spring water. The pipe shall be sealed and buried. The new pipeline shall be constructed and operational before the risk of transmitting disease has significantly increased as a result of completing the proposed fish passage facilities at Eagle Canyon Diversion Dam. The preferred pipeline alignment shall follow a new "cross-country" alignment downslope of the present canal as defined in the Final EIS/EIR (see pages 4.1-49 and 4.1-50 in Volume I, as well as Figure F-11 in Appendix F in Volume II of the Final EIS/EIR for a complete description of this alignment). During construction, Reclamation shall take every action to avoid or minimize the potential impacts on wildlife habitat, cultural resources, and waters of the United States, consistent with the construction mitigation measures identified in this document. Reclamation shall submit a final copy of the design specifications and receive approval from the State Water Board, Chief of the Division of Water Rights, prior to any ground-disturbing activities, so that the State Water Board can determine that the specifications adequately avoid or minimize impacts to Waters of the United States.		None	During construction	Reclamation (Construction Contractor)	Reclamation in coordination with DFG and USFWS
MLTF's Willow Springs Aquaculture Facility A structural solution is not feasible to prevent the increased risk of spreading serious or catastrophic fish diseases from MLTF's Willow Springs facility because a structural solution may block the hydrologic connectivity between the canals and springs to the point that the facility may not receive its necessary supply of water. Although the IHN virus occurs in the existing population		None	Before, during, and after construction	DFG	DFG in coordination with State Water Board, FERC, and signatories to the 1999 MOU[b]

Environmental Commitment/Mitigation Measure	Impact/Effect Being Mitigated	Programs, Plans, and Reports	Timing	Responsibility for Implementation	Responsibility for Oversight and Monitoring
of naturally spawning anadromous fish, it is projected that within 5 years after the Project is implemented populations of naturally spawning anadromous fish could increase to levels that increase the risk of viral outbreaks at this facility. Therefore, in order to reduce the potentially significant impact from spread of fish disease to a less-than-significant level, DFG must, within 5 years of project completion, either recommend modification of the MLTF private aquaculture license to restrict MLTF from stocking or transporting any live fish farmed at its Willow Springs facility off site or reconsider renewal of MLTF's annual private aquaculture license to farm fish at its Willow Springs facility. The decision to renew the aquaculture license will be made on an annual basis, and the facility will likely be able to operate until such time that a disease is detected, or the populations of naturally spawning anadromous fish have risen to a level that the risk of spreading an undetected disease to the waters of the state is determined to be significant. Fish and Game Code and the DFG Aquaculture Disease Regulations govern aquaculture licenses, fish inspections, disease examinations, and restrictive actions. (Fish and Game Code §§ 15000 et seq.; Cal. Code Regs., tit. 14, §245). IHN virus is listed as a "serious disease" under these regulations and, therefore, upon identification of the disease by a fish pathologist, the Director of DFG is empowered to immediately consult with the Aquaculture Disease Committee and can impose an immediate holding action and negotiate, if necessary, a compliance agreement. (Cal. Code Regs., tit. 14, §245[c][2].) DFG pathologists will monitor the hatchery and possibly fish from South Fork Battle Creek to determine when the disease risk threshold is reached. While "aquaculture" is a form of "agriculture," that designation concerns "the business of aquaculture processing, distribution, and marketing." (Fish and Game Code § 15000[b].) Business impacts are socioeconomic considerations. In accordance with the State CEQA Guidelines, economic or social effects of a					

Environmental Commitment/Mitigation Measure	Impact/Effect Being Mitigated	Programs, Plans, and Reports	Timing	Responsibility for Implementation	Responsibility for Oversight and Monitoring
project shall not be treated as significant effects on the environment. Economic or social effects can be relevant if they help to inform the level of significance of physical changes caused by the project or if they create a chain of cause and effect that results in other physical changes that are potentially significant adverse environmental effects. (State CEQA Guidelines §§ 15064[e], 15131, 15358, 15832.) The potential acquisition of the Willow Springs facility in order to modify the existing operations was analyzed in the Final EIS/EIR as a mitigation option to prevent the spread of IHN virus. However, under the terms of the existing lease, the appurtenant structures would remain on site even if the lease were to terminate and could be used to raise fish for personal use, fish not susceptible to the virus, or fish for limited distribution. This means that even if the business use were to change, the "existing infrastructure at Willow Springs would remain at the Willow Springs site" (Final EIS/EIR page 4.1-53). Thus, there would not be a potentially significant cause-and-effect of physical changes related to the potential acquisition of the Willow Springs site. While CEQA requires an analysis of potential adverse impacts on the physical environment, NEPA concerns "major federal actions significantly affecting the quality of the human environment." (42 U.S.C. § 4332(2)(C).) Further, NEPA is essentially procedural and includes a requirement to analyze both physical and socioeconomic impacts, but does not require mitigation. (*Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 350 (1989) ["NEPA merely prohibits uninformed—rather than unwise—agency action."]) Because the Final EIS/EIR is a joint NEPA and CEQA document, it contains a NEPA-required section on socioeconomics (Final EIS/EIR, Section 4.16, "Other NEPA Analyses"). That section concluded that potential socioeconomic risks to the MLTF's fish-marketing program could result from an increase in naturally spawning anadromous fish (Final EIS/EIR, Effect 4.16-5, pages 4.16-29					

Environmental Commitment/Mitigation Measure	Impact/Effect Being Mitigated	Programs, Plans, and Reports	Timing	Responsibility for Implementation	Responsibility for Oversight and Monitoring
and 4.16-30). Having addressed the potentially significant adverse physical impacts from the spread of fish disease, as described above, the inclusion of Section 4.16 in a joint NEPA and CEQA document does not give rise to a CEQA requirement to provide mitigation or avoidance measures for social or economic effects.					
Asbury Diversion Dam Reclamation will make structural changes necessary at the fish barrier provided by Asbury Diversion Dam to prevent anadromous fish from passing above the dam and conveying diseases to Darrah Springs State Fish Hatchery during the times when fish are present and at flows that facilitate their passage over Asbury Diversion Dam (including high flows and normal floodflows). The most cost-effective and reliable disease-prevention remedy shall be used to prevent the spread of virulent fish diseases above Asbury Diversion Dam and protect Darrah Springs State Fish Hatchery and fish communities in the waters of the state where hatchery fish may be stocked. Reclamation shall construct an appropriate fish barrier at Asbury Diversion Dam by structural and operational modifications. To minimize the risk of fish passing over Asbury Diversion Dam, the crest of the dam shall be fitted with an overhanging "cap," which shall extend approximately 8 feet downstream of the dam. Engineering and costs analyses shall identify the optimum dimensions and composition of the overhanging cap (e.g., steel or concrete). Installation of the cap may require the construction of a temporary upstream cofferdam and excavation of reservoir sediments at the upstream face of the dam. The walkway across the dam shall be replaced with a footbridge set at a higher elevation and with a longer free span to allow safe passage of moderately severe floodflows and to avoid debris accumulations. The footbridge will allow access to the		None	During construction	Reclamation (Construction Contractor)	Reclamation in coordination with NMFS, USFWS, and DFG

Environmental Commitment/Mitigation Measure	Impact/Effect Being Mitigated	Programs, Plans, and Reports	Timing	Responsibility for Implementation	Responsibility for Oversight and Monitoring
flow-measurement weirs and outlet works slide gate for operation, maintenance, and adjustments. At least three existing bays would be fitted with flow-measurement weirs, which would replace the flashboard weirs mounted on the crest of the dam. The use of multiple weirs would disperse the flow over a wide area, which is expected to reduce the potential for attracting fish to areas of higher passage potential. The flow-measurement weirs shall be incorporated into the cap structure. The vertical steel support columns for the walkway shall be cut off, but the lower portions may remain and possibly be incorporated into the cap structure. To eliminate potential jump pools below the dam crest, two existing scour holes near the downstream toe of the dam shall be covered by a concrete or shotcrete apron that shall extend approximately 12 feet downstream. The purpose is to establish a surface that is free of low spots to prevent formation of launching areas for migrating fish, but is durable enough to handle expected debris loads with a minimum of maintenance. The apron area downstream of the dam shall be modified by placement of reinforced concrete, grouted riprap, or other durable materials. The top surface of the apron shall be horizontal from the dam to the end of the walkway footings and shall be sloped downstream at a 5% grade for the remaining 8 to 10 feet. The apron shall extend across the face of the dam, including the area adjacent to the sediment-pass-through-gate control structure and the approximate 6-foot pass-through gate. If hydraulic analyses indicate a possibility of high tailwater levels during high flow periods, the surface of the apron may be raised up to 2 or 3 feet and be extended farther downstream (up to 20 feet). The purpose is to prevent formation of launching areas for migrating fish. Collectively, the cap, the flow dispersion, and the apron should prevent fish from jumping over the dam, with the cap serving as a jump barrier and the apron eliminating jump pools below the					

Environmental Commitment/Mitigation Measure	Impact/Effect Being Mitigated	Programs, Plans, and Reports	Timing	Responsibility for Implementation	Responsibility for Oversight and Monitoring
dam. Sluicing of sediments through the flashboard spill gate shall be discontinued, except in rare situations and only in coordination with DFG. The periodic sluicing of sediments shall be accomplished by releasing water through the existing 36-inch-diameter outlet works pipe. Any sluicing of sediments during construction shall be addressed in the Erosion and Sediment Control Plan required by Mitigation Measures 10 and 19. Long-term sediment passage and sluicing operations will be addressed through the license amendment process. In order to minimize the risk of fish passing through the 36-inch culvert pipe during sediment-pass-through operations, the existing outlet pipe shall be extended between 75 and 100 feet downstream. The reason for extending the pipe is to afford some level of prevention of fish attempting to migrate up the pipe during sluicing operations. The pipe shall be constructed of a suitable material (e.g., reinforced concrete, steel, or high density polyethylene), shall be properly supported with concrete saddle supports, and shall not have any internal corrugations. The pipe shall be placed at the steepest angle that the channel geometry allows. In general, the pipe shall follow the relatively flat grade of the creek bed, but shall be anchored to rock to prevent movement. Because higher-velocity flow is expected in the extended pipe, the pipe should serve as a velocity barrier to upstream passage. The type of pipe (concrete, steel, etc.), alignment, method of anchoring, and other features for protecting the pipe from debris during floodflows shall be determined based on engineering and cost analyses. The 6-foot gate shall be discontinued in favor of the 36-inch culvert pipe and periodic dredging of material from behind the dam. Only the minimum amount of excavation shall be performed in the creek bed. Pursuant to a separate Memorandum of Understanding to be entered into between PG&E and DFG, PG&E will provide timely notifications to the Darrah Springs State Fish Hatchery in the event of significant increases in creek flows in the watershed					

Environmental Commitment/Mitigation Measure	Impact/Effect Being Mitigated	Programs, Plans, and Reports	Timing	Responsibility for Implementation	Responsibility for Oversight and Monitoring
as indicated by elevated levels in the Asbury Diversion Pool. Upon notification of significant increases in flow at the fish barrier, DFG shall assume responsibility for inspecting the spring water supply system to ensure it is maintained free of fish from outside sources. During construction, Reclamation shall take every action to avoid or minimize the potential impacts on wildlife habitat, cultural resources, and waters of the United States, consistent with the construction mitigation measures identified in this document. Reclamation shall submit a final copy of the design specifications to the State Water Board, Chief of the Division of Water Rights, for approval prior to any ground-disturbing activities so that the State Water Board can determine that the specifications adequately avoid or minimize impacts to waters of the United States.					
Mitigation Measure 14: Implement A Habitat Compensation Approach The Restoration Project will result in both temporary and permanent impacts on habitat. To mitigate these impacts on sensitive resources, Reclamation, in consultation with USFWS and DFG, shall implement a habitat compensation approach that includes the following provisions. • For temporary impacts on habitat, including Corps-jurisdictional wetlands and other waters of the United States, both passive and active restoration techniques shall be used, depending on the location of disturbed areas. For those disturbed areas where it can reasonably be expected that habitat will quickly revegetate, passive restoration shall be used. In disturbed areas where habitat is not expected to quickly revegetate, active restoration techniques will be used. Mitigation of temporary impacts shall generally occur on site, at the location of the area of disturbance. • For permanent impacts on habitat, both active restoration	Environmental Commitment Addresses potential impacts on various habitat types	Program: Habitat Compensation Approach Developed by: Reclamation in coordination with the signatories to the 1999 MOU[b], State Water Board, and FERC	Before, during, and after construction	Reclamation (Environmental Contractor)	Reclamation in coordination with USFWS and DFG

