

**DRAFT SUPPLEMENTAL V
ENVIRONMENTAL ASSESSMENT/
ENVIRONMENTAL IMPACT REPORT**

**Folsom Dam Safety and Flood Damage Reduction Project
Right Bank Stabilization**

**July 2014
SCH #2006022091**



**US Army Corps
of Engineers**



Approved for public release; distribution is unlimited

EXECUTIVE SUMMARY

ES.1 Purpose of the SEIS/EIR

This draft Supplemental Environmental Analysis/Environmental Impact Report (EA/EIR) has been prepared for the Folsom Dam Safety Modification Project, Right Bank Stabilization. This draft EA/EIR is a supplement to the 2007 Final EIS/EIR for the Folsom Dam Safety and Flood Damage Reduction Project (2007 FEIS/EIR), prepared by the U.S. Bureau of Reclamation. This project is also known as the Folsom Joint Federal Project (Folsom JFP). The Folsom JFP is a cooperative effort between the U.S. Army Corps of Engineers (Corps), the U.S. Bureau of Reclamation (USBR), the State of California Central Valley Flood Protection Board (CVFPB), and the Sacramento Area Flood Control Agency (SAFCA).

The 2007 FEIS/EIR stated that the design of the spillway approach channel would be determined in the Corps' pre-construction, engineering, and design phase and if needed, supplemental National Environmental Policy Act (NEPA)/California Environmental Quality Act (CEQA) documentation would be prepared. Subsequent technical studies and hydraulic modeling indicated that the convergence of flows from Folsom Dam and the new auxiliary spillway could erode and possibly destabilize the existing slope along the right bank of the American River where the two flows converge. This draft EA/EIR examines the impacts of proposed construction slope protection measures along approximately 400 feet of the right bank of the American River.

While this draft Supplemental EA/EIR builds upon and incorporates work already completed as part of the project development process, it does not reproduce in full the prior 2007 FEIS/EIR and ROD documentation. Detailed discussions of the changes to the project and/or conditions of the project area since 2007 are presented in the 2012 Folsom Dam Modification Project Approach Channel Supplemental Environmental Impact Statement/ Environmental Impact Report (2012 SEIS/EIR). The 2012 SEIS/EIR was supplemental to the 2007 FEIS/EIR and analyzed the construction of the approach channel to the auxiliary spillway. This Supplemental EA/EIR incorporates information from those documents by reference, where applicable.

The 2007 FEIS/EIR and ROD, and the 2012 SEIS/EIR and ROD can be reviewed at: http://www.usbr.gov/mp/nepa/nepa_projdetails.cfm?Project_ID=1808 and <http://www.spk.usace.army.mil/Missions/CivilWorks/FolsomDamAuxiliarySpillway.aspx>

ES.2 Project Area

Folsom Dam is located at the confluence of the North and South Forks of the American River, approximately 29 miles upstream from the city of Sacramento, near the city of Folsom (Figure ES-1). The new auxiliary spillway is being constructed on the left abutment of the main dam, immediately downstream of the existing left wing dam.

Construction activities associated with the stabilization of the existing right bank slope will be confined to the lower right bank slope of the American River starting approximately 700 feet

downstream from the Folsom Dam powerhouse. The project area for this Supplemental EA/EIR includes the right bank of the American River from the main dam to Folsom Lake Crossing Bridge, and USBR maintenance road to the powerhouse. The project area is shown on the map in Figure ES-2.

ES.3 Background and Need For Action

The evaluation in the 2007 FEIS/EIR was based on technical studies and the level of project design available at the time. Subsequent technical studies and hydraulic modeling indicated that the convergence of flows from the main dam and the auxiliary spillway could erode and possibly destabilize the existing slope along the right bank of the American River. After the auxiliary spillway becomes operational, changes in river hydraulics downstream of the stilling basin will occur that have not been experienced to date. Due to the orientation of the auxiliary spillway, an approximately 400 foot reach of the American River right bank slope may be more vulnerable to erosion and scour, depending on how the facilities are operated. As a result, concerns have been raised about what the impacts might be if erosion and scour are increased due to the new auxiliary spillway. Turbulent flow conditions along the right bank side of the American River could result in the displacement and/or release of large blocks of rock. This could result in a partial blockage/obstruction of flow; a rise in tailwater elevation, affecting power generation; and the potential for progressive failure of the upper bank slope.

This draft Supplemental EA/EIR provides this supplemental documentation and evaluates the direct, indirect, and cumulative environmental effects of slope protection measures and identifies mitigation measures to avoid, minimize, and compensate for impacts.



Project Vicinity Map			 
Folsom Dam Modification Project, Approach Channel			
Date: March 2012		ES - 1	

Figure ES-1. Project Vicinity Map.



<p style="text-align: center;">Project Features</p> <p style="text-align: center;">Folsom Dam Safety and Flood Damage Reduction, Right Bank Stabilization Project</p>	<p style="text-align: right;">Plate 2</p> 
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Figure ES-2. Project Area Map.

ES.4 Alternatives

ES.4.1 Alternative 1 – No Action

Under the no action alternative, the Corps and the CVFPB would not implement the slope protection measures proposed in this EA/EIR. During releases in high flow events, the tailwater could reach an elevation of 186.0 feet. Turbulent flow conditions along the right bank of the American River could result in the displacement and/or release of large blocks of rock. This could result in a partial blockage/obstruction of flow; a rise in tailwater elevation, affecting power generation; and the potential for progressive failure of the upper bank slope.

ES.4.2 Alternative 2 – Implement Slope Protection Measures (Preferred Action)

Alternative 2 consists of the installation of approximately 40 rock bolts between 25 and 30 feet in length to pin the rock mass and the construction of a 20-foot wide access road and a platform to allow for mobilization of the crane.

ES.6 Environmental Effects and Mitigation

There would be no significant effects to resources. The project would cause temporary effects to air quality, vegetation and wildlife and water quality, but these effects would be less than significant. Table ES-1 summarizes the potential effects of the alternatives, the significance of those effects, and any potential mitigation measures that would be implemented to reduce any effects to less than significance, if possible.

ES.7 Compliance With Applicable Laws, Policies, and Plans

This document will be adopted as a joint Supplemental EA/EIR and will fully comply with National Environmental Policy Act and California Environmental Quality Act requirements. The project will comply with all Federal laws, regulations, and Executive Orders. In addition, the non-Federal sponsor will comply with all State and local laws and permit requirements.

ES.8 Public Involvement

This draft Supplemental EA/EIR will be circulated for a 45-day review to Federal, State, and local agencies; organizations; and individuals who have an interest in the project. All comments received during the public review period will be considered and incorporated into the final Supplemental EA/EIR, as appropriate. A comments and responses appendix will be included in the final Supplemental EA/EIR.

ES.9 Areas of Controversy

No significant issues have been identified for implementing the slope protection measures. Significant issues identified as areas of controversy by agencies and the public related to construction of the entire Folsom JFP are summarized below. These issues are based on

preliminary studies and comments from previous phases during formal and informal agency meetings, workshops, public meetings, telephone discourse, letters, and emails.

- Preliminary air quality emission calculations indicated that concurrent construction of project phases would result in air emissions that could lead to violations of applicable State ambient air quality standards and not comply with the Federal Clean Air Act (CAA).
- Construction is expected to increase noise levels, affecting local recreationists and adjacent residents, even under circumstances of compliance with the City of Folsom noise ordinances.
- Public comments to the 2007 EIS/EIR identified concerns over temporary curtailment of recreational activities in the project area. However, Folsom Point and the Folsom Point launch area will remain open to recreationists.
- Recreational experience may be degraded in and adjacent to the project area. Noise, visual esthetics, and access will be compromised during construction during years 2013 to 2017.

ES.10 Unresolved Issues

At this time, there are no unresolved issues. The Corps will continue working with the Sacramento Metropolitan Air Quality Management District and the California Air Resources Board to ensure compliance with the CAA, as discussed in Section ES.9 above.

ES.11 Preferred Plan

Based on the results of the technical, economic, and environmental analyses; coordination with the non-Federal sponsor; and public input, Alternative 2 has been identified as the preferred plan. Based on geotechnical studies, Alternative 2 has been identified as the alternative that meets the public safety standards.

Table ES-1. Comparative Summary of Environmental Effects, Mitigation, and Levels of Significance.

	Alternative 1 – No Action	Alternative 2 – Implement Slope Protection Measures
Aesthetics		
Effect	No effect.	No effect.
Significance	Not applicable.	Not applicable.
Mitigation	Not applicable.	Not applicable.
Fisheries		
Effect	No effect.	No effect.
Significance	Not applicable.	Not applicable.
Mitigation	Not applicable.	Not applicable.
Hazardous, Toxic, and Radiological Wastes		
Effect	No effect.	No effect.
Significance	Not applicable.	Not applicable.
Mitigation	Not applicable.	Not applicable.
Land Use and Socioeconomics		
Effect	No effect.	No effect.
Significance	Not applicable.	Not applicable.
Mitigation	Not applicable.	Not applicable.
Noise		
Effect	No effect.	No effect.
Significance	Not applicable.	Not applicable.
Mitigation	Not applicable.	Not applicable.
Recreation		
Effect	No effect.	No effect.
Significance	Not applicable.	Not applicable.
Mitigation	Not applicable.	Not applicable.
Topography, Geology, and Soils		
Effect	No effect.	No effect.
Significance	Not applicable.	Not applicable.
Mitigation	Not applicable.	Not applicable.

Traffic		
Effect	No effect.	No effect.
Significance	Not applicable.	Not applicable.
Mitigation	Not applicable.	Not applicable.
Air Quality		
Effect	No effect.	NO _x will exceed SMAQMD standards.
Significance	Not applicable.	Less than significant with mitigation.
Mitigation	Not applicable.	Incorporation of SMAQMD Basic Construction Emission Control Practices and Enhanced Exhaust Control Practices.
Climate Change		
Effect	No effect.	GHG emissions will not exceed thresholds,
Significance	Not applicable.	Less than significant,
Mitigation	Not applicable.	All applicable BMPs will be incorporated. Air quality mitigation measures and BMPS will help reduce GHG emissions further.
Cultural Resources		
Effect	No effect.	No adverse effect.
Significance	Not applicable.	Not applicable.
Mitigation	Not applicable.	If archeological deposits are found during project activities, work would be stopped pursuant to 36 CFR 800.13(b), Discoveries without Prior Planning, to determine the significance of the find and, if necessary, complete appropriate discovery procedures.
Special Status Species		
Effect	No effect.	Temporary disturbance to elderberry shrubs; if present, disturbance to Swainson's hawk, Cooper's hawk, and white-tailed kites.
Significance	Not applicable.	Less than significant with mitigation
Mitigation	Not applicable.	Incorporating measures from USFWS "Conservation Guidelines for the Valley Elderberry Longhorn Beetle. Conduct surveys for listed birds and if

		necessary implement CDFG recommendations.
Vegetation and Wildlife		
Effect	No effect.	Potential loss of up to 12 trees.
Significance	Not applicable.	Less than significant with mitigation
Mitigation	Not applicable.	Recommendations proposed by USFWS. Site restoration, planting of trees and/or mitigation bank credits.
Water Quality		
Effect	No effect.	Accidental spills of construction-related substances such as oils and fuels can contaminate both surface water and ground water. Potential for fugitive dust, construction runoff, and incidental fallback of materials to enter waterways.
Significance	Not applicable.	Less than significant with mitigation.
Mitigation	Not applicable.	Implementing standard BMPs to avoid or minimize any effects of construction on surface waters as part of the SWPPP and NPDES permits.

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ACRONYMS & ABBREVIATIONS

APE	area of potential effects
BMPs	best management practices
CARB	California Air Resources Board
CAA	Clean Air Act
CCAA	California Clean Air Act
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CH ₄	methane
CNDDB	California Natural Diversity Database
CO	carbon monoxide
CO ₂	carbon dioxide
CO _{2e}	carbon dioxide equivalents
Corps	U.S. Army Corps of Engineers
CVFPB	Central Valley Flood Protection Board
CVRWQCB	Central Valley Regional Water Quality Control Board
CWA	Clean Water Act
dB	decibels
dBA	“A-weighted” decibel
EA	Environmental Assessment
EA/EIR	Environmental Assessment/Environmental Impact Report
EA/IS	Environmental Assessment/Initial Study
EFH	essential fish habitat
EIR	Environmental Impact Report
EIS	Environmental Impact Statement
EPA	U.S. Environmental Protection Agency
°F	degrees Fahrenheit
FEIS/EIR	Final Environmental Impact Statement/Environmental Impact Report
Folsom Facility	Folsom Dam and its associated facilities
FONSI	Finding of No Significant Impact
GCR	General Conformity Rule
GHG	greenhouse gas
HFC	hydrofluorocarbons
HOV lanes	bus/carpool lanes
HTRW	hazardous, toxic, and radiological wastes
JFP	Joint Federal Project
L ₅₀	noise level exceeded more than 30 minutes per hour
LOS	level of service
µg/m ³	micrograms per cubic meter
MIAD	Mormon Island Auxiliary Dam
N ₂ O	nitrous oxide
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NO ₂	nitrogen dioxide

NO _x	oxides of nitrogen
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
O ₃	ozone
OPR	Governor's Office of Planning and Research
Pb	lead
PFC	perfluorocarbons
PM	particulate matter
PM _{2.5}	fine particulate matter
PM ₁₀	inhalable particulate matter
ROG	reactive organic gas
RWQCB	Regional Water Quality Control Board
SAFCA	Sacramento Area Flood Protection Agency
SF ₆	sulfur hexafluoride
SMAQMD	Sacramento Metropolitan Air Quality Management District
SO ₂	sulfur dioxide
SWPPP	Storm Water Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TAC	toxic air contaminants
USBR	U.S. Bureau of Reclamation
USFWS	U.S. Fish and Wildlife Service
WRDA	Water Resources Development Act

1.0 INTRODUCTION

1.1 Proposed Action

The U.S. Army Corps of Engineers (Corps) and the State of California Central Valley Flood Protection Board (CVFPB) propose to implement design refinements to the Folsom Dam Safety and Flood Damage Reduction Project (Folsom JFP), previously addressed in the Final Environmental Impact Statement/Environmental Impact Report on the Dam Safety and Flood Damage Reduction Project (2007 FEIS/EIR), issued by the U.S. Bureau of Reclamation (USBR) in 2007 (USBR 2007). These design refinements include slope protection measures along approximately 400 feet of the right bank of the American River downstream of the main dam. The purposed action would ensure the right bank slope remains stable where flows from the main dam and the auxiliary spillway converge. Construction details of these design refinements are included in Section 2.2.

1.2 Background and Need

The Folsom JFP is a cooperative effort among the Corps, CVFPB, USBR, and the Sacramento Area Flood Control Agency (SAFCA). The Folsom JFP is designed to improve the dam safety, security, and flood damage reduction features at Folsom Dam and associated facilities, including construction of a gated auxiliary spillway southeast of the main dam. Folsom Dam is a concrete gravity dam 340 feet high and 1,400 feet long flanked by left and right earthfill wing dams. The Folsom Facility also includes Morman Island Auxiliary Dam and eight earthfill dikes. The storage capacity for the reservoir is 977,000 acre-feet at an elevation of 466 feet. Construction of Folsom Dam by the Corps began in October 1948 and was completed in May 1956. The auxiliary spillway is currently under construction by the Corps and will be completed in approximately Fall 2017.

Operation of this spillway would increase water discharge capability from the reservoir and help to provide a 200-year level of flood protection to the Sacramento area. The potential effects of the Folsom JFP on environmental resources were evaluated by USBR in the 2007 FEIS/EIR. The Corps was a cooperating agency in the development of the 2007 FEIS/EIR, and a joint Record of Decision was signed on May 3, 2007. A Notice of Determination (NOD) and Statement of Findings were issued by the CVFPB on July 20, 2007.

The evaluation in the 2007 FEIS/EIR was based on technical studies and the level of project design available at the time. Subsequent technical studies and hydraulic modeling indicated that the convergence of flows from the main dam and the auxiliary spillway could erode and possibly destabilize the existing slope along the right bank of the American River where the flows from the main dam and auxiliary spillway converge. After the auxiliary spillway becomes operational, changes in river hydraulics downstream of the stilling basin will occur that have not been experienced to date. Due to the orientation of the auxiliary spillway, an approximately 400 foot reach of the American River right bank slope may be more vulnerable to erosion and scour, depending on how the facilities are operated. As a result, concerns have been raised about what the impacts might be if erosion and scour are increased due to the new auxiliary spillway. Turbulent flow conditions along the right bank side of the American River could result in the

displacement and/or release of large blocks of rock. This could result in a partial blockage/obstruction of flow; a rise in tailwater elevation, affecting power generation; and the potential for progressive failure of the upper bank slope.

Before a decision can be made to proceed with the bank stabilization action, the effects of the slope protection measures must be evaluated to determine whether they would have any significant environmental effects that could not be avoided or mitigated to less than significant. Without these slope protection measures, turbulent forces could cause erosion or cause displacement of rock blocks in the lower, steeper portion of the bank slope.

1.3 Project Area

Folsom Dam is located at the confluence of the North and South Forks of the American River, approximately 29 miles upstream from the city of Sacramento, near the city of Folsom (Plate 1). The new auxiliary spillway is being constructed on the left abutment of the main dam, immediately downstream of the existing left wing dam.

Construction activities associated with the stabilization of the existing right bank slope will be confined to the lower right bank slope of the American River starting approximately 700 feet downstream from the powerhouse. The project area for this Supplemental EA/EIR includes the right bank of the American River from the main dam to Folsom Lake Crossing Bridge, and USBR's maintenance road to the powerhouse (Plate 2).

1.4 Folsom JFP Authority

Construction of the auxiliary spillway was authorized by Section 101(a)(6)(A) of the Water Resources Development Act (WRDA) of 1999 (1113 Stat. 274) and modified by Section 128 of the Energy and Water Development and Appropriations Act of 2006 (119 Stat. 2259). Specifically, Section 128 of the 2006 Act authorizes the Secretary of the Army and the Secretary of the Interior to collaborate on developing alternatives to provide flood damage reduction improvements and dam safety measures at Folsom Dam, including an auxiliary spillway. Formal authorization for the Folsom JFP was included in Section 3029(b) of WRDA 2007, authorizing the Corps and USBR to construct the auxiliary spillway generally in accordance with Corps' Post Authorization Change Report, American River Watershed Project (Folsom Dam Modifications and Folsom Dam Raise) (Corps 2007).

1.5 Purpose of the Supplemental EA/EIR

This Supplemental EA/EIR (1) describes the existing environmental and cultural resources in the project area; (2) evaluates the effects and significance of the proposed bank stabilization measures on these resources; and (3) proposes measures to avoid, minimize, or mitigate any adverse effects to less than significance. This EA/EIR has been prepared in accordance with the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA). This EA/EIR is intended to supplement the 2007 FEIS/EIR.

Based on the results of the EA/EIR, the District Engineer, Commander of the Sacramento District, will decide whether or not the proposed action qualifies for a Finding of No Significant Impact (FONSI) under NEPA or whether a supplemental EIS must be prepared. An EA and a FONSI will be sufficient if the proposed refinements are determined to not result in new significant effects on the environment beyond the significant effects identified in the 2007 FEIS/EIR and the scope and magnitude of impacts are within the range of impacts identified in the 2007 FEIS/EIR. In addition, CVFPB will consider certifying the EIR and adopting its findings, adopting the mitigation and monitoring plan, and approving the design refinements to the project.

1.6 Related Documents

The following documents are relevant to the modifications and are incorporated by reference in this Supplemental EA/EIR.

- 2007 Folsom Dam Safety and Flood Damage Reduction FEIS/EIR. The 2007 FEIS/EIR was prepared by USBR and contains the initial analysis of environmental effects and potential mitigation associated with the overall Folsom JFP.
- 2010 Folsom Dam Safety and Flood Damage Reduction EA/EIR, Control Structure, Chute, and Stilling Basin. The 2010 EA/EIR was supplemental to the 2007 FEIS/EIR and analyzed design refinements for the auxiliary spillway's chute, stilling basin, and construction of the control structure.
- 2012 Folsom Dam Safety and Flood Damage Reduction Project EA/EIR, Prison Staging Area and Stilling Basin Drain. The 2012 EA/EIR was supplemental to the 2007 FEIS/EIR and analyzed design refinements to use Folsom State Prison land as a staging area and to construct a drain at the stilling basin.
- 2012 Folsom Dam Modification Project Approach Channel SEIS/EIR. The 2012 SEIS/EIR was supplemental to the 2007 FEIS/EIR and analyzed the construction of the approach channel to the auxiliary spillway.

2.0 ALTERNATIVES

2.1 Alternatives Not Considered Further

The project area is situated in a narrow corridor adjacent to the American River where flows from the main Folsom dam and the auxiliary spillway converge. The purpose of this project is to protect and reinforce the right bank of the American River.

Structures designed to protect the areas around a slope from falling rocks include mesh or cable nets, barriers and fences, and catchment areas. These devices allow rocks to fall but prevent them from causing any damage. These types of protection can stop a rock, control its trajectory, reduce its energy, and/or provide a catchment.

Mesh or cable nets provided rockfall protection by holding rocks behind the mesh/net or direct them to a catchment area at the bottom of the slope. Nets were determined not to be feasible because they are limited to catch smaller sized rocks than what is located in the project area and would require a debris-collection catchment area. Barriers and fences are installed at the bottom of the slope and provide rockfall protection by catching and stopping falling rocks. These were determined not to be feasible due to the limited space of the project area, require too much maintenance and they not as aesthetically pleasing. Catchment areas are ditches or trenches dug along the foot of a slope used to dissipate falling rocks and collect rocks or debris that become detached from the slope. Catchment areas were determined not to be feasible due to the limited space of the project area and require maintenance.

2.2 Alternative 1 - No Action

Under the no action alternative, the Corps and the CVFPB would not implement the slope protection measures proposed in this Supplemental EA/EIR. During releases in high flow events, the tailwater could reach an elevation of 186.0 feet. Turbulent flow conditions along the right bank side of the American River could result in the displacement and/or release of large blocks of rock. This could result in a partial blockage/obstruction of flow; a rise in tailwater elevation, affecting power generation; and the potential for progressive failure of the upper bank slope.

2.3 Alternative 2 – Implement Slope Protection Measures (Preferred Action)

This section describes the proposed slope protection measures to the right bank of the American River. Other construction features described in the 2007 FEIS/EIR and supplemental documents would remain the same. Photographs of existing site conditions are provided in Plate 3.

2.3.1 Construction Details

Permits and Utilities. Prior to initiation of the project, the construction contractor would be required to obtain all Federal, State, and local permits and approvals necessary to perform the work, including those related to storm water discharge, air quality, and traffic safety. There are no known utilities located in the project area. The contractor would be required to verify if any utilities exist in or near the project area and ensure that any found would not be damaged or disrupted. If utilities are found, potentially affected utility companies would be contacted by the contractor concerning the timing and scope of the proposed work.

Mobilization and Staging. Access to the site would be from the west of the project area by way of Folsom-Auburn Road. Approximately one-quarter mile to the north of the signaled intersection of Folsom-Auburn Road and Folsom Lake Crossing Road, vehicles would turn right at the entrance to USBR's Central California Area Office (CCAO) facility (Figure 1). Access to the project area would be through USBR's property controlled by CCAO.

The project area is approximately 2 acres although the actual area of work to install the rock bolts would be confined to a much smaller area (approximately one-half acre). Staging area space is limited at the project area. There is an existing unpaved turnout area near the powerhouse in close proximity to the project area which would be used for staging and vehicle parking (Figure 2). A second staging area located along approximately 0.5 acres of an existing dirt road located may

be used if additional space is required (Plate 2). Access to the powerhouse is controlled by USBR and the use of this area would be coordinated with CCAO. Due to the scope and nature of work involved, the need for vehicular parking, staging and laydown areas would be small. Minimal grading would be required to enlarge the existing unpaved turnout area to develop sufficient space for staging and vehicles. Prior to initiation of the work, the staging area would be fenced.

Lower Slope Protection. To ensure the slope of the right bank remains stable between elevations 130 and 155, post-tensioned rock bolts would be installed below elevation 155 (Figure 3). A rock bolt is a long anchor bolt which is used to stabilize rock. Rock bolts generally consist of steel elements (bars or strands) grouted in a drilled hole. Rock bolts actively transfer loading between the unstable exterior, to the stable, stronger interior of the rock, thereby lowering the structure's center of gravity. Rock bolts work by 'knitting' the rock mass together sufficiently before it can move enough to loosen and fail. Approximately 40 rock bolts between 25 and 30 feet in length would be placed to pin the rock mass. Holes would be drilled into the rock slope and then filled with cement grout or resin grout to hold the rock bolts in place. Rock bolts would be installed perpendicular to the slope and subsequently tensioned. In addition to the installation of rock bolts, formed concrete could be required to fill in joint cavities directed inward to prevent the potential dislodging of several large rock blocks in the vicinity.



Figure 1. Access to the Project Area

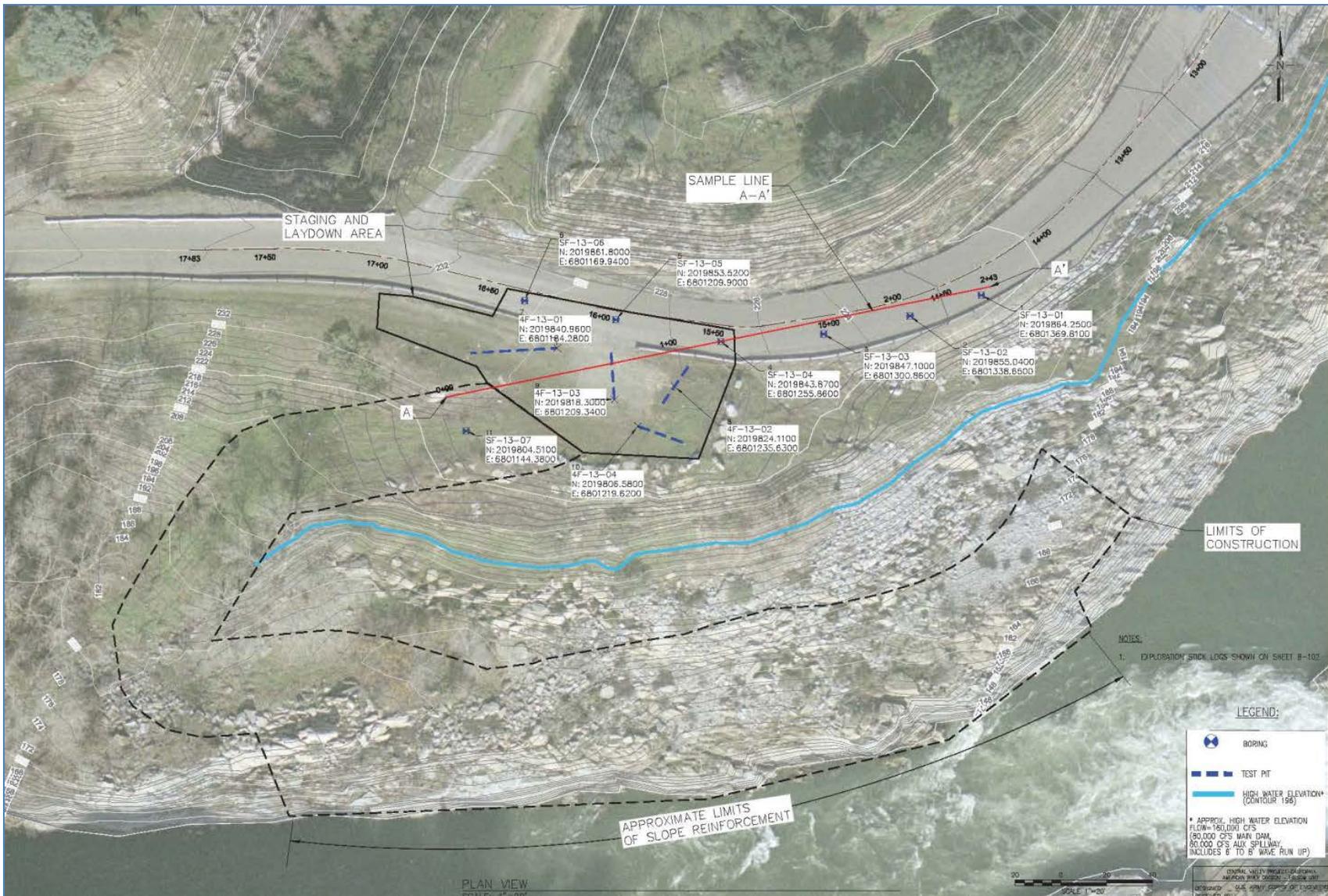


Figure 2. Staging Area and Access Road Alignment



Figure 3. Approximate Rock Bolt Locations

Site Preparation. The project site is located along a steep slope, which is difficult for drilling equipment to access. Site preparation would involve clearing an area for a work platform to place a crane and other equipment needed for installing rock bolts. A crane platform could be setup on either the upper-slope staging area or on a mid-slope area. The crane would lower the crew and drilling equipment over the edge to install the rock bolts. Alternatively, to access hard-to-reach rock bolt locations, the contractor could use a barge to conduct drilling operations. The barge would allow a track-mounted drill rig to be transported to the shoreline to access the rock bolt locations.

Access Road. A 20-foot wide access road and a platform would be constructed to allow for mobilization of the crane. The access road alignment is shown on Figure 2. Site preparation for the access road would include minor clearing, grubbing, and tree removal of approximately 0.04 acres. Approximately 3,000 cy of material would be need to develop the access road. Small earth-moving equipment would cut approximately 1,000 cubic yards (cy) of material. All suitable material from excavation would be reused to construct the access road to the extent feasible. Approximately 2,000 cy of fill material would need to be imported for the access road. It is anticipated that the fill material needed would come from existing local commercial off-site source and delivered to the site. For the construction of the access road, soil would be graded, scarified, and compacted. Aggregate base material would be spread over the access road and compacted to 100 percent density. Completion of the access road is estimated to take approximately 2 weeks.

Demobilization and Clean Up. Once the slope protection measures are completed, the contractor would remove all construction equipment, temporary fencing, and unused materials from the project area. In addition, all work areas would be cleaned of work-related debris and rubbish, and work areas would be left in a neat and presentable condition. Any roadway pavement or parking area gravel damages due to construction equipment or haul trucks would be repaired to pre-project conditions.

Restoration. The contractor would restore all disturbed areas to pre-project conditions via seeding with a plant mix typical of the area to prevent erosion and encourage revegetation. Any trees removed would be mitigated in accordance with the recommendations provided in the Coordination Act Report. If mitigation cannot be completed on-site, it is assumed to be completed at Rossmoor Bar mitigation site along the American River.

Operation and Maintenance. No maintenance is required after the rocks bolts are installed.

2.3.2 Construction Schedule

The proposed slope protection measures would be conducted over a six month period starting the middle to late summer of 2015. Work hours would be limited to 7 a.m. to 6 p.m. on weekdays and 8 a.m. to 5 p.m. on Saturdays. No work would be conducted on Sundays or during late evening or night hours.

3.0 AFFECTED RESOURCES AND ENVIRONMENTAL EFFECTS

3.1 Introduction

This section evaluates the following environmental resource areas, in which the proposed Folsom Dam JFP refinements could have new or substantially more severe significant direct, indirect, and/or cumulative environmental effects:

- Air quality
- Climate Change
- Cultural resources
- Vegetation and Wildlife
- Special Status Species
- Water Quality
- Growth inducing and cumulative effects

In this document, “affected resources” refers to the present-day, existing environmental conditions of the project area. Both beneficial and adverse effects are considered, including direct effects during construction and indirect effects resulting from the project implementation. Where necessary, each section contains a discussion of the methods used to analyze effects. The basis of significance is based on NEPA and CEQA requirements. The Corps has integrated NEPA requirements into its regulations, policies, and guidance. Engineering Regulation 1105-2-100, “Planning Guidance Notebook,” April 2000, establishes the following significance criteria:

- Significance based on institutional recognition means that the importance of the effect is acknowledged in the laws, adopted plans, and other policy statements of public agencies and private groups. Institutional recognition is often in the form of specific criteria.
- Significance based on public recognition means that some segment of the general public recognized the importance of the effect. Public recognition may take the form of controversy, support, conflict, or opposition expressed formally or informally.
- Significance based on technical recognition means that the importance of an effect is based on the technical or scientific criteria related to critical resource characteristics.

For this Supplemental EA/EIR, these three NEPA criteria apply to all resources and are not repeated under each resource. The CEQA requirements are more specific to the resource and are listed in Appendix G of the CEQA Guidelines. The CEQA criteria relevant to an urban setting, as well as other agency criteria and thresholds of significance that apply to each resource, are identified under the appropriate resource. When necessary, measures are proposed to avoid, minimize, or reduce any adverse effects on that resource to less than significant.

3.2 Resources Not Considered in Detail

The following environmental resource areas are not addressed in this Supplemental EA/EIR because the proposed refinements are expected to have little or no effect on these resources: topography, geology, and soils, land use, prime farmland, socioeconomics, environmental justice, recreation, hazardous, toxic, and radiological waste, aesthetics, noise, and fisheries. The following discussion summarizes why each of these areas are not evaluated further.

3.2.1 Aesthetics

The project area is located in a remote open area on the west side of Folsom Dam. Regional views include Folsom Lake, as well as the surrounding foothills, which include open space preserves and/or recreational areas. Prominent features in the local viewshed are Folsom Dam, the out flow channel, and the auxiliary spillway. The primary viewers would consist of commuters and other motorists driving across Folsom Lake Crossing (bridge).

Construction activities would temporary affect the local viewshed. However, this area has ongoing construction from dam improvements; thus, the construction of the proposed action would not be a change from the current, existing conditions. Length of construction would be limited to six months. Once construction is completed, all equipment and barriers and fencing would be removed, and the local viewshed would return to pre-project conditions. As a result, the project would have no effect on aesthetics.

3.2.2 Fisheries

The upstream portion of Lake Natoma includes the highly bedrock-confined outflow channel below Folsom Dam. Lake Natoma, was formed by the construction of Nimbus Dam in 1955, and serves as a regulating afterbay for Folsom Reservoir. There are approximately 28 fish species that have the potential to occur downstream of Folsom Dam within either the outflow channel or Lake Natoma. Of these species, 24 are non-native and four are native. The four native species known to occur include Sacramento pikeminnow (*Ptychocheilus grandis*), Sacramento sucker (*Catostomus occidentalis*), rainbow trout (*Oncorhynchus mykiss*), and chinook salmon (*Oncorhynchus tshawytscha*). The latter two species from the salmonid family are important cold-water game species that are managed and maintained by California Department of Fish and Wildlife (CDFW) active hatchery-based stocking program. The most abundant non-native species originate from the centrarchid family, and include various bass and sunfish.

Rock bolts would be installed above the water line and no in-water excavation or drilling would occur. The contractor would be required to develop and submit a Storm Water Pollution Prevention Plan (SWPPP) to minimize the potential for soil, grout, or contaminants to enter the river. Erosion/sediment controls such as hay bales, straw wattles and silt fencing would be utilized as necessary to prevent soil from entering the river. The contractor will not be allowed to store fuels, lubricants or other potential hazardous substances on site. If equipment is to be refueled on site, the contractor will take measures to avoid and contain any spills. The contractor will be required to develop and submit a Spill Prevention and Countermeasure Plan (SPCP) prior to initiating construction activities. The SWPPP and SPCP must be approved by the Corps.

Construction-related effects on fish could include effects related to noise, and vibrations caused by drilling equipment operation. These types of physical disturbances can disrupt or delay normal activities, or cause injury or mortality. The potential magnitude of effects depends on a number of factors, including the type and intensity of the disturbance, proximity of the action to the water body, timing of actions relative to the occurrence of sensitive life stages, and frequency and duration of activities. Sound is measured in frequency (Hz) and intensity (decibels, dB), and the decibel scale is logarithmic (that is, 110 dB is 10 times greater than 100 dB, 120 dB is 100 times greater) (White 2003). NOAA Fisheries' interim criterion for physical injury to fish is a 206-dB peak, regardless of fish size.

Rock drilling activities could temporarily increase underwater noise but it is unlikely noise levels would be above thresholds for fish. For most activities, if present, noise-related effects on fish would be limited to avoidance behavior in response to movements, noises, and shadows caused by construction personnel and equipment operating. Resident fish would likely move downstream to an unaffected portion of the river in response to noise or disturbance and would therefore be unaffected. No listed fish species or essential fish habitat are present in the project area. The proposed project would have no effect on fisheries or fish habitat.

3.2.3 Hazardous, Toxic, and Radiological Waste

In January 2012, the Corps prepared an updated Phase I Environmental Site Assessment (ESA) to identify and evaluate potential hazardous, toxic, and radiological waste (HTRW) in and near the approach channel feature of the Folsom JFP. The purpose of the ESA was to review available documentation regarding past and current land use activities to assess the possible presence of hazardous substances and waste. The records investigation identified 78 HTRW sites, many of which were duplicated in multiple databases. The actual physical sites consisted of 16 aboveground storage tanks, underground storage tanks, treatment, generator, storage, or disposal facilities, as well as 23 mitigating sites or sites that had reported spills in the past. No sites were identified within or near the proposed project area.

Sites that were reported by Environmental Data Resources, Inc. would not affect the proposed construction because they are under control, exhibit no signs of continuing release and are generally more than 0.25 mile away from the project area. Based on the ESA and field reconnaissance, the project would have no effects on HTRW sites, and there is no apparent HTRW contamination that would interfere with construction of the project.

While the installation of the rock bolts would not require long-term storage or use of hazardous materials, there are potential health and safety hazards that include possible accidental spills or leaks involving fuels, lubricants, or explosives. Prior to initiation of construction, the contractor would prepare a hazardous materials control and response plan if minimum reportable quantities are met. The plan would include best management practices (BMPs) and other measures to avoid or minimize any potential hazard. As a result, the design refinements would not be expected to have any effects from use of hazardous materials.

3.2.4 Land Use and Socioeconomics

A detailed discussion of socioeconomics (population, housing, and the economy) and land use are presented in the 2012 SEIS/EIR. The land surrounding Folsom Dam and Reservoir is primarily Federally-owned and designated for recreation and flood control use. The major land use in the project area is USBR's Central California Area Office, the Folsom Dam industrial complex, Folsom State Prison, and a utility corridor. Implementation of the slope protection measures would not result in any changes in the designated zonings or existing land uses in or near the project area. As a result, the slope protection measures would have no effect on the overall land use.