Environmental Commitment/Mitigation Measure	Impact/Effect Being Mitigated	Programs, Plans, and Reports	Timing	Responsibility for Implementation	Responsibility for Oversight and Monitoring
techniques and preservation through conservation easements and mitigation bank credits shall be used. For Corps-jurisdictional habitat, the CALFED Ecosystem Restoration Program–funded Burton Ranch and McCampbell Ranch conservation easements along the mainstem of Battle Creek shall be used to create new wetlands, other waters of the United States, and riparian habitat. For Corps-jurisdictional and nonjurisdictional habitat (e.g., riparian, oak woodland, annual grassland, mixed chaparral habitats), the Burton Ranch and McCampbell Ranch easements shall also be used to preserve existing wetland, riparian, and upland habitats. To mitigate the permanent loss of elderberry plants that serve as hosts for the special-status valley elderberry longhorn beetle, mitigation credits shall be purchased at Stillwater Mitigation Bank. The use of the conservation easements and approved mitigation bank credits ensures that new and existing habitat under threat of future impacts attributable to human land use/development can be protected in perpetuity. The conservation easements and mitigation bank credits would provide the in-kind benefits needed to offset habitat values lost during implementation of the Restoration Project. • The habitat compensation approach for Corps-jurisdictional wetlands and other waters of the United States will be presented in detail in the Corps Jurisdictional HMMP (Mitigation Measure 20). The habitat compensation approach for nonjurisdictional riparian habitat will be presented in detail in the Riparian Restoration Plan (Mitigation Measure 16). The habitat compensation approach for nonjurisdictional oak woodland habitat will be presented in detail in the Oak Planting Plan (Mitigation Measure 21). Each plan is included as a component of the Restoration Project's Comprehensive HMMP (Mitigation Measure 15).					

Environmental Commitment/Mitigation Measure	Impact/Effect Being Mitigated	Programs, Plans, and Reports	Timing	Responsibility for Implementation	Responsibility for Oversight and Monitoring
Mitigation Measure 15: Develop and Implement a Comprehensive Habitat Mitigation and Monitoring Plan Reclamation, in coordination with NMFS, USFWS, DFG, PG&E, the State Water Board, FERC, and the Corps, shall prepare and implement a Comprehensive HMMP. The Comprehensive HMMP shall be an all-inclusive document that describes mitigation and monitoring requirements in the following components: • Riparian Restoration Plan (Mitigation Measure 16). This component will address impacts on riparian habitat that do not fall under Corps jurisdiction. • Corps Jurisdictional HMMP (Mitigation Measure 20). This component will address impacts on wetlands and other waters of the United States that fall under Corps jurisdiction. • Oak Planting Plan (Mitigation Measure 21). This component will address impacts on oak woodland habitat that do not fall under Corps jurisdiction. • Inskip Revegetation Plan (Mitigation Measure 30). This component will address mitigation and monitoring to reduce aesthetic impacts associated with the access road to Inskip Diversion Dam. A description of each plan is provided in the mitigation measure referenced above for each component.	Environmental Commitment Addresses potential impacts on wetlands and riparian habitat	Plan: Comprehensive HMMP Developed by: Reclamation in coordination with the signatories to the 1999 MOU[b], State Water Board, FERC, and the Corps	Before, during, and after construction	Reclamation (Environmental Contractor)	Reclamation in coordination with the Corps, USFWS, and DFG
Mitigation Measure 16: Avoid and Minimize the Removal and Disturbance of Riparian Habitat, Avoid Long-Term Impacts on Woody Riparian Vegetation and Associated Habitat, and Compensate for the Loss of Any Such Habitat Reclamation, in coordination with NMFS, USFWS, DFG, PG&E, the State Water Board, and FERC, shall develop a	Impact 4.2-1. Potential disturbance or loss of 4.18 acres of woody riparian vegetation and associated wildlife habitat				

Environmental Commitment/Mitigation Measure	Impact/Effect Being Mitigated	Programs, Plans, and Reports	Timing	Responsibility for Implementation	Responsibility for Oversight and Monitoring
Riparian Restoration Plan as a component of the Comprehensive HMMP required by Mitigation Measure 15. Reclamation shall incorporate into the Riparian Restoration Plan and implement the following measures to avoid, minimize, and compensate for the potential loss of woody riparian vegetation and associated wildlife habitat.					
Avoid and Minimize Removal and Disturbance of Riparian Habitat. Reclamation shall ensure that the unnecessary removal or disturbance of riparian habitat adjacent to the construction area shall be avoided by installing orange construction barrier fencing (and sedimentation fencing in some cases) between the construction area and the riparian/creek area. The removal of woody riparian vegetation shall be avoided by creating an exclusion zone (buffer) around woody riparian vegetation near the construction area, educating construction crews about the importance of avoiding the sensitive habitat, and monitoring construction activities to ensure avoidance. The exclusion zone shall be demarcated by orange construction fencing placed 20 feet beyond the drip line of the woody riparian vegetation. Fencing shall be installed before construction activities begin and shall be maintained throughout the construction period. Reclamation shall implement this measure in coordination and consistent with exclusion and work zones (Mitigation Measure 2) and the environmental compliance monitoring program (Mitigation Measure 8). Reclamation shall also address the requirements of this measure in the Worker Environmental Education Program required by Mitigation Measure 1.		Plan: Vegetation Protection Plan Developed by: Reclamation in coordination with the signatories to the 1999 MOU[b], State Water Board, and FERC	Before and during construction	Reclamation (Environmental Contractor and Construction Contractor)	Reclamation in coordination with USFWS and DFG
Avoid Long-Term Impacts on Woody Riparian Vegetation and Associated Habitat. Reclamation shall avoid long-term impacts on woody riparian vegetation by trimming trees and shrubs rather than removing entire woody plants. Where possible, shrubs and trees of the appropriate species shall be pruned to leave at least 1 foot above ground level to leave the		Plan: Vegetation Protection Plan Developed by: Reclamation in coordination with the signatories to the	Before and during construction	Reclamation (Construction Contractor)	Reclamation (Environmental Contractor) in coordination with USFWS and DFG

Environmental Commitment/Mitigation Measure	Impact/Effect Being Mitigated	Programs, Plans, and Reports	Timing	Responsibility for Implementation	Responsibility for Oversight and Monitoring
root systems intact and allow for more rapid regeneration following construction. To avoid the take of eggs or nestlings of migratory birds, riparian vegetation shall be removed during the nonbreeding season (October–February) before construction begins. If such timing is not feasible, riparian vegetation shall not be removed until it can be demonstrated that it is not supporting nesting birds. Reclamation shall implement this measure in coordination and consistent with environmental timeframes (Mitigation Measure 5), components of the Comprehensive HMMP (Mitigation Measure 15), and the Migratory Bird Treaty Act compliance program (Mitigation Measure 17). Reclamation shall also address the requirements of this measure in the Worker Environmental Education Program required by Mitigation Measure 1.		1999 MOU[b], State Water Board, and FERC			
Compensate for the Loss of Woody Riparian Habitat. Reclamation shall compensate for the temporary and permanent loss of woody riparian habitat. The Riparian Restoration Plan shall contain criteria to aid agency determinations as to which habitat loss is considered temporary and which is considered permanent. In addition, the Riparian Restoration Plan shall designate success criteria to measure the effectiveness of restoration efforts. The compensation for temporary loss of woody riparian habitat shall include full on-site restoration of the affected habitat. In addition to restoring the affected habitat, on-site or off-site compensation or enhancement shall be provided at a ratio of 2:1 (2 acres enhanced for every 1 acre affected). This portion of the total compensation would be credited from the CALFED Ecosystem Restoration Program–funded conservation easements located in the Battle Creek watershed, i.e., the Burton Ranch and McCampbell Ranch properties. The compensation for permanent loss of woody riparian habitat shall be provided at a ratio of 3:1 (3 acres of compensation for every 1 acre affected) through the use of habitat credits from the Burton Ranch and		Plan: Riparian Restoration Plan Developed by: Reclamation in coordination with the signatories to the 1999 MOU[b], State Water Board, FERC, and TNC Report: Annual Riparian Monitoring Reports Developed by: Reclamation in coordination with the signatories to the 1999 MOU[b], State Water Board and	On-Site Restoration: *After construction* Off-Site Restoration: *After construction*	On-Site Restoration: Reclamation (Environmental Contractor) Off-Site Restoration: Reclamation (Environmental Contractor) in coordination with USFWS, DFG, and TNC	On-Site Restoration: Reclamation in coordination with USFWS and DFG Off-Site Restoration: Reclamation in coordination with USFWS, DFG, and TNC

Environmental Commitment/Mitigation Measure	Impact/Effect Being Mitigated	Programs, Plans, and Reports	Timing	Responsibility for Implementation	Responsibility for Oversight and Monitoring
McCampbell Ranch conservation easements.		FERC			
As part of the Riparian Restoration Plan, Reclamation shall retain a qualified ecologist to prepare a compensation proposal for the removal of riparian vegetation along Battle Creek. This includes trees and shrubs that are removed entirely (including root systems). Enhancement of riparian habitat could be accomplished along Battle Creek through the removal of invasive species and replacement with native riparian species. The compensation proposal will evaluate the feasibility of removing nonnative species and replanting native species. The proposal shall include design specifications, an implementation plan, maintenance requirements, and a monitoring program for on-site restoration.					
Reclamation shall monitor on-site riparian restoration efforts for a 10-year period, or until the performance standards have been met without human intervention for 3 years, to document the degree to which success criteria are achieved and to identify remedial actions that may be needed (USFWS Final Fish and Wildlife Coordination Act Report, Battle Creek Salmon and Steelhead Restoration Project [USFWS 2005a]). Annual monitoring reports shall be submitted to the State Water Board, Chief Division of Water Rights, and DFG Regional Manager, NCNCR. The reports shall summarize the data collected during monitoring, describe how the habitats are progressing in terms of the success criteria (determined as part of the Riparian Restoration Plan), and recommend adaptive management responsive to the monitoring results.					
Off-site enhancement of riparian habitat shall be implemented by using habitat credits at the Burton Ranch and McCampbell Ranch properties, CALFED Ecosystem Restoration Program–funded conservation easements managed by TNC and located on the mainstem of Battle Creek (for more information, see the Habitat Compensation Approach described above [Mitigation Measure 15] and presented in Appendix F of the Battle Creek					

Environmental Commitment/Mitigation Measure	Impact/Effect Being Mitigated	Programs, Plans, and Reports	Timing	Responsibility for Implementation	Responsibility for Oversight and Monitoring

Draft Action Specific Implementation Plan [Jones & Stokes 2004]). TNC will conduct monitoring and reporting as part of its commitment to stewardship of this easement.

Mitigation Measure 17: Implement a Migratory Bird Treaty Act Compliance Program

Reclamation shall implement the following mitigation measures, as applicable, for all project construction. Specific measures addressing impacts on breeding riparian birds, raptors, and California black rail are described under Mitigation Measures 25, 26, and 27, respectively.