As directed in Executive Order 12898, all Federal agencies must identify and address adverse human health or environmental effects of their programs, policies, and activities on minority and low-income populations. There are no minority, low-income populations or homeless encampments that would be disproportionately affected by the proposed action. All nearby residents would benefit equally from the project.

3.2.5 Noise

The primary sources of ambient (background) noise are construction equipment around Folsom Dam and vehicular traffic on area roadways is the dominant source of noise affecting noise-sensitive land uses in the project area. Acceptable levels of environmental noise are regulated at the local level through the general plan process and city and county noise ordinances. The proposed action is located in the City of Folsom and Sacramento County. The City of Folsom uses L_{50} as the baseline criterion level (City of Folsom 2010). The baseline criterion level (L_{50}) is 50 dBA during daytime and 45 dBA during nighttime.

The noise levels from construction activities would vary during the different activity periods, depending on the types of equipment being used. Typical types of construction equipment expected for this project included a compactor, crane, generators, grader, compressor, trucks, and a drill rig. Table 1 presents the noise levels from common construction equipment at 50 feet from the source.

Table 1. Typical Noise Emission Levels for Construction Equipment.

Equipment	Typical Noise Level (dBA) 50 feet from Source
Compactor	82
Crane	83
Generator	81
Grader	85
Truck	74-88
Horizontal drill	81

¹Extracted from table in U.S. Army Garrison-Hawaii, 2004.

Source: Federal Transit Administration 2006, Federal Highway Administration 2006.

Under worst case scenario, the average noise levels of the construction equipment would be 83 dBA, Leq at 50 feet. Noise from construction activities generally attenuates at a rate of 6 to 7.5

dBA per doubling of the distance of the noise source. The closest sensitive receptor to the project area is an apartment complex approximately 0.4 miles away. At a distance of over 2000 feet, noise levels would be reduced to below 50 dBA.

The length of construction would be limited to six months and few, if any, people would be expected in or near the project area. Construction hours would occur within the City of Folsom noise exemptions times (7:00 a.m. to 6:00 p.m. during weekdays and 8:00 a.m. to 5:00 p.m. on weekends) (City of Folsom 2010). Noise exemption times allows for noise generated by construction to not be subject to the exterior noise standard limits. Once construction is completed, all equipment would be removed and the local noise would return to pre-project conditions. As a result, the project would have no adverse effect on noise.

3.2.6 Recreation

A detailed discussion of recreation is presented in the 2012 SEIS/EIR. The major tributaries in the American River system include the North Fork American River, Middle Fork American River and South Fork American River. These tributaries drain the upper watershed into Folsom Reservoir. Nineteen miles of the South Fork of the American River has been designated as having outstanding values under the Federal Wild and Scenic Rivers Act. Starting at Chili Bar Reservoir and ending at the Folsom Lake State Recreation Area boundary, this stretch of the river was designated for its recreational whitewater boating and historical values.

Lake Natoma is approximately 6.5 miles downstream of Folsom Dam and serves as the afterbay to Folsom Reservoir. The Lower American River from Nimbus Dam to the confluence with the Sacramento River has been designated as a recreational river under the Federal Wild and Scenic Rivers Act.

The project area is located within the Folsom Lake State Recreation Area, below Folsom Dam. Folsom Lake State Recreation Area includes Folsom Reservoir and the surrounding landscapes which provide a variety of land- and water-based activities such as camping, hiking, marinas, bicycling, and boating (State of California 1984). Additionally, on the north and south side of Folsom Lake Crossing, there is a Class II Bike Trail along the edges of pavement. On the north side of Folsom Lake Crossing, there is also a Class I Bike Trail approximately 4 feet north of the Class II trail. The bike trail and recreational areas surrounding the reservoir are located a significant distance away from the project area and would not be affected by the proposed project.

3.2.7 Topography, Geology, and Soils

A detailed discussion of the area's topography, geology, and soils is presented in the 2012 SEIS/EIR. The project area is located in the American River watershed, which ranges in elevation from 10 feet above mean sea level at the confluence with the Sacramento River to 10,000 feet in the Sierra Nevada Mountains. Folsom Reservoir is in the foothills of the Sierra Nevada Mountains, set within the valley created by the confluence of the North and South Forks of the American River.

Localized areas of the project area would be disturbed during construction due to preparation of the staging area, excavation associated with the preparation of the access road and the construction of a crane pad. Soil types have a moderate to high erosion potential; because of the steep slopes within the project area, and the active excavation and grading of soil during construction activities, which could result in erosion. The construction contractors shall be required to prepare and implement a SWPPP and comply with the conditions of the NPDES general stormwater permit construction activity. Potential erosion during construction would be addressed through the implementation of BMPs. All suitable material from excavation of the access road would be reused in the project area to the extent feasible. Implementation of the slope protection measures would not change the topography of the area or the soils.

Fill and other materials needed would come from existing local commercial off-site source and delivered to the site. Two primary sources were identified as Cool Cave quarry near Auburn and Perkins Plants south of Hwy 50 east of Sacramento. The ultimate source of fill and other materials would be determined by the contractor.

The design and construction of the slope protection measures would comply with the regulatory standards of the Corps, USBR, and CVFPB and meet or exceed applicable design standards for static and dynamic stability, seismic-related ground failure including subsidence and landslides, therefore the project would not be affected by the area's geology. As a result, the slope protection measures would have no effect on the overall geology, soil conditions or topographic features in and near the project area.

3.2.8 Traffic

A detailed discussion of the area's traffic and circulation is presented in the 2012 SEIS/EIR. The main roadway and access route to the project area is Folsom-Auburn Road. This four-lane divided arterial which runs north and south, connecting Sacramento County to Placer County. The north bound direction provides access to Granite Bay while the south bound direction connects to the City of Folsom and Highway 50. Folsom-Auburn Road is used primarily by commuters, residents, and recreationist. Traffic consists mostly of private automobiles, light commercial vehicles, emergency vehicles, public buses, and bicycles.

Traffic volume on Folsom-Auburn Road peaks during the morning and evening rush hour and becomes a steady but lower volume during the day. A traffic study presented in the 2012 SEIS/EIR compiled average daily traffic (ADT) volumes along the roadways around Folsom Dam. According to the traffic study (2012), the ADT of Folsom-Auburn Road between Douglas Road to Folsom Dam Road was 44,918 and was projected to increase 2% each year.

Access to and from the project area for construction-related vehicles would be via local roadways, including Folsom-Auburn Road. These vehicles would include construction equipment, trucks, and worker vehicles. The equipment would be stored in the staging area, while the worker vehicles and trucks would make daily trips to and from the project area. Estimated increases in traffic on Folsom-Auburn Road during construction include 4 to 6 worker vehicle trips each day and 10 haul truck trips each day, for a maximum of 16 trips per day. Construction would be

limited to 6 days a week. This daily total would represent a less than one percent increase in traffic volume.

The weight and movement of construction traffic along Folsom-Auburn Road may result in some damage to the physical condition of the roadway surfaces. However, once the work at the placement site is completed, any damaged roadway areas would be returned to pre-project conditions by resurfacing with asphalt. As a result, there would be no long-term effects on the physical condition of area roadways. Additionally, there would be no road or lane closures, so there would be no effect on access for either local residents or emergency services in the Folsom area.

3.3 Resources Considered in Detail

Results of an initial evaluation indicated that the proposed action could affect the following resources. Sections 3.3.1 through 3.3.5 describe the existing conditions, effects, and proposed mitigation for the resources that may be significantly affected by the implementation of the proposed action. Both direct and indirect effects are evaluated.

3.3.1 Air Quality

This section describes the existing conditions for air quality, regulatory background, significance thresholds, effect analysis, and a qualitative analysis of effects.

Regulatory Background

Air quality management responsibilities exist at Federal, State, and local levels of government. The primary statutes that establish ambient air quality standards and the regulatory authorities necessary to enforce the regulations designed to attain those standards are the Federal Clean Air Act (CAA) and California Clean Air Act (CCAA). The enforcement of Federal and State air statutes and regulations is complex and the various agencies have different, but interrelated responsibilities.

The Federal Clean Air Act, which was last amended in 1990, requires the U.S. Environmental Protection Agency (USEPA) to set National Ambient Air Quality Standards (NAAQS) for pollutants considered harmful to public health and the environment (40 CFR part 50). Federal ambient air quality standards have been established for six “criteria pollutants”:

- Carbon monoxide (CO),
- Ozone (O₃),
- Inhalable particulate matter (PM₁₀ and PM_{2.5}—particulates 10 microns or less in diameter and 2.5 microns or less in diameter, respectively),
- Nitrogen dioxide (NO₂),
- Sulfur dioxide (SO₂), and
- Lead.

Primary standards were established to promote human health with an adequate margin of safety to protect those most vulnerable such as asthmatics, infants, and elderly persons. More stringent secondary standards were established to promote human welfare to prevent impaired visibility, and building and crop damage.

The CCAA establishes California Ambient Air Quality Standards (CAAQS). These standards are more stringent than Federal standards and include pollutants not listed under Federal standards. All Federal projects in California must comply with the stricter State air quality standards. In California, the Air Resources Board (CARB) is the responsible agency for air quality regulation. The NAAQS and the CAAQS tables are available in Appendix A.

Areas are classified as either *in attainment* or *in nonattainment* with respect to State and Federal AAQS. These classifications are made by comparing actual monitored air pollutant concentrations to State and Federal standards. If a pollutant concentration is lower than the State or Federal standard, the area is considered to be *in attainment* of the standard for that pollutant. If pollutant levels exceed a standard, the area is considered a *nonattainment* area. If data are insufficient to determine whether a pollutant is violating the standard, the area is designated *unclassified*.

To implement Section 176 of the CAA, the USEPA issued the General Conformity Rule which states that a Federal action must not cause or contribute to any violation of the NAAQS, or delay timely attainment of air-quality standards. A conformity determination is required for each pollutant where the total of direct and indirect emissions caused by a Federal action in a non-attainment (or maintenance) area exceeds *de minimis* rates listed in the rule (40 CFR 93.153). The Federal standard and local thresholds for Sacramento County are shown in Table 2.

Table 2. Air Emission Thresholds for Federal and Local Criteria Pollutants.

Criteria Pollutant	General Conformity <i>De Minimis</i> Thresholds (tons/year)	SMAQMD Threshold (lbs/day)
NO _x	25	85
CO	100	*
SO	100	*
PM ₁₀	100	*
PM _{2.5}	100	*
ROG	25	*

NO_x = nitrogen oxides CO = carbon monoxide SO = sulfur oxides PM₁₀ = particulate matter

ROG = reactive organic gases

SMAQMD = Sacramento Metropolitan Air Quality Management District * = default to State standard

Source: www.airquality.org/ceqa/index.shtml, 2005

Local AQMDs are responsible for implementing Federal and State regulations at the local level. The project area is in the Sacramento Valley Air Basin. The air quality in the area is managed by the Sacramento Metropolitan Air Quality Management District (SMAQMD), which is included in the Sacramento Federal Ozone Nonattainment Area (SFNA) and is also subject to regulations, attainment goals, and standards of the U.S. and California EPA's.

SFNA area is designated “severe” non-attainment for NO_x. As a part of the SFNA, Sacramento County is out of compliance with the State and Federal ozone standards (SMAQMD 2010). The designate “severe” nonattainment status sets the NO_x and ROG thresholds to 25 tons/year.

Sacramento was designated as a Federal non-attainment area for PM₁₀ and 24-hr PM_{2.5}; both standards have been met and the USEPA has recently re-designated the attainment status. SMAQMD was designated as a moderate nonattainment area for PM₁₀ under the Federal CAA of 1990. This designation required the Air District to submit the PM₁₀ State Implementation Plan and attain the PM₁₀ air quality standard by December 31, 2000. The 1998-2000 air monitoring data showed that the Air District achieved the air quality standard for PM₁₀. Effective March 18, 2002, the USEPA officially determined that Sacramento County had attained the PM₁₀ NAAQS by the attainment deadline based on PM₁₀ air quality monitoring data recorded during 1998 to 2000. The USEPA formally re-designated Sacramento County attainment for the Federal 24-hour PM₁₀ NAAQS, effective October 28, 2013.

On October 16, 2006, the USEPA lowered the daily PM_{2.5} standard from 65µg/m³ to 35µg/m³. The USEPA designated Sacramento County non-attainment of the 35 µg /m³ standard in November 2009, effective December 14, 2009 (40 CFR 81.305). Since 2007, measures implemented by SMAQMD and others were effective and led to attainment of the standard. The USEPA issued a proposed rule for Determination of Attainment for the Sacramento Nonattainment Area on October 26, 2012 for the daily PM_{2.5} standard and a final rule for Determination of Attainment on July 15, 2013. The final rule became effective on August 14, 2013 (78 FR 42018). In December 2012, the USEPA lowered the annual PM_{2.5} standard from 15µg/m³ to 12µg/m³. Sacramento’s annual PM_{2.5} concentrations met the 12µg/m³ standard in 2011.

Toxic Air Contaminants

In addition to the Federal and State criteria pollutants, the Federal CAA and CCAA have identified another class of pollutants. Hazardous air pollutants is a term used by the Federal CAA that includes a variety of pollutants that are known or suspected carcinogens and are generated or emitted by a wide variety of industries. Ten toxic air contaminants (TAC) under the CCAA have been identified through ambient air quality data as posing the greatest health risk in California. Direct exposure to these pollutants has been shown to cause cancer, birth defects, damage to brain and nervous system and respiratory disorders. The TAC of interest to this project is diesel particulate matter (PM).

TACs do not have ambient air quality standards because no safe levels of TAC have been determined. Instead, TAC effects are evaluated by calculating the health risks associated with a given exposure. The requirements of the Air Toxic “Hot Spots” Information and Assessment Act apply to facilities that use, produce, or emit toxic chemicals. Facilities that are subject to the toxic emission inventory requirements of the Act must prepare and submit toxic emission inventory plans and reports, and periodically update those reports.

Diesel-fueled mobile sources including motor vehicles and off-road equipment emit compound emissions such as diesel PM, which is recognized as a TAC by CARB. Emissions of diesel PM have been related to long-term health effects, including noncancer chronic hazards and increased cancer risk (COEHHA 2010). There are no TAC emitting facilities within a half mile of the project area. Temporary construction activities would include operation of diesel-fueled offroad equipment resulting in emissions of diesel PM. However, construction activities would occur over a finite period of time (approximately 6 months); therefore, diesel PM emissions would result in short-term, temporary impacts, and would not result in long-term cancer risk to residents and workers. No long term operation or maintenance would be required after the rock bolts are installed, therefore the project would not expose new receptors to TAC. Because of the short-term duration of emissions, no TAC facilities nearby, and the project would not be exposed to a TAC facility, a health risk assessment would not be required; thus, prioritization screening was not conducted for this analysis. Additionally, SMAQMD of Basic Construction Emission Control Practices and Enhanced Exhaust Control Practices would be implemented which would reduce PM exhaust emissions.

Existing Conditions

Sacramento County is in attainment for all National and State AAQS except for State and Federal ozone standards and State particulate matter standards. The area is designated a “severe” nonattainment area for the National 8-hour AAQS for ozone and is a “serious” nonattainment area for the State’s 1-hour ozone standard. Sacramento County exceeds the State's annual PM₁₀ standard by 40% and the State’s PM_{2.5} standard by 4% on average over the last 5 years. In addition, the State’s 24-hour PM₁₀ standard was exceeded up to 14 days per year over the past 5 years.

Sensitive Receptors

Some locations are considered more sensitive to adverse effects from air pollution than others. These locations are termed sensitive receptors. For CEQA purposes, a sensitive receptor is generically defined as a location where human populations are found, and there is reasonable expectation of continuous human exposure according to the averaging period for the ambient air quality standard (e.g., 24-hour, 8-hour, and 1-hour). These typically include residences, hospitals, and schools. Residential areas are considered sensitive to poor air quality because people usually stay home for extended periods of time, with associated greater exposure to ambient air quality. Hospitals, schools, and convalescent homes are considered to be relatively sensitive to poor air quality because children, elderly people, and the infirm are more susceptible to respiratory distress and other air quality-related health problems than the general public. Recreational uses are also considered sensitive due to the greater exposure to ambient air quality conditions because vigorous exercise associated with recreation can place a high demand on the respiratory system. Sensitive receptors near the project area include residents and recreational users.

Environmental Effects

Significance Criteria

Air quality effects would be considered significant if the proposed action would:

- Violate any of the air quality standards,
- Expose sensitive receptors to substantial pollutant concentrations, or
- Not conform to applicable Federal and State standards, and local thresholds on a long term basis.

The CEQA thresholds of significance were obtained from the SMAQMD CEQA Guide to Air Quality Assessment (SMAQMD 2009), which lists only a NO_x threshold of 85 pounds per day for construction emissions. For PM₁₀ from construction, in areas where the maximum daily disturbed land (i.e., grading, excavation, cut and fill) would not exceed 15 acres, the SMAQMD CEQA guidelines require implementing emission control practices for impacts to be considered less than significant.

Methodology

The SMAQMD Road Construction Emissions Model (v. 7.1.5.1) was used to estimate project emission rates for ROG, CO, NO_x, PM₁₀, PM_{2.5}, and CO₂. The estimated equipment to be used, estimated hours of operations, volume of material to be moved, and disturbance acreages were compiled to determine the data to input into the emissions model. Assumptions on construction equipment for the slope protection measures are described in Section 2.3. The emission calculations are based on standard vehicle emission rates built into the model.

The project area is approximately 2 acres although the actual area of work to install the rock bolts would be confined to a much smaller area (approximately one-half acre). For the maximum area disturbed, the total project footprint was averaged over the 6- month construction period. It was assumed that minimal clearing and grubbing would be required since there is minimal vegetation and a small staging area. Estimated construction periods for the slope protection measures are described in Section 2.3.

In addition, it was assumed that 2,000 cubic yards of fill material would be required for the construction of an access road. The source of the fill material could come from off-site commercial sources or from cut excavation while pioneering in the road. The transport of materials would take approximately 100 truck trips, over a course of 2 weeks with a 5-day workweek, which translates to 10 round trips per day. Air quality calculations are summarized in Appendix B.

No Action

Under the no action alternative, the Corps and CVFPB would not participate in construction of the proposed alternative. As a result, there would be no increase air quality effects

from the construction activities associated with the slope protection measures including equipment emissions and fugitive dust. Air quality would be influenced by emissions due to the ongoing and future construction of other Folsom JFP features, climate and geographic conditions, and local and regional emissions from vehicles, and local commercial and industrial land uses.

Implement Slope Protection Measures

Construction of the proposed action would result in short-term temporary generation of ROG, CO, NO_x, PM₁₀, PM_{2.5}, and CO₂ emissions from excavation, vegetation clearing, motor vehicle exhaust associated with construction equipment, employee commute trips, material transport, material handling and other construction activities. Annual emissions were calculated based on assumptions on the type of construction equipment required for each construction phase.

Table 3 summarizes emissions for ROG, CO, NO_x, PM₁₀, PM_{2.5}, and CO₂, for the slope protection measures, the projected emissions from Phase 3, and Phase 4, the overall total emissions, and compares them to both the general conformity rule (GCR) *de minimis* thresholds and the SMAQMD CEQA NO_x threshold for determination of significance of impacts.

Based on the estimates presented in Table 3, proposed action would not produce emissions that are greater than the Federal GCR *de minimis* values for criteria pollutants (Table 2). The estimated worst-case annual emissions generated from implementation of the proposed action would not exceed Federal or but would exceed SMAQMD threshold for NO_x.

Table 3. Estimated Emissions.

	ROG	CO	NO_x	PM₁₀	PM_{2.5}	CO₂
Site Preparation & Construction						
Emissions (lbs/day) for Right Bank	4.0	20.5	36.1	4.7	2.6	4,016
Emissions (lbs/day) for Phase 3 and Phase 4, in 2015	5.0	45	60	128	19	-
Total Emissions (lb/day)	9.0	65.5	96.1	132.7	21.6	-
SMAQMD thresholds (lbs/day)	N/A	N/A	85	N/A	N/A	N/A
Exceed SMAQMD Threshold?	-	-	Yes	-	-	-
Total (tons/year) for Right Bank	0.3	1.3	2.0	0.3	0.1	258
Emissions (tons/year) for Phase 3 and Phase 4, in 2015	2.0	14	20	13	3.0	5,336
Total Emissions (tons/year)	2.3	15.3	22	13.3	3.1	5,594
Federal Standards (tons/year)	25	100	25	100	N/A	N/A
Exceed Federal threshold?	No	No	No	No	-	-

Although the emissions estimate places the total NO_x emissions over the local threshold of 85 lbs/day, implementation of the standard construction mitigation measures as recommended by SMAQMD (Appendix B) would reduce the NO_x emissions by 20% and the PM₁₀ emissions by 45%. As a result, the proposed action does not require an in-depth conformity analysis to evaluate

ambient air quality concentrations and instead is presumed to conform to the region's ozone State implementation plan.

The proposed action is a short-term construction project which does not require continual maintenance. As a result, there would be no long-term increase in regional emissions of ROG, CO, NO_x, PM₁₀, PM_{2.5}, and CO₂ after installation of the rock bolts.

The project would result in short-term generation of criteria pollutants concentrations, including diesel exhaust emissions, from the use of off-road construction equipment required for site preparation and other activities, and on-road haul trucks used for hauling materials. The duration of mobilized equipment would be approximately 6 months and mobile equipment would not operate within 500 feet of sensitive receptors. Because sensitive receptors would not be exposed to substantial pollutants, the impact would be less than significant.

General Conformity

The Federal CAA requires Federal agencies to ensure that their actions conform to applicable implementation plans for the achievement and maintenance of the NAAQS for criteria pollutants. To achieve conformity, a Federal action must not contribute to new violations of NAAQS, increase the frequency or severity of existing violations, or delay timely attainment of standards in the area of concern (for example, a state or a smaller air quality region).

The proposed action is located in an area with a designated Federal status of severe nonattainment for O₃ (8-hour standard). In addition the State's has designated the area as nonattainment for PM₁₀ and PM_{2.5}. As shown in Table 3, the proposed action would not increase emissions to the Folsom JFP project that are greater than the Federal GCR *de minimis* values for criteria pollutants. However, Phase III and Phase IV could exceed the NO_x Federal GCR *de minimis* threshold in 2014. As a result, the Folsom JFP is putting together a general conformity re-evaluation report. The re-evaluation report would include project emission estimates through the completion of the Folsom JFP in 2017. Emission estimates for the slope protection measures would be included in the re-evaluation.

Mitigation

Due to the nonattainment status of Sacramento County with respect to O₃, PM₁₀, and PM_{2.5}, SMAQMD (2009) recommends that projects within the basin implement a set of Basic Construction Emission Control Practices as BMPs regardless of the significance determination. Use of these practices can result in a 55 percent reduction of fugitive PM₁₀ dust emissions from soil disturbance areas and a 44 percent reduction of fugitive PM dust emissions from entrained PM₁₀ road dust from unpaved roads (SMAQMD 2009). The Basic Construction Emission Control Practices that would be implemented by the contractor during the construction project are the following:

- Water all exposed surfaces two times daily. Exposed surfaces include, but are not limited to soil piles, graded areas, unpaved parking areas, staging areas, and access roads.

- Cover or maintain at least two feet of free board space on haul trucks transporting soil, sand, or other loose material on the site. Any haul trucks that would be traveling along freeways or major roadways should be covered.
- Use wet power vacuum street sweepers to remove any visible trackout mud or dirt onto adjacent public roads at least once a day. Use of dry power sweeping is prohibited.
- Limit vehicle speeds on unpaved roads to 15 miles per hour (mph).
- All roadways, driveways, sidewalks, parking lots to be paved should be completed as soon as possible. In addition, building pads should be laid as soon as possible after grading unless seeding or soil binders are used.
- Minimize idling time either by shutting equipment off when not in use or reducing the time of idling to five minutes (as required by the state airborne toxics control measure [Title 13, Section 2485 of the California Code of Regulations]). Provide clear signage that posts this requirement for workers at the entrances to the site.
- Maintain all construction equipment in proper working condition according to manufacturer's specifications. The equipment must be checked by a certified mechanic and determine to be running in proper condition before it is operated.
- Any remaining emissions over the NO_x threshold would be reduced via a mitigation fee payment. The cost of reducing one ton of NO_x starting July 1, 2014 is \$17,720 per ton of emissions (SMAQMD 2014). The contractor would be responsible for payment of any required mitigation and administrative fees.

In addition, SMAQMD recommends that the project implement a set of Enhanced Exhaust Control Practices to further reduce NO_x emissions. The Enhanced Exhaust Control Practices that would be implemented by the contractor during construction include the following:

- Provide a plan for approval by the lead agency and SMAQMD demonstrating that the heavy-duty (50 horsepower [hp] or more) off-road vehicles to be used in the construction project, including owned, leased, and subcontractor vehicles, would achieve a project-wide fleet-average 20 percent NO_x reduction and 45 percent particulate reduction compared to the most recent California Air Resources Board (ARB) fleet average. Acceptable options for reducing emissions may include use of late model engines, low-emission diesel products, alternative fuels, engine retrofit technology, after-treatment products, and/or other options as they become available. The SMAQMD's Construction Mitigation Calculator can be used to identify an equipment fleet that achieves this reduction.
- Submit to the lead agency and SMAQMD a comprehensive inventory of all off-road construction equipment, equal to or greater than 50 hp, that would be used an aggregate of 40 or more hours during any portion of the construction project. The inventory would include the horsepower rating, engine model year, and projected hours of use for each piece of equipment. The inventory would be updated and submitted monthly throughout the duration of the project, except that an inventory would not be required for any 30-day period in which no construction activity occurs. At least 48 hours prior to the use of subject heavy-duty off-road equipment, the contractor would provide SMAQMD with the

anticipated construction timeline including start date, and name and phone number of the project manager and on-site foreman. The SMAQMD's Model Equipment List can be used to submit this information.

- Ensure that emissions from all off-road diesel-powered equipment used on the project site do not exceed 40 percent opacity for more than 3 minutes in any 1 hour. Any equipment found to exceed 40 percent opacity (or Ringelmann 2.0) would be repaired immediately. Non-compliant equipment would be documented and a summary provided to the lead agency and SMAQMD monthly. A visual survey of all in-operation equipment would be made at least weekly, and a monthly summary of the visual survey results would be submitted throughout the duration of the project, except that the monthly summary would not be required for any 30-day period in which no construction activity occurs. The monthly summary would include the quantity and type of vehicles surveyed as well as the dates of each survey. The SMAQMD and/or other officials may conduct periodic site inspections to determine compliance. Nothing in this section would supercede other SMAQMD or State rules or regulations.

3.3.2 Climate Change

Ongoing scientific research has identified the general impacts of anthropogenic greenhouse gasses (GHG) emissions and changes in biological carbon sequestration due to land management activities on global climate. The term "greenhouse gas" or "greenhouse gases" includes but is not limited to: carbon dioxide (CO₂), methane (CH₄), and nitrous oxide (NO₂).

GHG naturally trap heat by impeding the exit of solar radiation that has hit the Earth and is reflected back into space. Some GHGs occur naturally and are necessary for keeping the Earth's surface inhabitable. However, increases in the concentrations of these gases in the atmosphere during the last 100 years have decreased the amount of solar radiation that is reflected back into space, intensifying the natural greenhouse effect and resulting in the increase of global average temperature.

Through complex interactions on a regional and global scale, these GHG emissions and net losses of biological carbon sinks cause a net warming effect on the atmosphere, primarily by decreasing the amount of heat energy radiated by the earth back into space. Although GHG levels have varied for millennia, historic industrialization and burning of fossil carbon sources have caused carbon dioxide equivalent concentrations to increase dramatically, and clearly contribute to overall global climatic changes. The Intergovernmental Panel on Climate Change (IPCC) concluded that "warming of the climate system is unequivocal" and "most of the observed increase in globally average temperatures since the mid-20th century is very likely due to the observed increase in anthropogenic greenhouse gas concentrations" (IPCC 2007).

Global mean surface temperatures have increased nearly 1.8 degrees Fahrenheit (°F) from 1890 to 2006 (IPCC 2007). Models indicate that average temperature changes are likely to be greater in the Northern Hemisphere. Northern latitudes (above 24° North) have exhibited temperature increases of nearly 2.1 degrees Fahrenheit (°F) since 1900, with nearly a 1.8°F

increase since 1970 alone (IPCC 2007). Continued warming is projected to increase global average temperature between 2 and 11°F over the next 100 years.

Regulatory Background

No Federal regulations regarding climate change apply to the proposed action. The Environmental Protection Agency has started the process of regulating large sources of GHG emissions (e.g., power plants, cement manufacturing), but these proposed regulations are not applicable to the proposed action. California laws and executive orders that address GHGs and climate change are summarized in Table 4.

Table 4. Summary of State Laws and Executive Orders that Address Climate Change.

Legislation Name	Signed into Law/ Ordered	Description	CEQA Relevance
SB 1771	09/2000	Establishment of California Climate Registry to develop protocols for voluntary accounting and tracking of GHG emissions.	In 2007, DWR began tracking GHG emissions for all departmental operations.
AB 1473	07/2002	Directs CARB to establish fuel standards for noncommercial vehicles that would provide the maximum feasible reduction of GHGs.	Reduction of GHG emissions from noncommercial vehicle travel.
SB 1078, 107, EO S-14-08	09/2002, 09/2006, 11/2008	Establishment of renewable energy goals as a percentage of total energy supplied in the State.	Reduction of GHG emissions from purchased electrical power.
EO S-3-05, AB 32 ¹	06/2005, 09/2006	Establishment of statewide GHG reduction targets and biennial science assessment reporting on climate change impacts and adaptation and progress toward meeting GHG reduction goals.	Projects required to be consistent with statewide GHG reduction plan and reports will provide information for climate change adaptation analysis.
SB 1368	9/2006	Establishment of GHG emission performance standards for base load electrical power generation.	Reduction of GHG emissions from purchased electrical power.
EO S-1-07	01/2007	Establishment of Low Carbon Fuel Standard.	Reduction of GHG emissions from transportation activities.
SB 97 ¹	08/2007	Directs OPR to develop guideline amendments for the analysis of climate change in CEQA documents.	Requires climate change analysis in all CEQA documents.

Legislation Name	Signed into Law/ Ordered	Description	CEQA Relevance
SB 375	09/2008	Requires metropolitan planning organizations to include sustainable communities strategies in their regional transportation plans.	Reduction of GHG emissions associated with housing and transportation.
EO S-13-08 ¹	11/2008	Directs the Resource Agency to work with the National Academy of Sciences to produce a California Sea Level Rise Assessment Report, and directs the Climate Action Team to develop a California Climate Adaptation Strategy.	Information in the reports will provide information for climate change adaptation analysis.

¹Significant laws and orders.

Existing Conditions

Local Climatic Conditions

In general, the climates of California formed due to topography and the position of the semi-permanent subtropical cell, a center of high atmospheric pressure in the Pacific Ocean off the California coast. During the summer, the cell moves over northern California and Nevada and effectively blocks the movements of the Pacific storm systems into California, creating drought-like conditions. During the winter, the cell retreats to the southwest, allowing storms and frontal systems to move into northern and central California. As a result, California has a Mediterranean, semi-arid climate that is typically characterized by cool, wet winters and hot, dry summers.

During the summer months the project area (in the vicinity of Folsom Reservoir) normally experiences cloudless, warm-to-hot dry days, and mild, pleasant nights. Summer temperatures average approximately 90 degrees Fahrenheit (°F) during the day and 60 °F at night. Summer average rainfall amount in the area is generally around 1.05 inches. The winter “rainy season” is from November through March when periodic storms move in from the Pacific Ocean. The average rainfall during these months is 19.96 inches. Winter daytime temperatures average in the upper 50’s, and nighttime temperatures average in the lower 40’s. Moist winds are predominately from the southwest, building strength from the Delta region, while occasional dry winds originate from the north.

Greenhouse Gases (GHG)

The six principal GHGs of concern are CO₂, methane (CH₄), nitrous oxide (N₂O), sulfur hexafluoride (SF₆), hydrofluorocarbons (HFC), and perfluorocarbons (PFC). The EPA does not currently regulate the GHG pollutants that could contribute to global warming. However, on December 7, 2009, the Administrator of the EPA signed two findings regarding the threat to public health and welfare from GHGs under section 202(a) of the Federal CAA. Accordingly, in the

future, the EPA can promulgate regulations pertaining to emissions of GHGs under the authority of the Federal CAA.

While the Federal Government has not regulated emissions of GHG, the State of California has been proactive in the study of effects of climate change with a 20-year history of doing so. State actions to address global climate change target automobile emissions, stationary sources and power generation, land-use planning, and the development of sustainable communities.

California is a substantial contributor of global GHG as it is the second largest contributor in the U.S. and the sixteenth largest in the world (CEC 2006). While California has a high amount of GHG emissions, it has low emissions per capita. California produced in 2008 approximately 478 million metric tons of CO₂ equivalent (478 MMTCO_{2e}), equal to about 525 million tons, or about one percent of 49,000 MMTCO_{2e} emitted globally (IPCC, 2007). The main sources of GHG emissions in California are the transportation and energy sectors.

GHG emissions are now being considered as a relatively new issue in CEQA documents because of their effects to climate change. Historically, there have been no standard, widely used methodologies or significance criteria to address climate change effects from GHG emissions. Air districts have generally provided guidance on analysis methodologies and significance criteria for criteria pollutant and toxic air contaminant effects, but they have not established guidelines for GHG emissions and their effects.

To assist lead agencies with this new impact area, the California Air Pollution Control Officer's Association prepared a "white paper" reviewing policy choices, analytical tools, and mitigation strategies (CAPCOA 2008). This paper considers the application of thresholds (there are currently no widely-accepted significance thresholds or criteria) and offers three alternative programmatic approaches towards determining whether GHG emissions are significant.

CARB prepared proposed interim GHG significance thresholds, which are sector-specific in terms of what types of activities generate the GHG emissions. Until a statewide standard or threshold of significance for GHG emissions is completed, the Office of Planning and Research (OPR) advises that each lead agency should develop its own approach to performing an analysis for projects that generate GHG emissions, consistent with available guidance and current CEQA practice (OPR 2008).

OPR sets out the following process for evaluating GHG emissions:

- Agencies should determine whether GHG emissions would be generated by a proposed project, and if so, quantify or estimate the emissions by type or source. Calculation, modeling, or estimation of GHG emissions should include the emissions associated with vehicular traffic, energy consumption, water usage, and construction activities.
- Agencies should assess whether the GHG emissions are individually or cumulatively significant. When assessing whether a project's effects on climate change are "cumulatively considerable" even though a project's GHG emissions could be individually limited, the lead agency must consider the effect of the project in connection with the effects of past, current, and probable future projects.

If the lead agency determines that the GHG emissions are potentially significant, then it must investigate and implement ways to mitigate the emissions (OPR 2008).

Environmental Effects

Significance Criteria

No existing threshold levels for GHGs have been developed at the Federal level for NEPA projects. SMAQMD has not established thresholds for GHG emissions; instead, each project is evaluated on a case-by-case basis using the most up-to-date methods of calculation and analysis. The impacts of the proposed project alternatives related to climate change should be evaluated using the criteria listed below. According to Appendix G of the CEQA Guidelines, the proposed project could result in significant impacts if it would do either of the following:

- Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment.
- Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs.

The following significance criteria will be used to determine the significance of GHG emissions from this project:

- If the relative amounts of GHG emissions resulting from implementation of the proposed project are substantial compared to emissions major facilities are required to report (25,000 CO₂e per year).
- If the proposed project has the potential to contribute to a lower carbon future.

No existing threshold levels for GHGs have been developed at the Federal level for NEPA projects. USEPA has established a reporting threshold of 25,000 metric tons of CO₂ that applies to most facilities that emit more than 25,000 metric tons per year.

Methodology

In response to the concerns regarding greenhouse gas emissions, the most recent version of the SMAQMD Road Construction Emissions Model (v. 7.1.5.1) now generates an output for CO₂. The results from the emissions model in Table 3 include CO₂. Emissions were estimated based on the type of equipment being used, the level of equipment activity, and the associated construction schedules.

No Action

Under the no action alternative, the Corps and CVFPB would not participate with slope protection measures. As a result, there would be no additional generation of GHGs from the

construction activities, including operation of motorized equipment and vehicles. Climate change would be influenced by emissions due to the ongoing and future construction of other Folsom JFP features, local and regional emissions from vehicles, and local commercial and industrial land uses.

Implement Slope Protection Measures

Implementation of the slope protection measures would result in a net increase of GHG emission over a finite period, approximately six months. Construction activities would contribute small amounts of CO₂ emissions from the use of on-site construction equipment and off-site worker trips. Construction emissions were estimated using SMAQMD Road Construction Emissions Model. Table 3 in Section 3.3.1 summarizes CO₂ emission from activities undertaken from construction and the overall JFP project in 2015. Approximately 258 MT CO₂ would be emitted over the construction period of the slope protection measures. There would be no long term operation or maintenance emissions associated with the slope protection measures.

In the year 2015, it was estimated the total CO₂ emissions for all Folsom JFP project phases would emit approximately 5,594 MT CO₂. This total amount of CO₂ emissions would not violate CARB's interim threshold of 7,000 metric tons of CO_{2e} per year for stationary sources nor would the project produce emissions over the USEPA 25,000 MT CO_{2e} per year reporting rule. The increase in GHG emissions produced by the slope protection measures would be less than significant.

The Climate Change Scoping Plan, approved by CARB on December 12, 2008 (CARB, 2008), provides an outline of actions to reduce California's GHG emissions. The scoping plan requires CARB and other state agencies to adopt regulations and other initiatives to reduce GHGs. The slope protection measures would not affect California's ability to supply renewable energy. Similarly, the slope protection measures would not affect or conflict with Sacramento County's ability to achieve its GHG reduction goals. The slope protection measures would not conflict with any applicable GHG management plan, policy, or regulation. Therefore, this impact would be less than significant. In addition, applicable BMPs would be incorporated into the design of the project, and the contractor would be required to implement them. Therefore, the proposed project could contribute to a lower carbon future.

Mitigation

Since there would be no significant effects on climate change, no mitigation would be required. However, the following measures would be implemented by the contractor to reduce any GHG emissions from construction of the design refinements (SMAQMD 2009). These measures would be implemented to contribute a lower carbon footprint.

- Improve fuel efficiency from construction equipment by minimizing idling time either by shutting equipment off when not in use or reducing the time of idling to no more than three minutes (five minute limit is required by the state airborne toxics control measure [Title 13, Section 2485 of the California Code of Regulations]). Provide clear signage that posts this requirement for workers at the entrances to the site.

- Maintain all construction equipment in proper working condition according to manufacturer’s specifications. The equipment must be checked by a certified mechanic and determined to be running in proper condition before it is operated.
- Use equipment with new technologies (repowered engines, electric drive trains).
- Perform on-site material hauling with trucks equipped with on-road engines (if determined to be less emissive than the off-road engines).
- Encourage and provide carpools, shuttle vans, transit passes and/or secure bicycle parking for construction worker commutes.

3.3.3 Cultural Resources

Regulatory Setting

Federal

Prior to implementation of an undertaking with the potential to cause effects to historic properties, the project must be in compliance with Section 106 of the National Historic Preservation Act of 1966, as amended (36 CFR § 800). Section 106 requires Federal agencies, or those they fund or permit, to consider the effects of their actions on the properties that may be eligible for listing or are listed in the National Register of Historic Places (NRHP). To determine whether an undertaking could affect NRHP-eligible or listed properties, cultural resources (including archeological, historical, and traditional cultural properties) must be inventoried and evaluated for listing in the NRHP. The term “historic property” specifically refers to a cultural resource that has been found eligible for listing in, or is listed in, the NRHP.

State

CEQA also requires that for public or private projects financed or approved by public agencies, the effects of the projects on historical resources and unique archeological resources must be assessed. Historical resources are defined as buildings, sites, structures, objects, or districts that have been determined to be eligible for listing in the California Register of Historical Resources. Properties listed in the NRHP are automatically eligible for listing in the California Register.

Existing Conditions

The history of Folsom as a city connects back to several broader themes that have been prevalent in California history: mining, railroads, and early farming and agriculture. The following summary is specific to the historic presence of the Native Americans, the development of Folsom Dam, and the city of Folsom and helps to place it within the history of the region and the State.

Ethnography and Prehistory

The Nisenan were a southern linguistic group of the Maidu people, sometimes referred to as the “Southern Maidu.” The name “Nisenan” was a self-designation by the native groups occupying the Yuba and American River drainages (Wilson and Towne 1978). Along with the Maidu and Kinkow, the Nisenan form a subgroup of the California Penutian linguistic family. The Nisenan’s range covered a significant portion of the Central Valley and reached into the Sierra Nevada Mountains.

The climate of the area occupied by the Nisenan was of mild weather with wet winters and warm, dry summers. The Nisenan often inhabited areas near rivers, some major areas of significance included sites on the American, Sacramento, Bear, Feather, and Yuba Rivers (Moratto 1984). The basic political unit was a village community or tribelet with one primary village and a few satellite villages under one head authority. Villages within the valley were aware of one another and these varying groups of Nisenan had shared political and cultural connections. Generally, villages consisted of 15 to 20 people and as many as several hundred in one group. House structures were conical, dome shaped, and covered with earth, tule mats, grass thatch, and occasionally bark. These structures, along with the ceremonial lodges or chief’s residences, which were large and circular or elliptical, would be situated on low knolls near streams and above marshy floodplains.

The Nisenan mostly settled in permanent or winter settlements and followed a yearly gathering cycle that led them away from the lowlands and into the hill country each summer. During the annual gathering cycle, the Nisenan harvested acorns, nutmeg, pine nuts, buckeyes, and sunflower seeds and often stored these for long periods. Other vegetation, such as greens, tule and cattail roots, brodiaea bulbs, manzanita berries, black berries, and California grapes, was harvested and eaten as it ripened. All valley groups, including the Nisenan, fished trout, perch, chub, sucker, hardhead, eels, Sturgeon, and Chinook salmon. Fishing methods included hook, net, harpoon, trap, weir, and poison (Moratto 1984). The Nisenan crafted tools from stone such as obsidian and basalt to make flaked stone knives and projectile points. They also made ground stone tools such as mortars, pestles, pipes, and charms from locally available rock. Using wood, bone, and plant material, the Nisenan also made weapons, bows, arrow shafts, paddles, canoes, rafts, fishing nets, and baskets (Wilson and Towne 1978).

Early contact occurred at the southern end of Nisenan territory as the Spanish, notably José Canizares in 1776, explored Miwok land. Although there is no record of the Nisenan removal to the Spanish missions, by the late 1820s, white settlement began to encroach on Nisenan land as American and Hudson’s Bay Company trappers began to trap beaver in the Nisenan territory under peaceful occupation. In 1833, a disease, believed to be malaria, swept through the Sacramento Valley and decimated the valley Nisenan. An estimated 75 percent of the native population was killed; as a result, there were very few Nisenan left in the valley to face the settlers and gold miners who came soon after the epidemic (Hoover 1990).

History

By January 1850, the discovery of gold in Coloma in 1848 had encouraged development in the Sacramento area. Shortly after the initial discovery of gold, a group of Mormons previously employed by Sutter to work his mill were mining for riches near Folsom. At the juncture of the North and South Forks of the American River, the town of Mormon Island was established around 1848 by Samuel Brannan and a group of about 100 men. By 1855 a small town was flourishing, populated with 2,500 people and complete with two stage lines, a post office, a school, four hotels, seven saloons, and more than a dozen other businesses. The completion of the Sacramento Valley Railroad to Folsom in 1856 marked the firm establishment of Folsom as a destination and began the slow decline of Mormon Island. By 1880 the mining community had disappeared.

The early history of Folsom includes founders such as William Alexander Leidesdorff and Joseph Libby Folsom. Both individuals helped establish the city of Folsom, downstream of the current Folsom Dam. In 1856, Theodore Judah surveyed and laid out the city of Folsom where the 2,048 lots sold in the first day and the city began to flourish.

Mining continued to draw people to Folsom. By 1878, Folsom had a sizeable Chinese population, numbering more than 3,500. With the population continuing to rise, in 1870 Horatio Livermore devised and implemented a project to dam the American River and provide power to Folsom. Completed in 1893 with the use of convict labor from Folsom Prison, the original Folsom Dam provided local power as well as electricity to Sacramento, located 22 miles downstream. There are remnants the Old Folsom Dam just downstream of the current dam and Folsom Lake Crossing Bridge.

Mining activities took the form of dredging operations in 1900 and the population of Folsom slowly grew in the beginning decades of the new century. Eventually water resource needs for the region increased above what the Old Folsom Dam could provide. Although the town of Mormon Island disappeared decades earlier, there were a number of farmers occupying and utilizing the land at and near the juncture of the North and South Forks of the American River at the time of the construction of Folsom Dam (Folsom History Museum 2006).

Folsom Dam, reservoir, and the surrounding area have had an important role in the history of water and growth in California. During the 1920s, drought, water rights, and lack of sufficient storage facilities endangered the State's agricultural future. As a result, the CVP was designed and constructed. Before the construction of Folsom Dam, there was great concern in the Sacramento region about potential flooding if both the Sacramento and American Rivers should ever crest at the same time.

Construction began on Folsom Dam in 1948 under contracts supervised by the Corps. In 1956, the dam joined the overall CVP, and USBR took possession of the dam for operation and maintenance on May 15, 1956. The addition of the dam to the CVP operations added significant reservoir size to the dams on the Trinity, American, and Stanislaus Rivers. As a component of the CVP, Folsom Dam has been a significant contributor to the water and agricultural history of California. As an individual structure, Folsom Dam has had an important effect on flood control in the Sacramento region (Bailey 2005).

Records and Literature Search and Archeological Field Survey

A records and literature search was conducted at the North Central Information Center located at California State University, Sacramento in March 2014. The records search indicated that several areas near the area of potential effects (APE) have previously been surveyed for cultural resources. The only known historic property near the APE is Folsom Dam (CA-SAC-937-H), including the left and right wing dams (CA-SAC-1103-H), which are contributing features to Folsom Dam. Folsom Dam was found eligible for listing in the NRHP in 2006 under Criterion A due to its role in flood control, hydropower, and irrigation in the Sacramento region and it is eligible as a contributing element to the larger Central Valley Project. Corps archeology staff surveyed the project area on March 25, 2014. The survey resulted in the discovery of a single, isolated bedrock mortar located within the APE. The bedrock mortar was evaluated by Corps staff and determined to lack significance under criteria a, b, c, or d due to its disturbed context; lack of integrity with regard to setting, feeling, and association; and lack of an associated site.

Native American Coordination

Letters documenting the APE and describing the project activities were sent to local Tribes including the Shingle Springs Band of Miwok Indians, the United Auburn Indian Community of the Auburn Rancheria, Wilton Rancheria, and the T'si-Akim Maidu on June 2, 2014. Any responses received would be included in the final EA/EIR.

Environmental Effects

Significance Criteria

Any adverse effects on cultural resources that are listed in or eligible for listing in the NRHP are considered to be significant. Effects are considered to be adverse if they alter, directly or indirectly, any of the characteristics of a cultural resource that qualify that resource of the NRHP so that the integrity of the resource's location, design, setting, materials, workmanship, feeling, or association is diminished. The criteria for the NRHP (36 CFR 60.4) are listed below:

- a) that are associated with events that have made a significant contribution to the broad patterns of our history; or
- b) that are associated with the lives of persons significant in our past; or
- c) that embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
- d) that have yielded, or may be likely to yield, information important in prehistory or history.

In California, under CEQA, effects to a historic resource or unique archeological resource are considered to be adverse if they materially impair the significance of a historical or archeological resource.

No Action

Under the no action alternative, the Corps and CVFPB would not implement the slope protection measures proposed in the Supplemental EA/EIR. Turbulent flow conditions along the right bank side of the American River could result in the displacement and/or release of large blocks of rock. This could result in a partial blockage/obstruction of flow; a rise in tailwater elevation, affecting power generation; and the potential for progressive failure of the upper bank slope. However, since there are no historic properties within the APE, the No Action alternative would not result in adverse effects to historic properties.

Implement Slope Protection Measures

The proposed action would have no adverse effects on any cultural resources that are listed in or eligible for listing in the NRHP. Access to the site would be from the west of the project area via the existing Folsom-Auburn Road. Access to the project area would be controlled by the Bureau of Reclamation's Central California Area Office facility. Construction and staging areas would be confined to previously disturbed areas and existing roads surveyed by Corps staff.

Folsom Dam and Dikes, resources eligible for listing in the NRHP, are located outside the APE, and the current proposed project would not alter directly or indirectly any of the characteristics that make the resources eligible for listing in the NRHP. As a result, there would be no adverse effects to Folsom Dam and Dikes caused by the proposed action.

The bedrock mortar identified during the survey of the APE has been determined not eligible for listing in the NRHP under criteria a, b, c, or d. As a result, and in accordance with the implementing regulations of Section 106 of the NHPA, 36 CFR § 800.4(d)(1), *No historic properties affected*, there are no historic properties present within the APE and the project would not have the potential to adversely effects to historic properties. A Memorandum for Record documenting this determination is included in Appendix C. Therefore, effects of construction activities on cultural resources is less than significant.

Mitigation

For the proposed action there would be no adverse effects to cultural resources and no mitigation would be required. Should any potentially significant cultural resources be discovered during construction, all ground-disturbing activities would cease in the area of the discovery, and the Corps would take action as required by 36 CFR 800.13(b), "discoveries without prior planning." Data recovery or other mitigation measures could be necessary to mitigate adverse effects to significant cultural resources. Implementation of mitigations measures, which could include avoidance and recordation or evaluation of a previously unidentified historic property by a qualified archeologist, would reduce these effects to less than significance.

3.3.4 Special Status Species

This section describes the existing conditions of the special species that could be affected and evaluates the effects of the proposed project on special status and their habitats in the project area.

Regulatory Background

Certain special status species and their habitats are protected by Federal, State, or local laws and agency regulations. The Federal Endangered Species Act (ESA) of 1973 (50 CFR 17) provides legal protection for plant and animal species in danger of extinction. This act is administered by USFWS and NMFS. The California Endangered Species Act (CESA) of 1977 parallels the Federal ESA and is administered by CDFW. Other special status species lack legal protection, but have been characterized as “sensitive” based on policies and expertise of agencies or private organizations, or policies adopted by local government. Special-status species are those that meet any of the following criteria:

- Listed or candidate for listing under the Federal ESA (50 CFR 17);
- Listed or candidate for listing under CESA;
- Nesting bird species and active nests of birds listed under the Migratory Bird Treaty Act;
- Species listed in the Bald and Golden Eagle Protection Act;
- Fully protected or protected species under State CDFW code;
- Wildlife species of special concern listed by the CDFW;
- Plant species listed as Rare under the California Native Plant Protection Act;
- Plant species listed by the California Native Plant Society;
- Species protected by local ordinances such as the Sacramento County Tree Preservation and Protection Ordinance, Chapter 19.12, the City of Sacramento Protection of Trees Ordinance, Chapter 12.56, and/or the City of Sacramento Heritage Tree Ordinance, Chapter 12.64;
- Species protected by goals and policies of local plans such as the American River Parkway Plan, which includes anadromous and resident fishes, as well as migratory and resident wildlife.
- Essential Fish Habitat listed under the Magnuson-Stevens Act.

Existing Conditions

A listing of Federally listed endangered, threatened, proposed, and candidate species (listed species) and critical habitat was obtained for the Folsom and Clarksville 7.5-minute USGS quadrangles on January 24th 2014 via the FWS website. In addition, a search of the California Natural Diversity Database (CNDDDB) conducted on January 24th 2014 indicated no state or federal listed species were reported within the project boundaries. However, the CNDDDB report showed a Swainson’s hawk (*Buteo swainsoni*) nest within 1.5 miles of the project boundary. Biological field surveys conducted by USBR identified coopers hawk and a white tailed kite within two miles of the project area (USBR 2009). A compiled list from both the USFWS and CNDDDB searches is presented in Appendix D.

Special-status species that were not identified as occurring or having habitat in the project area are not discussed further in this document. The following federal and state listed terrestrial special-status species were identified as having the potential to occur in the vicinity of the project area and be impacted by construction activities:

- Swainson's Hawk (State Threatened);
- Coopers Hawk (State Species of Concern);
- White-tailed Kite (CDFW Fully Protected);
- Valley elderberry longhorn beetle (Federal Threatened) and Critical Habitat.

Elderberry shrubs (*Sambucus sp.*) were also identified within the project area. Although the site is not designated as critical habitat for the valley elderberry longhorn beetle (VELB) (*Desmoceros californicus dimorphus*), the shrubs are the sole host plant for the beetle. An elderberry survey was conducted on July 1st 2013.

Swainson's hawk

Swainson's hawk (*Buteo swainsoni*) is an uncommon breeding resident and migrant in the Central Valley, Klamath Basin, Northeastern Plateau, Lassen County, and the Mojave Desert. Swainson's hawk breeds in stands with few trees in juniper-sage flats, riparian areas, and in oak savannah in the Central Valley and forages in adjacent grasslands or suitable grain or alfalfa fields, or livestock pastures. Swainson's hawks breed in California and over winter in Mexico and South America. Swainson's hawks usually arrive in the Central Valley between March 1 and April 1, and migrate south between September and October. Swainson's hawks nest usually occur in trees near the edges of riparian stands, in lone trees or groves of trees in agricultural fields, and in mature roadside trees. Valley oak, Fremont cottonwood, walnut, and large willow with an average height of about 58 feet, and ranging from 41 to 82 feet, are the most commonly used nest trees in the Central Valley. Suitable foraging areas for Swainson's hawk include native grasslands or lightly grazed pastures, alfalfa and other hay crops, and certain grain and row croplands. Swainson's hawks primarily feed on voles; however, they will feed on a variety of prey including small mammals, birds, and insects.

Construction of the project is scheduled for Summer 2015. Additional raptor surveys will be conducted in Spring 2015 to determine if the Swainson's hawk are present and nesting. If nest are discovered within one-half mile of the project area, consultation will be initiated with the California Department of Fish and Wildlife (CDFW).

Cooper's hawk

Cooper's hawk (*Accipiter cooperii*) nest in deciduous trees or conifers in crotches or cavities that are usually 20 to 50 feet off the ground. The nest is a stick platform lined with bark. Nests are usually placed in second growth coniferous stands or in the deciduous riparian areas that are closest to streams. Cooper's hawks are recorded as occurring in several locations along the American River and the riparian habitat in the vicinity of the project area provides suitable nesting habitat for this species.

White-tailed Kite

White-tailed kite (*Elanus leucurus*) is a common to uncommon, yearlong resident in coastal and valley lowlands and is rarely found away from agricultural areas. However, it does inhabit herbaceous and open stages of most habitats, mostly in cismontane California. The main prey of white-tailed kite is voles and other small, diurnal mammals, but it occasionally preys on birds, insects, reptiles, and amphibians. White-tailed kite forages in undisturbed, open grasslands, meadows, farmlands and emergent wetlands. Nests are made of loosely piled sticks and twigs and lined with grass, straw, or rootlets and placed near the top of a dense oak, willow, or other tree stand; usually 6-20 m (20-100 ft) above ground. Nests are located near open foraging areas in lowland grasslands, agricultural areas, wetlands, oak-woodland and savannah habitats, and riparian areas associated with open areas. White-tailed kite are recorded as occurring at a couple of locations along Empire Ranch Road and the riparian habitat in the vicinity of the project area provides suitable nesting habitat for this species.

Valley Elderberry Longhorn Beetle

The VELB is endemic to the riparian habitats in the Sacramento and San Joaquin Valleys where it resides on elderberry plants. The beetle's current distribution is patchy throughout the remaining riparian forests of the Central Valley from Redding to Bakersfield (USFWS 1984). The beetle is a pith-boring species that depends on elderberry plants during its entire life cycle. The beetle tends to be located in population clusters that are not evenly distributed across the Central Valley (Barr 1991). In October 2012, the USFWS announced their proposed rule to remove the valley elderberry longhorn beetle from the List of Endangered and Threatened Wildlife. In January 2013, the USFWS reopened the public comment period for additional 30-days.

A total of 7 elderberry shrubs were identified within the project area during biological surveys conducted July 1st 2013, and April 3, 2014. It is assumed more elderberry shrubs exist downstream of the outflow channel, however, only those shrubs located within 100 feet of the affected project area were surveyed in accordance with FWS survey protocols. As a part of their recovery plan, the Service has concluded that two areas in Sacramento County should be designated Critical Habitat for VELB based on the densest known population of the beetle. The project area is not located within critical habitat.

Environmental Effects

Significance Criteria

Adverse effects on special status species were considered significant if an alternative would result in any of the following:

- Direct or indirect reduction in the growth, survival, or reproductive success of species listed or proposed for listing as threatened or endangered under the Federal or State Endangered Species Acts.

- Direct mortality, long-term habitat loss, or lowered reproduction success of Federally or State-listed threatened or endangered animal or plant species or candidates for Federal listing.
- Direct or indirect reduction in the growth, survival, or reproductive success of substantial populations of Federal species of concern, State-listed endangered or threatened species, or species of special concern or regionally important commercial or game species.
- Have an adverse effect on a species' designated critical habitat.

No Action Alternative

Under the no action alternative, the Corps and the CVFPB would not participate in construction of the proposed alternative. There would be no construction related effects to special status species and their associated habitat, and conditions in the project area would remain the same.

Implement Slope Protection Measures

Implement slope protection measures could result in direct and indirect affects to Swainson's hawk, Cooper's hawk and white-tailed kite. The project could also directly and indirectly affect the habitat (elderberry shrubs) of the federally-listed valley elderberry longhorn beetle. These effects could be considered significant to these special status species unless mitigated.

Effects to Swainson's hawk, Cooper's hawk, and White-tailed kite. Construction activities could potentially result in direct and indirect effects to the Swainson's hawk, Cooper's hawk, and white-tailed kite if they begin nesting in the adjacent areas. Construction activities in the vicinity of a nest have the potential to result in forced fledging or nest abandonment by adult kites. Preconstruction surveys would be conducted to determine if there are nests present within 1,000 feet of the project area. If the survey determines that there are active nests in the project area, CDFW would be contacted to determine the proper course of action. If necessary, a buffer would be delineated and the nests would be monitored during construction activities. With coordination and mitigation, as discussed below, it is anticipated that effects to Swainson's hawk, Cooper's hawk, and white-tailed kite would be less-than-significant.

Effects to Valley Elderberry Longhorn Beetle. The proposed slope protection could result in indirect effects to seven elderberry shrubs. Indirect effects would include physical vibration and increase in dust during operation of equipment and trucks during construction activities.

The proposed project would require a crane to rappel workers and drilling equipment to the lower slope. A crane pad would be constructed in the project area. Staff from the Corps conducted elderberry surveys on July 1st 2013. The project area has a total of 4 elderberry shrubs. Three shrubs are all located near the powerhouse road and one elderberry shrub is located on the mid-slope near the potential access road. The shrubs will not be directly impacted by the construction work, but to avoid damage to the shrubs, they will be protected in place with concrete barriers. The barriers will protect the shrubs from damage by the equipment. The barriers will be placed as far from the dripline of the shrubs as possible. Due to the limited options for locating the staging

area, as well as the limited space within the staging area, it would be difficult to observe the required a 100-foot radius buffer zone for protection of the elderberry shrubs. The Corps is proposing a 20-foot radius buffer zone, using concrete barriers for protection.

Mitigation

The following mitigation measures would be implemented to reduce the potentially significant effects associated with the proposed project to less-than-significant.

Swainson's hawk, Cooper's hawk, and White-tailed kite

The Corps take steps to avoid and minimize impacts to raptors and other protected avian species. If possible, construction would be timed to avoid activities near active bird nests in the area. A qualified biologist would survey the project area and all areas within one-half mile of the project prior to initiation of construction. If the survey determines that a nesting pair is present, the Corps would coordinate with the California Department of Fish and Wildlife, and the proper avoidance and minimization measures would be implemented. To avoid potential effects to nesting Swainson's hawks, the California Department of Fish and Wildlife typically requires the avoidance of nesting sites during construction activities. These measures include avoiding construction during the breeding season and monitoring of the nest site by a qualified biologist. The project is currently scheduled to begin in Summer of 2015.

Twelve trees (cottonwoods, willow species, and black locust) in the project area have the potential to be removed or may require minor trimming along the proposed access road. During the site survey, no nests were located in those trees; therefore no nests would be destroyed. The proposed mitigation measures would reduce the effects on the Swainson's hawk, white-tailed kite and Cooper's hawk to less than significant.

To ensure that there would be no effect, pre-construction surveys would be conducted by qualified biologists in areas that may contain suitable habitat for special-status plant, invertebrate, or wildlife species. If the biologists identify any of these special status species or suitable habitat, the Corps would contact the USFWS regarding any necessary measures to provide protection.

Valley Elderberry Longhorn Beetle

Formal consultation under Section 7 of the Endangered Species Act was initiated with the USFWS to assess potential impacts and required compensation. To minimize potential take of the valley elderberry longhorn beetle, the following measures taken from the USFWS "Conservation Guidelines for the Valley Elderberry Longhorn Beetle", July 1999 would be incorporated into the project:

- A minimum setback of 100 feet from the dripline of all elderberry shrubs will be established, if possible. If the 100 foot minimum buffer zone is not possible, the next maximum distance allowable will be established. Due to the limited options for locating the staging area and access road, it would be difficult to observe the required 100-foot radius buffer zone for protection of the elderberry shrubs. The Corps is proposing a 20-

foot radius buffer zone, using concrete barriers for protection. These areas would be fenced, flagged and maintained during construction.

- Construction personnel would receive USFWS-approved worker environmental awareness training to ensure that workers recognize elderberry shrubs and VELB. The training would include status, the need to avoid adversely affecting the elderberry shrubs, avoidance areas and measures taken by the workers during construction, contact information and possible penalties for not complying with these requirements.
- Exclusion fencing would be placed around the shrubs to keep equipment and workers away. A biological monitor would provide instruction on establishing the buffer zone for the shrubs.
- Signs would be placed every 50 feet along the edge of the elderberry buffer zones. The signs would include: “This area is the habitat of the valley elderberry longhorn beetle, a threatened species, and must not be disturbed. This species is protected by the Endangered Species Act of 1973, as amended. Violators are subject to prosecution, fines, and imprisonment.” The signs should be readable from a distance of 20 feet and would be maintained during construction.

Formal consultation has been completed with USFWS (Appendix E). An amended Biological Opinion (BO) was issued on March 31, 2014 and June 10, 2014. The protective measures listed above are also those listed in the BO. The implementation of these protective measures will reduce impacts to the VELB and its’ habitat to a level less than significant.

3.3.5 Vegetation and Wildlife

This section describes the existing vegetation and wildlife in the project area and evaluates the effects of the proposed project on it.

Regulatory Background

Vegetation and wildlife are protected by numerous federal laws, including the Migratory Bird Treaty Act of 1918, and the Fish and Wildlife Coordination Act of 1934, as Amended. State laws and policies include California Fish and Wildlife Codes.

Existing Conditions

The project area is highly disturbed from previous activities. The upper slope is comprised mostly of a ruderal herbaceous community dominated by annual grasses such as wild oat, and forbs. The steep rocky lower and mid-slope is mostly devoid of vegetation except with the presence of small shrubs (sticky monkey flower, tobacco, and coffeeberry) scattered throughout the mid-slope area. The proposed footprint of the access road is dominated by ruderal vegetation with adjacent trees (cottonwood, willow sp, black locust) and one large elderberry shrub.

Wildlife in the area include occasional small mammals, resident and migratory birds, reptiles, and amphibians. The project area lacks cover and vegetation structure and therefore is not conducive for prolonged periods of wildlife use such as denning, nesting, or rearing. Additionally, there are no wetlands or vernal pool habitats in the project area.

Environmental Effects

Significance Criteria

Effects on vegetation and wildlife would be considered significant if the proposed project would result in any of the following:

- Substantial loss, degradation, or fragmentation of any natural communities or wildlife habitat.
- Substantial effects on a sensitive natural community, including Federally-protected wetlands and other waters of the U.S., as defined by Section 404 of the CWA.
- Substantial reduction in the quality or quantity of important habitat, or access to such habitat, for wildlife species.

No Action Alternative

Under the no action alternative, the Corps and the CVFPB would not participate in construction of the proposed alternative. There would be no construction related effects to vegetation and wildlife, and conditions in the project area would remain the same.

Implement Slope Protection Measures

Installation of the rock bolts would involve drilling into the rock slope and construction of a crane pad. Minimal clearing and grubbing would be required for the removal of herbaceous vegetation in the staging areas. Construction of an access road may require tree trimming and/or the removal of twelve trees. Surveys were conducted by Corps and USFWS on February 11, 2014. The results of the survey are shown in Table 5. Tree data and map is located in Appendix F.

Table 5. Results of the Trees Potentially Affected by the Project

Tree No.	Species	Diameter at Breast Height (inches)
1	Cottonwood	26
2	Cottonwood	6
3	Cottonwood	8
4	Cottonwood	3
5	Cottonwood	10
6	Cottonwood	4
7	Cottonwood	4
8	Willow sp	20
9	Willow sp	4
10	Willow sp	17
11	Black Locust ¹	16
12	Black Locust ¹	3
Total		121

Notes: ¹ non-native species

Migratory birds such as killdeer, mourning doves, crows, cliff swallows, great blue heron and their habitats are protected under the Migratory Bird Treaty Act, as amended (16 U.S.C 703 et seq.). If the trees discussed above are removed, nesting birds and raptors using this habitat could be adversely affected. To ensure that there would be no effect, preconstruction surveys would be conducted prior to any work scheduled during the nesting season. If any breeding birds or active nests are found, a protective buffer would be delineated, and the USFWS and CDFW would be consulted for further action prior to construction. Recommendations proposed by the USFWS in their Fish and Wildlife Coordination Act Report are listed in the mitigation section below.

Once the project is completed, all disturbed areas would be restored via reseeded with a plant mix including grasses to encourage revegetation. Any trees removed would be mitigated in accordance with the recommendations provided in the Coordination Act Report. A planting plan would be developed prior to the removal of any trees. The plan would include planting design, monitoring methods, specific success criteria, and remedial measures in the event of failure in meeting success criteria. If mitigation cannot be completed on-site due to the limited space and lack of access, plantings are assumed to be completed at Rossmoor Bar mitigation site along the American River or credits would be purchased at a USFWS approved mitigation bank. Although this mitigation is off-site, it would compensate for losses at the Folsom Lake State Recreation Area, and would provide valuable wildlife habitat at an alternate location. The off-site mitigation would provide wildlife habitat within an area that is not as heavily regulated for flood control and water supply, which would provide more benefits to wildlife species than additional mitigation within the Folsom Lake State Recreation Area.

Any displaced wildlife would be expected to return to the area after the project is completed. Wildlife could be significantly impacted by loss of habitat and construction disturbance if mitigation measures are not implemented. With implementation of mitigation measures recommended by the USFWS, the proposed slope protection would have a less-than-significant impact on wildlife.

Mitigation

The following USFWS recommendations and mitigation measures would be implemented to reduce the potentially significant effects associated with the proposed project to less-than-significant:

- Avoid impacts to any oak woodlands and riparian areas outside, but in close proximity to, the construction easement and staging areas by fencing their boundaries with orange construction fencing or cyclone fencing just outside of the dripline of the woody vegetation.
- Avoid impacts to native trees, shrubs, and aquatic vegetation. Any native trees or shrubs removed with a diameter at breast height of 2 inches or greater should be replaced onsite, in-kind with container plantings so that the combined diameter of the container plantings is equal to the combined diameter of the trees removed. These replacement plantings should be monitored for 5 years or until they are determined to be established and self-sustaining. The planting site(s) should be protected in perpetuity.
- Minimize the impact of removal and trimming of all trees and shrubs by having these activities supervised and/or completed by a certified arborist.
- Avoid future impacts to the site by ensuring all fill material is free of contaminants.
- Avoid impacts to migratory birds nesting in trees along the access route and adjacent to the proposed bank protection site by conducting pre-construction surveys for active nests along the proposed haul road, staging area, platform, and construction site. This would especially apply if construction begins in the early summer of 2015. Work activity around active nests should be avoided until the young have fledged. The following protocol from the CDFW for Swainson's hawk would suffice for the pre-construction survey for raptors:

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

- Minimize impacts to fish and wildlife resources and their habitat by confining travel to established roads/paths in the project area and confining parking to established areas (parking lots and staging areas).
- Minimize project impacts by reseeded all disturbed areas at the completion of construction with forbs and grasses.

With implementation of these mitigation measure and USFWS recommendations, the project would have a less than significant effect on vegetation or wildlife.

3.3.6 Water Quality

This section describes the existing conditions of the water resources that could be affected and evaluates the effects of the proposed project on water resources and water quality in the project area.

Regulatory Setting

Federal and State law mandates a series of programs for the management of surface water quality. The Clean Water Act (33 U.S.C. §1251 et seq.) (CWA) is the Federal law that establishes the baseline that all state and local water quality laws must meet. The CWA also gives states the authority to adopt more stringent water quality programs to manage waters within the state. California's Porter-Cologne Water Quality Control Act (California Water Code, Division 7), which created the State Water Resources Control Board (SWRCB), regulates the California waterways and establishes pollution prevention plans and policies.

The SWRCB is divided into nine Regional Water Quality Control Boards (RWQCB). Each RWQCB is responsible for enforcing State water quality laws and objectives, establishing beneficial uses for each State waterway, and developing and updating basin plans that protect water quality based on beneficial use. The project area falls within the jurisdiction of the Central Valley Regional Water Quality Control Board (CVRWQCB), which authorizes discharges into State waterways under the National Pollutant Discharge Elimination System (NPDES) permitting process. NPDES permits apply to stormwater, groundwater, and other wastewater discharges in the project area. Construction activities that disturb more than one acre of land would require a NPDES permit for potential storm water discharges and construction dewatering.

Permit types are further divided into categories based on the project activity in question. Pertinent to this project, a storm water permit is required. All permits require a notice of intent to be submitted prior to commencing any soil disturbing activities, groundwater dewatering, or concrete batch plant operation. The storm water permit requires that a Storm Water Pollution Prevention Plan (SWPPP) be developed and implemented along with a monitoring and reporting plan.

Section 401 of the CWA regulates the water quality of bodies of water associated with any in-water work, or discharge of dredged or fill material. Section 401 is administered by CVRWQCB. CVRWQCB either issues or denies water quality certifications based on whether or not the proposed in-water activity, discharge, or fill complies with all State and Federal laws, policies, and regulations governing the protection of the beneficial uses of the State's water resources.

Section 404 of the CWA regulates the discharge of dredged or fill material into wetlands and waters of the United States. Individual, general, and nationwide permits are issued by the

Corps and EPA for activities that may these jurisdictional waters. Although the Corps does not issue itself permits for its own Civil Works projects, Corps regulations state that the Corps must apply the guidelines and substantive requirements of Section 404 to its activities. Such guidelines are known as the “Section 404(b)(1) Guidelines.”

Existing Conditions

The American River basin covers an area of approximately 2,100 square miles and has an average runoff of 2.7 million acre-feet per year. The American River is part of the Sacramento River watershed along with numerous other streams and rivers that drain the western slopes of the Sierra Nevada and Cascades. The North, Middle, and South Forks of the American River are the major tributaries draining into Folsom Reservoir. In general, these waters entering Folsom Reservoir from the upper American River watershed are of high quality. The mainstem American River channel below Folsom Dam receives water from Folsom Lake after it passes through the dam.

Flood-producing runoff occurs primarily during the months of October through April and is usually most extreme between November and March. From April to July, runoff is primarily generated from snowmelt from the upper portions of the American River watershed. Runoff from snowmelt usually does not result in flood producing flows; however, it is normally adequate to fill Folsom Reservoir’s available storage. Approximately 40 percent of the runoff from the watershed results from snowmelt.

Lake Natoma is downstream of Folsom Dam and serves as an afterbay to Folsom Reservoir. Formed and controlled by Nimbus Dam, the lake is operated to reregulate the daily flow fluctuations created by the Folsom Powerplant. Consequently, surface water elevations in Lake Natoma may fluctuate between four and seven feet daily. Lake Natoma has a storage capacity of approximately 9,000 acre-feet and a surface area of 500 acres. Nimbus Dam, combined with Folsom Dam, regulates water releases to the lower American River.

There are no sources of surface water such as streams, ponds, springs or wetlands in the project area. Installation of the rock bolts would occur over the outflow channel below Folsom Dam. No fill material would be placed into the waters of the U.S., therefore the preparation of a 404(b)(1) analysis is not required.

Environmental Effects

Significance Criteria

The proposed action would significantly affect water resources if it would result in any of the following:

- Violate any water quality standards or waste discharge requirements, create or contribute runoff water that would provide substantial additional sources of polluted runoff, or otherwise substantially degrade water quality;

- Substantially degrade surface water or groundwater quality such that it would substantially degrade water quality to the detriment of beneficial uses; or
- Substantially alter the existing drainage pattern of the site or area in a manner that would result in substantial erosion or siltation on or off the site, resulting in flooding on or off the site, or exceed the capacity of stormwater drainage systems.

No Action

Under the no action alternative, the Corps and the CVFPB would not participate in construction of the proposed alternatives. As a result, there would be no additional effects on water resources or quality from construction activities associated with the slope protection measures, including movement of disturbed soil and accidental spills into surface drainage. Water quality would continue to be influenced by urban, and stormwater runoff.

Implement Slope Protection Measures

Site preparation for the project would include ground disturbing activities including minor clearing and grubbing, and excavation. Approximately 2 acres of land could be exposed during construction of the proposed action. Exposed soil could potentially erode during rain events, causing increased turbidity in local waterways. Adjacent waterways that could potentially be affected include the outflow channel below Folsom Dam, and the American River.

Construction activities have the potential to temporarily impair water quality if disturbed and eroded soil, petroleum products, or construction-related wastes (cement and solvents) are discharged into receiving waters or onto the ground where they can be carried into receiving waters. Soil and associated contaminants that enter receiving waters through stormwater runoff and erosion can increase turbidity, stimulate algae growth, increase sedimentation of aquatic habitat, and introduce compounds that are toxic to aquatic organisms. and groundwater.

In order to maintain existing water quality conditions, the contractor would be required to obtain NPDES permits. A NPDES general stormwater construction permit from the CVRWQCB would be required since the project would disturb more than 1 acre of land. The Construction Storm Water Permit pertains to the prevention of increased turbidity of adjacent waterways from site erosion and sedimentation. The contractor would be required to develop and implement a SWPPP prior to initiating construction activities, and to implement standard BMPs. Dust control measures would be implemented to avoid dust and soil from entering the river or other drainages as a result of construction activities. Precautions would be followed to avoid erosion and movement of soils into drainage systems. Implementation of BMPs and NPDES permit requirements would reduce water quality impacts from construction to less than significant.

There is potential for fugitive dust and construction runoff to enter waterways due to excavation, drilling, equipment use, and movement of trucks in the project area and along the access road. Frequent watering of haul routes, proper covering and control of material stock piles (e.g., dirt and aggregate) would help to prevent such pollution impacts, therefore; impacts on water quality due to fugitive dust would be less than significant.

There is also a potential of incidental fallback of materials entering the outflow channel from drilling and installation of the rock bolts. To minimize incidental fallback, the contractor would use a vacuum, covers or platforms to collect debris from entering the outflow channel. To minimize loss of grout, the contractor would conduct grouting in a manner to prevent air voids within the grout zone. If resin grout is used, it shall be in accordance with the resin manufacturer's recommendation. Implementation of BMPs would reduce incidental fallback from construction to less than significant.