- Reclamation shall protect all known or potential nesting and roosting sites, such as live trees with cavities and all snags and stumps year round.
- Reclamation shall not remove nests of raptors or any other bird from their locations.
- To the extent possible, construction activities that could adversely affect nesting birds and rearing of young through take of nests, impacts on nesting habitat, or disturbance from noise or human activity will be limited to the period between September 1 and February 1 to avoid the bird breeding season.
- Reclamation shall remove any habitat providing nesting cover for birds, such as grassland, mixed chaparral, live oak woodland, blue oak woodland, gray pine/oak woodland, and westside ponderosa pine, only if it must be removed for construction purposes and then only between September 1 and February 1 prior to construction.
- Reclamation shall monitor construction sites for bird nesting activity during the breeding season.
- If raptors or any other birds appear at or near a construction site and attempt to nest, typical levels of construction noise and activity that will occur at the site during the breeding

Environmental Commitment/Mitigation Measure	Impact/Effect Being Mitigated	Programs, Plans, and Reports	Timing	Responsibility for Implementation	Responsibility for Oversight and Monitoring
season shall be sustained, such that the birds can accept or reject the site based on their assessment of the disturbance. Unless it is known that the nest site will be physically disturbed, the birds will be allowed to nest if they choose under the assumption that they will be able to tolerate construction noise and activity. • If disturbance of a nest with eggs or young appears unavoidable, or nesting activity such as incubation or feeding of young may be affected, a project contact at USFWS and DFG will be consulted before disturbance occurs. • If potential nesting habitat must be affected during the breeding season, Reclamation will consult with USFWS and DFG before disturbance occurs. • If a project site meets buffer zone criteria for an active nest during the breeding season, disturbance probably can be assumed to be less than significant. Nevertheless, USFWS and DFG still shall be contacted for known occurrences of these species on the project area. Reclamation shall discuss these measures during the Worker Environmental Education Program (Mitigation Measure 1) and designate exclusion zones (Mitigation Measure 2) where necessary. Reclamation shall incorporate these provisions into its commitments under Mitigation Measure 5 (Environmental Timeframes) and Mitigation Measure 8 (Environmental Compliance Monitoring Program).					
Mitigation Measure 18: Avoid or Minimize the Spread of Noxious Weeds into Previously Uninfested Areas To avoid the introduction or spread of noxious weeds into previously uninfested areas, Reclamation shall implement the following measures as part of the Restoration Project.	Impact 4.2-2. Potential introduction of noxious weeds or spread of existing noxious weeds				

Environmental Commitment/Mitigation Measure	Impact/Effect Being Mitigated	Programs, Plans, and Reports	Timing	Responsibility for Implementation	Responsibility for Oversight and Monitoring
• In coordination and consistent with the Worker Environmental Education Program, required under Mitigation Measure 1, Reclamation shall educate construction workers, supervisors, and managers on weed identification and the importance of controlling and preventing the spread of noxious weeds, as well as measures required to control and prevent the spread of noxious weeds.		None	Before and during construction	Reclamation (Environmental Contractor)	Reclamation in coordination with USFWS and DFG
• Reclamation shall treat small, isolated infestations with approved eradication methods at an appropriate time to prevent and/or destroy viable plant parts or seed.		None	Before and during construction	Reclamation (Environmental Contractor)	Reclamation in coordination with USFWS and DFG
• Reclamation shall ensure that all earth-disturbing equipment and construction vehicles are washed before entering and leaving Restoration Project sites with noxious weeds to avoid the spread of noxious weeds. Because of the remoteness of the project area, equipment washing shall be done off site at a paved facility (located away from sensitive biological resource areas). The contract inspectors and resource monitors shall routinely inspect construction activities to verify that construction equipment is being washed.		None	Before and during construction	Reclamation (Construction Contractor)	Reclamation (Environmental Contractor) in coordination with USFWS and DFG
• Reclamation shall implement measures set forth in the SWPPP (Mitigation Measure 6) to revegetate and restore disturbed areas immediately after construction is complete. The revegetation portion of the SWPPP shall contain specifications for using certified weed-free native and nonnative mixes. The SWPPP shall also specify that all disturbed areas shall be weeded (if necessary) and reseeded in the following years if the postconstruction inventory (see following discussion) indicates that noxious weed species are colonizing the area.		None	Upon completion of construction	Reclamation (Construction Contractor)	Reclamation (Environmental Contractor) in coordination with USFWS and DFG

Environmental Commitment/Mitigation Measure	Impact/Effect Being Mitigated	Programs, Plans, and Reports	Timing	Responsibility for Implementation	Responsibility for Oversight and Monitoring
• Reclamation shall conduct a postconstruction inventory at years 1 and 2 after construction at each site is complete. The inventory shall focus on areas disturbed during Restoration Project activities and shall verify that ongoing activities have not resulted in the introduction of new noxious weed infestations. The inventory shall be conducted by a qualified plant ecologist designated by Reclamation.		None	After construction	Reclamation (Environmental Contractor)	Reclamation in coordination with USFWS and DFG
• The plant ecologist shall also prepare and submit a Noxious Weed Inventory letter to the resource agencies after each visit. Items addressed in the letter shall include any new infestations of noxious weeds and the actions that have been taken to control noxious weed infestation.		Report: Noxious Weed Inventory	After construction	Reclamation (Environmental Contractor)	Reclamation in coordination with USFWS and DFG
Mitigation Measure 19: Implement an Erosion and Sediment Control Plan in Coordination with the Central Valley Regional Water Quality Control Board That Will Include Measures to Avoid Impacts on Soils To avoid or minimize potential impacts related to erosion and subsequent discharge of settleable material and runoff, Reclamation shall develop an Erosion and Sediment Control Plan (Mitigation Measures 10) in compliance with the State Water Board's Section 401 water quality certification. The Erosion and Sediment Control Plan shall be prepared in coordination with the CVRWQCB and will be included as a component of the SWPPP (Mitigation Measure 6). The Erosion and Sediment Control Plan must be approved by the State Water Board, Chief of the Division of Water Rights, prior to ground-disturbing activities. Reclamation shall implement the Erosion and Sediment Control Plan at each site where soils will be disturbed and/or exposed by construction activities. The plan shall include, but is not limited to, feasible BMPs to control accelerated erosion, slope instability, and sedimentation that could result from clearing,	Impact 4.7-1. Potential accelerated water and wind erosion from construction activities	Plan: Erosion and Sediment Control Plan Developed by: Reclamation in coordination with the CVRWQCB Approval by: State Water Board	Before and during construction	Reclamation (Construction Contractor)	Reclamation (Environmental Contractor) in coordination with State Water Board and CVRWQCB

Environmental Commitment/Mitigation Measure	Impact/Effect Being Mitigated	Programs, Plans, and Reports	Timing	Responsibility for Implementation	Responsibility for Oversight and Monitoring
grading, and other ground-disturbing activities during construction. BMPs include the following: • minimize the amount of vegetation removal and soil disturbance; • spray water on exposed soils to minimize wind erosion and dust during construction; • avoid the disturbance of steep slopes; • construct fill slopes of a 2:1 (horizontal:vertical) ratio or flatter; • construct V-ditches above cut and fill slopes to divert water from newly exposed slope faces; • outslope new roads and construct rolling dips, water bars, and other drainage control measures; • use temporary and permanent stabilization practices, such as temporary and permanent seeding, mulching, erosion control blankets, or aggregate surfacing; • install fiber rolls or silt fences downslope of disturbed areas to control sediment; • construct temporary or permanent sedimentation basins as needed; • selectively remove, stockpile, and replace topsoil as a medium for revegetation (this measure should be implemented where more than 6 inches of topsoil is removed); • stabilize drainage channels using rock lining or similar natural materials; and • stabilize borrow areas with temporary and ultimately permanent vegetation. Reclamation shall monitor the BMPs and make adjustments as required so that disturbed areas are adequately stabilized, as defined by the Erosion and Sediment Control Plan.					

Environmental Commitment/Mitigation Measure	Impact/Effect Being Mitigated	Programs, Plans, and Reports	Timing	Responsibility for Implementation	Responsibility for Oversight and Monitoring
Mitigation Measure 20: Avoid and Minimize Construction Activities Adjacent to Jurisdictional Waters, Compensate for Loss of Wetlands and Other Waters of the United States, and Revegetate Lost Habitat Reclamation shall develop and implement a component of the Comprehensive HMMP (Mitigation Measure 15) containing those measures that specifically address requirements falling under Corps jurisdiction to avoid, minimize, and compensate for impacts on waters of the United States, including wetlands. The Corps Jurisdictional HMMP shall be prepared in coordination with NMFS, USFWS, DFG, PG&E, the State Water Board, FERC, and the Corps. Reclamation shall receive approval of the Corps Jurisdictional HMMP from the Corps and the State Water Board, Chief of the Division of Water Rights, prior to any ground-disturbing activities. Reclamation shall avoid and minimize adverse effects on wetlands and other waters of the United States, as well as replace the acreage and functional value of wetlands and other waters of the United States permanently affected by the Restoration Project. To support this goal, the Corps Jurisdictional HMMP shall meet the following objectives: • provide compensatory mitigation for permanent impacts in the form of habitat creation, restoration, preservation, or enhancement of wetland habitats in the Restoration Project area (i.e., Battle Creek watershed); • design the habitats so that they will have equal or better functional value and quality than the wetlands that will be affected by the Restoration Project; • immediately restore habitats that have been temporarily affected by Restoration Project construction to predisturbance conditions; • integrate concerns for special-status species into the	Impact 4.2-3. Potential loss or disturbance of 18.86 acres of waters of the United States (including wetlands)	Plan: Corps Jurisdictional HMMP Developed by: Reclamation in coordination with the signatories to the 1999 MOU[b], State Water Board, FERC, Corps, and TNC Approval by: Corps, State Water Board	On-Site Restoration: *After construction* Off-Site Restoration: *After construction*	On-Site Restoration: Reclamation (Environmental Contractor) Off-Site Restoration: Reclamation (Environmental Contractor) in coordination with the Corps, USFWS, DFG, and TNC	On-Site Restoration: Reclamation in coordination with the Corps, USFWS, and DFG Off-Site Restoration: Reclamation in coordination with the Corps, USFWS, DFG, and TNC

Environmental Commitment/Mitigation Measure	Impact/Effect Being Mitigated	Programs, Plans, and Reports	Timing	Responsibility for Implementation	Responsibility for Oversight and Monitoring
mitigation design; and • design the mitigation wetlands so that once established they will require limited maintenance.					
Avoid and Minimize Disturbance of Waters of the United States, Including Wetlands. For Reclamation to avoid and minimize impacts on wetlands and other waters of the United States, the Corps Jurisdictional HMMP shall include, and Reclamation shall implement, the following measures. • Redesign or modify the project to avoid direct and indirect impacts on wetlands and streams, if feasible. • Discuss these measures in the Worker Environmental Education Program (Mitigation Measure 1). • Stake and flag wetland areas to include in the exclusion zones (Mitigation Measure 2). • Avoid construction activities in saturated or ponded wetlands and streams during the wet season (spring and winter) to the maximum extent possible (Mitigation Measure 5). Where such activities are unavoidable, employ protective practices, such as use of padding or vehicles with balloon tires. • Where resource specialists deem necessary, use geotextile cushions and other materials (e.g., timber pads, prefabricated equipment pads, geotextile fabric) in saturated conditions to minimize damage to the substrate and vegetation. • Stabilize exposed slopes and streambanks immediately upon completion of construction activities. Restore other waters of the United States in a manner that encourages native vegetation to reestablish to its preproject condition and reduces the effects of erosion on the drainage system. • In highly erodible stream systems, stabilize banks using a nonvegetative material that will bind the soil initially and break down within a few years. If Reclamation determines		Plan: Vegetation Protection Plan Developed by: Reclamation in coordination with the signatories to the 1999 MOU[b], State Water Board, and FERC	Before and during construction	Reclamation (Construction Contractor and Environmental Contractor)	Reclamation (Environmental Contractor) in coordination with the Corps, USFWS, and DFG

Environmental Commitment/Mitigation Measure	Impact/Effect Being Mitigated	Programs, Plans, and Reports	Timing	Responsibility for Implementation	Responsibility for Oversight and Monitoring
that more aggressive erosion control treatments are needed, the contractor shall be directed to use geotextile mats, excelsior blankets, or other soil-stabilization products that are compatible with Restoration Project objectives. • During construction, remove trees, shrubs, debris, or soils that are inadvertently deposited below the ordinary high-water mark of streams in a manner that minimizes disturbance of the drainage bed and bank. • Restrict instream construction within the ordinary high-water mark to the low-flow period (see Timeframes for Instream Work identified in the NMFS biological opinion). • Complete all activities promptly to minimize their duration and resultant impacts. • Obtain approval from Reclamation for all staging areas for the Restoration Project. • Prohibit, to the extent possible, equipment access or staging in and near wetlands and other waters of the United States located along access roads. To the extent possible, confine access to existing roads. • Ensure that resource monitors and contract compliance inspectors routinely inspect protected areas to confirm that protective measures are in place and effective. • Keep all protective measures in place until all construction activities have been completed near the resource and remove them immediately following construction activities.					
Compensate for the Loss of Waters of the United States. The Corps Jurisdictional HMMP shall contain a provision for identifying permanent impacts. Once identified, to compensate for permanent impacts on waters of the United States, including wetlands, and to ensure no net loss of habitat functional values, Reclamation shall provide compensation at a minimum ratio of 2:1 (2 acres restored or created for every 1 acre filled). The Restoration Project could be partially or fully self-mitigating for		Plan: Corps Jurisdictional HMMP Developed by: Reclamation in coordination with the signatories to the 1999 MOU[b], State Water Board, FERC,	On-Site Restoration: *After construction* Off-Site Restoration:	On-Site Restoration: Reclamation (Environmental Contractor) Off-Site	On-Site Restoration: Reclamation in coordination with the Corps, USFWS, and DFG