Mitigation

Since there would be no significant effects on water resources or quality, no mitigation would be required. However, the following standard BMPs would be implemented to avoid or minimize any effects of construction on surface waters. Additional BMPs could be identified as part of the NPDES permits discussed above. Implementation of these BMPs would ensure that effects on water quality would remain at less-than-significant levels. Standard BMPs include:

- Appropriate erosion control measures would be incorporated into the SWPPP in order to prevent sediment from entering waterways. Examples include, but are not limited to: straw bales/wattles, erosion blankets, silt fencing, mulching, re-vegetation, and temporary covers. An appropriately designed and effective sediment capture and stilling basin must be implemented to capture and control sediments carried by site runoff. Sediment and erosion control measures must be maintained during construction at all times. Inspect control measures before, during, and after a rain event.
- Implement appropriate measures to prevent any debris, soil, rock, or other materials/products associated with construction activities from entering waterways. Examples of sediment control measures include, but are not limited to: silt fence, sediment basins, check dams, fiber rolls, and possibly gravel bag berms.
- The contractor would use a water truck or other appropriate measures to control fugitive dust on haul roads, construction areas, and stockpiles.
- The construction entrance/exit would be stabilized and controls to prevent off-site tracking of sediment or loose construction related materials would be implemented.
- Covers or platforms would be used to collect debris from entering the outflow channel. Attachments shall be added to construction equipment to catch debris.
- A fuel spill management plan would be developed for the project.
- Provide secondary containment for storage of any fuel, oil or other liquid and properly dispose of such liquid wastes.
- Fuel and maintain vehicles in specified staging areas only, which are designed to capture potential spills. These areas cannot be near any ditch, stream, or other body of water or feature that may convey water to a nearby body of water.

- Fuels and hazardous materials would not be stored on site. Any spills of hazardous material would be cleaned up immediately. Spills would be reported in construction compliance reports.
- Inspect and maintain vehicles and equipment to prevent dripping of oil, lubricants, or any other fluids.
- Schedule construction to avoid as much of the wet season as possible. Ground disturbance activities are expected to begin in the summer of 2015. If rains are forecast during the construction period, erosion control measures would be implemented.
- Train construction personnel in storm water pollution prevention practices.
- Re-vegetate and restore areas cleared by construction in a timely manner to control erosion.
- Implementation of any additional requirements as mandated by the construction storm water permit would further reduce any potential adverse affects to adjacent waterways.

In addition, the measures in the Spill Prevention and Response Plan and the Erosion and Sediment Control Plan would prevent any significant adverse effects to water quality in the project area. The inclusion of the above mitigation measures and complete compliance with all water quality permits, would reduce any water resources and quality impacts to less than significant.

4.0 CUMULATIVE AND GROWTH-INDUCING EFFECTS

4.1 Cumulative Effects

4.1.1 Introduction

NEPA and CEQA require the consideration of cumulative effects of the proposed project combined with the effects of other projects in and around the project vicinity. The discussion identifies resource areas in which the impacts of the proposed action, when viewed together with other projects, could contribute to an impact that is “cumulatively considerable” within the meaning of NEPA and CEQA.

Due to the fact that the Folsom JFP is a multi-phased, accelerated effort, overlapping construction efforts would occur adjacent and in the vicinity of the project area. The 2007 FEIS/EIR and the 2012 SEIS/EIR evaluated cumulative effects from the multiple phases of the Folsom JFP construction activities. No new current or future projects have identified in the vicinity of the project area that would change the 2012 SEIS/EIR analysis. The analysis in this Supplemental EA/EIR is addressing the incremental increase the proposed action would add to the previous cumulative effects analysis. The other phases of the Folsom JFP are listed below.

Mormon Island Auxiliary Dam Modification Project. Summer 2010 to fall 2015. USBR released the Draft EIS/EIR for the MIAD Modification Project in December 2009. The preferred MIAD action alternative of jet grouting selected in the FEIS/EIR was determined to be neither technically nor economically feasible. All alternatives address methods to excavate and replace the MIAD foundation, place an overlay on the downstream side, and construct drains and filters; the alternatives differ only in their method of excavation. In addition, all four action alternatives in

the draft supplemental EIS/EIR include habitat mitigation proposed for up to 80 acres at Mississippi Bar on the shore of Lake Natoma to address impacts from the Folsom JFP.

Control Structure, Chute, and Stilling Basin. Spring 2011 to spring 2017. Phase III of the Folsom JFP consists of construction of the auxiliary spillway control structure. This effort is currently under construction by the Corps and will be completed in approximately Summer 2015. Concrete lining of the spillway chute and stilling basin will be conducted by the Corps as the final phase of the Folsom JFP. Construction of the control structure, and the concrete lining of the chute and stilling basin were all covered under the Corps' 2010 EA/EIR (Corps 2010).

Approach Channel. Spring 2013 to fall 2017. The approach channel project is the final construction activity of Phase IV of the Folsom JFP. The supplemental EIS/EIR was released December 2012. The primary and permanent structures consist of the 1,100 foot long excavated approach channel and spur dike. Additional existing sites and facilities that would be used for the length of the project include the Folsom Prison staging area, the existing USBR Overlook, the MIAD area, and Dike 7.

Regulatory Background

The NEPA regulations and CEQA Guidelines require that an EA/EIR discuss project effects that, when combined with the effects of other projects, result in significant cumulative effects. Cumulative effects are defined as “The effect on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor or collectively significant actions taken over a period of time” (CFR 40 Part 1508.7).

Cumulative effects under the CEQA Guidelines are defined as “two or more individual impacts which, when considered together, compound or increase other environmental impacts” (Section 15355). The Guidelines require that an EIR discuss cumulative effects “when they are significant” (Section 15130). The CEQA Guidelines also state: “The cumulative impact from several projects is the change in the environment which results from the incremental impact of the project when added to the other closely related past, present, and reasonable foreseeable probable future projects” (Section 15355).

Methodology

Cumulative effects are evaluated by identifying projects in and around the Folsom Dam vicinity that could have significant adverse or beneficial environmental effects. These significant effects are compared with the potential adverse and beneficial effects of the proposed alternative to determine the types and significance of potential cumulative effects. The timeframe for analysis of cumulative impacts is from summer of 2015 when the project is anticipated to begin through the completion of the slope protection measures (approximately six months). Specific site conditions would determine the amount of work that could take place during each construction season.

4.1.2 Past, Present, and Reasonably Foreseeable Future Projects

Related Projects

The identified projects in the vicinity of the project area are briefly described below. Each of the identified projects is required to evaluate the effects of the proposed actions on environmental resources in their respective areas. Accordingly, mitigation or mitigation measures must be developed to avoid or reduce any adverse effects to less than significant based on Federal and local agency criteria. Effects that cannot be avoided or reduced to less than significant are likely to contribute to cumulative effects in the area. Timing and sequencing of construction activities for each of the projects are not yet determined and would affect the findings of the cumulative effects analysis.

Johnny Cash Folsom Prison Blues (Folsom Lake) Trail: Historic Truss Bridge to Green Valley Road Segment

This project is planned to provide approximately 2.5 miles of Class I bike trail from the Historic Truss Bridge to Green Valley Road. Incorporation of a separated grade crossing at the new Folsom Lake Crossing/East Natoma Street re-alignment was included as part of the construction of the Folsom Bridge. Construction is expected to be completed in fall 2014.

Folsom Dam Water Control Manual Update

The Folsom Dam Water Control Manual Update is being completed in conjunction with the Folsom JFP by the Corps, USBR, CVFPB, and SAFCA. The Folsom Dam Water Control Manual Update is developing, evaluating, and recommending changes to the flood control operations at Folsom Dam to further reduce flood risks to the Sacramento area. The study will result in a Corps decision document and will be followed by a water control manual implementing the recommendations of the Study. The initial water control manual will implement the recommendations of the study, but will not include the capabilities to be provided by the Dam Raise and additional Common Features project improvements until these projects have been completed.

Folsom Dam Raise

The Folsom Dam Raise project will follow the Folsom JFP. This project includes raising the Folsom Dam, Mormon Island Auxiliary Dam and the auxiliary dikes around Folsom Reservoir by 3.5 feet; replacing the three emergency spillway gates; and three ecosystem restoration projects. For the dam raise portion of the project, the design should begin in 2015 and be completed in Fiscal Year 2016, with construction following in phases through 2017 and 2018.

Widening of Green Valley Road

Green Valley Road runs between both the City of Folsom and El Dorado County. Both agencies have proposed projects to widen Green Valley Road from two to four lanes. The El Dorado County Green Valley Road widening project from the county line to Francisco Drive was

constructed prior to 2009, with environmental mitigation to be completed from 2009 to 2012 (El Dorado County 2010). The City of Folsom plans to widen Green Valley Road; however, the ongoing construction of the Bureau's MIAD Modification project limits their ability to conduct the road widening project. There is currently no environmental compliance documentation and no construction schedule for the project within the City of Folsom. The project could take four years to construct.

El Dorado 50 – HOV lanes

California Department of Transportation will construct bus-carpool (HOV) lanes in the eastbound and westbound directions by widening U.S. Highway 50 from approximately El Dorado Hills Boulevard to just west of Greenstone Road. The project will ultimately extend the current HOV lane system to provide approximately 23 continuous miles of eastbound and westbound HOV lanes between Sacramento and El Dorado counties. The project also includes bridge modifications, lighting improvements and new asphalt overlay. The project will be constructed in three phases: Phase 1 will extend the current HOV lanes from their existing terminus west of El Dorado Hills Boulevard to west of Bass Lake Road. Construction was completed in 2011. Phase 2 will extend the lanes from west of Bass Lake Road to approximately Ponderosa Road. Phase 3, currently on hold pending determination of funding source, will extend the lanes from Ponderosa Road to Greenstone Road (Caltrans 2012).

Hazel Avenue Improvement Project

Sacramento Department of Transportation completed Phase 1 of the Hazel Avenue Improvement Project. The primary portion of Phase 1 involved the widening of Hazel Avenue from four to six lanes over the American River Bridge from U.S. 50 to Curragh Downs Drive. Construction was completed in 2011. Phase 2 of the Hazel Avenue Projects includes widening Hazel Avenue from four to six lanes from Curragh Downs Drive to Sunset Avenue. This phase will also include traffic signal modifications at Curragh Downs Drive, Winding Way, La Serena Drive, and Sunset Ave. Construction of Phase 2 is currently targeted to begin in 2015. Phase 3 of the Hazel Avenue Project includes improvements from Sunset Avenue to Madison Avenue and is project to begin in 2016 (SacDOT 2010).

4.1.3 Cumulative Effects

Analysis of Potential Cumulative Effects

Chapter 3 of this Supplemental EA/EIR identifies the affected environment and includes detailed impact analyses and mitigation measures of the proposed action with respect to air quality, cultural resources, special status species, vegetation and wildlife, and water quality. The results are assessed in the following cumulative effects analysis in terms of their potential to combine with environmental effects of the projects listed previously. The analysis focuses on the potential for the impacts identified in Chapter 3 to make a considerable contribution to significant adverse cumulative effects.

The discussion of cumulative impacts focuses on the cumulative impact to which these other projects contribute, rather than the attributes of other projects which do not contribute to the cumulative impact. For example, if another project contributes only to a cumulative effect on natural resources, its effects on public services need not be discussed as part of the cumulative impact analysis.

Air Quality

The geographic scope of potential cumulative air quality impacts encompasses the immediate project vicinity for particulates and the Sacramento Valley Air Basin (SVAB) for ozone precursor pollutants. The proposed action could overlap with ongoing Folsom JFP projects and roadway improvement projects that are in and around the vicinity of the Folsom Facility.

A detailed discussion of air quality cumulative effects is presented in the 2012 SEIS/EIR. No new current or future projects have been identified in the vicinity of the project area that would change the 2012 SEIS/EIR analysis. The additional emissions estimates from the proposed action would not contribute significant emissions to the air basin. The project's emissions would be temporary and not generate any long-term air pollutants, not exceed applicable project level thresholds of significant, and would not substantially contribute to AAQS. Therefore, impacts are less than significant with mitigation.

Climate Change

It is unlikely that any single project by itself could have a significant impact on the environment with respect to GHGs. However, the cumulative effect of human activities has been clearly linked to quantifiable changes in the composition of the atmosphere, which, in turn, have been shown to be the main cause of global climate change (IPCC 2007). Therefore, the analysis of the environmental effects of GHG emissions is inherently a cumulative impact issue. While the emissions of one single project will not cause global climate change, GHG emissions from multiple projects throughout the world could result in a cumulative effect with respect to global climate change.

A detailed discussion of climate change cumulative effects is presented in the 2012 SEIS/EIR. No new current or future projects have been identified in the vicinity of the project area that would change the 2012 SEIS/EIR analysis. The additional CO₂ emissions from the proposed action would not exceed applicable project level thresholds of significance, and would not conflict with CARB's and Sacramento County's ability to achieve its GHG reduction goals. Therefore, impacts are less than significant.

Cultural Resources

Folsom Dam and Dikes, resources eligible for listing in the NRHP, are located outside the APE, and the current proposed project would not alter directly or indirectly any of the characteristics that make these resources eligible for listing in the NRHP. As a result, there would be no adverse effects to Folsom Dam and Dikes caused by the proposed action. Construction of the proposed slope protection measures would not adversely affect any potential historic properties or

cultural resources located within or near the APE. Since the Corps has determined that construction of the proposed action would not adversely affect any potential historic properties or cultural resources located within or near the APE, the proposed action would not contribute to any cumulative effects resulting from past, ongoing, or reasonably foreseeable projects in or near the APE.

Special Status Species

The slope protection measures could result in indirect effects on elderberry plants, which is the host plant for the Federally listed threatened valley elderberry longhorn beetle. However, with implementation of the conservation measures stated previously, effects to the valley elderberry longhorn beetle would be minimized.

Prior to the onset of the MIAD Modification project, USBR transplanted elderberry shrubs from their project footprint. To mitigate for the transplanting of these shrubs, USBR will include elderberry plantings in their Mississippi Bar mitigation site. VELB populations are highly affected by fragmented habitat, so by improving this site, USBR would also be improving the contiguous corridor for the VELB along the American River. Past Corps projects, including the Folsom Bridge Project also included elderberry mitigation that added to this corridor. As a result, the mitigation would benefit the species by adding habitat connectivity. The Folsom JFP approach channel project transplanted four elderberry shrubs to the French Camp Mitigation Bank. Transplanting the elderberry shrubs to the mitigation bank contributed to the long-term net improvement of beetle habitat by increasing habitat extent and connectivity. As a result, the cumulative effect of these projects' effects to elderberry shrubs would be considered less-than-significant, with the implementation of the projects' proposed mitigation.

Vegetation and Wildlife

The Folsom JFP approach channel and the Mormon Island Auxiliary Dam Modification project have identified effects to vegetation and wildlife. To mitigate for their effects, USBR will create a mitigation site with associated riparian habitat at Mississippi Bar on Lake Natoma. The Folsom JFP approach channel will mitigate for their effects by creating a mitigation site with associated riparian habitat at Rossmore Bar along the American River. If tree removal is required to implement the slope protection measures, mitigation would be completed on-site. If on-site mitigation is not possible due to site constraints, plantings are assumed to be completed at the Rossmoor Bar site or credits would be purchased at a USFWS approved mitigation bank. Mitigation associated with riparian plantings on Lake Natoma or within the American River Parkway has the potential to increase the contiguous riparian corridor along the river and would increase habitat continuity. As a result, the cumulative effect of these projects' habitat loss would be considered less-than-significant, with the implementation of the projects' proposed mitigation.

Water Resources and Quality

The geographic scope for the potential cumulative water quality impacts encompasses the outflow channel below Folsom Dam (i.e. the Lower American River channel), and Lake Natoma.

The proposed action could overlap with ongoing Folsom JFP projects which have the potential to create storm water runoff that could be discharged to outflow channel.

Projects could adversely affect water quality in these waters through clearing, grading, and foundation excavation work that could increase the potential for soil erosion and subsequent turbidity. During the rainy season, stormwater runoff from areas that have been cleared for these projects may contain high levels of suspended sediments. Together, these projects could potentially result in a cumulative effect on water quality.

The analysis results for potential impacts from the proposed action were less than significant; thus, would not contribute to cumulative effects on water quality. Implementation of the appropriate mitigation measures for each these identified projects and appropriate monitoring and testing, along with the mitigation measures for the proposed action, which include implementation of a SWPPP, BMPs, pertinent permits, would ensure that the potential cumulative effects on water quality to a less than significant level.

4.2 Growth-Inducing Effects

The proposed action would not directly remove obstacles to growth, result in population increases, or encourage and facilitate other activities that could significantly affect the environment. New development must be consistent with existing City and County general plan policies and zoning ordinances regarding land use, open space, conservation, flood protection, and public health and safety. Local population growth and development would be consistent with the most current Land Use Element of the County of Sacramento General Plan.

The project area is zoned specifically for flood control activities. The land uses would not change due to the construction of the proposed project, or any of the related projects in the area. In addition, maintenance of the slope protection measures would not be required so the project would not result in a substantial increase in the number of permanent workers or employees.

5.0 COMPLIANCE WITH ENVIRONMENTAL LAWS AND REGULATIONS

5.1 Federal Requirements

Clean Air Act of 1972, as amended, 42 U.S.C. 7401, et seq. *Full compliance.* Construction of the proposed action concurrently with the other phases of the Folsom JFP is not expected to violate any Federal, exceed the U.S. EPA's general conformity *de minimis* threshold, or hinder the attainment of air quality objectives in the local air basin. Implementation of mitigation measures and BMPs would reduce NOx emissions to below State and local thresholds. Thus, the Corps has determined that the additional emissions from the slope protection measures would have no significant effects on the future air quality in the area.

Clean Water Act of 1972, as amended, 33 U.S.C. 1251, et seq. *Full Compliance.* Compliance with Clean Water Act Section 404(b)(1) was not required, as there will be no placement of fill material into the waters of the U.S. The contractor will obtain the water quality a Storm Water Permit: NPDES General Permit for Storm Water Discharges Associated with

Construction and Land Disturbance Activities. As part of these permits, the contractor would be required to implement BMPs to avoid and minimize any adverse effects of construction on surface waters.

Endangered Species Act of 1973, as amended, 16 U.S.C. 1531, et seq. Full Compliance. In accordance with Section 7(c), the Corps obtained a list of Federally listed and proposed species likely to occur in the project area. The only listed species affected by the project would be the valley elderberry longhorn beetle. The Corps' biological assessment is that the project may affect, but is not likely to adversely affect this species. USFWS amended the Biological Opinion (BO) dated March 31, 2014 and June 10, 2014 (Appendix D).

The Corps as the action agency has made the determination that there would be no effect on any listed species under the jurisdiction of the National Marine Fisheries Service (NMFS). As a result, formal consultation is not required with NMFS under Section 7 of the Endangered Species Act.

Executive Order 11988, Floodplain Management. Full Compliance. The objective of this Executive Order is the avoidance, to the extent possible, of long- and short-term adverse effects associated with the occupancy and modification of the base flood plain (1 in 100 annual flood event) and the avoidance of direct and indirect support of development in the base flood plain wherever there is a practicable alternative. The proposed project is a portion of the Folsom JFP and it has been determined, by the project partners and Congress, that constructing the Folsom JFP is the only practicable way to reduce flood risk to the greater Sacramento area. The Folsom JFP in combination with other area flood risk projects, protects the existing urban population while providing residual risk information to the appropriate agencies making land use decisions in the area. Therefore the proposed project does not contribute to increased development in the floodplain and is in compliance with the executive order.

Executive Order 11990, Protection of Wetlands. Full Compliance. This executive order directs Federal agencies, in carrying out their responsibilities, to minimize the destruction, loss or degradation of wetlands and to preserve and enhance the natural and beneficial values of wetlands. The project area is not located in or adjacent to wetlands and therefore would have no adverse effects on wetlands.

Executive Order 12989, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations. Full Compliance. This Executive Order states that Federal agencies are responsible to conduct their programs, policies, and activities that substantially affect human health of the environment in a manner that ensures that such programs, policies, and activities do not have the effect of excluding persons from participation in, denying persons the benefits of, or subjecting persons to discrimination under such programs, policies, and activities because of their race, color, or national origin. The benefits of the proposed action would extend to all areas of the greater Sacramento Area. The proposed project is on public land and is not located near any minority or low-income areas or communities.

Farmland Protection Policy Act, 7 U.S.C. 4201 et seq. Full Compliance. This act requires a Federal agency to consider the effects of its actions and programs on the Nations'

farmland. There are no designated prime or unique farmlands within the project area, and therefore there would no adverse effects to farmland.

Fish and Wildlife Coordination Act of 1958, as amended, 16 U.S.C. 661, et seq. *Partial Compliance.* This act requires Federal agencies to consult with the USFWS and State fish and game agencies before undertaking or approving water projects that control or modify surface water. Federal agencies undertaking water projects are required to fully consider recommendations made by the USFWS. Coordination with USFWS is ongoing in order to determine the effects on vegetation and wildlife within the project area. USFWS prepared a draft Coordination Act Report (CAR) dated April 1, 2014 (Appendix G). Inclusion of the final CAR and consideration of USFWS recommendations would accomplish full compliance with this law.

Magnuson-Stevens Fishery Conservation and Management Act. *Full Compliance.* This legislation requires that all Federal agencies consult with National Marine Fisheries Service regarding all actions or proposed actions permitted, funded, or undertaken that may adversely affect essential fish habitat. Essential fish habitat is defined as “waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity.” The Corps has determined the project would have no effect on Federally listed threatened and endangered species, and essential fish habitat.

Migratory Bird Treaty Act of 1936, as amended, 16 U.S.C. 703 et seq. *Full Compliance.* This Act provides protection for migratory birds as defined in 16 USC 715. To the extent feasible, construction would be timed to avoid disruption of active bird nest or young of birds that breed in the area. No direct physical destruction of active nests will occur unless a permit is obtained from the USFWS. A biologist would conduct preconstruction surveys in areas adjacent to the project site. If breeding birds or active nests are found in the area, a protective buffer would be delineated to minimize disturbance to the nests, and the USFWS and CDFW would be consulted.

National Environmental Policy Act of 1969, as amended, 42 U.S.C. 4321, et seq. *Partial Compliance.* This Supplemental EA/EIR is in partial compliance with this act. Comments received during the public review will be incorporated into the EA/EIR, as appropriate and a comments and responses appendix will be prepared. The final EA/EIR will be accompanied by a signed FONSI if determined to be appropriate by the District Engineer after consideration of public comments. These actions will provide full compliance with this act.

National Historic Preservation Act of 1966, as amended. *Partial Compliance.* Section 106 of the National Historic Preservation Act requires Federal agencies to take into account the effects of a proposed undertaking on properties that have been determined to be eligible for, or included in, the National Register of Historic Places. The implementing regulations for Section 106 are 36 CFR § 800.

In a letter dated June 2, 2014, the Corps initiated consultation with the SHPO, informing the SHPO of the proposed project, and asking for comments on the determination of the APE and on the proposed efforts to identify historic properties within the APE.

Letters were sent to potentially interested Native American Tribes on June 2, 2014, including the Shingle Springs Band of Miwok Indians, the United Auburn Indian Community of the Auburn Rancheria, Wilton Rancheria, and the T'si-Akim Maidu to inquire if they have knowledge of locations of archaeological sites, or areas of traditional cultural value or concern in or near the APE.

The Corps has made a determination of “No Adverse Effect” for the proposed project. The only known historic property near the APE is Folsom Dam (CA-SAC-937-H), including the left and right wing dams (CA-SAC-1103-H), which are contributing features to Folsom Dam. Folsom Dam was found eligible for listing in the NRHP for its role in the history of flood control in the Sacramento region. The Corps has determined that the proposed project will not adversely affect historic properties within the APE and will submit a letter to the SHPO documenting this determination and the Corps’ inventory, identification, evaluation, and consultation efforts, and determinations of eligibility and effect. Once these consultations are complete, the proposed project will be in compliance with Section 106 of the NHPA.

Wild and Scenic Rivers Act, 16 U.S.C. 1271 et seq. *Full Compliance.* This act was enacted to preserve selected rivers or sections of rivers in their free-flowing condition in order to protect the quality of river waters and to fulfill other national conservation purposes. The Lower American River, below Nimbus Dam, has been included in the Federal Wild and Scenic Rivers system since 1981. The proposed project is located above this reach of the river and therefore, does not affect this portion of the Lower American River.

5.2 State of California Requirements

California Environmental Quality Act. *Partial Compliance.* This joint NEPA/CEQA document is in partial compliance with CEQA requirements. Comments received during the public review period will be considered and incorporated into the final EA/EIS, as appropriate. The CVFPB will consider certifying the EIR and adopting its findings. Completion of this action by the CVFPB will provide full compliance for CEQA.

California Endangered Species Act. *Full Compliance.* This act requires the non-Federal agency to consider the potential adverse effects on State-listed species. As a joint NEPA/CEQA document, this Supplemental EA/EIR has considered the potential effects and has determined that due to the lack of suitable habitat for any State-listed species, the project would have no effect on those State special status species associated with the proposed action.

Porter-Cologne Water Quality Control Act. *Full Compliance.* The potential effects of the proposed project on water quality have been evaluated and are discussed in section 3.2.5. This project expects to achieve full compliance with the Water Quality Control Act by obtaining and implementing the requirements from the NPDES permits.

6.0 COORDINATION AND REVIEW OF THE SUPPLEMENTAL EA/EIR

6.1 Public Involvement

The public involvement for the Folsom JFP has included public attendance and participation at meetings where possible design refinements have been discussed. These activities included a community outreach program with public workshops, notices, and media; and distribution of the draft documents for public review and comment. The public and other interested/affected parties have been encouraged to comment on all activities associated with the design and evaluation of the Folsom JFP.

6.2 Review of the Supplemental EA/EIR

The draft Supplemental EA/EIR will be circulated for 45 days to agencies, organizations, and individuals who have an interest in the proposed project. All comments received will be considered and incorporated into the final EA/EIR, as appropriate. This project is being coordinated with all relevant government resource agencies including USBR, CVFPB, and USFWS.

7.0 FINDINGS

Based on the information in this Supplemental EA/EIR, the Folsom JFP with the proposed slope protection modifications would have no new significant adverse effects on environmental resources beyond the significant effects identified in the 2007 FEIS/EIR. Mitigation consisting of BMPs and other measures proposed in this Supplemental EA/EIR are sufficient to reduce all direct, indirect, and cumulative effects to less than significant. Based on this evaluation, the proposed project meets the definition of a FONSI as described in 40 CFR 1508.13. A FONSI may be prepared when an action would not have a significant effect on the human environment and for which an environmental impact statement would not be prepared. Therefore, a draft FONSI accompanies the draft EA as attachment. The USACE, District Commander, will, following public review of the draft EA, determine whether a FONSI is appropriate or if a supplemental EIS should be prepared. In addition, the CVFPB, as the project's lead agency under CEQA, will consider staff recommendations and public comment in order to decide whether to certify the SEA/EIR, adopt findings, adopt the mitigation and monitoring plan, and approve the slope protection measures.

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PLATES

Appendix A

National and California Ambient Air Quality Standards

National and California Ambient Air Quality Standards.

Pollutant	Averaging Time	National Primary Standard ^a	California Standard ^b	Violation Criteria	
				National	California
CO	8 Hour	9 ppm	9 ppm	Not to be exceeded more than once per year	If exceeded
	1 Hour	35 ppm	20 ppm	Not to be exceeded more than once per year	If exceeded
	8 Hour (Lake Tahoe)	NA	6 ppm	NA	If exceeded
NO ₂	Annual	0.053 ppm	0.030 ppm	If exceeded	If exceeded
	1 Hour	0.100 ppm	0.18 ppm	The 3-year average of 98th percentile of the daily maximum 1-hour average must not exceed	If exceeded
O ₃	8 Hour (2008 standard)	0.075 ppm	0.070 ppm	The 3-year average of 4th-highest daily maximum 8-hour average must not exceed	If exceeded
	1 Hour	NA	0.09 ppm	NA	If exceeded
PM ₁₀	Annual	NA	20 µg/m ³	NA	If exceeded
	24 Hour	150 µg/m ³	50 µg/m ³	Not to be exceeded more than once per year on average over 3 years	If exceeded
PM _{2.5}	Annual	15.0 µg/m ³	12 µg/m ³	The 3-year average of the weighted annual mean must not exceed	If exceeded
	24 Hour	35 µg/m ³	NA	The 3-year average of 98th percentile of the 24-hour concentration must not exceed	NA
SO ₂	Annual	0.03 ppm	NA	If exceeded	NA
	24 Hour	0.14 ppm	0.04 ppm	Not to be exceeded more than once per year	If exceeded
	3 Hour	NA ^c	NA	NA	NA
	1 Hour	NA	0.25 ppm	NA	If exceeded

^a 40 CFR 50.4 through 50.13

^b California Code of Regulations, Table of Standards, Section 70200 of Title 17

^c No National Primary 3 hour Standard for SO₂. National Secondary 3hour standard for SO₂ is 0.5 ppm

µg/m³ micrograms per cubic meter

ppm parts per million

Appendix B

Air Quality Analysis

Road Construction Emissions Model, Version 7.1.5.1

Emission Estimates for -> Right Bank Slope Protection				Total	Exhaust	Fugitive Dust	Total	Exhaust	Fugitive Dust	CO2 (lbs/day)
Project Phases (English Units)	ROG (lbs/day)	CO (lbs/day)	NOx (lbs/day)	PM10 (lbs/day)	PM10 (lbs/day)	PM10 (lbs/day)	PM2.5 (lbs/day)	PM2.5 (lbs/day)	PM2.5 (lbs/day)	
Grubbing/Land Clearing	2.6	13.8	29.1	3.9	1.4	2.5	1.8	1.3	0.5	2,786.3
Grading/Excavation	3.5	16.9	41.7	4.5	2.0	2.5	2.3	1.8	0.5	4,324.0
Drainage/Utilities/Sub-Grade	3.1	17.5	28.6	4.1	1.6	2.5	2.0	1.5	0.5	3,414.2
Paving	-	-	-	-	-	-	-	-	-	-
Maximum (pounds/day)	3.5	17.5	41.7	4.5	2.0	2.5	2.3	1.8	0.5	4,324.0
Total (tons/construction project)	0.2	1.1	2.0	0.2	0.1	0.1	0.1	0.1	0.0	226.9

Notes: Project Start Year -> 2015
 Project Length (months) -> 6
 Total Project Area (acres) -> 2
 Maximum Area Disturbed/Day (acres) -> 0
 Total Soil Imported/Exported (yd³/day)-> 20

PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.

Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns H and I. Total PM2.5 emissions shown in Column J are the sum of exhaust and fugitive dust emissions shown in columns K and L.

Emission Estimates for -> Right Bank Slope Protection				Total	Exhaust	Fugitive Dust	Total	Exhaust	Fugitive Dust	CO2 (kgs/day)
Project Phases (Metric Units)	ROG (kgs/day)	CO (kgs/day)	NOx (kgs/day)	PM10 (kgs/day)	PM10 (kgs/day)	PM10 (kgs/day)	PM2.5 (kgs/day)	PM2.5 (kgs/day)	PM2.5 (kgs/day)	
Grubbing/Land Clearing	1.2	6.3	13.2	1.8	0.6	1.1	0.8	0.6	0.2	1,266.5
Grading/Excavation	1.6	7.7	19.0	2.0	0.9	1.1	1.0	0.8	0.2	1,965.5
Drainage/Utilities/Sub-Grade	1.4	7.9	13.0	1.9	0.7	1.1	0.9	0.7	0.2	1,551.9
Paving	-	-	-	-	-	-	-	-	-	-
Maximum (kilograms/day)	1.6	7.9	19.0	2.0	0.9	1.1	1.0	0.8	0.2	1,965.5
Total (megagrams/construction project)	0.2	1.0	1.8	0.2	0.1	0.1	0.1	0.1	0.0	205.8

Notes: Project Start Year -> 2015
 Project Length (months) -> 6
 Total Project Area (hectares) -> 1
 Maximum Area Disturbed/Day (hectares) -> 0
 Total Soil Imported/Exported (meters³/day)-> 15

PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.

Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns H and I. Total PM2.5 emissions shown in Column J are the sum of exhaust and fugitive dust emissions shown in columns K and L.

Road Construction Emissions Model

Version 7.1.5.1

Data Entry Worksheet

Note: Required data input sections have a yellow background.
 Optional data input sections have a blue background. Only areas with a yellow or blue background can be modified. Program defaults have a white background.
 The user is required to enter information in cells C10 through C25.



Input Type

Project Name	Right Bank Slope Protection	
Construction Start Year	2015	Enter a Year between 2009 and 2025 (inclusive)
Project Type	1	1 New Road Construction 2 Road Widening 3 Bridge/Overpass Construction
Project Construction Time	6.00	months
Predominant Soil/Site Type: Enter 1, 2, or 3	2	1. Sand Gravel 2. Weathered Rock-Earth 3. Blasted Rock
Project Length	1.50	miles
Total Project Area	2.00	acres
Maximum Area Disturbed/Day	0.25	acres
Water Trucks Used?	1	1. Yes 2. No
Soil Imported	20.00	yd ³ /day
Soil Exported	0.00	yd ³ /day
Average Truck Capacity	20	yd ³ (assume 20 if unknown)

To begin a new project, click this button to clear data previously entered. This button will only work if you opted not to disable macros when loading this spreadsheet.

The remaining sections of this sheet contain areas that can be modified by the user, although those modifications are optional.

Note: The program's estimates of construction period phase length can be overridden in cells C34 through C37.

Construction Periods	User Override of	Program
	Construction Months	Calculated Months
Grubbing/Land Clearing	0.50	0.60
Grading/Excavation	0.50	2.70
Drainage/Utilities/Sub-Grade	5.00	1.80
Paving	0.00	0.90
Totals	6.00	6.00

2005	%	2006	%	2007	%
0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00

NOTE: soil hauling emissions are included in the Grading/Excavation Construction Period Phase, therefore the Construction Period for Grading/Excavation cannot be zero if hauling is part of the project.

Hauling emission default values can be overridden in cells C45 through C46.

Soil Hauling Emissions		User Override of				
User Input	Soil Hauling Defaults	Default Values				
Miles/round trip		30				
Round trips/day	10.00	1				
Vehicle miles traveled/day (calculated)		300				
Hauling Emissions	ROG	NOx	CO	PM10	PM2.5	CO2
Emission rate (grams/mile)	0.25	9.41	1.09	0.22	0.15	1694.67
Emission rate (grams/trip)	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day	0.16	6.21	0.72	0.15	0.10	1119.83
Tons per construction period	0.00	0.03	0.00	0.00	0.00	6.16

Worker commute default values can be overridden in cells C60 through C65.

Worker Commute Emissions		User Override of Worker				
	Commute Default Values	Default Values				
Miles/ one-way trip		20				
One-way trips/day		2				
No. of employees: Grubbing/Land Clearing	5.00	6				
No. of employees: Grading/Excavation	5.00	19				
No. of employees: Drainage/Utilities/Sub-Grade	6.00	16				
No. of employees: Paving	0.00	13				
	ROG	NOx	CO	PM10	PM2.5	CO2
Emission rate - Grubbing/Land Clearing (grams/mile)	0.164	0.219	1.956	0.047	0.020	443.518
Emission rate - Grading/Excavation (grams/mile)	0.164	0.219	1.956	0.047	0.020	443.518
Emission rate - Draining/Utilities/Sub-Grade (gr/mile)	0.164	0.219	1.956	0.047	0.020	443.518
Emission rate - Paving (grams/mile)	0.000	0.000	0.000	0.000	0.000	0.000
Emission rate - Grubbing/Land Clearing (grams/trip)	0.558	0.363	4.666	0.004	0.003	95.528
Emission rate - Grading/Excavation (grams/trip)	0.558	0.363	4.666	0.004	0.003	95.528
Emission rate - Draining/Utilities/Sub-Grade (gr/trip)	0.558	0.363	4.666	0.004	0.003	95.528
Emission rate - Paving (grams/trip)	0.000	0.000	0.000	0.000	0.000	0.000
Pounds per day - Grubbing/Land Clearing	0.084	0.105	0.965	0.021	0.009	197.486
Tons per const. Period - Grub/Land Clear	0.000	0.001	0.005	0.000	0.000	1.086
Pounds per day - Grading/Excavation	0.084	0.105	0.965	0.021	0.009	197.486
Tons per const. Period - Grading/Excavation	0.000	0.001	0.005	0.000	0.000	1.086
Pounds per day - Drainage/Utilities/Sub-Grade	0.101	0.125	1.157	0.025	0.011	236.984
Tons per const. Period - Drain/Util/Sub-Grade	0.006	0.007	0.064	0.001	0.001	13.034
Pounds per day - Paving	0.000	0.000	0.000	0.000	0.000	0.000
Tons per const. Period - Paving	0.000	0.000	0.000	0.000	0.000	0.000
tons per construction period	0.006	0.008	0.074	0.002	0.001	15.206

Water truck default values can be overridden in cells C91 through C93 and E91 through E93.

Water Truck Emissions	User Override of	Program Estimate of	User Override of Truck	Default Values		
	Default # Water Trucks	Number of Water Trucks	Miles Traveled/Day	Miles Traveled/Day		
Grubbing/Land Clearing - Exhaust		1		40		
Grading/Excavation - Exhaust		1		40		
Drainage/Utilities/Subgrade		1		40		
	ROG	NOx	CO	PM10	PM2.5	CO2
Emission rate - Grubbing/Land Clearing (grams/mile)	0.25	9.41	1.09	0.22	0.15	1694.67
Emission rate - Grading/Excavation (grams/mile)	0.25	9.41	1.09	0.22	0.15	1694.67
Emission rate - Draining/Utilities/Sub-Grade (gr/mile)	0.25	9.41	1.09	0.22	0.15	1694.67
Pounds per day - Grubbing/Land Clearing	0.02	0.83	0.10	0.02	0.01	149.31
Tons per const. Period - Grub/Land Clear	0.00	0.00	0.00	0.00	0.00	0.82
Pound per day - Grading/Excavation	0.02	0.83	0.10	0.02	0.01	149.31
Tons per const. Period - Grading/Excavation	0.00	0.00	0.00	0.00	0.00	0.82
Pound per day - Drainage/Utilities/Subgrade	0.02	0.83	0.10	0.02	0.01	149.31
Tons per const. Period - Drainage/Utilities/Subgrade	0.00	0.05	0.01	0.00	0.00	8.21

Fugitive dust default values can be overridden in cells C110 through C112.