Environmental Commitment/Mitigation Measure	Impact/Effect Being Mitigated	Programs, Plans, and Reports	Timing	Responsibility for Implementation	Responsibility for Oversight and Monitoring
project-related effects on waters of the United States; however, if vegetation does not develop naturally, the Corps Jurisdictional HMMP shall be modified to provide additional mitigation. Potential measures may include a combination of on-site restoration/creation; off-site restoration, creation, enhancement, and preservation; mitigation credits; and habitat credits from a CALFED Ecosystem Restoration Program–funded conservation easement. Compensation options, which shall be described in detail in the Corps Jurisdictional HMMP, are summarized below. • Purchase mitigation bank credits at an agency-approved bank in the project region. or • Contribute funds, equal to the amount needed to purchase mitigation bank credits, to restore wetlands and other waters in the Battle Creek watershed or other nearby lands that are publicly managed and shall be protected in perpetuity. Reclamation shall coordinate with appropriate individuals to determine whether there is potential to create, restore, or enhance waters of the United States in the Battle Creek watershed. or • Create or enhance wetland habitat on site or in the Battle Creek watershed. Potential creation and enhancement sites shall be evaluated by Reclamation to determine whether this option is feasible. If Reclamation determines that on-site or off-site restoration is possible, the Corps Jurisdictional HMMP shall describe where and when restoration shall occur and who shall be responsible for developing, implementing, and monitoring the restoration. When this option is selected, restoration shall be conducted in the Battle Creek watershed.		Corps, and TNC Approval by: Corps, State Water Board	*After construction*	Restoration: Reclamation in coordination with the Corps, USFWS, DFG, and TNC	Off-Site Restoration: Reclamation in coordination with the Corps, USFWS, DFG, and TNC

Environmental Commitment/Mitigation Measure	Impact/Effect Being Mitigated	Programs, Plans, and Reports	Timing	Responsibility for Implementation	Responsibility for Oversight and Monitoring
Mitigation Measure 21: Avoid and Minimize the Removal and Disturbance of Oak Woodland Habitat and Compensate for the Loss of Oak Woodland Habitat Reclamation shall implement measures to avoid, minimize, and compensate for the potential disturbance or loss of oak woodland habitat associated with Restoration Project activities.	Impact 4.2-4. Potential loss or disturbance of common upland woodland and forest communities and associated wildlife habitat				
Avoid and Minimize Disturbance of Oak Woodland Habitat. To avoid and minimize impacts on oak woodland habitat, Reclamation shall implement the following measures: • Retain a licensed arborist to identify the species and numbers of native trees that will be removed or indirectly affected within the construction zone. • Protect oaks that will not be removed (more than 6 inches diameter at breast height) but that are within 61 meters (200 feet) of the grading activity by fencing them with orange construction fencing 1.5 meters (5 feet) beyond the dripline and root zone (as determined by a licensed arborist). This fence will demarcate an exclusion zone that is intended to prevent activities that result in soil compaction beneath the canopy or over the root zone. The fencing of exclusion zones shall be maintained until all construction activities are complete. No grading, trenching, or movement of construction equipment shall be allowed within fenced areas (exclusion zones). Protection for oak trees on slopes shall also include installation of silt fences. A silt fence shall be installed at the upslope base of the orange construction fencing to prevent any soil drifting down into the exclusion zone and on top of the root zone. Reclamation shall implement this measure in coordination and consistent with Mitigation Measure 2 (exclusion and work zones).		Plan: Vegetation Protection Plan Developed by: Reclamation in coordination with the signatories to the 1999 MOU[b], State Water Board, and FERC	Before and during construction	Reclamation (Environmental Contractor)	Reclamation in coordination with USFWS and DFG

Environmental Commitment/Mitigation Measure	Impact/Effect Being Mitigated	Programs, Plans, and Reports	Timing	Responsibility for Implementation	Responsibility for Oversight and Monitoring
Compensate for the Loss of Oak Woodland Habitat. Reclamation shall compensate for temporary and permanent impacts on oak woodland habitat to ensure no net loss of habitat functional value. Where impacts on oak woodland habitat are temporary, compensation shall include full restoration of the affected habitat as well as on-site or off-site restoration at a range in ratios from 2:1 (2 acres restored for every 1 acre affected) to 4:1 (4 acres restored for every 1 acre affected), depending on the severity of the impact. Determination of the appropriate ratio would take place during construction monitoring and postconstruction assessment. The compensation for permanent loss of oak woodland habitat shall be provided at a minimum ratio of 5:1 (5 acres restored or enhanced for every 1 acre affected). As a component of the Comprehensive HMMP (Mitigation Measure 15), Reclamation shall develop and implement an Oak Planting Plan for on-site and off-site compensation for the temporary loss of oak woodland habitat. The Oak Planting Plan will be developed in coordination with NMFS, USFWS, DFG, PG&E, the State Water Board, FERC, and TNC. The Oak Planting Plan, developed for on-site restoration of oak woodland habitat, shall include the measures below. • Specify collecting acorns from the local region and planting the acorns on site based on the diameter at breast height of the removed trees. • Develop success criteria and monitor the restored habitat for 10 to 15 years or until the success criteria are met. • Include adaptive management measures to ensure that the desired goals are achieved. • Monitor plantings annually by a qualified biologist for 10 to 15 years after construction is complete and until the success criteria are met. The monitoring methods shall be described in the Oak Planting Plan. Results of the monitoring shall be submitted to the appropriate agencies. Success will be		Plan: Oak Planting Plan Developed by: Reclamation in coordination with the signatories to the 1999 MOU[b], State Water Board, FERC, and TNC Report: Final Oak Monitoring Report Developed by: Reclamation in coordination with the signatories to the 1999 MOU[b], State Water Board, FERC, and TNC	On-Site Restoration: *After construction* Off-Site Restoration: *After construction*	On-Site Restoration: Reclamation (Environmental Contractor) Off-Site Restoration: Reclamation (Environmental Contractor) in coordination with USFWS, DFG, and TNC	On-Site Restoration: Reclamation in coordination with USFWS and DFG Off-Site Restoration: Reclamation in coordination with USFWS, DFG, and TNC

Environmental Commitment/Mitigation Measure	Impact/Effect Being Mitigated	Programs, Plans, and Reports	Timing	Responsibility for Implementation	Responsibility for Oversight and Monitoring
achieved if there is a minimum survival and growth rate, specified by USFWS, by the end of the fifth year and a stable viable population for the duration of the monitoring period. If the performance standards are not met, remedial measures, such as replanting, shall be implemented. During monitoring, the following information shall be evaluated: survival, health and vigor, average tree height, percent of tree cover, tree density, percent of woody shrub cover, seedling recruitment, and invasion by nonnative species. During the revegetation process, tree survival shall be maximized by using deer screens or other maintenance measures as recommended by a licensed arborist. • Inspect areas that have vegetative pruning and tree removal immediately before construction begins, immediately following construction, and 1 year following construction to determine the amount of existing vegetative cover, cover that is removed, and cover that resprouts. If these areas have not resprouted sufficiently to return the cover to the level of cover existing prior to project construction, these areas shall be replanted with the same species to reestablish the cover to the preproject condition. Off-site restoration of oak woodland habitat shall be implemented by using habitat credits at the Burton Ranch and McCampbell Ranch properties. Both are CALFED Ecosystem Restoration Program–funded conservation easements managed by TNC and located on the mainstem of Battle Creek (for more information, see the Habitat Compensation Approach presented above [Mitigation Measure 15] and in Appendix F of the Battle Creek Draft ASIP [Jones & Stokes 2004]). The Nature Conservancy will conduct monitoring and reporting as part of its commitment to stewardship of this easement. A final Oak Monitoring Report shall be submitted to the State Water Board, Chief of the Division of Water Rights, and DFG Regional Manager, NCNCR. The final Oak Monitoring Report shall outline those actions taken by Reclamation to fulfill any					

Environmental Commitment/Mitigation Measure	Impact/Effect Being Mitigated	Programs, Plans, and Reports	Timing	Responsibility for Implementation	Responsibility for Oversight and Monitoring
compensation requirements as a result of Restoration Project construction. The report shall include evidence of consultation with USFWS and TNC and their concurrence that restoration/compensation goals have been or will be met.					
Mitigation Measure 22: Avoid and Minimize the Disturbance and Removal of Elderberry Shrubs and Compensate for the Loss of Habitat for the Valley Elderberry Longhorn Beetle	Impact 4.2-5. Potential disturbance to valley elderberry longhorn beetle habitat				
According to the USFWS Biological Opinion (USFWS 2005b), Reclamation may remove up to 26 elderberry shrubs, or no more than 108 stems. Stems must be greater than 1 inch to provide valley elderberry longhorn beetle habitat. Reclamation shall mitigate effects on valley elderberry longhorn beetles by implementing the conservation measures identified in the ASIP, ASIP addendum, and USFWS's biological opinion. These mitigation measures are summarized below.					
A qualified biologist designated by Reclamation and in consultation with USFWS, shall conduct preconstruction surveys at each Restoration Project construction site if previous surveys were completed more than 2 years from the date of actual construction activities. The surveys shall begin before, or during, the November–February transplant season, before construction begins at the site, so that any necessary elderberry shrub transplanting can be done before the end of the transplant season. The biological opinion prepared by USFWS allows for the removal of up to 26 elderberry shrubs, or no more than 108 stems. If preconstruction surveys determine that additional shrubs may be affected by the project, Reclamation must contact USFWS and reinitiate formal consultation under this biological opinion prior to any groundbreaking activities.		None	Before construction	Reclamation (Environmental Contractor)	Reclamation in coordination with USFWS and DFG

Environmental Commitment/Mitigation Measure	Impact/Effect Being Mitigated	Programs, Plans, and Reports	Timing	Responsibility for Implementation	Responsibility for Oversight and Monitoring
For elderberry shrubs that will be avoided, a qualified biologist shall identify and mark all shrubs with stems 1.0 inch or more in diameter within 100 feet of the impact area. A 100-foot buffer shall be established around all elderberry shrubs, and no construction activities shall be permitted within the buffer zone unless approved by USFWS. In areas where encroachment on the 100-foot buffer has been approved by USFWS (e.g., driving construction vehicles along access roads), no ground-disturbing activities shall be permitted within 20 feet of the dripline of each elderberry shrub. No riparian vegetation within 100 feet of elderberry shrubs that are to be avoided shall be removed by construction activities. Orange fencing shall be placed around all elderberry shrubs using the appropriate buffer to avoid inadvertent effects.		Plan: Vegetation Protection Plan Developed by: Reclamation in coordination with the signatories to the 1999 MOU[b], State Water Board and FERC	Before construction	Reclamation (Environmental Contractor and Construction Contractor)	Reclamation in coordination with USFWS and DFG
Throughout project construction, a qualified biologist shall routinely monitor construction near the 100-foot no-disturbance buffer between potential valley elderberry longhorn beetle habitat and construction activities to prevent removal and disturbance of elderberry shrubs not approved by USFWS.		Program: Environmental Compliance Monitoring Program Developed by: Reclamation in coordination with the signatories to the 1999 MOU[b], State Water Board, and FERC	During construction	Reclamation (Environmental Contractor)	Reclamation in coordination with USFWS and DFG
Signs shall be erected every 50 feet along the edge of the avoidance area with the following information: "This area is habitat of the valley elderberry longhorn beetle, a threatened species, and must not be disturbed. The Endangered Species Act of 1973, as amended, protects this species. Violators are subject to prosecution, fines, and imprisonment." The signs shall be clearly readable from a distance of 20 feet and must be maintained for the duration of the construction.		Plan: Vegetation Protection Plan Developed by: Reclamation in coordination with the signatories to the 1999 MOU[b], State Water Board, and	Before construction	Reclamation (Construction Contractor)	Reclamation (Environmental Contractor) in coordination with USFWS and DFG

Environmental Commitment/Mitigation Measure	Impact/Effect Being Mitigated	Programs, Plans, and Reports	Timing	Responsibility for Implementation	Responsibility for Oversight and Monitoring
		FERC			
Reclamation shall present an Environmental Worker Education Program (Mitigation Measure 1) to all construction personnel to brief them on the status of the valley elderberry longhorn beetle, the need to avoid adverse effects on the beetle and its habitat, and the penalty for not complying with these requirements.		Plan: Environmental Worker Education Program Developed by: Reclamation in coordination with the signatories to the 1999 MOU[b], State Water Board, and FERC	Before and during construction	Reclamation (Environmental Contractor)	Reclamation in coordination with USFWS and DFG
Reclamation shall implement the following dust control measures along all dirt access roads and construction sites to minimize the effects of dust on nearby elderberry shrubs: • All disturbed areas, including storage piles that are not actively used for construction purposes, shall be effectively stabilized of dust emissions using water; nontoxic, biodegradable chemical stabilizer/suppressant; tarp or other suitable cover; or vegetative ground cover. • All on-site unpaved roads and off-site unpaved access roads near environmentally sensitive areas shall be effectively stabilized of dust emissions using water or nontoxic, biodegradable chemical stabilizer/suppressant. • All land clearing, grubbing, scraping, excavation, land leveling, grading, cut and fill, and demolition activities shall be effectively controlled of fugitive dust emissions by applying water or by presoaking. • When materials are transported off site, all material shall be covered or effectively wetted to limit visible dust emissions, and at least 6 inches of freeboard space from the top of the container shall be maintained		Plan: Vegetation Protection Plan Developed by: Reclamation in coordination with the signatories to the 1999 MOU[b], State Water Board, and FERC	During construction	Reclamation (Construction Contractor)	Reclamation (Environmental Contractor) in coordination with USFWS and DFG

Environmental Commitment/Mitigation Measure	Impact/Effect Being Mitigated	Programs, Plans, and Reports	Timing	Responsibility for Implementation	Responsibility for Oversight and Monitoring
• Following the addition of materials to, or the removal of materials from, the surface of outdoor storage piles, piles shall be effectively stabilized of fugitive dust emissions using sufficient water or nontoxic, biodegradable chemical stabilizer/suppressant. • In urban areas, trackout shall be immediately removed when it extends 50 or more feet from the site and at the end of each workday.					
Reclamation intends to use the Stillwater Plains Mitigation Bank near Redding, California, to compensate for project-related effects on valley elderberry longhorn beetle habitat that cannot be avoided. Prior to groundbreaking activities at sites where effects on valley elderberry longhorn beetle habitat are assumed, Reclamation shall: • complete mitigation bank arrangements with Stillwater Plains Mitigation Bank, and • transplant all elderberry shrubs with one or more stems measuring 1.0 inch or more in diameter that will be directly affected by construction activities (i.e., that would otherwise be destroyed) to Stillwater Plains Mitigation Bank in accordance with USFWS's Conservation Guidelines for the Valley Elderberry Longhorn Beetle (USFWS 1999).		None	Before construction	Reclamation (Environmental Contractor)	Reclamation in coordination with USFWS and DFG
Reclamation shall provide USFWS with an annual Valley Elderberry Longhorn Beetle Habitat Report, prepared by a qualified biologist, to document project progress, compensation activities, and results of preconstruction surveys required. Each report shall also address project sites scheduled for the following construction season and state whether effects at the sites would be within the limits set forth in the biological opinion. Reclamation shall reinitiate formal consultation if effects on the valley elderberry longhorn beetle are determined to be greater than the levels set forth in the USFWS's biological		Report: Annual Valley Elderberry Longhorn Beetle Habitat Report	After construction	Reclamation (Environmental Contractor)	Reclamation in coordination with USFWS and DFG

Environmental Commitment/Mitigation Measure	Impact/Effect Being Mitigated	Programs, Plans, and Reports	Timing	Responsibility for Implementation	Responsibility for Oversight and Monitoring
opinion.					
Mitigation Measure 23: Avoid and Minimize the Disturbance of Foothill Yellow-legged Frogs Within 2 weeks prior to construction activities at Lower Ripley Creek Feeder Diversion Dam, Inskip Diversion Dam/South Powerhouse, Soap Creek Feeder Diversion Dam, South Diversion Dam, North Battle Creek Feeder Diversion Dam, upstream of Eagle Canyon Diversion Dam, upstream of Wildcat Diversion Dam, Coleman Diversion Dam, Inskip Powerhouse, Asbury Diversion Dam, and the Jeffcoat mitigation site, a qualified biologist designated by Reclamation in consultation with USFWS shall conduct focused surveys for foothill yellow-legged frogs. If frogs, tadpoles, or egg masses are detected, barrier fencing shall be constructed in the work area 4 days prior to construction activities in a manner that will prevent frogs from entering the work area. For 3 days prior to construction activities (one survey each day), qualified biologists shall survey each work site for foothill yellow-legged frogs and relocate any frogs, tadpoles, or egg masses found within the work site to the nearest suitable habitat outside the work area and away from the barrier fencing. If frogs, tadpoles, or egg masses are found in previously unoccupied sites, frog exclusion areas shall be established at those sites. After construction has been completed, Reclamation shall remove the barrier fencing and restore the habitat.	Impact 4.2-6. Potential disturbance of foothill yellow-legged frogs and their habitat	None	Before and during construction	Reclamation (Environmental Contractor)	Reclamation in coordination with USFWS and DFG
Mitigation Measure 24: Avoid and Minimize the Disturbance of Northwestern Pond Turtles Within 2 weeks prior to construction activities at Lower Ripley Creek Feeder Diversion Dam, Inskip Diversion Dam/South Powerhouse, Soap Creek Feeder Diversion Dam, South Diversion Dam, Coleman Diversion Dam, upstream of Eagle Canyon Diversion Dam, upstream of Wildcat Diversion Dam, Inskip Powerhouse, Asbury Diversion Dam, Jeffcoat mitigation	Impact 4.2-7. Potential disturbance of northwestern pond turtles and their habitat	None	Before and during construction	Reclamation (Environmental Contractor)	Reclamation in coordination with USFWS and DFG

Environmental Commitment/Mitigation Measure	Impact/Effect Being Mitigated	Programs, Plans, and Reports	Timing	Responsibility for Implementation	Responsibility for Oversight and Monitoring
site, and the Willow Springs site, a qualified biologist designated by Reclamation in consultation with USFWS shall conduct focused surveys for northwestern pond turtles. If turtles are detected, barrier fencing shall be constructed in the work area 4 days prior to construction activities in a manner that will prevent turtles from entering the work area. For 3 days prior to construction activities (one survey each day), qualified biologists shall survey each of these work sites for northwestern pond turtles and, if the creek does not have flowing water, for residual ponds. The biologists shall relocate any turtle found within the work site to the nearest suitable habitat outside the work area and away from the barrier fencing. If turtles are found in previously unoccupied sites, turtle exclusion areas shall be established at those sites. After construction has been completed, Reclamation shall remove the barrier fencing and restore the habitat.					
Mitigation Measure 25: Avoid and Minimize the Disturbance of Breeding Yellow-Breasted Chats and Little Willow Flycatchers If construction begins during yellow-breasted chat breeding season (mid-April to August) of the construction year, a qualified biologist designated by Reclamation in consultation with USFWS shall survey all affected project sites to determine chat occupancy. Surveys shall be conducted between April 25 and May 25. If no breeding chats are detected, no further mitigation is required. If construction- and restoration-related activities are to occur during the little willow flycatcher breeding season (mid-May to August) of the construction year, a qualified biologist shall survey all affected project sites to determine flycatcher occupancy. At least three surveys shall be conducted between May 15 and July 25. One or two surveys shall be conducted in the previous year prior to construction if construction begins during the May 15 to July 25 time period. At least one survey	Impact 4.2-8. Potential disturbance of breeding habitat for yellow-breasted chat and little willow flycatcher	Plan: Vegetation Protection Plan Developed by: Reclamation in coordination with the signatories to the 1999 MOU[b], State Water Board, and FERC	Before construction	Reclamation (Environmental Contractor)	Reclamation in coordination with USFWS and DFG

Environmental Commitment/Mitigation Measure	Impact/Effect Being Mitigated	Programs, Plans, and Reports	Timing	Responsibility for Implementation	Responsibility for Oversight and Monitoring
must be conducted between June 20 and July 1 to determine presence of nonmigratory willow flycatchers. If no breeding flycatchers are detected, no further mitigation is required.					
If breeding chats or flycatchers are detected, a qualified biologist shall flag or stake around riparian vegetation at the project site. Once the riparian vegetation has been delineated, Reclamation's construction contractor shall install orange barrier fencing around the vegetation to protect it from incidental damage. To minimize the potential for mortality or nest abandonment, a qualified biologist shall establish a 500-foot no-disturbance buffer around all active nesting sites during the birds' breeding season. This buffer, identified as a work exclusion zone, shall be delineated and marked as explained above and under the requirements of Mitigation Measure 2 (exclusion and work zones).					
The buffer shall remain in place until the young have successfully fledged or the nest has failed as determined by a qualified biologist. A qualified biologist shall monitor the effectiveness of the buffer, and the buffer shall be readjusted if the nesting birds appear agitated from construction and other operations. If monitoring shows no impacts, the buffer distance may be reduced if approved by DFG and USFWS.		None	During construction	Reclamation (Environmental Contractor)	Reclamation in coordination with USFWS and DFG
If construction at a site must occur during the breeding season (between April 15 and August 31), it should begin by April 15, and typical levels of activity and noise disturbance that would occur at the site should be sustained on a routine basis through the end of August or until the construction is completed. A qualified biologist shall monitor construction sites for bird nesting activity during the breeding season. Unless it is known that the nest site will be physically disturbed, the birds should be allowed to nest if they choose under the assumption that they will be able to tolerate the construction noise and activity.		None	During construction	Reclamation (Environmental Contractor)	Reclamation in coordination with USFWS and DFG

Environmental Commitment/Mitigation Measure	Impact/Effect Being Mitigated	Programs, Plans, and Reports	Timing	Responsibility for Implementation	Responsibility for Oversight and Monitoring
Mitigation Measure 26: Avoid and Minimize Disturbance of Active Osprey, Cooper's Hawk, Peregrine Falcon, Golden Eagle, and Bald Eagle Nests Reclamation shall implement the following measures to avoid and minimize project effects on nesting raptors.	Impact 4.2-9. Potential disturbance to nesting raptors				
Bald Eagle—Perform preconstruction surveys, limit construction activities near occupied nests to the nonbreeding season, and establish buffers for active bald eagle nests consistent with conservation measures identified in the ASIP, ASIP Addendum, and USFWS's biological opinion. A qualified biologist designated by Reclamation in consultation with USFWS shall conduct a series of three surveys at the project sites during the breeding season before construction activities begin each construction year to locate active bald eagle nests. The three surveys shall take place during late February–early March, late April–May, and early June–July. Because construction of the Restoration Project is proposed to begin in October 2007, these three surveys should be conducted in 2007 to address the 2007 construction year. The surveys conducted in 2007 would also address the 2008 construction year, as long as construction activities commence before the bald eagle breeding season begins in February 2008. In addition, a series of three surveys should be conducted in 2008 for those sites where construction will begin in 2009. In general, a minimum of three consecutive survey periods shall be conducted prior to construction, regardless of when construction activities begin. The last of the three consecutive surveys should be conducted during the survey period prior to and nearest the construction start date. Performing additional surveys in the year before construction begins applies if construction is scheduled to begin at a time of year before the series of three surveys can be completed in the construction		None	Before construction	Reclamation (Environmental Contractor)	Reclamation in coordination with USFWS and DFG