Fugitive Dust	User Override of Max	Default	PM10	PM10	PM2.5	PM2.5
	Acreage Disturbed/Day	Maximum Acreage/Day	pounds/day	tons/per period	pounds/day	tons/per period
Fugitive Dust - Grubbing/Land Clearing		0.25	2.5	0.0	0.5	0.0
Fugitive Dust - Grading/Excavation		0.25	2.5	0.1	0.5	0.0
Fugitive Dust - Drainage/Utilities/Subgrade		0.25	2.5	0.0	0.5	0.0

Off-Road Equipment Emissions

Grubbing/Land Clearing		Default	ROG	CO	NOx	PM10	PM2.5	CO2
Override of Default Number of Vehicles	Number of Vehicles	Type	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
	<i>Program-estimate</i>							
		Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00
		Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00
		Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00
		Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00
		Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00
		Cranes	0.00	0.00	0.00	0.00	0.00	0.00
	1	Crawler Tractors	0.97	6.47	12.43	0.48	0.44	1194.68
		Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00
	1	Excavators	0.44	2.79	4.90	0.24	0.22	572.80
		Forklifts	0.00	0.00	0.00	0.00	0.00	0.00
		Generator Sets	0.00	0.00	0.00	0.00	0.00	0.00
1.00		Graders	1.11	3.49	10.87	0.61	0.56	671.98
		Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00
		Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00
		Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Other General Industrial Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Other Material Handling Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Pavers	0.00	0.00	0.00	0.00	0.00	0.00
		Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00
		Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00
		Pumps	0.00	0.00	0.00	0.00	0.00	0.00
		Rollers	0.00	0.00	0.00	0.00	0.00	0.00
		Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00
		Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00
		Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00
		Scrapers	0.00	0.00	0.00	0.00	0.00	0.00
0.00	3	Signal Boards	0.00	0.00	0.00	0.00	0.00	0.00
		Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00
		Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00
		Tractors/Loaders/Backhoes	0.00	0.00	0.00	0.00	0.00	0.00
		Trenchers	0.00	0.00	0.00	0.00	0.00	0.00
		Welders	0.00	0.00	0.00	0.00	0.00	0.00
	Grubbing/Land Clearing	pounds per day	2.5	12.7	28.2	1.3	1.2	2439.5
	Grubbing/Land Clearing	tons per phase	0.0	0.1	0.2	0.0	0.0	13.4

Grading/Excavation	Default		ROG	CO	NOx	PM10	PM2.5	CO2
	Override of Default Number of Vehicles	Number of Vehicles Program-estimate						
			pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
		Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00
		Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00
		Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00
		Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00
		Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00
	0	Cranes	0.00	0.00	0.00	0.00	0.00	0.00
	1	Crawler Tractors	0.97	6.47	12.43	0.48	0.44	1194.68
		Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00
0.00	3	Excavators	0.00	0.00	0.00	0.00	0.00	0.00
		Forklifts	0.00	0.00	0.00	0.00	0.00	0.00
		Generator Sets	0.00	0.00	0.00	0.00	0.00	0.00
	1	Graders	1.11	3.49	10.87	0.61	0.56	671.98
		Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00
		Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00
1.00		Other Construction Equipment	0.73	3.60	7.83	0.41	0.38	654.35
		Other General Industrial Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Other Material Handling Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Pavers	0.00	0.00	0.00	0.00	0.00	0.00
		Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00
		Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00
		Pumps	0.00	0.00	0.00	0.00	0.00	0.00
0.00	2	Rollers	0.00	0.00	0.00	0.00	0.00	0.00
		Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00
		Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00
0.00	1	Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00
0.00	2	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00
0.00	3	Signal Boards	0.00	0.00	0.00	0.00	0.00	0.00
		Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00
		Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00
1.00	2	Tractors/Loaders/Backhoes	0.38	1.58	3.45	0.27	0.25	336.39
		Trenchers	0.00	0.00	0.00	0.00	0.00	0.00
		Welders	0.00	0.00	0.00	0.00	0.00	0.00
	Grading/Excavation	pounds per day	3.2	15.1	34.6	1.8	1.6	2857.4
	Grading	tons per phase	0.0	0.1	0.2	0.0	0.0	15.7

Drainage/Utilities/Subgrade	Default Number of Vehicles		ROG	CO	NOx	PM10	PM2.5	CO2
			Override of Default Number of Vehicles	Program-estimate	pounds/day	pounds/day	pounds/day	pounds/day
		Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00
	1	Air Compressors	0.73	3.43	4.63	0.40	0.37	507.95
1.00		Bore/Drill Rigs	0.41	3.79	6.06	0.18	0.17	944.07
		Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00
		Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00
1.00		Cranes	0.77	3.01	8.75	0.40	0.37	601.78
		Crawler Tractors	0.00	0.00	0.00	0.00	0.00	0.00
		Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Excavators	0.00	0.00	0.00	0.00	0.00	0.00
		Forklifts	0.00	0.00	0.00	0.00	0.00	0.00
2.00	1	Generator Sets	1.11	6.00	8.16	0.59	0.55	974.13
0.00	1	Graders	0.00	0.00	0.00	0.00	0.00	0.00
		Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00
		Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00
		Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Other General Industrial Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Other Material Handling Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Pavers	0.00	0.00	0.00	0.00	0.00	0.00
		Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00
0.00	1	Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00
		Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00
0.00	1	Pumps	0.00	0.00	0.00	0.00	0.00	0.00
		Rollers	0.00	0.00	0.00	0.00	0.00	0.00
0.00	1	Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00
		Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00
		Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00
0.00	2	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00
0.00	3	Signal Boards	0.00	0.00	0.00	0.00	0.00	0.00
		Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00
		Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00
0.00	2	Tractors/Loaders/Backhoes	0.00	0.00	0.00	0.00	0.00	0.00
		Trenchers	0.00	0.00	0.00	0.00	0.00	0.00
		Welders	0.00	0.00	0.00	0.00	0.00	0.00
	Drainage	pounds per day	3.0	16.2	27.6	1.6	1.4	3027.9
	Drainage	tons per phase	0.2	0.9	1.5	0.1	0.1	166.5

Paving	Default		ROG	CO	NOx	PM10	PM2.5	CO2
	Override of Default Number of Vehicles	Number of Vehicles Program-estimate						
			pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
		Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00
		Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00
		Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00
		Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00
		Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00
		Cranes	0.00	0.00	0.00	0.00	0.00	0.00
		Crawler Tractors	0.00	0.00	0.00	0.00	0.00	0.00
		Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Excavators	0.00	0.00	0.00	0.00	0.00	0.00
		Forklifts	0.00	0.00	0.00	0.00	0.00	0.00
		Generator Sets	0.00	0.00	0.00	0.00	0.00	0.00
		Graders	0.00	0.00	0.00	0.00	0.00	0.00
		Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00
		Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00
		Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Other General Industrial Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Other Material Handling Equipment	0.00	0.00	0.00	0.00	0.00	0.00
	1	Pavers	0.00	0.00	0.00	0.00	0.00	0.00
	1	Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00
		Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00
		Pumps	0.00	0.00	0.00	0.00	0.00	0.00
	3	Rollers	0.00	0.00	0.00	0.00	0.00	0.00
		Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00
		Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00
		Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00
		Scrapers	0.00	0.00	0.00	0.00	0.00	0.00
	3	Signal Boards	0.00	0.00	0.00	0.00	0.00	0.00
		Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00
		Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00
	2	Tractors/Loaders/Backhoes	0.00	0.00	0.00	0.00	0.00	0.00
		Trenchers	0.00	0.00	0.00	0.00	0.00	0.00
		Welders	0.00	0.00	0.00	0.00	0.00	0.00
	Paving	pounds per day	0.0	0.0	0.0	0.0	0.0	0.0
	Paving	tons per phase	0.0	0.0	0.0	0.0	0.0	0.0
Total Emissions all Phases (tons per construction period) =>			0.2	1.0	1.9	0.1	0.1	195.7

Equipment default values for horsepower and hours/day can be overridden in cells C289 through C322 and E289 through E322.

Equipment		Default Values Horsepower		Default Values Hours/day
Aerial Lifts		63		8
Air Compressors		106		8
Bore/Drill Rigs		206		8
Cement and Mortar Mixers		10		8
Concrete/Industrial Saws		64		8
Cranes		226		8
Crawler Tractors	300.00	208		8
Crushing/Proc. Equipment		142		8
Excavators		163		8
Forklifts		89		8
Generator Sets		66		8
Graders		175		8
Off-Highway Tractors		123		8
Off-Highway Trucks		400		8
Other Construction Equipment		172		8
Other General Industrial Equipment		88		8
Other Material Handling Equipment		167		8
Pavers		126		8
Paving Equipment		131		8
Plate Compactors		8		8
Pressure Washers		26		8
Pumps		53		8
Rollers		81		8
Rough Terrain Forklifts		100		8
Rubber Tired Dozers		255		8
Rubber Tired Loaders		200		8
Scrapers		362		8
Signal Boards		20		8
Skid Steer Loaders		65		8
Surfacing Equipment		254		8
Sweepers/Scrubbers		64		8
Tractors/Loaders/Backhoes		98		8
Trenchers		81		8
Welders		45		8

Appendix C

State Historic Preservation Officer Coordination



REPLY TO
ATTENTION OF

DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DISTRICT, SACRAMENTO
CORPS OF ENGINEERS
1325 J STREET
SACRAMENTO, CALIFORNIA, 95814-2922

Environmental Resources Branch

JUN 02 2014

Carol Roland-Nawi, PhD
State Historic Preservation Officer
Office of Historic Preservation
1725 23rd Street, Suite 100
Sacramento, CA 95816

Dear Dr. Roland-Nawi:

We are writing you with regard to an environmental assessment the U.S. Army Corps of Engineers, Sacramento District (Corps), is preparing for the Folsom Dam Safety Modification Project (Folsom JFP). The Corps and the State of California Central Valley Flood Protection Board (CVFPB) propose to implement design refinements to the Folsom JFP, as analyzed in the Folsom Dam Safety and Flood Damage Reduction, Final Environmental Impact Statement/Environmental Impact Report, issued by the U.S. Bureau of Reclamation (Reclamation) in 2007. These design refinements described in the current action are limited to the Right Bank Stabilization Project (Project), which include slope protection measures along approximately 400 feet of the right bank of the American River downstream of the main dam. The proposed Project would ensure the lower, steeper, bank slope remains stable where flows from the main dam and the auxiliary spillway converge.

Construction of the auxiliary spillway was authorized by Section 101(a)(6)(A) of the Water Resources Development Act (WRDA) of 1999 (1113 Stat. 274) and modified by Section 128 of the Energy and Water Development and Appropriations Act of 2006 (119 Stat. 2259). Authorization for the Folsom JFP was included in Section 3029(b) of WRDA 2007, authorizing the Corps and Reclamation to construct the auxiliary spillway generally in accordance with Corps' 2007 Post Authorization Change Report for the American River Watershed Project in California.

We are initiating consultation under Section 106 of the National Historic Preservation Act by notifying you of the proposed undertaking pursuant to 36 CFR 800.3(a); that we have determined and documented the area of potential effects (APE) pursuant to 36 CFR 800.4(a)(1); and that we have determined that the Project qualifies for a finding of no historic properties affected pursuant to 36 CFR 800.4 (d)(1).

The proposed Project would consist of the installation of approximately 40 steel rock bolts between 25 and 30 feet in length which would be placed to pin the rock mass and ensure that the slope of the right bank remains stable. Holes would be drilled into the rock slope, individual rock bolts would then be placed in each hole and the area around the rock bolt would be filled with cement grout or resin grout to hold it in place. The rock bolts would actively transfer loading between the anchored structure and its underlying rock mass, thereby lowering the structure's center of gravity. Rock bolts would be installed perpendicular to the slope and subsequently tensioned. In addition to the installation of rock bolts, formed concrete could be required to fill reentrant joint cavities to prevent the potential dislodging of several large rock blocks in the vicinity.

The APE is located in Township 10N, Range 7E on the Folsom, CA (1980) 7.5" U.S.G.S. quadrangle (Enclosure 1). Construction activities associated with the stabilization of the existing right bank slope will be confined to 400 linear feet along the lower right bank slope of the American River starting approximately 700 feet downstream from the downstream face of the powerhouse to approximately 1,100 feet downstream of the powerhouse. Enclosed is a memorandum in which we define and describe the APE and discuss our efforts to locate and evaluate any potential historic properties (Enclosure 2).

A records and literature search was conducted at the North Central Information Center located at California State University, Sacramento in March 2014. The records search indicated that several areas near the APE have previously been surveyed for cultural resources. The only known historic property near the APE is Folsom Dam (CA-SAC-937-H), including the left and right wing dams (CA-SAC-1103-H), which are contributing features to Folsom Dam. Folsom Dam was found eligible for listing in the NRHP in 2006 due to its role in flood control, hydropower, and irrigation in the Sacramento region and it is eligible as a contributing element to the larger Central Valley Project. The proposed Project would result in minor changes to the visual setting near Folsom Dam and Dikes but would not affect the historic property in any other way.

Corps archeology staff surveyed the APE on March 25, 2014. The survey resulted in the discovery of a single, isolated bedrock mortar located within the APE. The bedrock mortar was evaluated by Corps staff and was determined to be ineligible for listing in the NRHP due to its disturbed context, lack of integrity, and lack of an associated site. These findings are discussed in the enclosed memorandum (Enclosure 2). In light of this, we have determined that the Project will result in a finding of no historic properties affected (36 CFR 800.4[d][1]).

A copy of the enclosed memorandum was also sent to all the potentially interested Native American groups and individuals identified by the Native American Heritage Commission. In addition to sending the enclosed memorandum, the Corps has also requested any comments that the tribes might have regarding the proposed project. The Corps is sensitive to the interests of Native groups and is continuing consultation with individual tribes on the Folsom JFP as a whole.

We request that you concur with our determinations of the APE and finding of *no historic properties affected* for the proposed work. Please review the enclosed information and provide your comments if any, and concurrence with our determinations. We are looking forward to your reply.

If you have any questions or comments please contact Ms. Stefanie Adams via email: stefanie.l.adams@usace.army.mil or by phone at (916) 557-7283. Please contact Mr. William Aley, Project Manager via email: william.c.aley@usace.army.mil or by phone at (916) 557-7308 with any project specific questions.

Sincerely,


 Alicia E. Kirchner
Chief, Planning Division

Enclosures

CF:

Adam Nickels, U.S. Department of the Interior, Bureau of Reclamation, 2800 Cottage Way, MP-153, Sacramento, California 95825

Jacqueline Wait, Department of Water Resources, Division of Environmental Services, Environmental Compliance & Evaluation Branch, Cultural, Recreation, and Environmental Planning Section, 3500 Industrial Boulevard, West Sacramento, California 95691

Nicholas Fonseca, Chairperson, Shingle Springs Band of Miwok Indians, P.O. Box 1340, Shingle Springs, California 95682

Daniel Fonseca, Tribal Historic Preservation Officer, Shingle Springs Band of Miwok Indians, P.O. Box 1340, Shingle Springs, California 95682

Andrew Godsey, Assistant Director, Cultural Resources Department, Shingle Springs Band of Miwok Indians, P.O. Box 1340, Shingle Springs, California 95682

Gene Whitehouse, Chairperson, United Auburn Indian Community of the Auburn Rancheria, 10720 Indian Hill Road, Auburn, California 95603

Jason Camp, Tribal Historic Preservation Officer, United Auburn Indian Community of the Auburn Rancheria, 10720 Indian Hill Road, Auburn, California 95603

Marcos Guerrero, Cultural Resources Manager, United Auburn Indian Community of the
Auburn Rancheria, 10720 Indian Hill Road, Auburn, California 95603

Don Ryberg, Chairperson, T'si-Akim Maidu, 1239 East Main St., Grass Valley,
California 95945

Eileen Moon, Vice Chairperson, T'si-Akim Maidu, 760 South Auburn Street, Suite 2-C,
Grass Valley, California 95945

Grayson Coney, Cultural Director, Tsi-Akim Maidu, P.O. Box 1316, Colfax, California
95713

Steven Hutchason, Executive Director of Environmental Resources, Wilton Rancheria,
9300 W. Stockton Blvd, Suite 200, Elk Grove, California 95758



REPLY TO
ATTENTION OF

DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DISTRICT, SACRAMENTO
CORPS OF ENGINEERS
1325 J STREET
SACRAMENTO, CALIFORNIA, 95814-2922

Environmental Resources Branch

JUN 02 2014

Andrew Godsey, Assistant Director, Cultural Resources Department
Shingle Springs Band of Miwok Indians
P.O. Box 1340
Shingle Springs, CA 95682

Dear Mr. Godsey:

We are writing you with regard to an environmental assessment the U.S. Army Corps of Engineers, Sacramento District (Corps), is preparing for the Folsom Dam Safety Modification Project (Folsom JFP). The Corps and the State of California Central Valley Flood Protection Board (CVFPB) propose to implement design refinements to the Folsom JFP, as analyzed in the Folsom Dam Safety and Flood Damage Reduction, Final Environmental Impact Statement/Environmental Impact Report, issued by the U.S. Bureau of Reclamation in 2007. These design refinements described in the current action are limited to the Right Bank Stabilization Project (Project), which include slope protection measures along approximately 400 feet of the right bank of the American River downstream of the main dam. The proposed Project would ensure the lower, steeper, bank slope remains stable where flows from the main dam and the auxiliary spillway converge.

We would like to invite your consultation under Section 106 of the National Historic Preservation Act of 1966, as amended. With this letter, we are providing you with a memorandum in which we define and describe the area of potential effects (APE), discuss our efforts to identify and evaluate potential historic properties, and our determination of no historic properties affected for the proposed Project. The APE for the proposed Project is located in Township 10N, Range 7E on the Folsom, CA (1980) 7.5" U.S.G.S. quadrangle (Enclosure 1).

The proposed Project would consist of the installation of approximately 40 steel rock bolts between 25 and 30 feet in length which would be placed to pin the rock mass and ensure that the slope of the right bank remains stable. Holes would be drilled into the rock slope, individual rock bolts would then be placed in each hole and the area around the rock bolt would be filled with cement grout or resin grout to hold it in place. The rock bolts would actively transfer loading between the anchored structure and its underlying rock mass, thereby lowering the structure's center of gravity. Rock bolts would be installed perpendicular to the slope and subsequently tensioned. In addition to the installation of rock bolts, formed concrete could be required to fill reentrant joint cavities to prevent the potential dislodging of several large rock blocks in the vicinity.

A records and literature search was conducted at the North Central Information Center located at California State University, Sacramento in March 2014. The records search indicated that several areas near the APE have previously been surveyed for cultural resources. The only known historic property near the APE is Folsom Dam (CA-SAC-937-H), including the left and right wing dams and dikes (CA-SAC-1103-H), which are contributing features to Folsom Dam. Folsom Dam was found eligible for listing in the NRHP in 2006 due to its role in flood control, hydropower, and irrigation in the Sacramento region and for its role as a contributing element to the larger Central Valley Project. The proposed Project would result in minor changes to the visual setting near Folsom Dam and Dikes but would not affect the historic property in any other way.

Corps archeology staff surveyed the APE on March 25, 2014. The survey resulted in the discovery of a single, isolated bedrock mortar located within the APE. The bedrock mortar was evaluated by Corps staff and was determined to be ineligible for listing in the NRHP due to its disturbed context, lack of integrity, and lack of an associated site (Enclosure 2). In light of this, we have determined that the Project will result in a finding of no historic properties affected (36 CFR 800.4[d][1]).

We are sensitive toward the protection of traditional cultural properties and sacred sites, and make every effort to avoid them. If you have comments on the APE, our efforts to identify historic properties, or our finding of *no historic properties affected* for the proposed Project, we request that you contact us. Please let us know if you have knowledge of locations of archaeological sites or areas of traditional cultural value or concern in or near the Project APE. If you have any other comments, suggestions, or questions, please contact Stefanie Adams at (916) 557-7283 or by email at stefanie.l.adams@usace.army.mil. Please contact Mr. William Aley, Project Manager at (916) 557-7308 or by email at william.c.aley@usace.army.mil with any project specific questions.

Sincerely,



 Alicia E. Kirchner
Chief, Planning Division

Enclosures



REPLY TO
ATTENTION OF

DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DISTRICT, SACRAMENTO
CORPS OF ENGINEERS
1325 J STREET
SACRAMENTO, CALIFORNIA, 95814-2922

Environmental Resources Branch

JUN 02 2014

Daniel Fonseca, Tribal Historic Preservation Officer
Shingle Springs Band of Miwok Indians
P.O. Box 1340
Shingle Springs, CA 95682

Dear Mr. Fonseca:

We are writing you with regard to an environmental assessment the U.S. Army Corps of Engineers, Sacramento District (Corps), is preparing for the Folsom Dam Safety Modification Project (Folsom JFP). The Corps and the State of California Central Valley Flood Protection Board (CVFPB) propose to implement design refinements to the Folsom JFP, as analyzed in the Folsom Dam Safety and Flood Damage Reduction, Final Environmental Impact Statement/Environmental Impact Report, issued by the U.S. Bureau of Reclamation in 2007. These design refinements described in the current action are limited to the Right Bank Stabilization Project (Project), which include slope protection measures along approximately 400 feet of the right bank of the American River downstream of the main dam. The proposed Project would ensure the lower, steeper, bank slope remains stable where flows from the main dam and the auxiliary spillway converge.

We would like to invite your consultation under Section 106 of the National Historic Preservation Act of 1966, as amended. With this letter, we are providing you with a memorandum in which we define and describe the area of potential effects (APE), discuss our efforts to identify and evaluate potential historic properties, and our determination of no historic properties affected for the proposed Project. The APE for the proposed Project is located in Township 10N, Range 7E on the Folsom, CA (1980) 7.5" U.S.G.S. quadrangle (Enclosure 1).

The proposed Project would consist of the installation of approximately 40 steel rock bolts between 25 and 30 feet in length which would be placed to pin the rock mass and ensure that the slope of the right bank remains stable. Holes would be drilled into the rock slope, individual rock bolts would then be placed in each hole and the area around the rock bolt would be filled with cement grout or resin grout to hold it in place. The rock bolts would actively transfer loading between the anchored structure and its underlying rock mass, thereby lowering the structure's center of gravity. Rock bolts would be installed perpendicular to the slope and subsequently tensioned. In addition to the installation of rock bolts, formed concrete could be required to fill reentrant joint cavities to prevent the potential dislodging of several large rock blocks in the vicinity.

A records and literature search was conducted at the North Central Information Center located at California State University, Sacramento in March 2014. The records search indicated that several areas near the APE have previously been surveyed for cultural resources. The only known historic property near the APE is Folsom Dam (CA-SAC-937-H), including the left and right wing dams and dikes (CA-SAC-1103-H), which are contributing features to Folsom Dam. Folsom Dam was found eligible for listing in the NRHP in 2006 due to its role in flood control, hydropower, and irrigation in the Sacramento region and for its role as a contributing element to the larger Central Valley Project. The proposed Project would result in minor changes to the visual setting near Folsom Dam and Dikes but would not affect the historic property in any other way.

Corps archeology staff surveyed the APE on March 25, 2014. The survey resulted in the discovery of a single, isolated bedrock mortar located within the APE. The bedrock mortar was evaluated by Corps staff and was determined to be ineligible for listing in the NRHP due to its disturbed context, lack of integrity, and lack of an associated site (Enclosure 2). In light of this, we have determined that the Project will result in a finding of no historic properties affected (36 CFR 800.4[d][1]).

We are sensitive toward the protection of traditional cultural properties and sacred sites, and make every effort to avoid them. If you have comments on the APE, our efforts to identify historic properties, or our finding of *no historic properties affected* for the proposed Project, we request that you contact us. Please let us know if you have knowledge of locations of archaeological sites or areas of traditional cultural value or concern in or near the Project APE. If you have any other comments, suggestions, or questions, please contact Stefanie Adams at (916) 557-7283 or by email at stefanie.l.adams@usace.army.mil. Please contact Mr. William Aley, Project Manager at (916) 557-7308 or by email at william.c.aley@usace.army.mil with any project specific questions.

Sincerely,



 Alicia E. Kirchner
Chief, Planning Division

Enclosures



REPLY TO
ATTENTION OF

DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DISTRICT, SACRAMENTO
CORPS OF ENGINEERS
1325 J STREET
SACRAMENTO, CALIFORNIA, 95814-2922

Environmental Resources Branch

JUN 02 2014

Don Ryberg, Chairperson
T'si-Akim Maidu
1239 East Main St.
Grass Valley, CA 95945

Dear Mr. Ryberg:

We are writing you with regard to an environmental assessment the U.S. Army Corps of Engineers, Sacramento District (Corps), is preparing for the Folsom Dam Safety Modification Project (Folsom JFP). The Corps and the State of California Central Valley Flood Protection Board (CVFPB) propose to implement design refinements to the Folsom JFP, as analyzed in the Folsom Dam Safety and Flood Damage Reduction, Final Environmental Impact Statement/Environmental Impact Report, issued by the U.S. Bureau of Reclamation in 2007. These design refinements described in the current action are limited to the Right Bank Stabilization Project (Project), which include slope protection measures along approximately 400 feet of the right bank of the American River downstream of the main dam. The proposed Project would ensure the lower, steeper, bank slope remains stable where flows from the main dam and the auxiliary spillway converge.

We would like to invite your consultation under Section 106 of the National Historic Preservation Act of 1966, as amended. With this letter, we are providing you with a memorandum in which we define and describe the area of potential effects (APE), discuss our efforts to identify and evaluate potential historic properties, and our determination of no historic properties affected for the proposed Project. The APE for the proposed Project is located in Township 10N, Range 7E on the Folsom, CA (1980) 7.5" U.S.G.S. quadrangle (Enclosure 1).

The proposed Project would consist of the installation of approximately 40 steel rock bolts between 25 and 30 feet in length which would be placed to pin the rock mass and ensure that the slope of the right bank remains stable. Holes would be drilled into the rock slope, individual rock bolts would then be placed in each hole and the area around the rock bolt would be filled with cement grout or resin grout to hold it in place. The rock bolts would actively transfer loading between the anchored structure and its underlying rock mass, thereby lowering the structure's center of gravity. Rock bolts would be installed perpendicular to the slope and subsequently tensioned. In addition to the installation of rock bolts, formed concrete could be required to fill reentrant joint cavities to prevent the potential dislodging of several large rock blocks in the vicinity.

A records and literature search was conducted at the North Central Information Center located at California State University, Sacramento in March 2014. The records search indicated that several areas near the APE have previously been surveyed for cultural resources. The only known historic property near the APE is Folsom Dam (CA-SAC-937-H), including the left and right wing dams and dikes (CA-SAC-1103-H), which are contributing features to Folsom Dam. Folsom Dam was found eligible for listing in the NRHP in 2006 due to its role in flood control, hydropower, and irrigation in the Sacramento region and for its role as a contributing element to the larger Central Valley Project. The proposed Project would result in minor changes to the visual setting near Folsom Dam and Dikes but would not affect the historic property in any other way.

Corps archeology staff surveyed the APE on March 25, 2014. The survey resulted in the discovery of a single, isolated bedrock mortar located within the APE. The bedrock mortar was evaluated by Corps staff and was determined to be ineligible for listing in the NRHP due to its disturbed context, lack of integrity, and lack of an associated site (Enclosure 2). In light of this, we have determined that the Project will result in a finding of no historic properties affected (36 CFR 800.4[d][1]).

We are sensitive toward the protection of traditional cultural properties and sacred sites, and make every effort to avoid them. If you have comments on the APE, our efforts to identify historic properties, or our finding of *no historic properties affected* for the proposed Project, we request that you contact us. Please let us know if you have knowledge of locations of archaeological sites or areas of traditional cultural value or concern in or near the Project APE. If you have any other comments, suggestions, or questions, please contact Stefanie Adams at (916) 557-7283 or by email at stefanie.l.adams@usace.army.mil. Please contact Mr. William Aley, Project Manager at (916) 557-7308 or by email at william.c.aley@usace.army.mil with any project specific questions.

Sincerely,



 Alicia E. Kirchner
Chief, Planning Division

Enclosures



REPLY TO
ATTENTION OF

DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DISTRICT, SACRAMENTO
CORPS OF ENGINEERS
1325 J STREET
SACRAMENTO, CALIFORNIA, 95814-2922

Environmental Resources Branch

JUN 02 2014

Eileen Moon, Vice Chairperson
T'si-Akim Maidu
760 South Auburn Street, Suite 2-C
Grass Valley, CA 95945

Dear Ms. Moon:

We are writing you with regard to an environmental assessment the U.S. Army Corps of Engineers, Sacramento District (Corps), is preparing for the Folsom Dam Safety Modification Project (Folsom JFP). The Corps and the State of California Central Valley Flood Protection Board (CVFPB) propose to implement design refinements to the Folsom JFP, as analyzed in the Folsom Dam Safety and Flood Damage Reduction, Final Environmental Impact Statement/Environmental Impact Report, issued by the U.S. Bureau of Reclamation in 2007. These design refinements described in the current action are limited to the Right Bank Stabilization Project (Project), which include slope protection measures along approximately 400 feet of the right bank of the American River downstream of the main dam. The proposed Project would ensure the lower, steeper, bank slope remains stable where flows from the main dam and the auxiliary spillway converge.

We would like to invite your consultation under Section 106 of the National Historic Preservation Act of 1966, as amended. With this letter, we are providing you with a memorandum in which we define and describe the area of potential effects (APE), discuss our efforts to identify and evaluate potential historic properties, and our determination of no historic properties affected for the proposed Project. The APE for the proposed Project is located in Township 10N, Range 7E on the Folsom, CA (1980) 7.5" U.S.G.S. quadrangle (Enclosure 1).

The proposed Project would consist of the installation of approximately 40 steel rock bolts between 25 and 30 feet in length which would be placed to pin the rock mass and ensure that the slope of the right bank remains stable. Holes would be drilled into the rock slope, individual rock bolts would then be placed in each hole and the area around the rock bolt would be filled with cement grout or resin grout to hold it in place. The rock bolts would actively transfer loading between the anchored structure and its underlying rock mass, thereby lowering the structure's center of gravity. Rock bolts would be installed perpendicular to the slope and subsequently tensioned. In addition to the installation of rock bolts, formed concrete could be required to fill reentrant joint cavities to prevent the potential dislodging of several large rock blocks in the vicinity.

A records and literature search was conducted at the North Central Information Center located at California State University, Sacramento in March 2014. The records search indicated that several areas near the APE have previously been surveyed for cultural resources. The only known historic property near the APE is Folsom Dam (CA-SAC-937-H), including the left and right wing dams and dikes (CA-SAC-1103-H), which are contributing features to Folsom Dam. Folsom Dam was found eligible for listing in the NRHP in 2006 due to its role in flood control, hydropower, and irrigation in the Sacramento region and for its role as a contributing element to the larger Central Valley Project. The proposed Project would result in minor changes to the visual setting near Folsom Dam and Dikes but would not affect the historic property in any other way.

Corps archeology staff surveyed the APE on March 25, 2014. The survey resulted in the discovery of a single, isolated bedrock mortar located within the APE. The bedrock mortar was evaluated by Corps staff and was determined to be ineligible for listing in the NRHP due to its disturbed context, lack of integrity, and lack of an associated site (Enclosure 2). In light of this, we have determined that the Project will result in a finding of no historic properties affected (36 CFR 800.4[d][1]).

We are sensitive toward the protection of traditional cultural properties and sacred sites, and make every effort to avoid them. If you have comments on the APE, our efforts to identify historic properties, or our finding of *no historic properties affected* for the proposed Project, we request that you contact us. Please let us know if you have knowledge of locations of archaeological sites or areas of traditional cultural value or concern in or near the Project APE. If you have any other comments, suggestions, or questions, please contact Stefanie Adams at (916) 557-7283 or by email at stefanie.l.adams@usace.army.mil. Please contact Mr. William Aley, Project Manager at (916) 557-7308 or by email at william.c.aley@usace.army.mil with any project specific questions.

Sincerely,



 Alicia E. Kirchner
Chief, Planning Division

Enclosures



REPLY TO
ATTENTION OF

DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DISTRICT, SACRAMENTO
CORPS OF ENGINEERS
1325 J STREET
SACRAMENTO, CALIFORNIA, 95814-2922

Environmental Resources Branch

JUN 02 2014

Nicholas Fonseca, Chairperson
Shingle Springs Band of Miwok Indians
P.O. Box 1340
Shingle Springs, CA 95682

Dear Mr. Fonseca:

We are writing you with regard to an environmental assessment the U.S. Army Corps of Engineers, Sacramento District (Corps), is preparing for the Folsom Dam Safety Modification Project (Folsom JFP). The Corps and the State of California Central Valley Flood Protection Board (CVFPB) propose to implement design refinements to the Folsom JFP, as analyzed in the Folsom Dam Safety and Flood Damage Reduction, Final Environmental Impact Statement/Environmental Impact Report, issued by the U.S. Bureau of Reclamation in 2007. These design refinements described in the current action are limited to the Right Bank Stabilization Project (Project), which include slope protection measures along approximately 400 feet of the right bank of the American River downstream of the main dam. The proposed Project would ensure the lower, steeper, bank slope remains stable where flows from the main dam and the auxiliary spillway converge.

We would like to invite your consultation under Section 106 of the National Historic Preservation Act of 1966, as amended. With this letter, we are providing you with a memorandum in which we define and describe the area of potential effects (APE), discuss our efforts to identify and evaluate potential historic properties, and our determination of no historic properties affected for the proposed Project. The APE for the proposed Project is located in Township 10N, Range 7E on the Folsom, CA (1980) 7.5" U.S.G.S. quadrangle (Enclosure 1).

The proposed Project would consist of the installation of approximately 40 steel rock bolts between 25 and 30 feet in length which would be placed to pin the rock mass and ensure that the slope of the right bank remains stable. Holes would be drilled into the rock slope, individual rock bolts would then be placed in each hole and the area around the rock bolt would be filled with cement grout or resin grout to hold it in place. The rock bolts would actively transfer loading between the anchored structure and its underlying rock mass, thereby lowering the structure's center of gravity. Rock bolts would be installed perpendicular to the slope and subsequently tensioned. In addition to the installation of rock bolts, formed concrete could be required to fill reentrant joint cavities to prevent the potential dislodging of several large rock blocks in the vicinity.

A records and literature search was conducted at the North Central Information Center located at California State University, Sacramento in March 2014. The records search indicated that several areas near the APE have previously been surveyed for cultural resources. The only known historic property near the APE is Folsom Dam (CA-SAC-937-H), including the left and right wing dams and dikes (CA-SAC-1103-H), which are contributing features to Folsom Dam. Folsom Dam was found eligible for listing in the NRHP in 2006 due to its role in flood control, hydropower, and irrigation in the Sacramento region and for its role as a contributing element to the larger Central Valley Project. The proposed Project would result in minor changes to the visual setting near Folsom Dam and Dikes but would not affect the historic property in any other way.

Corps archeology staff surveyed the APE on March 25, 2014. The survey resulted in the discovery of a single, isolated bedrock mortar located within the APE. The bedrock mortar was evaluated by Corps staff and was determined to be ineligible for listing in the NRHP due to its disturbed context, lack of integrity, and lack of an associated site (Enclosure 2). In light of this, we have determined that the Project will result in a finding of no historic properties affected (36 CFR 800.4[d][1]).

We are sensitive toward the protection of traditional cultural properties and sacred sites, and make every effort to avoid them. If you have comments on the APE, our efforts to identify historic properties, or our finding of *no historic properties affected* for the proposed Project, we request that you contact us. Please let us know if you have knowledge of locations of archaeological sites or areas of traditional cultural value or concern in or near the Project APE. If you have any other comments, suggestions, or questions, please contact Stefanie Adams at (916) 557-7283 or by email at stefanie.l.adams@usace.army.mil. Please contact Mr. William Aley, Project Manager at (916) 557-7308 or by email at william.c.aley@usace.army.mil with any project specific questions.

Sincerely,



 Alicia E. Kirchner
Chief, Planning Division

Enclosures



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U.S. ARMY ENGINEER DISTRICT, SACRAMENTO
CORPS OF ENGINEERS
1325 J STREET
SACRAMENTO, CALIFORNIA, 95814-2922

Environmental Resources Branch

JUN 02 2014

Gene Whitehouse, Chairperson
United Auburn Indian Community of the Auburn Rancheria
10720 Indian Hill Road
Auburn, CA 95603

Dear Mr. Whitehouse:

We are writing you with regard to an environmental assessment the U.S. Army Corps of Engineers, Sacramento District (Corps), is preparing for the Folsom Dam Safety Modification Project (Folsom JFP). The Corps and the State of California Central Valley Flood Protection Board (CVFPB) propose to implement design refinements to the Folsom JFP, as analyzed in the Folsom Dam Safety and Flood Damage Reduction, Final Environmental Impact Statement/Environmental Impact Report, issued by the U.S. Bureau of Reclamation in 2007. These design refinements described in the current action are limited to the Right Bank Stabilization Project (Project), which include slope protection measures along approximately 400 feet of the right bank of the American River downstream of the main dam. The proposed Project would ensure the lower, steeper, bank slope remains stable where flows from the main dam and the auxiliary spillway converge.

We would like to invite your consultation under Section 106 of the National Historic Preservation Act of 1966, as amended. With this letter, we are providing you with a memorandum in which we define and describe the area of potential effects (APE), discuss our efforts to identify and evaluate potential historic properties, and our determination of no historic properties affected for the proposed Project. The APE for the proposed Project is located in Township 10N, Range 7E on the Folsom, CA (1980) 7.5" U.S.G.S. quadrangle (Enclosure 1).

The proposed Project would consist of the installation of approximately 40 steel rock bolts between 25 and 30 feet in length which would be placed to pin the rock mass and ensure that the slope of the right bank remains stable. Holes would be drilled into the rock slope, individual rock bolts would then be placed in each hole and the area around the rock bolt would be filled with cement grout or resin grout to hold it in place. The rock bolts would actively transfer loading between the anchored structure and its underlying rock mass, thereby lowering the structure's center of gravity. Rock bolts would be installed perpendicular to the slope and subsequently tensioned. In addition to the installation of rock bolts, formed concrete could be required to fill reentrant joint cavities to prevent the potential dislodging of several large rock blocks in the vicinity.

A records and literature search was conducted at the North Central Information Center located at California State University, Sacramento in March 2014. The records search indicated that several areas near the APE have previously been surveyed for cultural resources. The only known historic property near the APE is Folsom Dam (CA-SAC-937-H), including the left and right wing dams and dikes (CA-SAC-1103-H), which are contributing features to Folsom Dam. Folsom Dam was found eligible for listing in the NRHP in 2006 due to its role in flood control, hydropower, and irrigation in the Sacramento region and for its role as a contributing element to the larger Central Valley Project. The proposed Project would result in minor changes to the visual setting near Folsom Dam and Dikes but would not affect the historic property in any other way.

Corps archeology staff surveyed the APE on March 25, 2014. The survey resulted in the discovery of a single, isolated bedrock mortar located within the APE. The bedrock mortar was evaluated by Corps staff and was determined to be ineligible for listing in the NRHP due to its disturbed context, lack of integrity, and lack of an associated site (Enclosure 2). In light of this, we have determined that the Project will result in a finding of no historic properties affected (36 CFR 800.4[d][1]).

We are sensitive toward the protection of traditional cultural properties and sacred sites, and make every effort to avoid them. If you have comments on the APE, our efforts to identify historic properties, or our finding of *no historic properties affected* for the proposed Project, we request that you contact us. Please let us know if you have knowledge of locations of archaeological sites or areas of traditional cultural value or concern in or near the Project APE. If you have any other comments, suggestions, or questions, please contact Stefanie Adams at (916) 557-7283 or by email at stefanie.l.adams@usace.army.mil. Please contact Mr. William Aley, Project Manager at (916) 557-7308 or by email at william.c.aley@usace.army.mil with any project specific questions.

Sincerely,



 Alicia E. Kirchner
Chief, Planning Division

Enclosures



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DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DISTRICT, SACRAMENTO
CORPS OF ENGINEERS
1325 J STREET
SACRAMENTO, CALIFORNIA, 95814-2922

Environmental Resources Branch

JUN 02 2014

Grayson Coney, Cultural Director
T'si-Akim Maidu
P.O. Box 1316
Colfax, CA 95713

Dear Mr. Coney:

We are writing you with regard to an environmental assessment the U.S. Army Corps of Engineers, Sacramento District (Corps), is preparing for the Folsom Dam Safety Modification Project (Folsom JFP). The Corps and the State of California Central Valley Flood Protection Board (CVFPB) propose to implement design refinements to the Folsom JFP, as analyzed in the Folsom Dam Safety and Flood Damage Reduction, Final Environmental Impact Statement/Environmental Impact Report, issued by the U.S. Bureau of Reclamation in 2007. These design refinements described in the current action are limited to the Right Bank Stabilization Project (Project), which include slope protection measures along approximately 400 feet of the right bank of the American River downstream of the main dam. The proposed Project would ensure the lower, steeper, bank slope remains stable where flows from the main dam and the auxiliary spillway converge.

We would like to invite your consultation under Section 106 of the National Historic Preservation Act of 1966, as amended. With this letter, we are providing you with a memorandum in which we define and describe the area of potential effects (APE), discuss our efforts to identify and evaluate potential historic properties, and our determination of no historic properties affected for the proposed Project. The APE for the proposed Project is located in Township 10N, Range 7E on the Folsom, CA (1980) 7.5" U.S.G.S. quadrangle (Enclosure 1).

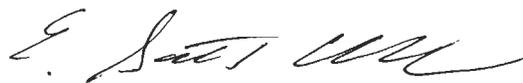
The proposed Project would consist of the installation of approximately 40 steel rock bolts between 25 and 30 feet in length which would be placed to pin the rock mass and ensure that the slope of the right bank remains stable. Holes would be drilled into the rock slope, individual rock bolts would then be placed in each hole and the area around the rock bolt would be filled with cement grout or resin grout to hold it in place. The rock bolts would actively transfer loading between the anchored structure and its underlying rock mass, thereby lowering the structure's center of gravity. Rock bolts would be installed perpendicular to the slope and subsequently tensioned. In addition to the installation of rock bolts, formed concrete could be required to fill reentrant joint cavities to prevent the potential dislodging of several large rock blocks in the vicinity.

A records and literature search was conducted at the North Central Information Center located at California State University, Sacramento in March 2014. The records search indicated that several areas near the APE have previously been surveyed for cultural resources. The only known historic property near the APE is Folsom Dam (CA-SAC-937-H), including the left and right wing dams and dikes (CA-SAC-1103-H), which are contributing features to Folsom Dam. Folsom Dam was found eligible for listing in the NRHP in 2006 due to its role in flood control, hydropower, and irrigation in the Sacramento region and for its role as a contributing element to the larger Central Valley Project. The proposed Project would result in minor changes to the visual setting near Folsom Dam and Dikes but would not affect the historic property in any other way.

Corps archeology staff surveyed the APE on March 25, 2014. The survey resulted in the discovery of a single, isolated bedrock mortar located within the APE. The bedrock mortar was evaluated by Corps staff and was determined to be ineligible for listing in the NRHP due to its disturbed context, lack of integrity, and lack of an associated site (Enclosure 2). In light of this, we have determined that the Project will result in a finding of no historic properties affected (36 CFR 800.4[d][1]).

We are sensitive toward the protection of traditional cultural properties and sacred sites, and make every effort to avoid them. If you have comments on the APE, our efforts to identify historic properties, or our finding of *no historic properties affected* for the proposed Project, we request that you contact us. Please let us know if you have knowledge of locations of archaeological sites or areas of traditional cultural value or concern in or near the Project APE. If you have any other comments, suggestions, or questions, please contact Stefanie Adams at (916) 557-7283 or by email at stefanie.l.adams@usace.army.mil. Please contact Mr. William Aley, Project Manager at (916) 557-7308 or by email at william.c.aley@usace.army.mil with any project specific questions.

Sincerely,



Alicia E. Kirchner
Chief, Planning Division

Enclosures



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SACRAMENTO, CALIFORNIA, 95814-2922

Environmental Resources Branch

JUN 02 2014

Jason Camp, Tribal Historic Preservation Officer
United Auburn Indian Community of the Auburn Rancheria
10720 Indian Hill Road
Auburn, CA 95603

Dear Mr. Camp:

We are writing you with regard to an environmental assessment the U.S. Army Corps of Engineers, Sacramento District (Corps), is preparing for the Folsom Dam Safety Modification Project (Folsom JFP). The Corps and the State of California Central Valley Flood Protection Board (CVFPB) propose to implement design refinements to the Folsom JFP, as analyzed in the Folsom Dam Safety and Flood Damage Reduction, Final Environmental Impact Statement/Environmental Impact Report, issued by the U.S. Bureau of Reclamation in 2007. These design refinements described in the current action are limited to the Right Bank Stabilization Project (Project), which include slope protection measures along approximately 400 feet of the right bank of the American River downstream of the main dam. The proposed Project would ensure the lower, steeper, bank slope remains stable where flows from the main dam and the auxiliary spillway converge.

We would like to invite your consultation under Section 106 of the National Historic Preservation Act of 1966, as amended. With this letter, we are providing you with a memorandum in which we define and describe the area of potential effects (APE), discuss our efforts to identify and evaluate potential historic properties, and our determination of no historic properties affected for the proposed Project. The APE for the proposed Project is located in Township 10N, Range 7E on the Folsom, CA (1980) 7.5" U.S.G.S. quadrangle (Enclosure 1).

The proposed Project would consist of the installation of approximately 40 steel rock bolts between 25 and 30 feet in length which would be placed to pin the rock mass and ensure that the slope of the right bank remains stable. Holes would be drilled into the rock slope, individual rock bolts would then be placed in each hole and the area around the rock bolt would be filled with cement grout or resin grout to hold it in place. The rock bolts would actively transfer loading between the anchored structure and its underlying rock mass, thereby lowering the structure's center of gravity. Rock bolts would be installed perpendicular to the slope and subsequently tensioned. In addition to the installation of rock bolts, formed concrete could be required to fill reentrant joint cavities to prevent the potential dislodging of several large rock blocks in the vicinity.

A records and literature search was conducted at the North Central Information Center located at California State University, Sacramento in March 2014. The records search indicated that several areas near the APE have previously been surveyed for cultural resources. The only known historic property near the APE is Folsom Dam (CA-SAC-937-H), including the left and right wing dams and dikes (CA-SAC-1103-H), which are contributing features to Folsom Dam. Folsom Dam was found eligible for listing in the NRHP in 2006 due to its role in flood control, hydropower, and irrigation in the Sacramento region and for its role as a contributing element to the larger Central Valley Project. The proposed Project would result in minor changes to the visual setting near Folsom Dam and Dikes but would not affect the historic property in any other way.

Corps archeology staff surveyed the APE on March 25, 2014. The survey resulted in the discovery of a single, isolated bedrock mortar located within the APE. The bedrock mortar was evaluated by Corps staff and was determined to be ineligible for listing in the NRHP due to its disturbed context, lack of integrity, and lack of an associated site (Enclosure 2). In light of this, we have determined that the Project will result in a finding of no historic properties affected (36 CFR 800.4[d][1]).

We are sensitive toward the protection of traditional cultural properties and sacred sites, and make every effort to avoid them. If you have comments on the APE, our efforts to identify historic properties, or our finding of *no historic properties affected* for the proposed Project, we request that you contact us. Please let us know if you have knowledge of locations of archaeological sites or areas of traditional cultural value or concern in or near the Project APE. If you have any other comments, suggestions, or questions, please contact Stefanie Adams at (916) 557-7283 or by email at stefanie.l.adams@usace.army.mil. Please contact Mr. William Aley, Project Manager at (916) 557-7308 or by email at william.c.aley@usace.army.mil with any project specific questions.

Sincerely,



Alicia E. Kirchner
Chief, Planning Division

Enclosures



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1325 J STREET
SACRAMENTO, CALIFORNIA, 95814-2922

Environmental Resources Branch

JUN 02 2014

Marcos Guerrero, Cultural Resources Manager
United Auburn Indian Community of the Auburn Rancheria
10720 Indian Hill Road
Auburn, CA 95603

Dear Mr. Guerrero:

We are writing you with regard to an environmental assessment the U.S. Army Corps of Engineers, Sacramento District (Corps), is preparing for the Folsom Dam Safety Modification Project (Folsom JFP). The Corps and the State of California Central Valley Flood Protection Board (CVFPB) propose to implement design refinements to the Folsom JFP, as analyzed in the Folsom Dam Safety and Flood Damage Reduction, Final Environmental Impact Statement/Environmental Impact Report, issued by the U.S. Bureau of Reclamation in 2007. These design refinements described in the current action are limited to the Right Bank Stabilization Project (Project), which include slope protection measures along approximately 400 feet of the right bank of the American River downstream of the main dam. The proposed Project would ensure the lower, steeper, bank slope remains stable where flows from the main dam and the auxiliary spillway converge.

We would like to invite your consultation under Section 106 of the National Historic Preservation Act of 1966, as amended. With this letter, we are providing you with a memorandum in which we define and describe the area of potential effects (APE), discuss our efforts to identify and evaluate potential historic properties, and our determination of no historic properties affected for the proposed Project. The APE for the proposed Project is located in Township 10N, Range 7E on the Folsom, CA (1980) 7.5" U.S.G.S. quadrangle (Enclosure 1).

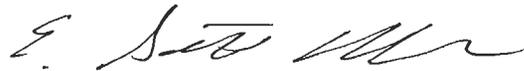
The proposed Project would consist of the installation of approximately 40 steel rock bolts between 25 and 30 feet in length which would be placed to pin the rock mass and ensure that the slope of the right bank remains stable. Holes would be drilled into the rock slope, individual rock bolts would then be placed in each hole and the area around the rock bolt would be filled with cement grout or resin grout to hold it in place. The rock bolts would actively transfer loading between the anchored structure and its underlying rock mass, thereby lowering the structure's center of gravity. Rock bolts would be installed perpendicular to the slope and subsequently tensioned. In addition to the installation of rock bolts, formed concrete could be required to fill reentrant joint cavities to prevent the potential dislodging of several large rock blocks in the vicinity.

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Sincerely,



 Alicia E. Kirchner
Chief, Planning Division

Enclosures



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DEPARTMENT OF THE ARMY
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CORPS OF ENGINEERS
1325 J STREET
SACRAMENTO, CALIFORNIA, 95814-2922

Environmental Resources Branch

JUN 02 2014

Steven Hutchason, Executive Director of Environmental Resources
Wilton Rancheria
9300 W. Stockton Blvd., Suite 200
Elk Grove, CA 95758

Dear Mr. Hutchason:

We are writing you with regard to an environmental assessment the U.S. Army Corps of Engineers, Sacramento District (Corps), is preparing for the Folsom Dam Safety Modification Project (Folsom JFP). The Corps and the State of California Central Valley Flood Protection Board (CVFPB) propose to implement design refinements to the Folsom JFP, as analyzed in the Folsom Dam Safety and Flood Damage Reduction, Final Environmental Impact Statement/Environmental Impact Report, issued by the U.S. Bureau of Reclamation in 2007. These design refinements described in the current action are limited to the Right Bank Stabilization Project (Project), which include slope protection measures along approximately 400 feet of the right bank of the American River downstream of the main dam. The proposed Project would ensure the lower, steeper, bank slope remains stable where flows from the main dam and the auxiliary spillway converge.

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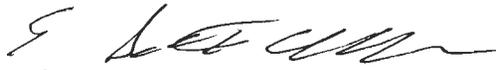
The proposed Project would consist of the installation of approximately 40 steel rock bolts between 25 and 30 feet in length which would be placed to pin the rock mass and ensure that the slope of the right bank remains stable. Holes would be drilled into the rock slope, individual rock bolts would then be placed in each hole and the area around the rock bolt would be filled with cement grout or resin grout to hold it in place. The rock bolts would actively transfer loading between the anchored structure and its underlying rock mass, thereby lowering the structure's center of gravity. Rock bolts would be installed perpendicular to the slope and subsequently tensioned. In addition to the installation of rock bolts, formed concrete could be required to fill reentrant joint cavities to prevent the potential dislodging of several large rock blocks in the vicinity.

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We are sensitive toward the protection of traditional cultural properties and sacred sites, and make every effort to avoid them. If you have comments on the APE, our efforts to identify historic properties, or our finding of *no historic properties affected* for the proposed Project, we request that you contact us. Please let us know if you have knowledge of locations of archaeological sites or areas of traditional cultural value or concern in or near the Project APE. If you have any other comments, suggestions, or questions, please contact Stefanie Adams at (916) 557-7283 or by email at stefanie.l.adams@usace.army.mil. Please contact Mr. William Aley, Project Manager at (916) 557-7308 or by email at william.c.aley@usace.army.mil with any project specific questions.

Sincerely,



 Alicia E. Kirchner
Chief, Planning Division

Enclosures

Appendix D

Endangered, Threatened, and Candidate Species List

U.S. Fish & Wildlife Service
Sacramento Fish & Wildlife Office
Federal Endangered and Threatened Species that Occur in
or may be Affected by Projects in the
FOLSOM (511B)
U.S.G.S. 7 1/2 Minute Quad

Database last updated: September 18, 2011

Report Date: April 8, 2013

Listed Species

Invertebrates

Branchinecta conservatio
Conservancy fairy shrimp (E)

Branchinecta lynchi
vernal pool fairy shrimp (T)

Desmocerus californicus dimorphus
valley elderberry longhorn beetle (T)

Lepidurus packardii
vernal pool tadpole shrimp (E)

Fish

Hypomesus transpacificus
delta smelt (T)

Oncorhynchus mykiss
Central Valley steelhead (T) (NMFS)
Critical habitat, Central Valley steelhead (X) (NMFS)

Oncorhynchus tshawytscha
Central Valley spring-run chinook salmon (T) (NMFS)
winter-run chinook salmon, Sacramento River (E) (NMFS)

Amphibians

Ambystoma californiense
California tiger salamander, central population (T)

Rana draytonii
California red-legged frog (T)

Reptiles

Thamnophis gigas
giant garter snake (T)

Plants

Orcuttia viscida
Critical habitat, Sacramento Orcutt grass (X)
Sacramento Orcutt grass (E)

Key:

- (E) Endangered - Listed as being in danger of extinction.
- (T) Threatened - Listed as likely to become endangered within the foreseeable future.
- (P) Proposed - Officially proposed in the Federal Register for listing as endangered or threatened.
- (NMFS) Species under the Jurisdiction of the [National Oceanic & Atmospheric Administration Fisheries Service](#). Consult with them directly about these species.
- Critical Habitat - Area essential to the conservation of a species.
- (PX) Proposed Critical Habitat - The species is already listed. Critical habitat is being proposed for it.
- (C) Candidate - Candidate to become a proposed species.
- (V) Vacated by a court order. Not currently in effect. Being reviewed by the Service.
- (X) Critical Habitat designated for this species

U.S. Fish & Wildlife Service
Sacramento Fish & Wildlife Office
Federal Endangered and Threatened Species that Occur in
or may be Affected by Projects in the Counties and/or
U.S.G.S. 7 1/2 Minute Quads you requested

Document Number: 130408125909

Database Last Updated: September 18, 2011

Quad Lists

Listed Species

Invertebrates

- Branchinecta conservatio*
Conservancy fairy shrimp (E)
- Branchinecta lynchi*
vernal pool fairy shrimp (T)
- Desmocerus californicus dimorphus*
valley elderberry longhorn beetle (T)
- Lepidurus packardi*
vernal pool tadpole shrimp (E)

Fish

- Hypomesus transpacificus*
delta smelt (T)
- Oncorhynchus mykiss*
Central Valley steelhead (T) (NMFS)
Critical habitat, Central Valley steelhead (X) (NMFS)
- Oncorhynchus tshawytscha*
Central Valley spring-run chinook salmon (T) (NMFS)
winter-run chinook salmon, Sacramento River (E) (NMFS)

Amphibians

- Ambystoma californiense*
California tiger salamander, central population (T)
- Rana draytonii*
California red-legged frog (T)

Reptiles

- Thamnophis gigas*
giant garter snake (T)

Plants

- Orcuttia viscida*
Critical habitat, Sacramento Orcutt grass (X)
Sacramento Orcutt grass (E)

Quads Containing Listed, Proposed or Candidate Species:

FOLSOM (511B)

County Lists

Sacramento County

Listed Species

Invertebrates

Apodemia mormo langei

Lange's metalmark butterfly (E)

Branchinecta conservatio

Conservancy fairy shrimp (E)

Branchinecta lynchi

Critical habitat, vernal pool fairy shrimp (X)

vernal pool fairy shrimp (T)

Desmocerus californicus dimorphus

Critical habitat, valley elderberry longhorn beetle (X)

valley elderberry longhorn beetle (T)

Elaphrus viridis

delta green ground beetle (T)

Lepidurus packardii

Critical habitat, vernal pool tadpole shrimp (X)

vernal pool tadpole shrimp (E)

Fish

Acipenser medirostris

green sturgeon (T) (NMFS)

Hypomesus transpacificus

Critical habitat, delta smelt (X)

delta smelt (T)

Oncorhynchus mykiss

Central Valley steelhead (T) (NMFS)

Critical habitat, Central Valley steelhead (X) (NMFS)

Oncorhynchus tshawytscha

Central Valley spring-run chinook salmon (T) (NMFS)

Critical Habitat, Central Valley spring-run chinook (X) (NMFS)

Critical habitat, winter-run chinook salmon (X) (NMFS)

winter-run chinook salmon, Sacramento River (E) (NMFS)

Amphibians

Ambystoma californiense

California tiger salamander, central population (T)
Critical habitat, CA tiger salamander, central population (X)

Rana draytonii
California red-legged frog (T)

Reptiles

Thamnophis gigas
giant garter snake (T)

Birds

Charadrius alexandrinus nivosus
western snowy plover (T)

Rallus longirostris obsoletus
California clapper rail (E)

Sternula antillarum (= *Sterna*, = *albifrons*) *browni*
California least tern (E)

Vireo bellii pusillus
Least Bell's vireo (E)

Mammals

Reithrodontomys raviventris
salt marsh harvest mouse (E)

Sylvilagus bachmani riparius
riparian brush rabbit (E)

Vulpes macrotis mutica
San Joaquin kit fox (E)

Plants

Arctostaphylos myrtifolia
lone manzanita (T)

Calystegia stebbinsii
Stebbins's morning-glory (E)

Castilleja campestris ssp. *succulenta*
Critical habitat, succulent (=fleshy) owl's-clover (X)
succulent (=fleshy) owl's-clover (T)

Ceanothus roderickii

Pine Hill ceanothus (E)

Cordylanthus mollis ssp. mollis
soft bird's-beak (E)

Cordylanthus palmatus
palmate-bracted bird's-beak (E)

Eriogonum apricum var. apricum
lone buckwheat (E)

Eriogonum apricum var. prostratum
Irish Hill buckwheat (E)

Erysimum capitatum ssp. angustatum
Contra Costa wallflower (E)
Critical Habitat, Contra Costa wallflower (X)

Fremontodendron californicum ssp. decumbens
Pine Hill flannelbush (E)

Galium californicum ssp. sierrae
El Dorado bedstraw (E)

Lasthenia conjugens
Contra Costa goldfields (E)

Neostapfia colusana
Colusa grass (T)

Oenothera deltooides ssp. howellii
Antioch Dunes evening-primrose (E)
Critical habitat, Antioch Dunes evening-primrose (X)

Orcuttia tenuis
Critical habitat, slender Orcutt grass (X)
slender Orcutt grass (T)

Orcuttia viscida
Critical habitat, Sacramento Orcutt grass (X)
Sacramento Orcutt grass (E)

Senecio layneae
Layne's butterweed (=ragwort) (T)

Sidalcea keckii

Keck's checker-mallow (=checkerbloom) (E)

Candidate Species

Birds

Coccyzus americanus occidentalis

Western yellow-billed cuckoo (C)

Key:

(E) *Endangered* - Listed as being in danger of extinction.

(T) *Threatened* - Listed as likely to become endangered within the foreseeable future.

(P) *Proposed* - Officially proposed in the Federal Register for listing as endangered or threatened.

(NMFS) Species under the Jurisdiction of the [National Oceanic & Atmospheric Administration Fisheries Service](#). Consult with them directly about these species.

Critical Habitat - Area essential to the conservation of a species.

(PX) *Proposed Critical Habitat* - The species is already listed. Critical habitat is being proposed for it.

(C) *Candidate* - Candidate to become a proposed species.

(V) Vacated by a court order. Not currently in effect. Being reviewed by the Service.

(X) *Critical Habitat* designated for this species

Important Information About Your Species List

How We Make Species Lists

We store information about endangered and threatened species lists by U.S. Geological Survey 7½ minute quads. The United States is divided into these quads, which are about the size of San Francisco.

The animals on your species list are ones that occur within, **or may be affected by** projects within, the quads covered by the list.

- Fish and other aquatic species appear on your list if they are in the same watershed as your quad or if water use in your quad might affect them.
- Amphibians will be on the list for a quad or county if pesticides applied in that area may be carried to their habitat by air currents.
- Birds are shown regardless of whether they are resident or migratory. Relevant birds on the county list should be considered regardless of whether they appear on a quad list.

Plants

Any plants on your list are ones that have actually been observed in the area covered by the list. Plants may exist in an area without ever having been detected there. You can find out what's in the surrounding quads through the California Native Plant Society's online [Inventory of Rare and Endangered Plants](#).

Surveying

Some of the species on your list may not be affected by your project. A trained biologist and/or botanist, familiar with the habitat requirements of the species on your list, should determine whether they or habitats suitable for them may be affected by your project. We recommend that your surveys include any proposed and candidate species on your list.

See our [Protocol](#) and [Recovery Permits](#) pages.

For plant surveys, we recommend using the [Guidelines for Conducting and Reporting Botanical Inventories](#). The results of your surveys should be published in any environmental documents prepared for your project.

Your Responsibilities Under the Endangered Species Act

All animals identified as listed above are fully protected under the Endangered Species Act of 1973, as amended. Section 9 of the Act and its implementing regulations prohibit the take of a federally listed wildlife species. Take is defined by the Act as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect" any such animal.

Take may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or shelter (50 CFR §17.3).

Take incidental to an otherwise lawful activity may be authorized by one of two procedures:

- If a Federal agency is involved with the permitting, funding, or carrying out of a project that may result in take, then that agency must engage in a formal [consultation](#) with the Service.

During formal consultation, the Federal agency, the applicant and the Service work together to avoid or minimize the impact on listed species and their habitat. Such consultation would result in a biological opinion by the Service addressing the anticipated effect of the project on listed and proposed species. The opinion may authorize a limited level of incidental take.

- If no Federal agency is involved with the project, and federally listed species may be taken as part of the project, then you, the applicant, should apply for an incidental take permit. The Service may issue such a permit if you submit a satisfactory conservation plan for the species that would be affected by your project.

Should your survey determine that federally listed or proposed species occur in the area and are likely to be affected by the project, we recommend that you work with this office and the California Department of Fish and Game to develop a plan that minimizes the project's direct and indirect impacts to listed species and compensates for project-related loss of habitat. You should include the plan in any environmental documents you file.

Critical Habitat

When a species is listed as endangered or threatened, areas of habitat considered essential to its conservation may be designated as critical habitat. These areas may require special management considerations or protection. They provide needed space for growth and normal behavior; food, water, air, light, other nutritional or physiological requirements; cover or shelter; and sites for breeding, reproduction, rearing of offspring, germination or seed dispersal.

Although critical habitat may be designated on private or State lands, activities on these lands are not restricted unless there is Federal involvement in the activities or direct harm to listed wildlife.

If any species has proposed or designated critical habitat within a quad, there will be a separate line for this on the species list. Boundary descriptions of the critical habitat may be found in the Federal Register. The information is also reprinted in the Code of Federal Regulations (50 CFR 17.95). See our [Map Room](#) page.

Candidate Species

We recommend that you address impacts to candidate species. We put plants and animals on our candidate list when we have enough scientific information to eventually propose them

for listing as threatened or endangered. By considering these species early in your planning process you may be able to avoid the problems that could develop if one of these candidates was listed before the end of your project.

Species of Concern

The Sacramento Fish & Wildlife Office no longer maintains a list of species of concern. However, various other agencies and organizations maintain lists of at-risk species. These lists provide essential information for land management planning and conservation efforts. [More info](#)

Wetlands

If your project will impact wetlands, riparian habitat, or other jurisdictional waters as defined by section 404 of the Clean Water Act and/or section 10 of the Rivers and Harbors Act, you will need to obtain a permit from the U.S. Army Corps of Engineers. Impacts to wetland habitats require site specific mitigation and monitoring. For questions regarding wetlands, please contact Mark Littlefield of this office at (916) 414-6520.

Updates

Our database is constantly updated as species are proposed, listed and delisted. If you address proposed and candidate species in your planning, this should not be a problem. However, we recommend that you get an updated list every 90 days. That would be July 07, 2013.

State of California
The Natural Resources Agency
DEPARTMENT OF FISH AND WILDLIFE
Biogeographic Data Branch
California Natural Diversity Database

STATE & FEDERALLY LISTED ENDANGERED & THREATENED ANIMALS OF CALIFORNIA

October 2013

This is a list of animals found within California or off the coast of the State that have been classified as Endangered or Threatened by the California Fish & Game Commission (state list) or by the U.S. Secretary of the Interior or the U.S. Secretary of Commerce (federal list). The federal agencies responsible for listing are the U.S. Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS).

The official California listing of Endangered and Threatened animals is contained in the California Code of Regulations, Title 14, Section 670.5. The official federal listing of Endangered and Threatened animals is published in the Federal Register, 50 CFR 17.11. The California Endangered Species Act of 1970 created the categories of “Endangered” and “Rare.” The California Endangered Species Act of 1984 created the categories of “Endangered” and “Threatened.” On January 1, 1985, all animal species designated as “Rare” were reclassified as “Threatened.”

Also included on this list are animal “Candidates” for state listing and animals “Proposed” for federal listing; federal “Candidates” are currently not included. A state Candidate species is one that the Fish and Game Commission (FGC) has formally declared a candidate species. A federal Proposed species is one that has had a published proposed rule to list in the Federal Register.

Designation	Totals as of October 2013
State listed as Endangered	SE 47
State listed as Threatened	ST 35
Federally listed as Endangered	FE 91
Federally listed as Threatened	FT 39
State Candidate (T or E)	SC 8
State Candidate (Delisting)	SCD 0
Federally proposed (Endangered)	FPE 2
Federally proposed (Threatened)	FPT 3
Federally proposed (Delisting)	FPD 4
<div style="display: flex; justify-content: space-between;"> Total number of candidate/proposed animals for listing 13 </div> <div style="display: flex; justify-content: space-between; margin-left: 40px;"> Number of animals State listed only 31 </div> <div style="display: flex; justify-content: space-between; margin-left: 40px;"> Number of animals Federally listed only 69 </div> <div style="display: flex; justify-content: space-between; margin-left: 40px;"> Number of animals listed under both State & Federal Acts 49 </div> <hr style="width: 100%;"/> <div style="display: flex; justify-content: space-between;"> Total number of animals listed (excludes double counting DPSs and ESUs) 149 </div>	

Common and scientific names are shown as they appear on the state or federal lists. If the nomenclature differs for a species that is included on both lists, the state nomenclature is given and the federal nomenclature is shown in a footnote. Synonyms, name changes, and other clarifying points are also footnoted.

The “List Date” for **final** federal listing is the date the listing became effective. This is usually not the date of publication of the rule in the Federal Register; it is usually about 30 days after publication, but may be longer.

If an animal was previously listed and no longer has any listing status, the entry has been **grayed out**. If an animal was previously proposed or a candidate for listing, but the listing was not warranted or revoked, the record has been removed from the table.

For taxa that have more than one status entry, the **current status is in bold and underlined**.

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	State Listing		Federal Listing	
<u>GASTROPODS</u>				
Trinity bristle snail <i>Monadenia setosa</i> ¹	ST	10-02-80		
Morro shoulderband (=banded dune) snail <i>Helminthoglypta walkeriana</i>			FE ²	1-17-95
White abalone <i>Haliotis sorenseni</i>			FE ³ FE	11-16-05 6-28-01
Black abalone <i>Haliotis cracherodii</i>			FE ⁴ FE	4-13-11 2-13-09
<u>CRUSTACEANS</u>				
Riverside fairy shrimp <i>Streptocephalus woottoni</i>			FE	8-03-93
Conservancy fairy shrimp <i>Branchinecta conservatio</i>			FE	9-19-94
Longhorn fairy shrimp <i>Branchinecta longiantenna</i>			FE	9-19-94
Vernal pool fairy shrimp <i>Branchinecta lynchi</i>			FT	9-19-94
San Diego fairy shrimp <i>Branchinecta sandiegonensis</i>			FE	2-03-97
Vernal pool tadpole shrimp <i>Lepidurus packardii</i>			FE	9-19-94
Shasta crayfish <i>Pacifastacus fortis</i>	<u>SE</u> ST	2-26-88 10-02-80	FE	9-30-88
California freshwater shrimp <i>Syncaris pacifica</i>	SE	10-02-80	FE	10-31-88
<u>INSECTS</u>				
Zayante band-winged grasshopper <i>Trimerotropis infantilis</i>			FE	2-24-97
Mount Hermon June beetle <i>Polyphylla barbata</i>			FE	2-24-97
Casey's June beetle <i>Dinacoma caseyi</i>			FE	10-24-11
Delta green ground beetle <i>Elaphrus viridis</i>			FT	8-08-80

¹ Current taxonomy is *Monadenia infumata setosa*.

² The 2006 five year review should be consulted to better understand the status of this species.

³ Listed by NMFS in 2001 and by USFWS in 2005.

⁴ Listed by NMFS in 2009 and by USFWS in 2011.

	State Listing		Federal Listing	
Valley elderberry longhorn beetle <i>Desmocerus californicus dimorphus</i>			FPD FT	10-2-12 8-08-80
Ohlone tiger beetle <i>Cicindela ohlone</i>			FE	10-03-01
Kern primrose sphinx moth <i>Euproserpinus euterpe</i>			FT	4-08-80
Mission blue butterfly <i>Icaricia icarioides missionensis</i> ⁵			FE	6-01-76
Lotis blue butterfly <i>Lycaeides argyrognomon lotis</i> ⁶			FE	6-01-76
Palos Verdes blue butterfly <i>Glaucopsyche lygdamus palosverdesensis</i>			FE	7-02-80
El Segundo blue butterfly <i>Euphilotes battoides allyni</i>			FE	6-01-76
Smith's blue butterfly <i>Euphilotes enoptes smithi</i>			FE	6-01-76
San Bruno elfin butterfly <i>Callophrys mossii bayensis</i>			FE	6-01-76
Lange's metalmark butterfly <i>Apodemia mormo langei</i>			FE	6-01-76
Bay checkerspot butterfly <i>Euphydryas editha bayensis</i>			FT	10-18-87
Quino checkerspot butterfly <i>Euphydryas editha quino</i> (= <i>E. e. wrighti</i>)			FE	1-16-97
Carson wandering skipper <i>Pseudocopaodes eunus obscurus</i>			FE	8-07-02
Laguna Mountains skipper <i>Pyrgus ruralis lagunae</i>			FE	1-16-97
Callippe silverspot butterfly <i>Speyeria callippe callippe</i>			FE	12-05-97
Behren's silverspot butterfly <i>Speyeria zerene behrensii</i>			FE	12-05-97
Oregon silverspot butterfly ⁷ <i>Speyeria zerene hippolyta</i>			FT	7-02-80
Myrtle's silverspot butterfly ⁸ <i>Speyeria zerene myrtleae</i>			FE	6-22-92

⁵ Current taxonomy is *Plebejus icarioides missionensis*.

⁶ Current taxonomy is *Plebejus idas lotis*.

⁷ Also known by the common name Hippolyta fritillary.

⁸ The USFWS and others have not yet determined if the taxonomic expansion by Emmel and Emmel (1998) into *S. z. myrtleae* and *S. z. puntareyes* is warranted. The *Speyeria zerene* along coast of Marin and Sonoma Counties are Federally Endangered under the subspecies concept in the 1992 listing.

	State Listing		Federal Listing	
Delhi Sands flower-loving fly <i>Rhaphiomidas terminatus abdominalis</i>			FE	9-23-93
<u>FISHES</u>				
White shark <i>Carcharodon carcharias</i>	SC	2-19-13		
Green sturgeon - southern DPS <i>Acipenser medirostris</i>			FT ⁹	6-06-06
Mohave tui chub <i>Gila bicolor mohavensis</i> ¹⁰	SE	6-27-71	FE	10-13-70
Owens tui chub <i>Gila bicolor snyderi</i> ¹¹	SE	1-10-74	FE	8-05-85
Thicktail chub (Extinct) <i>Gila crassicauda</i>	<u>Delisted</u> SE	10-02-80 1-10-74		
Bonytail ¹² <i>Gila elegans</i>	<u>SE</u> ST	1-10-74 6-27-71	FE	4-23-80
Clear Lake hitch <i>Lavinia exilicauda chi</i>	SC	3-11-13		
Colorado pikeminnow <i>Ptychocheilus lucius</i>	SE	6-27-71	FE	3-11-67
Modoc sucker <i>Catostomus microps</i>	<u>SE</u> ST	10-02-80 1-10-74	FE	6-11-85
Santa Ana sucker <i>Catostomus santaanae</i>			FT ¹³	5-12-00
Shortnose sucker <i>Chasmistes brevirostris</i>	<u>SE</u> ST	1-10-74 6-27-71	FE	7-18-88
Lost River sucker <i>Deltistes luxatus</i>	<u>SE</u> ST	1-10-74 6-27-67	FE	7-18-88
Razorback sucker <i>Xyrauchen texanus</i>	<u>SE</u> ST	1-10-74 6-27-71	FE	10-23-91
Delta smelt <i>Hypomesus transpacificus</i>	<u>SE</u> ST	1-20-10 12-09-93	FT	3-05-93
Longfin smelt <i>Spirinchus thaleichthys</i>	ST	4-09-10		
Pacific eulachon - southern DPS <i>Thaleichthys pacificus</i>			FT FT	4-13-11 ¹⁴ 5-17-10

⁹ Includes all spawning populations south of the Eel River.

¹⁰ Current taxonomy: *Siphateles bicolor mohavensis*.

¹¹ Current taxonomy: *Siphateles bicolor snyderi*.

¹² Federal common name: bonytail chub.

¹³ Populations in the Los Angeles, San Gabriel, and Santa Ana River basins.

¹⁴ Eulachon was listed as Threatened by the NMFS in 2010 and by the USFWS in 2011.

	State Listing		Federal Listing	
Lahontan cutthroat trout <i>Oncorhynchus clarkii henshawi</i> ¹⁵			FT FE	7-16-75 10-13-70
Paiute cutthroat trout <i>Oncorhynchus clarkii seleniris</i>			FT FE	7-16-75 3-11-67 ¹⁶
Coho salmon - south of Punta Gorda ¹⁷ <i>Oncorhynchus kisutch</i>	SE ¹⁸	3-30-05	FE ¹⁹ FT	8-29-05 12-02-96
Coho salmon - Punta Gorda to the N. border of California ²⁰ <i>Oncorhynchus kisutch</i>	ST ²¹	3-30-05	FT ²² FT	8-29-05 6-05-97
Steelhead - southern California DPS ²³ <i>Oncorhynchus mykiss</i>			FE ²⁴ FE	2-06-06 10-17-97
Steelhead - south central California coast DPS ²⁵ <i>Oncorhynchus mykiss</i>			FT ²⁶ FT	2-06-06 10-17-97
Steelhead - central California coast DPS ²⁷ <i>Oncorhynchus mykiss</i>			FT ²⁸ FT	2-06-06 10-17-97
Steelhead - California Central Valley DPS ²⁹ <i>Oncorhynchus mykiss</i>			FT ³⁰ FT	2-06-06 5-18-98
Steelhead - northern California DPS ³¹ <i>Oncorhynchus mykiss</i>			FT ³² FT	2-06-06 8-07-00
Little Kern golden trout <i>Oncorhynchus mykiss whitei</i> ³³			FT	4-13-78
Chinook salmon - winter-run ³⁴ <i>Oncorhynchus tshawytscha</i>	SE	9-22-89	FE ³⁵ FE	8-29-05 2-03-94

¹⁵ According to the American Fisheries Society Special Publication 29 (2004), “clarkii” has two i’s.

¹⁶ All species with a list date of 03-11-67 were listed under the Endangered Species Preservation Act of October 15, 1966.

¹⁷ The Federal listing is for central California coast Coho ESU and includes populations from Punta Gorda south to, and including, the San Lorenzo River as well as populations in tributaries to San Francisco Bay, excluding the Sacramento-San Joaquin River system.

¹⁸ The Coho south of San Francisco Bay were state listed in 1995. In Feb 2004 the Fish and Game Commission determined that the Coho from San Francisco to Punta Gorda should also be listed as Endangered. This change was finalized by the Office of Administrative Law on 30 Mar 2005.

¹⁹ The NMFS completed a comprehensive status review in 2005 reaffirming the status.