Environmental Commitment/Mitigation Measure	Impact/Effect Being Mitigated	Programs, Plans, and Reports	Timing	Responsibility for Implementation	Responsibility for Oversight and Monitoring
year. For example, in construction begins sometime mid-year (e.g., May 2008), two surveys need to take place in the previous year (i.e. late April-May, and early June-July 2007), along with a survey in early 2008 (late February-early March 2008). These surveys are intended to determine whether nesting sites are present within 0.5 miles of a construction site or access road for the year when construction activities start.					
If active bald eagle nests are discovered in the project area, a qualified biologist shall establish a 0.5-mile-radius, direct-line-of-sight buffer for active nests. The buffers, identified as work exclusion zones, shall be delineated and marked as explained under Mitigation Measure 2. These buffers shall remain in place until the young have successfully fledged or the nest has failed as determined by a qualified biologist.		None	Before and during construction	Reclamation (Environmental Contractor)	Reclamation in coordination with USFWS and DFG
If an active bald eagle nest within that area should be discovered in the June–July survey after construction has begun, it would be necessary to stop construction. If a nest is occupied, Reclamation shall limit construction activities near the nest to the nonbreeding season (August 1 to February 1). In addition, Reclamation shall maintain a 0.5-mile, direct-line-of-sight helicopter-exclusion zone around any active nests.		None	During construction	Reclamation (Construction Contractor)	Reclamation (Environmental Contractor) in coordination with USFWS and DFG
A qualified biologist shall monitor the effectiveness of the buffer, and the buffer shall be adjusted if the nesting birds appear agitated from construction and other operations. If monitoring shows no impacts, the buffer distance may be reduced if approved by DFG and USFWS.		None	During construction	Reclamation (Environmental Contractor)	Reclamation in coordination with USFWS and DFG
If disturbance of a nest with eggs or young appears unavoidable, or nesting activity such as incubation or feeding of young may be affected, project contacts at USFWS and DFG shall be contacted before disturbance begins. If potential nesting habitat (i.e., traditional nest site and structure) must be affected, project contacts at USFWS and DFG shall be contacted before disturbance begins. If a project site is farther than the 0.5-mile		None	Before construction	Reclamation in coordination with USFWS and DFG	USFWS and DFG

Environmental Commitment/Mitigation Measure	Impact/Effect Being Mitigated	Programs, Plans, and Reports	Timing	Responsibility for Implementation	Responsibility for Oversight and Monitoring
buffer zone, disturbance probably can be assumed insignificant, but project contacts at USFWS and DFG shall be consulted for known occurrences of bald eagle in the study area.					
Other Special-status Raptors—Perform preconstruction surveys, limit construction activities near occupied nests to the nonbreeding season, and establish buffers for active Cooper's hawk, osprey, peregrine falcon, and golden eagle nests. A qualified biologist designated by Reclamation in consultation with USFWS shall survey the project sites during the breeding seasons for other special-status raptor species, in addition to bald eagle as explained above, before construction activities begin each construction year to locate active nests. The breeding seasons for each of these species is: • March through August for Cooper's hawk, • March through August for osprey, • March through July for peregrine falcon, and • February through July for golden eagle.		None	Before construction	Reclamation (Environmental Contractor)	Reclamation in coordination with USFWS and DFG
If active raptor nests are discovered in the project area, a qualified biologist shall establish a 500-foot radius, direct-line-of-sight buffer for active raptor nests. The buffers, identified as work exclusion zones, shall be delineated and marked as explained under Mitigation Measure 2. These buffers shall remain in place until the young have successfully fledged or the nest has failed as determined by a qualified biologist.		None	Before and during construction	Reclamation (Environmental Contractor)	Reclamation in coordination with USFWS and DFG
If a nest is occupied, Reclamation shall limit construction activities near the nest to the nonbreeding season. The nonbreeding seasons for special-status raptor species are: • September 1 to March 1 for Cooper's hawk, • September 1 to March 1 for osprey,		None	During construction	Reclamation (Construction Contractor)	Reclamation (Environmental Contractor) in coordination with USFWS and DFG

Environmental Commitment/Mitigation Measure	Impact/Effect Being Mitigated	Programs, Plans, and Reports	Timing	Responsibility for Implementation	Responsibility for Oversight and Monitoring
• August 1 to March 1 for peregrine falcon, and • Mid-July to February for golden eagle. In addition, Reclamation shall maintain a 0.5-mile, direct-line-of-sight helicopter-exclusion zone around any active nests.					
A qualified biologist shall monitor the effectiveness of the buffer, and the buffer shall be adjusted if the nesting birds appear agitated from construction and other operations. If monitoring shows no impacts, the buffer distance may be reduced if approved by DFG and USFWS.		None	During construction	Reclamation (Environmental Contractor)	Reclamation in coordination with USFWS and DFG
If construction at or near an old special-status raptor nest must occur between March 1 and August 31, it should be assumed that the site contains suitable breeding habitat, and construction should begin by the approximate start of the breeding season. If a special-status raptor pair appears at or near a construction site and attempts to nest, a work-exclusion zone buffer shall be established around the nest and typical levels of activity and noise disturbance that would occur at the site during the breeding season shall be sustained such that the pair will accept or reject that site based upon its assessment of disturbance. Unless it is known that the nest site will be physically disturbed, the birds should be allowed to nest if they choose under the assumption that they will be able to tolerate the construction noise and activity. If a breeding pair commences to nest, construction noise and activity should continue on a routine basis through the end of the breeding season or until construction is completed.		None	During construction	Reclamation (Environmental Contractor)	Reclamation in coordination with USFWS and DFG
If disturbance of a nest with eggs or young appears unavoidable, or nesting activity such as incubation or feeding of young may be affected, project contacts at USFWS and DFG shall be consulted before disturbance begins. If potential nesting habitat (i.e., traditional nest site and structure) must be affected during		None	Before construction	Reclamation in coordination with USFWS and DFG	USFWS and DFG

Environmental Commitment/Mitigation Measure	Impact/Effect Being Mitigated	Programs, Plans, and Reports	Timing	Responsibility for Implementation	Responsibility for Oversight and Monitoring
the breeding season, project contacts at USFWS and DFG shall be consulted before disturbance begins. If a project site is farther than the 0.5-mile buffer zone, disturbance probably can be assumed insignificant, but project contacts at USFWS and DFG shall be consulted for known occurrences of special-status raptors in the study area.					
Mitigation Measure 27: Avoid and Minimize Disturbance of Nesting California Black Rails Before beginning construction, a qualified biologist designated by Reclamation in consultation with DFG shall conduct a tape-playback survey according to DFG-recommended protocol to determine presence of California black rails in the emergent wetland habitat near MLTF's Jeffcoat and the Willow Springs trout farm facilities. If California black rails are discovered in the project area, construction activities shall be restricted seasonally to avoid disturbance during the rails' breeding and nesting season from March 1 to September 15. If approved by DFG, it may be possible to establish construction exclusion zones to protect the black rail from noise, dust, and other construction-related disturbance to accommodate construction during the black rail breeding season. If three protocol-level preconstruction surveys conducted once per month from June through August do not detect black rails during this survey season, the seasonal restrictions shall be lifted for the remainder of the breeding season during the year when the surveys took place.	Impact 4.2-10. Potential disturbance to nesting California black rails in emergent marsh	Plan: Vegetation Protection Plan Developed by: Reclamation in coordination with the signatories to the 1999 MOU[b], State Water Board, and FERC	Before and during construction	Reclamation (Environmental Contractor)	Reclamation in coordination with USFWS and DFG

Environmental Commitment/Mitigation Measure	Impact/Effect Being Mitigated	Programs, Plans, and Reports	Timing	Responsibility for Implementation	Responsibility for Oversight and Monitoring
Mitigation Measure 28: Avoid and Minimize Disturbance of Bat Maternity Colonies and Roosting Bats Reclamation shall conduct bat surveys to determine the presence of bats in tunnels during the spring (March through mid-May) for maternity colonies, summer (June through August) for roosting sites, fall (mid-August through October) for migrant stopover sites, and winter (November through February) for hibernating sites. At sites that support maternity colonies or large concentrations of roosting bats, Reclamation shall restrict construction activities where practical to nonuse periods or outside the breeding and hibernation periods. If impacts are unavoidable during any season, Reclamation shall implement selected minimizing actions, including temporary closure and soundproofing of tunnel entrances during the day, to reduce disturbance of roosting bats. Survey and construction scheduling, buffer zones, and other mitigation measures shall be developed in consultation with bat specialists, USFWS, and DFG.	Impact 4.2-11. Potential disturbance of bats in canal tunnels and on rocky cliffs and outcrops along canyon walls	None	Before and during construction	Reclamation (Environmental Contractor)	Reclamation in coordination with USFWS and DFG
Mitigation Measure 29: Implement Measures Designed to Avoid or Minimize Hazardous Spills To avoid or minimize potential impacts related to potentially hazardous spills or the finding of previously contaminated soils, Reclamation shall implement the following measures: • Develop a Spill Pollution Prevention Plan, as required by Mitigation Measure 7, in consultation with the CVRWQCB and approved by the State Water Board, Chief of the Division of Water Rights, before beginning construction. • Train all construction workers to identify indicators of contaminated soils such as soil discoloration, odors, differences in soil properties, and buried debris. This information shall be included in the Work Environmental	Impact 4.4-2. Potential spills of hazardous materials could occur and contaminate surface waters Impact 4.5-1. Potential spills of hazardous materials could occur and contaminate the shallow groundwater system	Plan: Spill Pollution Prevention Plan Developed by: Reclamation in coordination with CVRWQCB Approval by: State Water Board	Before and during construction	Reclamation (Construction Contractor)	Reclamation (Environmental Contractor) in coordination with the State Water Board and the CVRWQCB

Environmental Commitment/Mitigation Measure	Impact/Effect Being Mitigated	Programs, Plans, and Reports	Timing	Responsibility for Implementation	Responsibility for Oversight and Monitoring
Education Program, as required by Mitigation Measure 1. The Spill Pollution Prevention Plan shall include, but may not be limited to, the conditions below. • Soils contaminated with fuels or chemicals shall be disposed of in a suitable location to prevent discharge to surface waters and in accordance with the rules and regulations of the U.S. Department of Transportation, the U.S. Environmental Protection Agency, and the California Environmental Protection Agency. • Suspected contaminated soils shall be tested at an approved certified laboratory. • Temporary cofferdams shall be used to separate construction areas from flowing waters. • On-site fuels and toxic materials shall be placed or contained in an area protected from direct runoff. • If hazardous materials are released, the State Water Board, Chief of the Division of Water Rights; the CVRWQCB; and the Coleman National Fish Hatchery shall be immediately notified. • Cement and concrete delivery and transfer equipment shall be washed in contained areas protected from direct runoff until the material sets. • Provisions outlined in Mitigation Measures 35 and 36 shall be implemented to protect worker and public safety.					
Mitigation Measure 30: Develop and Implement a Revegetation Plan to Improve the Aesthetic Quality of the New Access Road Proposed at Inskip Diversion Dam Upon completing construction of the proposed access road between South Powerhouse and Inskip Diversion Dam, Reclamation shall use materials designed to help the road blend with the existing vegetation and revegetate the area along the	Impact 4.8-1. Construction of tailrace connectors, new fish screens and fish ladders, and associated facilities would reduce scenic quality at the Oasis Springs Lodge	Plan: Inskip Revegetation Plan Developed by: Reclamation in coordination with the signatories to the 1999 MOU[b], State Water Board, and	Before and during construction	Reclamation (Environmental Contractor)	Reclamation in coordination with the State Water Board, FERC, and signatories to the 1999 MOU[b]

Environmental Commitment/Mitigation Measure	Impact/Effect Being Mitigated	Programs, Plans, and Reports	Timing	Responsibility for Implementation	Responsibility for Oversight and Monitoring
road to improve its aesthetic quality to the patrons of Oasis Springs Lodge. Reclamation shall prepare, develop, and implement an Inskip Revegetation Plan, which shall also be included as a component of the Comprehensive HMMP (Mitigation Measure 15). The Inskip Revegetation Plan shall be prepared in coordination with NMFS, USFWS, DFG, PG&E, the State Water Board, and FERC. Before beginning construction, Reclamation shall prepare photorealistic simulations from the most sensitive vantage points at Oasis Springs Lodge, showing both the wet spring season and the dry summer season, to provide a better understanding from those vantage points of the magnitude of visual impact that would result from constructing the roadway so as to target visual intrusion reduction measures. Actions to improve the aesthetic quality of the access road include, but are not limited to, the following construction specifications: • Use guardrail materials that blend into the natural environment either naturally or through the use of aesthetic treatments (e.g., rock masonry or concrete barrier painted to match existing rock features). The use of metal guardrails should be avoided or, if metal guardrails must be used, they should be screened from view. If metal guardrails are used, select weathering steel as the preferred material and screen them from north-facing views with native plantings, if feasible, or by using strategically positioned rock obtained during blasting. • Apply rock-aging compound to the rock cutslope of the hill. Because soil conditions are poor and little vegetation may grow on the cutslope, the rock-aging compound will improve the appearance of the cutslope by giving the newly exposed rock face a more weathered appearance. • Construct shotcrete wall features that are textured and painted to reflect natural site conditions and minimize the visual appearance of the road and rock exposed through		FERC			

Environmental Commitment/Mitigation Measure	Impact/Effect Being Mitigated	Programs, Plans, and Reports	Timing	Responsibility for Implementation	Responsibility for Oversight and Monitoring
construction of the roadway. • Strategically locate and safely anchor natural debris (e.g., rock or downed trees) to help create a natural appearance along the hillside and to aid in screening visually intrusive roadway elements. The Inskip Revegetation Plan shall include, but is not limited to, the following: • If feasible, apply native broadcast seeding with native straw mulch, at sufficient concentration to ensure even coverage and germination, to revegetate the area above and below the road's cutslope and to create a natural appearance along the hillside. The native seed mix shall consist of a mixture of grasses, forbs, and wildflowers native to the region and appropriate for site conditions. • If feasible, strategically locate planting basins for native vegetation in various places along the hillside to help visually screen the roadway. Irrigate plants during the first 3 years of plant establishment. • If feasible, transplant mature native vegetation obtained on site from other construction activities to help provide mature vegetative screening. This would provide a more immediate vegetative screen and blend better with the existing landscape than younger vegetation. Irrigate plants during the first 3 years following transplant. • If applicable, a qualified biologist shall visit all planting sites biannually for the first 5 years after road installation to determine seedling survival rates. Planting sites will be recorded as being dead if there is no viable aboveground growth visible. For example, if all the leaves on a tree are brown, but an examination of the stems and branches showed viable stem vigor, the plant will be considered to be alive with a poor vigor rating. Where a tree is determined not to be alive, it shall be replaced.					