²⁰ The Federal listing is for southern Oregon/northern California coast Coho ESU and includes populations in coastal streams between Cape Blanco, Oregon and Punta Gorda, California.

²¹ The Fish and Game Commission determined that the Coho from Punta Gorda to the Oregon border should be listed as Threatened on 25 Feb 2004. This determination was finalized by the Office of Administrative Law on 30 Mar 2005.

²² The NMFS completed a comprehensive status review in 2005 reaffirming the status.

²³ Coastal basins from the Santa Maria River (inclusive), south to the U.S.-Mexico Border.

²⁴ The NMFS completed a comprehensive status review in 2006 reaffirming the status.

²⁵ Coastal basins from the Pajaro River (inclusive) south to, but not including, the Santa Maria River.

²⁶ The NMFS completed a comprehensive status review in 2006 reaffirming the status.

²⁷ Coastal streams from the Russian River (inclusive) to Aptos Creek (inclusive), and the drainages of San Francisco, San Pablo, and Suisun Bays eastward to Chipps Island at the confluence of the Sacramento and San Joaquin Rivers; and tributary streams to Suisun Marsh including Suisun Creek, Green Valley Creek, and an unnamed tributary to Cordelia Slough (commonly referred to as Red Top Creek), exclusive of the Sacramento-San Joaquin River Basin of the California Central Valley.

²⁸ The NMFS completed a comprehensive status review in 2006 reaffirming the status.

²⁹ The Sacramento and San Joaquin Rivers and their tributaries.

³⁰ The NMFS completed a comprehensive status review in 2006 reaffirming the status.

³¹ Naturally spawned populations residing below impassable barriers in coastal basins from Redwood Creek in Humboldt County to, and including, the Gualala River in Mendocino County.

³² The NMFS completed a comprehensive status review in 2006 reaffirming the status.

³³ Originally listed as *Salmo aguabonita whitei*. The genus *Salmo* was reclassified as *Oncorhynchus* changing the name to *Oncorhynchus aguabonita whitei*. However, recent studies indicate this is a subspecies of rainbow trout, therefore *Oncorhynchus mykiss whitei*.

³⁴ The federal designation is for Chinook salmon - Sacramento River winter-run ESU and described as winter-run populations in the Sacramento River and its tributaries in California.

	State Listing		Federal Listing	
Chinook salmon - California coastal ESU ³⁶ <i>Oncorhynchus tshawytscha</i>			FT ³⁷ FT	8-29-05 11-15-99
Chinook salmon - spring-run ³⁸ <i>Oncorhynchus tshawytscha</i>	ST	2-05-99	FT ³⁹ FT	8-29-05 11-15-99
Bull trout <i>Salvelinus confluentus</i>	SE	10-02-80	FT	12-01-99
Desert pupfish <i>Cyprinodon macularius</i>	SE	10-02-80	FE	3-31-86
Tecopa pupfish (Extinct) <i>Cyprinodon nevadensis calidiae</i>	Delisted SE	1987 6-27-71	Delisted FE	1-15-82 10-13-70
Owens pupfish <i>Cyprinodon radiosus</i>	SE	6-27-71	FE	3-11-67
Cottonball Marsh pupfish <i>Cyprinodon salinus milleri</i>	ST	1-10-74		
Unarmored threespine stickleback <i>Gasterosteus aculeatus williamsoni</i>	SE	6-27-71	FE	10-13-70
Rough sculpin <i>Cottus asperimus</i>	ST	1-10-74		
Tidewater goby <i>Eucyclogobius newberryi</i>			FE ⁴⁰	2-04-94
<u>AMPHIBIANS</u>				
California tiger salamander ⁴¹ <i>Ambystoma californiense</i>	ST ⁴²	8-19-10	(FE) (FT)	
California tiger salamander - central California DPS <i>Ambystoma californiense</i>	(ST)		FT ⁴³	9-03-04
California tiger salamander - Santa Barbara County DPS <i>Ambystoma californiense</i>	(ST)		FE ⁴³	9-15-00
California tiger salamander - Sonoma County DPS <i>Ambystoma californiense</i>	(ST)		FE ⁴³	3-19-03
Santa Cruz long-toed salamander <i>Ambystoma macrodactylum croceum</i>	SE	6-27-71	FE	3-11-67

³⁵ The NMFS completed a comprehensive status review in 2005 reaffirming the status.

³⁶ Rivers and streams south of the Klamath River to the Russian River.

³⁷ The NMFS completed a comprehensive status review in 2005 reaffirming the status.

³⁸ The State listing is for "Spring-run chinook salmon (*Oncorhynchus tshawytscha*) of the Sacramento River drainage." The Federal listing is for Central Valley spring-run Chinook ESU and includes populations of spring-run Chinook salmon in the Sacramento River and its tributaries including the Feather River.

³⁹ The NMFS completed a comprehensive status review in 2005 reaffirming the status.

⁴⁰ See Federal Register 76(12):3071, 19 Jan 2011, for a summary of listing, proposed delisting, and down-list petition.

⁴¹ The State listing refers to the entire range of the species.

⁴² Adopted 20 May 2010. The Office of Administrative Law approved the listing on 21 Aug 2010 and the effective date of regulations was 19 Aug 2010.

⁴³ In 2004 the California tiger salamander was listed as Threatened statewide. The Santa Barbara County and Sonoma County Distinct Vertebrate Population Segments (DPS), formerly listed as Endangered, were reclassified to Threatened. On 19 Aug 2005 U.S. District court vacated the down-listing of the Sonoma and Santa Barbara populations from Endangered to Threatened. Therefore, the Sonoma & Santa Barbara populations are once again listed as Endangered.

	State Listing		Federal Listing	
Siskiyou Mountains salamander ⁴⁴ <i>Plethodon stormi</i>	ST ⁴⁵	6-27-71		
Scott Bar salamander <i>Plethodon asupak</i>	ST ⁴⁶	6-27-71		
Tehachapi slender salamander <i>Batrachoseps stebbinsi</i>	ST	6-27-71		
Kern Canyon slender salamander <i>Batrachoseps simatus</i>	ST	6-27-71		
Desert slender salamander <i>Batrachoseps aridus</i> ⁴⁷	SE	6-27-71	FE	6-04-73
Shasta salamander <i>Hydromantes shastae</i>	ST	6-27-71		
Limestone salamander <i>Hydromantes brunus</i>	ST	6-27-71		
Black toad <i>Bufo exsul</i> ⁴⁸	ST	6-27-71		
Arroyo toad <i>Anaxyrus californicus</i> ⁴⁹			FE	1-17-95
Yosemite toad <i>Anaxyrus canorus</i>			FPT	4-25-13
California red-legged frog <i>Rana aurora draytonii</i> ⁵⁰			FT	5-20-96
Oregon spotted frog <i>Rana pretiosa</i>			FPT	8-29-13
Southern mountain yellow-legged frog ⁵¹ <i>Rana muscosa</i>	SE	4-1-13	(FE) (FPE)	
Mountain yellow-legged frog - southern California DPS ⁵² <i>Rana muscosa</i>	(SE)		FE	8-01-02
Mountain yellow-legged frog - northern California DPS ⁵³ <i>Rana muscosa</i>	(SE)		FPE	4-25-13

⁴⁴ The common name is spelled incorrectly in Title 14 of the CCR as “Siskiyou mountain salamander.”

⁴⁵ Was a State Candidate for Delisting on 30 Sep 2005. No action was taken by the FGC after the CDFW presented a Department report on 3 Nov 2006; SMS was tabled at the 3 May 2007 FGC meeting, and there was nothing to report regarding the Department’s environmental documents at the 11 Oct 2007 meeting. Therefore, with respect to Fish & Game Code 2075, it is assumed that this is no longer a candidate for delisting.

⁴⁶ As recognized by the FGC, the Scott Bar salamander is currently protected under the CESA as a sub-population of the Siskiyou Mountains salamander (*Plethodon stormi*) (Calif. Regulatory Notice Register, No. 21-Z, p. 916, 25 May 2007).

⁴⁷ Current taxonomy: *Batrachoseps major aridus*.

⁴⁸ Current taxonomy: *Anaxyrus exsul*.

⁴⁹ At the time of listing, arroyo toad was known as *Bufo microscaphus californicus*, a subspecies of southwestern toad. In 2001 it was determined to be its own species, *Bufo californicus*. Since then, many species in the genus *Bufo* were changed to the genus *Anaxyrus*, and now arroyo toad is known as *Anaxyrus californicus*.

⁵⁰ Current taxonomy: *Rana draytonii*.

⁵¹ Though the scientific name *Rana muscosa* is not disputed, the State uses this common name, whereas the USFWS listing refers to two distinct population segments. This species is also known by the common name Sierra Madre yellow-legged frog (Vredenburg et al. 2007).

⁵² San Gabriel, San Jacinto, and San Bernardino Mountains only.

⁵³ North of the Tehachapi Mountains from the Monarch Divide to portions of the Kern River drainage.

	State Listing		Federal Listing	
Sierra Nevada yellow-legged frog <i>Rana sierrae</i>	ST	4-1-13	FPE	4-25-13
<u>REPTILES</u>				
Desert tortoise <i>Gopherus agassizii</i>	ST	8-03-89	FT	4-02-90
Green sea turtle ⁵⁴ <i>Chelonia mydas</i>			<u>FT</u> FE	7-28-78 10-13-70
Loggerhead sea turtle - North Pacific DPS ⁵⁵ <i>Caretta caretta</i>			<u>FE</u> FT	10-24-11 7-28-78
Olive (=Pacific) ridley sea turtle <i>Lepidochelys olivacea</i>			FT	7-28-78
Leatherback sea turtle <i>Dermochelys coriacea</i>			FE	6-02-70
Barefoot banded gecko ⁵⁶ <i>Coleonyx switaki</i>	ST	10-02-80		
Coachella Valley fringe-toed lizard <i>Uma inornata</i>	SE	10-02-80	FT	9-25-80
Blunt-nosed leopard lizard <i>Gambelia silus</i> ⁵⁷	SE	6-27-71	FE	3-11-67
Island night lizard <i>Xantusia riversiana</i>			FPD <u>FT</u>	2-4-13 8-11-77
Southern rubber boa <i>Charina bottae umbratica</i> ⁵⁸	ST	6-27-71		
Alameda whipsnake <i>Masticophis lateralis euryxanthus</i>	ST	6-27-71	FT	12-05-97
San Francisco garter snake <i>Thamnophis sirtalis tetrataenia</i>	SE	6-27-71	FE	3-11-67
Giant garter snake <i>Thamnophis couchi gigas</i> ⁵⁹	ST	6-27-71	FT	10-20-93
<u>BIRDS</u>				
Short-tailed albatross <i>Phoebastria albatrus</i>			FE FE	8-30-00 ⁶⁰ 6-2-1970

⁵⁴ Current nomenclature: green turtle.

⁵⁵ The 1978 listing was for the worldwide range of the species. The 24 Oct 2011 final rule is for the North Pacific DPS (north of the equator & south of 60 degrees north latitude).

⁵⁶ Current nomenclature: Barefoot gecko.

⁵⁷ Current taxonomy: *Gambelia sila*. Originally listed under the ESA as *Crotaphytus wislizenii silus*.

⁵⁸ Current taxonomy: *Charina umbratica*.

⁵⁹ Current taxonomy and Federal listing: *Thamnophis gigas*.

⁶⁰ Listed as Endangered in one of the original species list, but “due to an inadvertent oversight” when the 1973 ESA repealed the 1969 Act, short-tailed albatross was effectively delisted. Proposed listing to fix this error in 1980, with final rule in 2000.

	State Listing		Federal Listing	
California brown pelican ⁶¹ (Recovered) <i>Pelecanus occidentalis californicus</i>	Delisted SE	6-03-09 6-27-71	Delisted FE	12-17-09 2-20-08 10-13-70
Aleutian Canada goose (Recovered) <i>Branta canadensis leucopareia</i> ⁶²			Delisted FT FE	3-20-01 12-12-90 3-11-67
California condor <i>Gymnogyps californianus</i>	SE	6-27-71	FE	3-11-67
Bald eagle <i>Haliaeetus leucocephalus</i>	SE (rev) SE	10-02-80 6-27-71	Delisted ⁶³ FT FE (rev) FE	8-08-07 7-06-99 8-11-95 2-14-78 3-11-67
Swainson's hawk <i>Buteo swainsoni</i>	ST	4-17-83		
American peregrine falcon (Recovered) <i>Falco peregrinus anatum</i>	Delisted SE	11-04-09 6-27-71	Delisted FE	8-25-99 6-02-70
Arctic peregrine falcon (Recovered) <i>Falco peregrinus tundrius</i>			Delisted FT FE	10-05-94 3-20-84 6-02-70
California black rail <i>Laterallus jamaicensis coturniculus</i>	ST	6-27-71		
California clapper rail <i>Rallus longirostris obsoletus</i>	SE	6-27-71	FE	10-13-70
Light-footed clapper rail <i>Rallus longirostris levipes</i>	SE	6-27-71	FE	10-13-70
Yuma clapper rail <i>Rallus longirostris yumanensis</i>	ST SE	2-22-78 6-27-71	FE	3-11-67
Greater sandhill crane <i>Grus canadensis tabida</i>	ST	4-17-83		
Western snowy plover <i>Charadrius alexandrinus nivosus</i> ⁶⁴			FT ⁶⁵	4-05-93
California least tern <i>Sterna antillarum browni</i> ⁶⁶	SE	6-27-71	FE	10-13-70
Marbled murrelet <i>Brachyramphus marmoratus</i>	SE	3-12-92	FT	9-30-92

⁶¹ Federal nomenclature: Brown pelican (*Pelecanus occidentalis*).

⁶² Current taxonomy: Cackling goose (*Branta hutchinsii leucopareia*).

⁶³ The Post-delisting Monitoring Plan will monitor the status of the bald eagle over a 20 year period with sampling events held once every 5 years.

⁶⁴ Current taxonomy: *Charadrius nivosus nivosus* (AOU 2011).

⁶⁵ Federal status applies only to the Pacific coastal population.

⁶⁶ Current taxonomy: *Sternula antillarum browni*.

	State Listing		Federal Listing	
Xantus's murrelet ⁶⁷ <i>Synthliboramphus hypoleucus</i>	ST ⁶⁸	12-22-04		
Western yellow-billed cuckoo <i>Coccyzus americanus occidentalis</i>	<u>SE</u> ST	3-26-88 6-27-71		
Elf owl <i>Micrathene whitneyi</i>	SE	10-02-80		
Northern spotted owl <i>Strix occidentalis caurina</i>	SC ⁶⁹		FT	6-22-90
Great gray owl <i>Strix nebulosa</i>	SE	10-02-80		
Gila woodpecker <i>Melanerpes uropygialis</i>	SE	3-17-88		
Black-backed woodpecker <i>Picoides arcticus</i>	SC	12-27-11		
Gilded northern flicker ⁷⁰ <i>Colaptes auratus chrysoides</i>	SE	3-17-88		
Willow flycatcher <i>Empidonax traillii</i>	SE ⁷¹	1-02-91		
Southwestern willow flycatcher <i>Empidonax traillii extimus</i>	(SE)		FE	3-29-95
Bank swallow <i>Riparia riparia</i>	ST	6-11-89		
Coastal California gnatcatcher <i>Polioptila californica californica</i>			FT	3-30-93
San Clemente loggerhead shrike <i>Lanius ludovicianus mearnsi</i>			FE	8-11-77
Arizona Bell's vireo <i>Vireo bellii arizonae</i>	SE	3-17-88		
Least Bell's vireo <i>Vireo bellii pusillus</i>	SE	10-02-80	FE	5-02-86
Inyo California towhee <i>Pipilo crissalis eremophilus</i> ⁷²	SE	10-02-80	FT	8-03-87
San Clemente sage sparrow <i>Amphispiza belli clementeae</i>			FT	8-11-77

⁶⁷ According to the AOU (2012), this protected species that breeds on islands in southern California is now known as the Scripps's Murrelet (*Synthliboramphus scrippsi*).

⁶⁸ The FGC determined that Xantus's murrelet should be listed as a Threatened species 24 Feb 2004. The decision was reviewed by the OAL and the listing became effective on 22 Dec 2004.

⁶⁹ The FGC passed the motion to designate the northern spotted owl as a Candidate for Threatened or Endangered species status at their meeting on 7 Aug 2013; a formal Notice of Finding has not yet been posted.

⁷⁰ Current taxonomy: Gilded flicker (*Colaptes chrysoides*).

⁷¹ State listing includes all subspecies.

⁷² Current taxonomy: *Melospiza crissalis eremophilus*.

	State Listing		Federal Listing	
Belding's savannah sparrow <i>Passerculus sandwichensis beldingi</i>	SE	1-10-74		
Santa Barbara song sparrow (Extinct) <i>Melospiza melodia graminea</i>			Delisted FE	10-12-83 6-04-73
<u>MAMMALS</u>				
Point Arena mountain beaver <i>Aplodontia rufa nigra</i>			FE	12-12-91
San Joaquin antelope squirrel ⁷³ <i>Ammospermophilus nelsoni</i>	ST	10-02-80		
Mohave ground squirrel <i>Spermophilus mohavensis</i> ⁷⁴	ST	6-27-71		
Morro Bay kangaroo rat <i>Dipodomys heermanni morroensis</i>	SE	6-27-71	FE	10-13-70
Giant kangaroo rat <i>Dipodomys ingens</i>	SE	10-02-80	FE	1-05-87
San Bernardino kangaroo rat ⁷⁵ <i>Dipodomys merriami parvus</i>			FE	9-24-98
Tipton kangaroo rat <i>Dipodomys nitratooides nitratooides</i>	SE	6-11-89	FE	7-08-88
Fresno kangaroo rat <i>Dipodomys nitratooides exilis</i>	SE ST	10-02-80 6-27-71	FE	3-01-85
Stephens' kangaroo rat <i>Dipodomys stephensi</i>	ST	6-27-71	FE	9-30-88
Pacific pocket mouse <i>Perognathus longimembris pacificus</i>			FE	9-26-94
Amargosa vole <i>Microtus californicus scirpensis</i>	SE	10-02-80	FE	11-15-84
Riparian woodrat <i>Neotoma fuscipes riparia</i>			FE	3-24-00
Salt-marsh harvest mouse <i>Reithrodontomys raviventris</i>	SE	6-27-71	FE	10-13-70
American pika <i>Ochotona princeps</i>	SC	10-26-11		
Riparian brush rabbit <i>Sylvilagus bachmani riparius</i>	SE	5-29-94	FE	3-24-00
Buena Vista Lake ornate shrew <i>Sorex ornatus relictus</i>			FE	4-05-02

⁷³ Current taxonomy: Nelson's antelope squirrel.⁷⁴ Current taxonomy: *Xerospermophilus mohavensis*.⁷⁵ Federal nomenclature: San Bernardino Merriam's kangaroo rat.

	State Listing		Federal Listing	
Lesser long-nosed bat <i>Leptonycteris yerbabuenae</i>			FE	10-31-88
Townsend's big-eared bat <i>Corynorhinus townsendii</i>	SC ⁷⁶			
Gray wolf <i>Canis lupus</i>	SC	10-18-12	FPD FE	6-13-13 4-10-78
Island fox <i>Urocyon littoralis</i>	ST ⁷⁷	6-27-71	(FE)	
San Miguel Island Fox <i>Urocyon littoralis littoralis</i>	(ST)		FE	4-05-04
Santa Catalina Island Fox <i>Urocyon littoralis catalinae</i>	(ST)		FE	4-05-04
Santa Cruz Island Fox <i>Urocyon littoralis santacruzae</i>	(ST)		FE	4-05-04
Santa Rosa Island Fox <i>Urocyon littoralis santarosae</i>	(ST)		FE	4-05-04
San Joaquin kit fox <i>Vulpes macrotis mutica</i>	ST	6-27-71	FE	3-11-67
Sierra Nevada red fox <i>Vulpes vulpes necator</i>	ST	10-02-80		
Guadalupe fur seal <i>Arctocephalus townsendi</i>	ST	6-27-71	FT FE	1-15-86 3-11-67
Steller sea lion - Eastern DPS <i>Eumetopias jubatus</i>			FPD FT FT	4-18-12 6-4-97 ⁷⁸ 4-05-90
Southern sea otter <i>Enhydra lutris nereis</i>			FT	1-14-77
Wolverine <i>Gulo gulo</i>	ST	6-27-71	FPT ⁷⁹	2-4-13
Pacific fisher ⁸⁰ <i>Martes pennanti</i>	SC ⁸¹	3-11-13 4-14-09		
California (=Sierra Nevada) bighorn sheep <i>Ovis canadensis californiana</i> ⁸²	SE ST	8-27-99 6-27-71	FE	1-03-00

⁷⁶ The FGC passed the motion to designate the Townsend's big-eared bat as a candidate for Threatened or Endangered species status at their meeting on 26 Jun 2013; a formal Notice of Finding has not yet been posted.

⁷⁷ State listing includes all 6 subspecies on all 6 islands. Federal listing is for only 4 subspecies on 4 islands.

⁷⁸ The NMFS reclassified Steller sea lion as two distinct population segments: western DPS west of 144 degrees longitude (Endangered), and eastern DPS east of 144 degrees longitude (Threatened).

⁷⁹ Federal proposed listing is for the distinct population segment of the North American wolverine (*Gulo gulo luscus*) occurring in the contiguous U.S.

⁸⁰ The FGC during their review has recognized the common name Pacific fisher, whereas the USFWS recognizes the common name fisher, and candidacy refers to the West Coast DPS in California, Oregon, and Washington.

⁸¹ The FGC Notice of Findings stated that the Pacific fisher was a candidate for listing as either an Endangered or Threatened species. At the 23 Jun 2010 meeting the FGC determined that the listing was not warranted. An 11 Mar 2013 Notice of Findings stated that pursuant to court order, the FGC set aside its 15 Sep 2010 findings rejecting the petition to list, and the Pacific fisher is a candidate species for the purposes of CESA.

⁸² Current & Federal taxonomy: Sierra Nevada bighorn sheep (*Ovis canadensis sierrae*)

	State Listing		Federal Listing	
Peninsular bighorn sheep DPS ⁸³ <i>Ovis canadensis cremnobates</i>	ST	6-27-71	FE	3-18-98
North Pacific right whale <i>Eubalaena japonica</i> ⁸⁴			FE ⁸⁵ FE	4-7-08 6-02-70
Sei whale <i>Balaenoptera borealis</i>			FE	6-02-70
Blue whale <i>Balaenoptera musculus</i>			FE	6-02-70
Fin whale <i>Balaenoptera physalus</i>			FE	6-02-70
Humpback whale ⁸⁶ <i>Megaptera novaeangliae</i>			FE	6-02-70
Gray whale (Recovered) <i>Eschrichtius robustus</i>			Delisted FE	6-15-94 6-02-70
Killer whale (Southern resident DPS) <i>Orcinus orca</i>			FE ⁸⁷ FE	4-04-07 2-16-06 12-22-04
Sperm whale <i>Physeter macrocephalus</i> ⁸⁸			FE	6-02-70

⁸³ Current taxonomy: the subspecies *O.c. cremnobates* has been synonymized with *O.c. nelsoni*. The desert bighorn sheep in the Peninsular Ranges, the Peninsular bighorn sheep, is now considered to be a Distinct Population Segment (DPS) of the subspecies.

⁸⁴ The scientific name was clarified in the Federal Register Vol. 68, No. 69 April 10, 2003.

⁸⁵ The NMFS completed a status review of right whales in the N. Pacific and N. Atlantic Oceans and determined the previously Endangered northern right whale (*Eubalaena* spp.) as two separate Endangered species: North Pacific right whale (*E. japonica*) and North Atlantic right whale (*E. glacialis*).

⁸⁶ Also known as Hump-backed whale.

⁸⁷ The killer whale was listed as Endangered by the NMFS on Feb 16, 2006 and by the USFWS on Apr 4, 2007.

⁸⁸ Current taxonomy: *Physeter catodon* with *P. macrocephalus* as a synonym.

ABBREVIATIONS

AOU: American Ornithologists' Union

CCR: California Code of Regulations

CDFW: California Department of Fish and Wildlife (previously known as Department of Fish and Game (DFG))

CESA: California Endangered Species Act

DPS: Distinct population segment

ESA: Endangered Species Act (Federal)

ESU: Evolutionarily significant unit

FGC: California Fish and Game Commission

NMFS: National Marine Fisheries Service

NOAA: National Oceanic and Atmospheric Administration

USFWS: United States Fish and Wildlife Service

ADDITIONAL RESOURCES

The California Fish and Game Commission publishes notices relating to changes to Title 14 of the California Code of Regulations: <http://www.fgc.ca.gov/>

Title 14 of the California Code of Regulations can be accessed through The Office of Administrative Law: <http://www.oal.ca.gov/>

The U.S. Fish and Wildlife Service is responsible for protecting Endangered and Threatened species, and conserving candidate species and at-risk species so that ESA listing is not necessary: <http://www.fws.gov/Endangered/>

NOAA's National Marine Fisheries Service, Office of Protected Resources is responsible for protecting marine mammals and Endangered and Threatened marine life: <http://www.nmfs.noaa.gov/pr/>

CALIFORNIA DEPARTMENT OF
FISH and WILDLIFE *RareFind*

Query Summary:County **IS** (Sacramento)**AND** Quad **IS** (Folsom SE (3812151))

Print

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CNDDB Element Query Results

Scientific Name	Common Name	Element Code	Total Occs	Returned Occs	Federal Status	State Status	Global Rank	State Rank	CA Rare Plant Rank	Other Status	Habitats
Agelaius tricolor	tricolored blackbird	ABPBXB0020	429	2	None	None	G2G3	S2	null	ABC_WLBCC -Watch List of Birds of Conservation Concern BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_EN-Endangered USFWS_BCC -Birds of Conservation Concern	Freshwater marsh Marsh & swamp Wetland
Ammodramus savannarum	grasshopper sparrow	ABPBXA0020	16	1	None	None	G5	S2	null	CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern	Valley & foothill grassland
Athene cucularia	burrowing owl	ABNSB10010	1848	3	None	None	G4	S2	null	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern USFWS_BCC -Birds of Conservation Concern	Coastal prairie Coastal scrub Great Basin grassland Great Basin scrub Mojavean desert scrub Sonoran desert scrub Valley & foothill grassland
Branchinecta lynchi	vernal pool fairy shrimp	ICBRA03030	611	1	Threatened	None	G3	S2S3	null	IUCN_VU-Vulnerable	Valley & foothill grassland Vernal pool Wetland
Buteo swainsoni	Swainson's hawk	ABNKC19070	2394	2	None	Threatened	G5	S2	null	ABC_WLBCC -Watch List of Birds of Conservation Concern BLM_S-Sensitive IUCN_LC-Least Concern USFS_S-Sensitive USFWS_BCC -Birds of Conservation Concern	Great Basin grassland Riparian forest Riparian woodland Valley & foothill grassland

Emys marmorata	western pond turtle	ARAAD02030	1137	1	None	None	G3G4	S3	null	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_VU-Vulnerable USFS_S-Sensitive	Aquatic Artificial flowing waters Klamath/North coast flowing waters Klamath/North coast standing waters Marsh & swamp Sacramento/San Joaquin flowing waters Sacramento/San Joaquin standing waters South coast flowing waters South coast standing waters Wetland
Eryngium pinnatisectum	Tuolumne button-celery	PDAPI0Z0P0	24	1	None	None	G2	S2	1B.2	null	Cismontane woodland Lower montane coniferous forest Vernal pool Wetland
Sagittaria sanfordii	Sanford's arrowhead	PMALI040Q0	93	2	None	None	G3	S3	1B.2	BLM_S-Sensitive	Marsh & swamp Wetland

Appendix E

USFWS Biological Opinion



United States Department of the Interior



In Reply Refer to:
08ESMF00-2013-
F-0044-R004

FISH AND WILDLIFE SERVICE
Sacramento Fish and Wildlife Office
2800 Cottage Way, Suite W-2605
Sacramento, California 95825-1846

JUN 10 2014

Alicia E. Kirchner
Chief, Planning Division
Corps of Engineers, Sacramento District
1325 J Street
Sacramento, California 95814-2922

Subject: Request to Reinitiate Formal Consultation on the Folsom Dam Safety/Flood
Damage Reduction Project, Sacramento County, California

Dear Ms. Kirchner:

This letter is in response to your June 5, 2014, letter requesting reinitiation of formal consultation with the U.S. Fish and Wildlife Service (Service) on the proposed Folsom Dam Modification Project (project) in Sacramento County, California. At issue are effects of the proposed project on the federally-listed as threatened valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*) (beetle). Your request was received by the Service on June 9, 2014. This response is provided under the authority of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 et seq.).

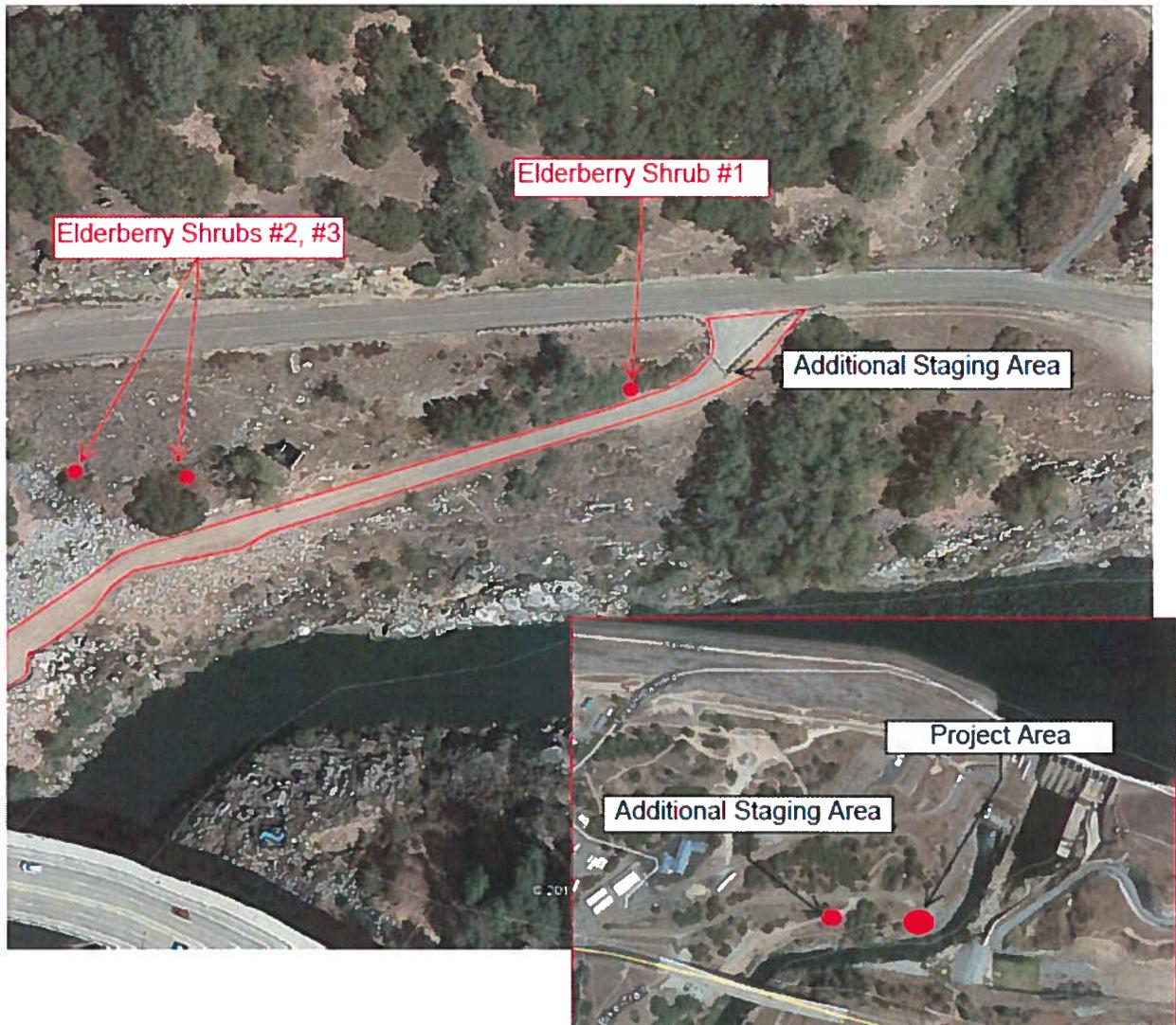
The Service appended this project to the *Programmatic Formal Consultation Permitting Projects with Relatively Small Effects on the Valley Elderberry Longhorn Beetle Within the Jurisdiction of the Sacramento Field Office, California* (programmatic consultation) (Service File 1-1-96-F-66) on November 1, 2012, and was subsequently amended in reinitiation on September 23, 2013, December 24, 2013, and March 31, 2014.

The Folsom Dam Modification Project, also referred to as the Folsom Dam Safety/Flood Damage Reduction Project or the Folsom Joint Federal Project (Folsom JFP), is a cooperative effort between the U.S. Army Corps of Engineers (Corps), Bureau of Reclamation (Reclamation), the State of California Central Valley Flood Protection Board, and the Sacramento Area Flood Control Agency. The Folsom JFP is designed to improve the dam safety, security, and flood damage reduction features at Folsom Dam and associated facilities, including construction of a gated auxiliary spillway southeast of the main dam.

Right Bank

The staging area for the right bank stabilization portion of the project may not be available for use during the scheduled time of construction. Therefore, an additional staging area is being proposed along 0.5 acre of an existing dirt road located near the project area (see inset of Figure 1). This area has been disturbed under previous actions from the construction of the Folsom Lake Crossing Bridge. Surveys were conducted by Corps staff on April 3, 2014, to collect data on elderberry

shrubs near the additional proposed staging area. Three elderberry shrubs were identified adjacent to the dirt road (see Figure 1). One of the shrubs had a stem that measured greater than 5 inches in diameter at ground level but the other two shrubs were unable to be measured due to their location on the upper steep slope.



Source: U.S. Army Corps of Engineers

Figure 1. Proposed staging area and elderberry shrub locations for right bank stabilization measures along the right bank of the American River

Dike 7 and Left Drain

During a site visit to the Folsom JFP site on May 6, 2014, several elderberry shrubs that had previously been transplanted have grown back within the construction area. One shrub was identified adjacent to the Dike 7 staging area (see Figure 2) and 16 shrubs were identified near the left drain that runs along the toe of Folsom Lake Crossing (see Figure 3). The elderberry shrub at Dike 7 has one stem that is 1 to 3 inches in diameter at ground level and the shrubs along the left drain were measured at 17 stems at 1 to 3 inches in diameter and 5 stems at 3 to 5 inches in diameter. No exit holes were observed on any of the shrubs and all areas are highly disturbed.



Figure 2. Elderberry shrub located near the Dike 7 staging area

The elderberry shrubs at the additional staging area for the right bank stabilization work and at Dike 7 will not be directly impacted by construction. Staging area space is limited at the right bank stabilization project site and it will be difficult to observe the Service's recommended 100 foot radius buffer zone for protection of the elderberry shrubs and still meet the project purpose. The elderberry shrub at Dike 7 has sprouted within 100 feet of the current staging area. Due to the intended use of the staging area at these two sites and the limited space, the Corps is proposing a minimum 15 foot radius buffer zone using k-rails for protection.

The elderberry shrubs that have re-sprouted along the left drain will need to be removed in order to complete construction. Elderberry shrubs in this area have been removed during previous construction actions and have already been compensated for. The beetle is highly unlikely to occupy the newly sprouted elderberry shrubs since most of the stems are first year growth and the closest known occurrence of the beetle is over 3 miles away, which is beyond the beetle's flight capacity to re-occupy the site. Therefore, the removal of the newly sprouted elderberry shrubs along the left drain is unlikely to result in additional effects to the beetle.



Figure 3. Elderberry shrub locations near the left drain of Folsom Lake Crossing

The November 1, 2012, biological opinion is amended to include:

On Page 2 - In the first paragraph, the following should be changed from:

The findings and recommendations in this formal consultation are based on: 1) your October 31, 2012, letter requesting formal consultation; 2) phone and email conversations between Corps and Service staff; 3) site visits on June 6, 2012, June 11, 2012, August 8, 2012, December 4, 2013, and February 11, 2014; 4) the Corps' September 18, 2013, request for reinitiation of formal consultation; 5) the Corps December 18, 2013, request for reinitiation of formal consultation; 6) the Corps March 19, 2014, request for reinitiation of formal consultation; and 7) other information available to the Service.

To:

The findings and recommendations in this formal consultation are based on: 1) your October 31, 2012, letter requesting formal consultation; 2) phone and email conversations between Corps and Service staff; 3) site visits on June 6, 2012, June 11, 2012, August 8, 2012, December 4, 2013, and February 11, 2014; 4) the Corps' September 18, 2013, request for reinitiation of formal consultation; 5) the Corps December 18, 2013, request for reinitiation of formal consultation; 6) the Corps March 19, 2014, request for reinitiation of formal consultation; **7) the Corps June 5, 2014, request for reinitiation of formal consultation; and 8) other information available to the Service.**

On Page 3 - In the Conservation Measures section, the following should be changed from:

The Corps will implement the following conservation measures proposed in the October 31, 2012, September 18, 2013, December 18, 2013, and March 19, 2014, letters in addition to those listed in the programmatic consultation.

To:

The Corps will implement the following conservation measures proposed in the October 31, 2012, September 18, 2013, December 18, 2013, **March 19, 2014, and June 5, 2014,** letters in addition to those listed in the programmatic consultation.

All other sections of the November 1, 2012, biological opinion for the Folsom Dam Modification Project remain the same. If you have any questions regarding this reinitiation, please contact Amber Aguilera, Fish and Wildlife Biologist, or Doug Weinrich, Chief, Habitat Conservation Division, at (916) 414-6600.

Sincerely,



Daniel Welsh
Acting Field Supervisor

cc:

Jamie LeFevre, Army Corps of Engineers, Sacramento, California



United States Department of the Interior

FISH AND WILDLIFE SERVICE
Sacramento Fish and Wildlife Office
2800 Cottage Way, Room W-2605
Sacramento, California 95825-1846



In Reply Refer To:
08ESMF00-2013-F-0044-R003

MAR 31 2014

Alicia E. Kirchner
Chief, Planning Division
Corps of Engineers, Sacramento District
1325 J Street
Sacramento, California 95814-2922

Subject: Request to Reinitiate Formal Consultation on the Folsom Dam Safety/Flood
Damage Reduction Project, Sacramento County, California

Dear Ms. Kirchner:

This letter is in response to your March 19, 2014, letter requesting reinitiation of formal consultation with the U.S. Fish and Wildlife Service (Service) on the proposed Folsom Dam Modification Project (project) in Sacramento County, California. At issue are effects of the proposed project on the federally-listed as threatened valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*) (beetle). Your request was received by the Service on March 24, 2014. This response is provided under the authority of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 et seq.).