Environmental Commitment/Mitigation Measure	Impact/Effect Being Mitigated	Programs, Plans, and Reports	Timing	Responsibility for Implementation	Responsibility for Oversight and Monitoring
Mitigation Measure 31: Implement a Blast Noise Mitigation and Notification Plan to Minimize Exposure of Noise-Sensitive Land Uses to Noise and Vibration Impacts from Blasting To minimize noise sensitive-resources to the exposure of noise and vibration from blasting, Reclamation shall implement a Blast Noise Mitigation and Notification Plan that shall include, but is not limited to, the measures below: • Blasting notification identifying the date and time of blasting shall be provided to nearby residents, local law enforcement, newspapers, and sensitive receptors located within 1,000 feet of blasting. • Pre-blast alarms shall be sounded. Immediately before blasting, the construction contractor shall be required to sound a signal announcing the blast. Construction contractors shall follow the Construction Safety Plan that shall provide for these measures. • Best available practices shall be employed to limit airblast from blasting to 135 dB and vibration to USBM limits at the nearest noise-sensitive land uses. • Noise and vibration monitoring shall be performed at nearby residences and sensitive receptors to ensure that airblast from blasting is limited to 135 dB and that vibration is limited to USBM criteria.	Impact 4.10-1. Exposure of noise-sensitive uses to noise and vibration from blasting	Plan: Blast Noise Mitigation and Notification Plan Developed by: Reclamation in coordination with the signatories to the 1999 MOU[b], State Water Board, and FERC	Before and during construction	Reclamation (Construction Contractor)	Reclamation (Environmental Contractor) in coordination with the State Water Board, FERC, and signatories to the 1999 MOU[b]
Mitigation Measure 32: Implement Noise-Reducing Construction Practices to Minimize Exposures of Noise-Sensitive Land Uses to Noise Impacts from On-Site Construction Activities Reclamation shall implement noise-reducing construction practices such that temporary construction noise experienced by Oasis Springs Lodge and the residence adjacent to the proposed pipeline alignment for Eagle Canyon Canal does not exceed	Impact 4.10-2. Exposure of noise-sensitive land uses to noise from on-site construction activities	None	During construction	Reclamation (Construction Contractor)	Reclamation (Environmental Contractor) in coordination with the State Water Board, FERC, and signatories to the 1999 MOU[b]

Environmental Commitment/Mitigation Measure	Impact/Effect Being Mitigated	Programs, Plans, and Reports	Timing	Responsibility for Implementation	Responsibility for Oversight and Monitoring
significance thresholds. These thresholds require that noise not exceed 70 dBA (L_{10}) at the nearest noise-sensitive land use during daytime hours and 50 dBA (L_{10}) during nighttime hours, or the ambient noise level by more than 5 dB. These practices include, but are not limited to, the following: • Residents and other sensitive receptors in the areas affected by noise generated during construction activities shall be notified of the approximate dates of construction and the potential resulting increases in noise at least 2 weeks before construction begins. • Whenever practicable, noise-generating construction equipment shall be turned off or left running at the lowest setting possible when not in use. • Construction equipment shall be properly outfitted and maintained to reduce noise output. • Whenever practicable, noise-generating construction equipment shall be shielded from nearby sensitive receptors by acoustical enclosures, berms, or temporary construction noise barriers. • The frequency and duration of construction activities shall be altered to reduce the level of exposure experienced by sensitive noise receptors in the vicinity of project construction.					
Mitigation Measure 33: Construct an Alternative Haul Route and Limit the Hours of Trucking Operations to Minimize Exposure of Noise-Sensitive Land Uses to Construction-Related Truck Noise Reclamation shall construct an alternative private haul route that is at least 750 feet from the nearest occupied residences and shall require the construction contractor to limit trucking operations to the hours of 7:00 a.m. to 9:00 p.m.	Impact 4.10-3. Exposure of noise-sensitive land uses along site access roads to construction-related truck noise	None	Before and during construction	Reclamation (Construction Contractor)	Reclamation (Environmental Contractor) in coordination with the State Water Board, FERC, and signatories to the 1999 MOU[b]

Environmental Commitment/Mitigation Measure	Impact/Effect Being Mitigated	Programs, Plans, and Reports	Timing	Responsibility for Implementation	Responsibility for Oversight and Monitoring
Mitigation Measure 34: Implement BMPs to Minimize Construction-Related Emissions and Obtain All Applicable Permits Required by Local Air Quality Districts To control the generation of construction-related PM10 emissions, Reclamation shall comply with BMPs summarized below: • All disturbed areas, including storage piles, that are not being actively used for construction purposes, shall be effectively stabilized of dust emissions using water, nontoxic biodegradable chemical stabilizer/suppressant, tarp or other suitable cover, or vegetative ground cover. • All on-site unpaved roads and off-site unpaved access roads near environmentally sensitive areas shall be effectively stabilized of dust emissions using water or nontoxic biodegradable chemical stabilizer/suppressant. • All land clearing, grubbing, scraping, excavation, land leveling, grading, cut and fill, and demolition activities shall be effectively controlled of fugitive dust emissions by applying water or by presoaking. • When materials are transported off site, all material shall be covered or effectively wetted to limit visible dust emissions, and at least 6 inches of freeboard space from the top of the container shall be maintained. • Following the addition of materials to, or the removal of materials from, the surface of outdoor storage piles, said piles shall be effectively stabilized of fugitive dust emissions using sufficient water or nontoxic biodegradable chemical stabilizer/suppressant. • All trackout shall be immediately removed when it extends 50 or more feet from the site and at the end of each workday.	Impact 4.11-1. Construction-related emissions in excess of allowable thresholds	None	Before and during construction	Reclamation (Construction Contractor)	Reclamation (Environmental Contractor) in coordination with SCAQMD and TCAPCD

Environmental Commitment/Mitigation Measure	Impact/Effect Being Mitigated	Programs, Plans, and Reports	Timing	Responsibility for Implementation	Responsibility for Oversight and Monitoring
The BMPs listed above shall be made a component of the project description and incorporated into the working project. Reclamation shall obtain all applicable permits required by the SCAQMD and the TCAPCD. To ensure that the operation of all motors associated with construction of the Restoration Project does not result in significant air quality impacts, Reclamation's construction contractor shall obtain all applicable permits required by SCAQMD and TCAPCD. Guidance from the U.S. Environmental Protection Agency indicates that the conformity rule applies only to nonattainment and maintenance areas (U.S. Environmental Protection Agency 1994). Because the proposed project area is in attainment for the criteria pollutants, the proposed project is not subject to a federal conformity analysis. Consequently, a federal conformity analysis was not completed. Further, permits may require additional measures to further reduce emissions.					
Mitigation Measure 35: Implement Measures to Minimize Exposure of Construction Workers to Hazardous or Toxic Materials Disturbed during Construction Activities Reclamation shall implement the following measures to reduce construction workers' exposure to hazardous or toxic materials: • Incorporate worker protections specified below into the Spill Pollution Prevention Plan required under Mitigation Measures 7 and 29. • Comply with all applicable regulations, including the use of appropriate transportation, storage, use, and disposal procedures. • The Spill Pollution Prevention Plan shall ensure that all personnel are aware of the proper handling techniques and appropriate responses and actions to be taken if hazardous materials are accidentally released. It shall include specific handling techniques for those hazardous materials with the	Impact 4.12-1. Construction workers could be exposed to hazardous or toxic materials disturbed during construction, modification, or removal activities at the Restoration Project sites	Plan: Spill Pollution Prevention Plan Developed by: Reclamation in coordination with CVRWQCB Approval by: State Water Board Plan: Dam Decommissioning Plan Developed by: Reclamation in coordination with the signatories to the	Before and during construction	Reclamation (Construction Contractor)	Reclamation (Environmental Contractor) in coordination with the State Water Board and CVRWQCB

Environmental Commitment/Mitigation Measure	Impact/Effect Being Mitigated	Programs, Plans, and Reports	Timing	Responsibility for Implementation	Responsibility for Oversight and Monitoring
greatest potential to occur in the area (including PCBs, asbestos, lead-based paint, and pentachlorophenol). • Implement measures to reduce the amounts of hazardous materials in use at the Restoration Project sites. • Evaluate the potential hazards at each dam site as part of the preconstruction design work. This evaluation shall be followed by a more detailed evaluation to confirm the presence and extent of any existing hazardous materials and to develop a plan (e.g., a Dam Decommissioning Plan) that recommends appropriate procedures to remove the materials and thus minimize the risk to public health.		1999 MOU[b], State Water Board and FERC			
Mitigation Measure 36: Implement Measures to Minimize Exposure of the Public to Hazardous or Toxic Materials Associated with Construction Activities Reclamation shall implement the following measures to reduce exposure of the public to hazardous or toxic materials: • Incorporate worker protections specified below into the Spill Pollution Prevention Plan required under Mitigation Measures 7, 29, and 35. • Clearly mark all construction areas around each dam site as hazardous and off-limits to the public. • Backfill or cover any excavated areas and other particular areas of hazard at the end of each workday. • Fence off areas around the Restoration Project sites and gate and lock all access roads to deter public access. • Notify nearby sensitive receptors and residents (including the management of the Oasis Springs Lodge) of the schedule of activities expected to occur at the Restoration Project site.	Impact 4.12-2. The public could be exposed to hazardous or toxic materials associated with or disturbed during construction, modification, or removal activities at the Restoration Project sites; public access to construction areas could also increase the potential for exposure to hazardous materials	Plan: Spill Pollution Prevention Plan Developed by: Reclamation in coordination with CVRWQCB Approval by: State Water Board	Before and during construction	Reclamation (Construction Contractor)	Reclamation (Environmental Contractor) in coordination with the State Water Board and CVRWQCB

Environmental Commitment/Mitigation Measure	Impact/Effect Being Mitigated	Programs, Plans, and Reports	Timing	Responsibility for Implementation	Responsibility for Oversight and Monitoring
Mitigation Measure 37: Implement Measures to Reduce Traffic Hazards to People and Domestic Animals that Live along Restoration Project Access Roads Reclamation shall implement the following measures to reduce traffic hazards to people and domestic animals that live along Restoration Project access roads: • During construction, traffic on private roads within 500 feet of residences and near the Oasis Springs Lodge shall be limited to a speed of 5 miles per hour. Notice of the upcoming speed zone shall be visibly posted in advance of the zone. The speed limit shall be posted visibly at the beginning of the restricted speed zone. Reclamation shall specify this limit in contract specifications with construction contractors. • During construction, truck traffic on private roads shall be limited to daylight hours only. No trucks shall operate on private roads within 1 hour of sunset. Reclamation shall specify construction time constraints in contract specifications with construction contractors. • Reclamation shall establish a complaint line where residents may report allegations of excessive speed. When a complaint is made, Reclamation shall inform the contractor and advised them of the contract provisions limiting speeds along private roads.	Impact 4.12-3. Increased vehicle traffic along private access roads during construction activities could endanger residents and domestic animals	None	During construction	Reclamation (Construction Contractor)	Reclamation (Environmental Contractor) in coordination with the State Water Board, FERC, and signatories to the 1999 MOU[b]
Mitigation Measure 38: Implement Measures to Reduce Mosquito Breeding Grounds at Restoration Project Sites Reclamation shall implement the following measures to reduce mosquito breeding grounds during construction at the Restoration Project sites:	Impact 4.12-4. Dewatering activities at the Restoration Project sites could provide breeding grounds for mosquitoes	None	During construction	Reclamation (Construction Contractor)	Reclamation (Environmental Contractor) in coordination with the State Water Board, FERC, and signatories to the 1999 MOU[b]

Environmental Commitment/Mitigation Measure	Impact/Effect Being Mitigated	Programs, Plans, and Reports	Timing	Responsibility for Implementation	Responsibility for Oversight and Monitoring
• Maximize the protection of public health near Restoration Project sites during the mosquito breeding months by consulting with applicable mosquito abatement districts and control agencies and undertaking their recommended actions for mosquito population control at Restoration Project sites. • Inform workers during the Worker Environmental Education Program (Mitigation Measure 1) of the potential for increases in mosquito breeding populations and of the appropriate precautions to take to protect their health.					
Mitigation Measure 39: Implement Measures to Minimize the Need for Protective and Emergency Response Services Reclamation shall follow the following measures to minimize the need for protective and emergency response services (e.g., fire, police, and emergency medical services): • Practicable and conventional precautions shall be taken by the contractor to ensure the safety of workers and the general public by adequately securing work sites and fencing hazardous areas and trenches during construction activities. This action shall be the responsibility of the contractor and shall be made a part of the standards and specifications included in their contract. • Physical barriers and sign postings (including "No Trespassing") consistent with standard construction safety management practices shall be used by the contractor to discourage and limit access to construction areas. This action shall be the responsibility of the contractor and shall be made a part of the standards and specifications included in their contract. • The contractor shall provide notice to county law enforcement and fire protection agencies during proposed construction activities. This requirement shall be included	Impact 4.13-1. Proposed activities at the Restoration Project sites may increase demands on fire, police, and emergency medical services	Plan: Fire Prevention and Control Plan Developed by: Reclamation in consultation with Shasta County Fire Department, and Tehama County Fire Department Approval by: CDFFP, Shasta County Fire Department, and Tehama County Fire Department	Before and during construction	Reclamation (Construction Contractor)	Reclamation in coordination with CDFFP and Shasta and Tehama County Fire Departments

Environmental Commitment/Mitigation Measure	Impact/Effect Being Mitigated	Programs, Plans, and Reports	Timing	Responsibility for Implementation	Responsibility for Oversight and Monitoring
in the standards and specifications included in their contract. • During construction activities, the contractor shall adhere to standard precautions and approaches required by the CDFFP and Shasta and Tehama County Fire Departments when dealing with very high fire hazard severity zones. • Reclamation shall prepare a Fire Prevention and Control Plan in consultation with and for approval by the CDFFP and Shasta and Tehama County Fire Departments, as outlined in the *Industrial Operations Fire Prevention Field Guide* published by the CDFFP and State Fire Marshal, and file the approved plan with the appropriate fire protection agency before beginning construction. Precautions shall include, but are not limited to, the use of Forest Service–approved spark arresters on all internal combustion engines, preplacement of fire suppression equipment, restriction of smoking and equipment refueling to cleared areas, and restriction of activities during "Red Flag" conditions. The Fire Prevention and Control Plan shall be included in the standards and specifications made part of the contract for construction work. • Reclamation shall inform workers in the Worker Environmental Education Program (Mitigation Measure 1) about the requirements of the Fire Prevention and Control Plan.					
Mitigation Measure 40: Implement Measures to Reduce Construction-Related Impacts on Recreational Activities Offered at Oasis Springs Lodge To reduce construction-related impacts on recreational activities offered at the Oasis Springs Lodge, Reclamation shall notify Oasis Springs Lodge as soon as possible and before construction activities begin, of the anticipated start date, duration, and type of construction.	Impact 4.14-1. Construction activities at Inskip Diversion Dam could reduce recreational opportunities at Oasis Springs Lodge	None	Before construction	Reclamation (Construction Contractor)	Reclamation in coordination with the State Water Board, FERC, and signatories to the 1999 MOU[b]

Environmental Commitment/Mitigation Measure	Impact/Effect Being Mitigated	Programs, Plans, and Reports	Timing	Responsibility for Implementation	Responsibility for Oversight and Monitoring
• At the end of each construction day, all equipment shall be stored at a designated staging area that is located outside the viewshed of Oasis Springs Lodge. • Reclamation shall consult with lodge operators to identify any additional impacts on recreational opportunities and determine whether any further mitigation measures are feasible and appropriate.	Effect 4.16-6. Potential construction-related loss of revenues at Oasis Springs Lodge.				
Mitigation Measure 41: Implement Measures to Reduce Construction-Related Impacts on Recreational Activities near the Restoration Project Area To reduce construction-related impacts on recreational activities near the Restoration Project area in Shasta and Tehama Counties, Reclamation shall implement the following measures: • Provide nearby land and property owners notification of the anticipated start date and duration of activities and opportunity for collaboration before construction activities begin. • To the extent feasible, minimize the duration of construction activities during those periods when recreational activities would be most affected.	Impact 4.14-2. Construction activities could temporarily reduce recreational resources and activities	None	Before construction	Reclamation (Construction Contractor)	Reclamation in coordination with the State Water Board, FERC, and signatories to the 1999 MOU[b]
Mitigation Measure 42: Reduce Construction-Related Impacts on Access to Public and Private Recreational Areas To reduce construction-related impacts on access to public and private recreational areas, Reclamation shall implement the following measures: • Notify nearby land and property owners prior to construction activities of the anticipated start date and duration of these activities. • Notify nearby land and property owners prior to construction activities of any exclusion zones needed for	Impact 4.14-3. Construction activities, including the use of equipment and storage areas, may temporarily impede public access to Battle Creek for kayaking and to private property where landowners may grant public access by selling hunting and fishing rights	None	Before and during construction	Reclamation (Construction Contractor)	Reclamation in coordination with the State Water Board, FERC, and signatories to the 1999 MOU[b]

Environmental Commitment/Mitigation Measure	Impact/Effect Being Mitigated	Programs, Plans, and Reports	Timing	Responsibility for Implementation	Responsibility for Oversight and Monitoring
safety reasons related to heavy equipment and rock fall. • Post signs along access roads alerting recreation users to the presence of construction machinery and activities and advising them of the anticipated start date and duration of these activities prior to and during construction periods. • Where practicable, store heavy equipment alongside access roads and roadways to allow public passage. • Minimize the duration of construction activities when recreational activities would be most affected.					
Mitigation Measures 43: Implement Measures Identified in the Memorandum of Agreement between the State Historic Preservation Officer and Reclamation for Historic Properties That Would Be Removed as a Result of Implementing the Restoration Project To comply with Section 106 of the National Historic Preservation Act (NHPA), Reclamation has consulted with the SHPO and the Advisory Council on Historic Preservation regarding the potential effects of the Restoration Project on significant cultural resources. A MOA between Reclamation and SHPO (SHPO MOA) was prepared that outlines measures to mitigate the adverse effects to historic properties (see Appendix T in Volume II of the Final EIS/EIR). Mitigation measures identified in the SHPO MOA include preparing HAER documentation for all National Register eligible structures and seeking out and reproducing historic photographs and current and historic drawings for each structure Requirements identified in the MOA have been completed.	Impact 4.15-1. Historic properties would be removed (Coleman Diversion Dam and Wildcat Diversion Dam) Impact 4.15-2. Historic properties would be adversely affected (Eagle Canyon and Inskip Diversion Dams)	Report: HAER Documents Developed by: Reclamation in coordination with the signatories to the 1999 MOU[b], SHPO, State Water Board, and FERC	Before, during, and after construction	Reclamation	Reclamation

Environmental Commitment/Mitigation Measure	Impact/Effect Being Mitigated	Programs, Plans, and Reports	Timing	Responsibility for Implementation	Responsibility for Oversight and Monitoring
Mitigation Measure 44: Avoid and Minimize Potential Damage to Archaeological Deposits as a Result of Vehicular Traffic Impacts on the prehistoric/historic campsite would be reduced by avoiding the site, as specified in Reclamation's determination of effect (West 2001). The access road shall be flagged during construction and the contractor and construction crew shall be instructed to prevent any traffic or activities beyond the flagging.	Impact 4.15-3. Potential damage to archaeological deposits as a result of vehicular traffic	None	Before and during construction	Reclamation (Construction Contractor)	Reclamation (Environmental Contractor)
Mitigation Measure 45: Avoid and Minimize Potential Damage to Archaeological Deposits at the Jeffcoat Aquaculture Facility To comply with Section 106 of the NHPA, Reclamation has completed compliance for activities associated with the Jeffcoat Aquaculture facility as demonstrated by receipt of a letter from the SHPO on November 6, 2006. In that letter, SHPO concurred that the actions planned at Jeffcoat would result in no historic properties affected.	Impact 4.15-4. Potential impact to cultural resources at the Jeffcoat aquaculture facility	Report: Cultural Resources Inventory, Archaeological Testing, and Evaluation Report	Before construction	Reclamation	Reclamation
Mitigation Measure 46: Comply with Section 106 for miscellaneous staging, stockpiling, access, and activity areas. Reclamation submitted a documentation package for miscellaneous areas found within Phase 1 (Phase 1A and Phase 1B) to SHPO on December 15, 2008 with a determination of no adverse effects to historic properties. While SHPO has yet to concur with this finding, Reclamation will ensure that the Section 106 process is completed for Phase 1 actions prior to construction. Reclamation commits to conducting cultural resources inventory of those areas associated with Phase 2 that have not been inventoried. Reclamation will ensure that National Register	Potential impact to cultural resources	Report: Addendum Cultural Resources Report for Phase 1 Construction of the Battle Creek Salmon and Steelhead Restoration Project, Shasta and Tehama Counties (dated December 2008).	Before construction	Reclamation	Reclamation

Environmental Commitment/Mitigation Measure	Impact/Effect Being Mitigated	Programs, Plans, and Reports	Timing	Responsibility for Implementation	Responsibility for Oversight and Monitoring
evaluations are completed for any identified cultural resources and that the Section 106 process shall be concluded prior to any construction activity at these localities.					

Acronyms

ASIP	Action Specific Implementation Plan
BMPs	best management practices
CDFFP	California Department of Forestry and Fire Protection
CEQA	California Environmental Quality Act
Corps	U.S. Army Corps of Engineers
CVRWQCB	Central Valley Regional Water Quality Control Board
dB	decibels
dBA	A-weighted sound pressure levels, or decibels
DFG	California Department of Fish and Game
EIS/EIR	Environmental Impact Statement/Environmental Impact Report
FERC	Federal Energy Regulatory Commission
GPS	global positioning system
HAER	Historic American Engineering Record
HMMP	Habitat Mitigation and Monitoring Plan
IHN	infectious hematopoietic necrosis
MLTF	Mount Lassen Trout Farm
MMRP	Mitigation Monitoring and Reporting Plan
MOA	Memorandum of Agreement

MOU	Memorandum of Understanding
NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service
NPDES	National Pollutant Discharge Elimination System
NCNCR	Northern California, North Coast Region
PCBs	polychlorinated biphenyls
PG&E	Pacific Gas and Electric Company
PM10	particulate matter 10 microns in mean diameter or less
SCAQMD	Shasta County Air Quality Management District
SHPO	State Historic Preservation Officer
SWPPP	Stormwater Pollution Prevention Plan
State Water Board	State Water Resources Control Board
TCAPCD	Tehama County Air Pollution Control District
TNC	The Nature Conservancy
USBM	U.S. Department of the Interior, Bureau of Mines
USFWS	U.S. Fish and Wildlife Service
Reclamation	U.S. Department of the Interior, Bureau of Reclamation

Notes:

[a] The environmental commitments and mitigation measures presented in this Mitigation, Monitoring, and Reporting Plan are also presented in the Final EIS/EIR (Jones & Stokes 2005) for the Battle Creek Salmon and Steelhead Restoration Project.

[b] Signatories to the 1999 MOU are Reclamation, NMFS, USFWS, DFG, and PG&E. Implementation of any mitigation measure by Reclamation and USFWS, as is described in this document, is subject to authorization and appropriations under federal law.

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