The Service appended this project to the *Programmatic Formal Consultation Permitting Projects with Relatively Small Effects on the Valley Elderberry Longhorn Beetle Within the Jurisdiction of the Sacramento Field Office, California* (programmatic consultation) (Service File 1-1-96-F-66) on November 1, 2012, and was subsequently amended in reinitiation on September 23, 2013, and on December 24, 2013.

The Folsom Dam Modification Project, also referred to as the Folsom Dam Safety/Flood Damage Reduction Project or the Folsom Joint Federal Project (Folsom JFP), is a cooperative effort between the U.S. Army Corps of Engineers (Corps), Bureau of Reclamation (Reclamation), the State of California Central Valley Flood Protection Board, and the Sacramento Area Flood Control Agency. The Folsom JFP is designed to improve the dam safety, security, and flood damage reduction features at Folsom Dam and associated facilities, including construction of a gated auxiliary spillway southeast of the main dam. Subsequent technical studies and hydraulic modeling indicated that the convergence of flows from the main dam and the auxiliary spillway could erode and possibly destabilize the existing slope along the right bank of the American River.

To ensure the slope of the right bank remains stable between elevations 130 and 155, post-tensioned rock bolts will be installed below elevation 155 (Figure 1). About 40 rock bolts between 25 and 30 feet long will be placed to pin the rock mass. Holes will be drilled into the rock slope, the rock bolts will be installed, and cement or resin grout will be added to hold the rock bolts in place. Once the grout has cured, the rock bolts will be tensioned in accordance with specifications. In addition, formed concrete may be used to fill reentrant joint cavities to prevent the potential dislodging of several large rock blocks in the vicinity.



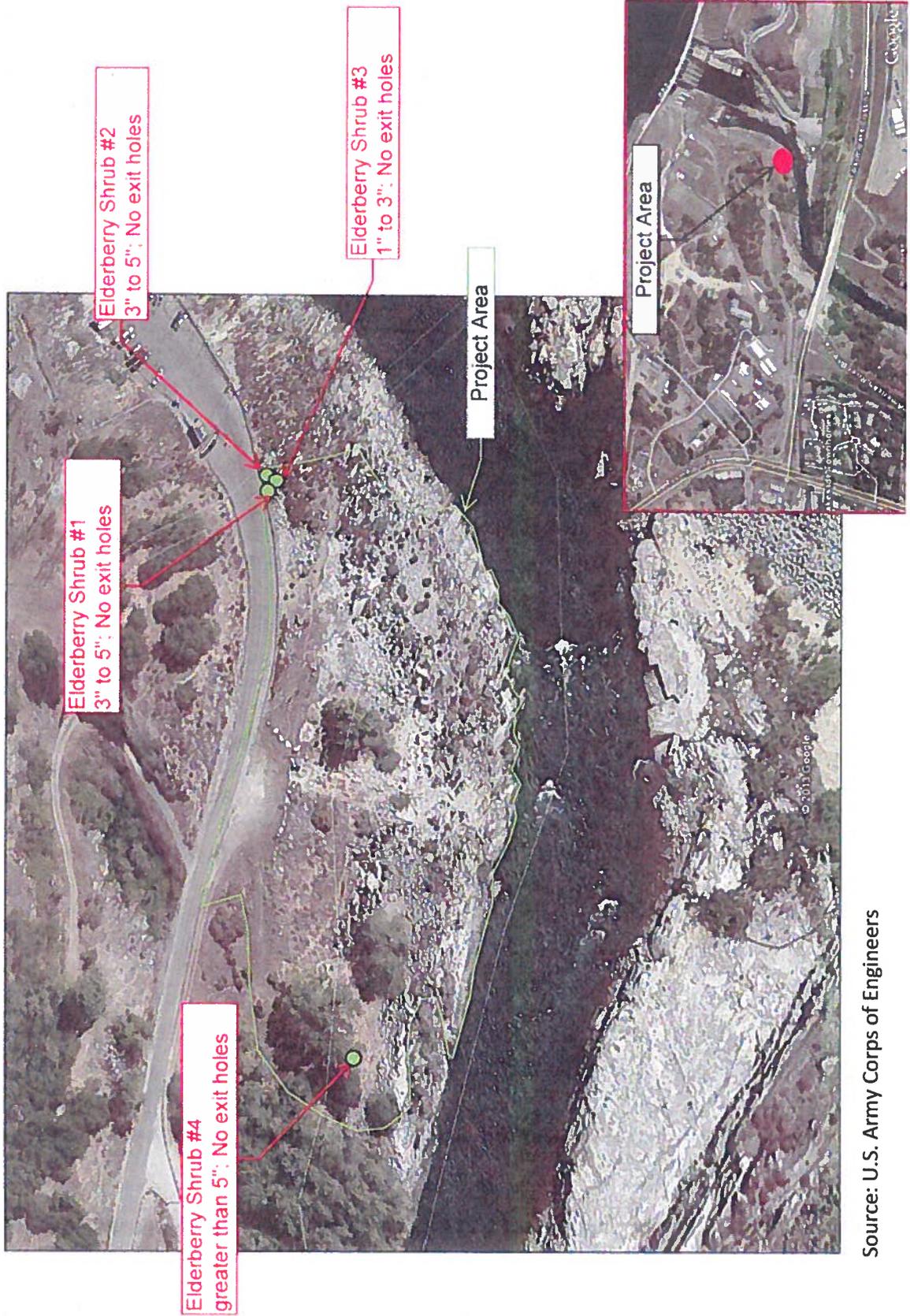
Figure 1. Approximate rock bolt locations on the right bank of the American River

The project site is located along a steep slope which is difficult for drilling equipment to access. Site preparation will involve clearing an area for a work platform to place a crane and other equipment needed for installing the rock bolts. A 20-foot-wide access road and a platform will be constructed to allow for mobilization of the crane. The crane will lower the crew and drilling equipment over the edge to install the rock bolts. Site preparation for the access road will include minor clearing, grubbing, and tree removal. The proposed project will be conducted over a 6 month period starting in the middle to late summer of 2015 when releases from Folsom Dam are expected to be minimal.

The project area totals 2 acres along the right bank of the American River. The area has been disturbed previously from the construction of Folsom Dam and the powerhouse, and supports small areas of annual grasses, forbs, and small shrubs. Cottonwoods and willows are located along the perimeter of the proposed access road.

Surveys were conducted on July 1, 2013, to collect data on elderberry shrubs near the project area. Three elderberry shrubs were identified adjacent to the powerhouse road and one elderberry shrub was identified adjacent to the proposed access road (Figure 2). The elderberry shrubs were measured as follows: 1 stem at 1 to 3 inches in diameter at ground level, 2 stems at 3 to 5 inches at ground level, and 1 stem greater than 5 inches at ground level. All four of the elderberry shrubs are in a non-riparian area and no exit holes were observed on any of them.

Elderberry Shrubs located within the Right Bank Project Area



Source: U.S. Army Corps of Engineers

Figure 2. Elderberry shrub locations on the right bank of the American River

The elderberry shrubs will not be directly impacted by the proposed project. Staging area space is limited at the project site; therefore, it will be difficult to observe the Service recommended 100-foot radius buffer zone for protection of the elderberry shrubs and still meet the project purpose. The Corps is proposing a minimum 20-foot radius buffer zone, using k-rails for protection.

To minimize potential take of the beetle, the following additional measures will be incorporated into the right bank protection portion of the project:

- A minimum setback of 100 feet from the dripline of all elderberry shrubs will be established, if possible. If the 100 foot minimum buffer zone is not possible, the next maximum distance allowable will be established. Due to the limited space within the project area, it will be difficult to observe the 100-foot radius buffer zone for protection of all the elderberry shrubs located at the site. The Corps is proposing a minimum 20-foot radius buffer zone, using k-rails for protection. These areas will be fenced, flagged, and maintained during construction.

The Service has reviewed the Folsom JFP revised project description and evaluated its potential effect to the beetle. The Service finds that the effects of the proposed work are consistent with the effects analyzed in the biological opinion and subsequent reinitiations.

The November 1, 2012, biological opinion is amended to include:

On Page 2 - In the first paragraph, the following should be changed from:

The findings and recommendations in this formal consultation are based on: 1) your October 31, 2012, letter requesting formal consultation; 2) phone and email conversations between Corps and Service staff; 3) site visits on June 6, 2012, June 11, 2012, August 8, 2012, and December 4, 2013; 4) the Corps' September 18, 2013, request for reinitiation of formal consultation; 5) the Corps December 18, 2013, request for reinitiation of formal consultation; and 6) other information available to the Service.

To:

The findings and recommendations in this formal consultation are based on: 1) your October 31, 2012, letter requesting formal consultation; 2) phone and email conversations between Corps and Service staff; 3) site visits on June 6, 2012, June 11, 2012, August 8, 2012, **December 4, 2013, and February 11, 2014**; 4) the Corps' September 18, 2013, request for reinitiation of formal consultation; 5) the Corps December 18, 2013, request for reinitiation of formal consultation; **6) the Corps March 19, 2014, request for reinitiation of formal consultation; and 7) other information available to the Service.**

On Page 2 - In the Description of the Proposed Project section after the 3rd paragraph, add:

To ensure the slope of the right bank remains stable, about 40 post-tensioned rock bolts between 25 and 30 feet in length will be placed to pin the rock mass. Holes will be drilled into the rock

slope and then filled with cement grout or resin grout to hold the rock bolts in place. The rock bolts will be installed perpendicular to the slope and subsequently tensioned. In addition, formed concrete may be required to fill reentrant joint cavities to prevent the potential dislodging of several large rock blocks in the vicinity.

The project site is located along a steep slope, which is difficult for drilling equipment to access. Site preparation will involve clearing an area for a work platform to place a crane and other equipment needed for installing the rock bolts. The crane will lower the crew and drilling equipment over the edge to install the rock bolts. A 20-foot-wide access road and a platform will be constructed to allow for mobilization of the crane. Site preparation for the access road will include minor clearing, grubbing, and tree removal. The proposed project will be conducted over a six month period starting in the middle to late summer of 2015.

On Page 3 - In the Conservation Measures section, the following should be changed from:

The Corps will implement the following conservation measures proposed in the October 31, 2012, September 18, 2013, and December 18, 2013, letters in addition to those listed in the programmatic consultation.

To:

The Corps will implement the following conservation measures proposed in the October 31, 2012, September 18, 2013, **December 18, 2013, and March 19, 2014, letters** in addition to those listed in the programmatic consultation.

All other sections of the November 1, 2012, biological opinion for the Folsom Dam Modification Project remain the same. If you have any questions regarding this reinitiation, please contact Amber Aguilera, Fish and Wildlife Biologist, or Doug Weinrich, Chief, Habitat Conservation Division, at (916) 414-6600.

Sincerely,



Daniel Welsh
Acting Field Supervisor

cc:

Jamie LeFevre, Army Corps of Engineers, Sacramento, California

Appendix F

Tree Survey Data and Map

Folsom JFP Phase V Right Bank Project Area



Tree No.	Species	Diameter at Breast Height (inches)
1	Cottonwood	26
2	Cottonwood	6
3	Cottonwood	8
4	Cottonwood	3
5	Cottonwood	10
6	Cottonwood	4
7	Cottonwood	4
8	Willow sp	20
9	Willow sp	4
10	Willow sp	17
11	Black Locust	16
12	Black Locust	3
Total		121



Vicinity Map

Appendix G

USFWS Coordination Act Report



United States Department of the Interior

FISH AND WILDLIFE SERVICE
Sacramento Fish and Wildlife Office
2800 Cottage Way, Room W-2605
Sacramento, California 95825-1846



In Reply Refer To:
08ESMF00-2014-CPA-0007

APR 1 2014

Alicia E. Kirchner
Chief, Planning Division
Corps of Engineers, Sacramento District
1325 J Street
Sacramento, California 95825-2922

Dear Ms. Kirchner:

The U.S. Army Corps of Engineers (Corps) has requested supplemental coordination under the Fish and Wildlife Coordination Act (FWCA) for the Folsom Dam Safety/Flood Damage Reduction Project. The proposed slope protection measures would occur on the right bank of the American River, Sacramento County, California. This letter transmits the U.S. Fish and Wildlife Service's (Service) draft supplemental FWCA report for the proposed project (enclosed).

By copy of this letter, we are requesting the agencies listed below to provide any review comments to the Service so that they can be incorporated into a final report for inclusion in the Corps' environmental documents.

If you have any questions regarding this report on the proposed project, please contact Amber Aguilera, Fish and Wildlife Biologist, at (916) 414-6577.

Sincerely,

Daniel Welsh
Acting Field Supervisor

Enclosure

cc: w/ enclosure
Jamie LeFevre, COE, Sacramento, CA
Howard Brown, NOAA Fisheries, Sacramento, CA
Tina Bartlett, CDFW, Rancho Cordova, CA

**DRAFT SUPPLEMENTAL FISH AND WILDLIFE COORDINATION ACT REPORT
FOLSOM DAM SAFETY/FLOOD DAMAGE REDUCTION PROJECT
RIGHT BANK SLOPE PROTECTION**

March 2014

BACKGROUND

The Folsom Dam Safety/Flood Damage Reduction Project, also referred to as the Folsom Dam Modification Project or the Folsom Joint Federal Project (Folsom JFP), is a cooperative effort among the U.S. Army Corps of Engineers (Corps), the U.S. Bureau of Reclamation (Reclamation), the State of California Central Valley Flood Protection Board, and the Sacramento Area Flood Protection Agency. The Folsom JFP is designed to improve the dam safety, security, and flood damage reduction features at Folsom Dam and associated facilities, including construction of a gated auxiliary spillway southeast of the main dam. Operation of this spillway would increase water discharge capability from the reservoir and help to provide a 200 year level of flood protection to the Sacramento area. The potential effects of the Folsom JFP on environmental and cultural resources were evaluated in the 2007 Final Environmental Impact Statement/Environmental Impact Report (FEIS/EIR).

The evaluation in the 2007 FEIS/EIR was based on technical studies and the level of project design available at the time. Subsequent technical studies and hydraulic modeling indicated that the convergence of flows from the main dam and the auxiliary spillway could erode and possibly destabilize the existing slope along the right bank of the American River. After the auxiliary spillway becomes operational, changes in river hydraulics downstream of the stilling basin would occur that have not been experienced to date. Due to the orientation of the auxiliary spillway, a 400-foot reach of the right bank of the American River may be more vulnerable to erosion and scour, depending on how the facilities are operated. As a result, concerns have been raised about what the impacts might be if erosion and scour are increased due to the operation of the new auxiliary spillway.

The U.S. Fish and Wildlife Service (Service) previously coordinated with the Corps on the various aspects of the Folsom JFP. The proposed work addressed in this report is specific to the slope protection measures on the right bank of the American River just downstream of the main dam.

PROJECT DESCRIPTION

The Corps proposes to install slope protection measures to the right bank of the American River just downstream of the Folsom Dam. The purpose of the project is to ensure the slope of the right bank remains stable where forces from the main dam and auxiliary spillway converge. Construction activities associated with the stabilization of the right bank slope would be confined to the lower right bank slope of the American River starting about 700 feet downstream from the main dam to Folsom Crossing Bridge, and Reclamation's maintenance road to the powerhouse (see insert on Figure 1, page 4).

Mobilization and Staging

Access to the site would be from the west of the project area by way of Folsom-Auburn Road. About one-quarter mile to the north of the signaled intersection of Folsom-Auburn Road and Folsom Lake Crossing Road, project vehicles would turn right at the entrance to Reclamation's Central California Area Office facility. Access to the project area would be through Reclamation property.

Staging area space is limited at the project area. There is an existing unpaved turnout area near the powerhouse in close proximity to the project area which would be used for staging and vehicle parking. Access to the powerhouse is controlled by Reclamation and the use of this area would be coordinated with them. Due to the scope and nature of work involved, the need for parking, staging and laydown areas would be small. Minimal grading would be required to enlarge the existing unpaved turnout area to develop sufficient space for staging and vehicles. Prior to initiation of construction, the staging area would be fenced.

Lower Slope Protection

To ensure the slope of the right bank remains stable between elevations 130 and 155, post-tensioned rock bolts would be installed below elevation 155. Rock bolts generally consist of steel elements (bars and strands) grouted in a drilled hole. Rock bolts actively transfer loading between the anchored structure and its underlying rock mass, thereby lowering the structure's center of gravity. About 40 rock bolts between 25 and 30 feet in length would be installed perpendicular to the slope and subsequently tensioned to pin the rock mass. Holes would be drilled into the rock slope and then filled with cement grout or resin grout to hold the rock bolts in place. In addition to the installation of rock bolts, formed concrete could be required to fill reentrant joint cavities to prevent the potential dislodging of several large rock blocks in the vicinity.

Access Road and Site Preparation

A 20-foot-wide access road and a platform would be constructed to allow for mobilization of a crane. Site preparation for the access road would include minor clearing, grubbing, and tree removal. Installation of the access road would require cutting 1,000 cubic yards (cy) of material to level the area. After the area is level, about 2,000 cy of fill material would be brought in to build up the road. The soil would then be graded, scarified, and compacted. Aggregate base material would be spread over the access road and compacted to 100 percent density. Completion of the access road is estimated to take 2 weeks.

The project site is located along a steep slope, which is difficult for drilling equipment to access. Site preparation would involve clearing an area for a work platform to place a crane and other equipment needed for installing the rock bolts. A crane platform could be setup on either the upper-slope staging area or on a mid-slope area, and the crane would lower the crew and drilling equipment over the edge to install the rock bolts. Alternatively, to access hard to reach rock bolt locations, the contractor may use a barge to conduct drilling operations. The barge would allow a track mounted drill rig to be transported to the shoreline to access the rock bolt locations.

Demobilization and Clean-up

Once the slope protection measures are completed, the contractor would remove all construction

equipment, temporary fencing, and unused materials from the project area. In addition, all work areas would be cleaned of work-related debris and would be left in a presentable condition. Any roadway pavement or parking area gravel damages due to construction equipment or haul trucks would be repaired to pre-project conditions and all disturbed earthen areas would be reseeded with native grasses.

Construction Schedule

The proposed slope protection measures would be conducted over a 6 month period starting in the middle to late summer of 2015. Work hours would be limited to 7 a.m. to 6 p.m. on weekdays and 8 a.m. to 5 p.m. on Saturdays. No work would be conducted on Sundays or during late evenings or night hours.

BIOLOGICAL RESOURCES

The American River and nearby areas, although highly modified from conditions of 150 years ago, support a diverse and highly valuable area for biological resources. The 23-mile-long reach of the American River Parkway downstream of Folsom Dam encompasses about 4,000 acres, the majority of which are in a State designated floodway and contains large areas of annual grasslands, riparian forest and scrub-shrub, oak-woodlands, bare sand and gravel, and surface waters of the river and its associated sloughs and dredge ponds (USFWS 2003).

Vegetation

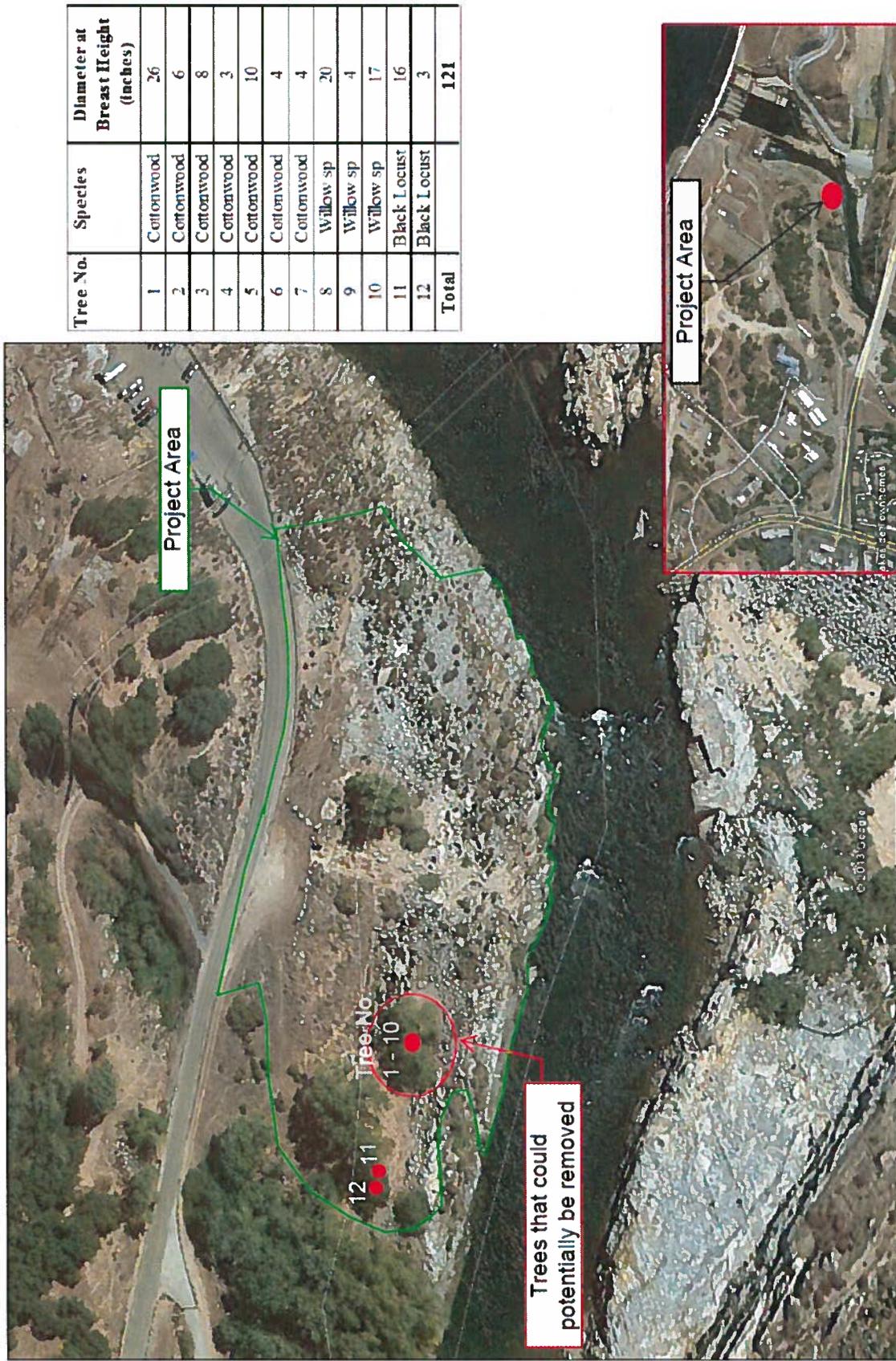
The project area currently supports annual grassland and riparian vegetation communities. The project area has been disturbed under previous actions from the construction of Folsom Dam and the power house.

Site preparation for the access road would include some tree removal. The area where the road would be aligned is primarily non-native grasslands with trees and shrub species interspersed throughout the site. The diameter at breast height of the affected trees ranges from 3 to 26 inches (Figure 1). All disturbed earthen areas would be reseeded with native grasses after project completion.

Wildlife

The project area, including the lower American River corridor, provides a mosaic of riparian, riverine, grassland, and oak woodland habitat. These diverse habitats support a corresponding diversity of wildlife.

The lands near the project area provide feeding, resting, and/or nesting habitat for many bird species, many of which require the aquatic areas of the river and backwaters, or the riparian vegetation of the ecosystem. Riparian areas are known to support a species-rich songbird community (Gaines 1977), and the lower American River also provides habitat for many raptors, including Swainson's hawks, red-shouldered hawks, Cooper's hawks, and great-horned owls, all of which require or are closely associated with riparian vegetation. Bald eagles, which are more common around Folsom Reservoir, occasionally use the lower river, which provides roosting and foraging habitat. Waterfowl, particularly mallards and Canada geese, also use the area extensively.



Tree No.	Species	Diameter at Breast Height (inches)
1	Cottonwood	26
2	Cottonwood	6
3	Cottonwood	8
4	Cottonwood	3
5	Cottonwood	10
6	Cottonwood	4
7	Cottonwood	4
8	Willow sp	20
9	Willow sp	4
10	Willow sp	17
11	Black Locust	16
12	Black Locust	3
Total		121

Source: U.S. Army Corps of Engineers

Figure 1. Folsom JFP Right Bank Project Area and Potentially Affected Trees

More than 50 species of mammals have been recorded for the area (USFWS 1986). Common species include beaver, black-tailed jackrabbit, striped skunk, Virginia opossum, raccoon, coyote, California ground squirrel, gophers, and many small rodents and insectivores including several voles, moles, shrews, deer mice, and pocket gophers. Uncommon species include several carnivores, such as badger, long-tailed weasel, river otter, gray fox, bobcat, and mink.

Reptile species of the lower American River include common kingsnake, western rattlesnake, Gilbert and western skinks, southern alligator lizard, western fence lizard, gopher snake, and several garter snakes. Common amphibians include Pacific treefrog, California newt, California slender salamander, western toad, and the introduced bullfrog.

Relatively little is known about invertebrates of the lower American River, but elderberry plants are fairly common in areas, and provide habitat for the endangered valley elderberry longhorn beetle.

Fish

The lower American River supports a diverse and abundant fish community; altogether, at least 41 species of fish are known to inhabit the river (USFWS 1986). In recognition of its “outstanding and remarkable” fishery resources, the entire lower American River was included in the Wild and Scenic Rivers System in 1981, which provides some protection for these resources (USFWS 1991). Four anadromous species are important from a commercial and recreational perspective. The lower river supports a large run of fall-run Chinook salmon, a species with both commercial and recreational values. The salmon run is sustained by natural reproduction in the river, and by hatchery production at the Nimbus Salmon and Steelhead Hatchery, operated by the California Department of Fish and Wildlife (CDFW). The average annual production of fall-run Chinook salmon in the American River from 1992-2009 is 109,574 (USFWS 2013).

Steelhead, a popular sport fish, are largely sustained in the river by production from the Nimbus Hatchery, because summer water temperatures often exceed the tolerances of juvenile steelhead, which typically spend about 1 year in the river. American shad and striped bass enter the river to spawn; these two species, introduced into the Sacramento River system in the late 1800s, now support popular sport fisheries. In addition to species of economic interest, the lower American River supports many nongame species, including Sacramento pikeminnow, Sacramento sucker, tule perch, and hardhead (USFWS 1994).

Endangered Species

Based on a search of the Folsom USGS quadrangle map there are several listed species which could occur within or near the project area. The species under the jurisdiction of the Service which may be affected by the project includes the valley elderberry longhorn beetle. The other species (anadromous fish) are under the jurisdiction of National Marine Fisheries Service (NOAA Fisheries). The complete list is included in Enclosure 1 as well as a summary of Federal agencies responsibilities under the Endangered Species Act of 1973, as amended.

At the proposed construction site, elderberry survey counts were conducted most recently on July 1, 2013. Three elderberry shrubs were identified adjacent to the powerhouse road and one

elderberry shrub was identified adjacent to the proposed access road. The Corps has consulted with the Service on the project effects to these shrubs, which are the sole host plant for the federally-listed as threatened valley elderberry longhorn beetle (Enclosure 2).

DISCUSSION

Service Mitigation Policy

The recommendations provided herein for the protection of fish and wildlife resources are in accordance with the Service's Mitigation Policy as published in the Federal Register (46:15; January 23, 1981).

The Mitigation Policy provides Service personnel with guidance in making recommendations to protect or conserve fish and wildlife resources. The policy helps ensure consistent and effective Service recommendations, while allowing agencies and developers to anticipate Service recommendations and plan early for mitigation needs. The intent of the policy is to ensure protection and conservation of the most important and valuable fish and wildlife resources, while allowing reasonable and balanced use of the Nation's natural resources.

Under the Mitigation Policy, resources are assigned to one of four distinct Resource Categories, each having a mitigation planning goal which is consistent with the fish and wildlife values involved. The Resource Categories cover a range of habitat values from those considered to be unique and irreplaceable to those believed to be much more common and of relatively lesser value to fish and wildlife. However, the Mitigation Policy does not apply to threatened and endangered species, Service recommendations for completed Federal projects or projects permitted or licensed prior to enactment of Service authorities, or Service recommendations related to the enhancement of fish and wildlife resources.

In applying the Mitigation Policy during an impact assessment, the Service first identifies each specific habitat or cover-type that may be impacted by the project. Evaluation species¹ which utilize each habitat or cover-type are then selected for Resource Category analysis. Selection of evaluation species can be based on several criteria, as follows: (1) species known to be sensitive to specific land- and water-use actions; (2) species that play a key role in nutrient cycling or energy flow; (3) species that utilize a common environmental resource; or (4) species that are associated with Important Resource Problems, such as anadromous fish and migratory birds, as designated by the Director or Regional Directors of the Fish and Wildlife Service. Based on the relative importance of each specific habitat to its selected evaluation species, and the habitat's relative abundance, the appropriate Resource Category and associated mitigation planning goal are determined.

Mitigation planning goals range from “no loss of existing habitat value” (i.e., Resource Category 1) to “minimize loss of habitat value” (i.e., Resource Category 4). The planning goal of Resource Category 2 is “no net loss of in-kind habitat value.” To achieve this goal, any unavoidable losses would need to be replaced in-kind. “In-kind replacement” means providing or managing substitute resources to replace the habitat value of the resources lost, where such

¹ Note: Evaluation species used for Resource Category determinations may or may not be the same evaluation species used in a HEP application, if one is conducted.

substitute resources are physically and biologically the same or closely approximate those lost. The planning goal of Resource Category 3 is “no net loss of habitat while minimizing loss of in-kind value.” To achieve this goal any unavoidable losses will be replaced in-kind or if it is not desirable or possible out-of-kind mitigation would be allowed. The planning goal of Resource Category 4 is “minimize loss of habitat value.” To achieve this goal the Service will recommend ways to rectify, reduce, or minimize loss of habitat value.

In addition to mitigation planning goals based on habitat values, Region 8 of the Service, which includes California, has a mitigation planning goal of no net loss of acreage and value for wetland habitat. This goal is applied in all impact analyses.

In recommending mitigation for adverse impacts to fish and wildlife habitat, the Service uses the same sequential mitigation steps recommended in the Council on Environmental Quality’s regulations. These mitigation steps (in order of preference) are: avoidance, minimization, rectifying, reducing or eliminating impacts over time, and compensation.

Two fish and/or wildlife habitats were identified in the project area which had potential for impacts from the project: annual grassland and riparian woodland. The resource categories, evaluation species, and mitigation planning goal for the habitats impacted by the project are summarized in Table 1.

Table 1. Resource categories, evaluation species, and mitigation planning goal for the habitats possibly impacted by the proposed Folsom Dam Safety/Flood Damage Reduction Project Right Bank Slope Protection, Sacramento County, California.

COVER-TYPE	EVALUATION SPECIES	RESOURCE CATEGORY	MITIGATION GOAL
Annual Grassland	Red-tailed hawk	3	No net loss of habitat value while minimizing loss of in-kind habitat value.
Riparian Woodland	Acorn woodpecker Turkey Deer	2	No net loss of in-kind habitat value or acreage.

The evaluation species selected for the annual grassland cover-type is the red-tailed hawk, which utilizes these areas for foraging. This species was selected because of the Service’s responsibility for their protection and management under the Migratory Bird Treaty Act, and their overall high non-consumptive values to humans. Annual grassland areas potentially impacted by the project vary in their relative values to the evaluation species, depending on the degree of human disturbance, plant species composition, and juxtaposition to other foraging and nesting areas. Therefore, the Service designates the annual grassland cover-type in the project area as Resource Category 3. Our associated mitigation planning goal for these areas is “no net loss of habitat value while minimizing loss of in-kind habitat value.”

The evaluation species selected for the riparian woodland that may be impacted are acorn woodpecker, turkey, and mule deer. Acorn woodpeckers utilize these woodlands for nearly all their life requisites; 50-60 percent of the acorn woodpecker’s annual diet consists of acorns.

Acorn woodpeckers can also represent impacts to other canopy-dwelling species. Turkeys forage and breed in riparian woodlands and are abundant in the project area. Mule deer also heavily depend on acorns as a dietary item in the fall and spring; the abundance of acorns and other browse influence the seasonal pattern of habitat use by deer. These latter species represent species which utilize the ground component of the habitat and both have important consumptive and non-consumptive human uses (i.e., hunting and bird watching). Based on the high value of riparian woodlands to the evaluation species, and their declining abundance, the Service has determined the riparian woodlands which may be affected by the project should be placed in Resource Category 2, with an associated mitigation planning goal of “no net loss of in-kind habitat value.”

Based on our review of the proposed project, most of the impacts would be temporary losses of habitat value for species utilizing annual grasslands during construction on the affected right bank of the American River at the convergence of flows from the main dam and the auxiliary dam. Wildlife species utilizing this area are already highly disturbed due to the previous actions from the construction of Folsom Dam and the powerhouse. All ground disturbed areas would be restored back to pre-project conditions at the completion of construction. Wildlife species utilizing these areas would be displaced and there would be a temporary loss of habitat values during construction activities.

The proposed project would take place in reaches of the river where mature riparian woodland occurs within and adjacent to the project site. The timing of project construction would help to avoid impacts to migratory birds which may be nesting in affected vegetation and nearby areas throughout the riparian corridor.

Project construction would take place on the right bank of the American River, immediately adjacent to the river. Although there are no planned impacts to the river due to construction, there is a possibility that the proposed project might impact aquatic species while construction workers are lowered from the created platform or while using the barge to install the rock bolts.

RECOMMENDATIONS

The Service recommends:

1. Avoid impacts to native trees, shrubs, and aquatic vegetation. Any native trees or shrubs removed with a diameter at breast height of 2 inches or greater should be replaced on-site, in-kind with container plantings so that the combined diameter of the container plantings is equal to the combined diameter of the trees removed. These replacement plantings should be monitored for 5 years or until they are determined to be established and self-sustaining. The planting site(s) should be protected in perpetuity.
2. Avoid future impacts to the site by ensuring all fill material is free of contaminants.
3. Avoid impacts to migratory birds nesting in trees along the access route and adjacent to the proposed bank protection site by conducting pre-construction surveys for active nests along the proposed haul road, staging area, platform, and construction site. This would

especially apply if construction begins in the early summer of 2015. Work activity around active nests should be avoided until the young have fledged. The following protocol from the CDFW for Swainson's hawk would suffice for the pre-construction survey for raptors.

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

4. Minimize project impacts by reseeding all disturbed areas at the completion of construction with forbs and grasses.
5. Minimize the impact of removal and trimming of all trees and shrubs by having these activities supervised and/or completed by a certified arborist.
6. Contact the NOAA Fisheries for possible effects of the project on federally-listed species under their jurisdiction.
7. Contact the CDFW regarding possible effects of the project on State listed species.

REFERENCES

- Gaines, D.A. 1977. The valley riparian forests of California: their importance to bird populations. Pages 57-85 in *Riparian Forests in California: their ecology and conservation*. A. Sands, ed. University of California, Davis, Inst of Ecology Publ. no. 15.
- USFWS (U.S. Fish and Wildlife Service). 1986. Potential impacts to fish and wildlife from alternative actions for increasing flood control along the lower American River, California. U.S. Fish and Wildlife Service, Sacramento, California.
- _____. 1991. American River Watershed Investigation, Auburn Area, Substantiating Report. U.S. Fish and Wildlife Service, Sacramento, California.
- _____. 1994. Planning Aid Report for the American River Watershed Investigation, Raising of Folsom Dam Alternative. U.S. Fish and Wildlife Service, Sacramento, California.
- _____. 2003. Fish and Wildlife Coordination Act Report for the American River Watershed Investigation Long-Term Evaluation. U.S. Fish and Wildlife Service, Sacramento, California.
- _____. 2013. American River Watershed Information (Online), Available: http://www.fws.gov/stockton/afwp/ws_projects.cfm?code=AMERR, April 5, 2013.

ENCLOSURE 1

FEDERAL ENDANGERED AND THREATENED SPECIES LIST

U.S. Fish & Wildlife Service

Sacramento Fish & Wildlife Office

**Federal Endangered and Threatened Species that Occur in
or may be Affected by Projects in the
FOLSOM (511B)
U.S.G.S. 7 1/2 Minute Quad**

Database last updated: September 18, 2011

Report Date: March 17, 2014

Listed Species

Invertebrates

Branchinecta conservatio

Conservancy fairy shrimp (E)

Branchinecta lynchi

vernal pool fairy shrimp (T)

Desmocerus californicus dimorphus

valley elderberry longhorn beetle (T)

Lepidurus packardi

vernal pool tadpole shrimp (E)

Fish

Hypomesus transpacificus

delta smelt (T)

Oncorhynchus mykiss

Central Valley steelhead (T) (NMFS)

Critical habitat, Central Valley steelhead (X) (NMFS)

Oncorhynchus tshawytscha

Central Valley spring-run chinook salmon (T) (NMFS)

winter-run chinook salmon, Sacramento River (E) (NMFS)

Amphibians

Ambystoma californiense

California tiger salamander, central population (T)

Rana draytonii

California red-legged frog (T)

Reptiles

Thamnophis gigas

giant garter snake (T)

Plants

Orcuttia viscida

Critical habitat, Sacramento Orcutt grass (X)

Sacramento Orcutt grass (E)

Key:

- (E) *Endangered* - Listed as being in danger of extinction.
- (T) *Threatened* - Listed as likely to become endangered within the foreseeable future.
- (P) *Proposed* - Officially proposed in the Federal Register for listing as endangered or threatened.
- (NMFS) Species under the Jurisdiction of the [National Oceanic & Atmospheric Administration Fisheries Service](#). Consult with them directly about these species.
- *Critical Habitat* - Area essential to the conservation of a species.
- (PX) *Proposed Critical Habitat* - The species is already listed. Critical habitat is being proposed for it.
- (C) *Candidate* - Candidate to become a proposed species.
- (V) Vacated by a court order. Not currently in effect. Being reviewed by the Service.
- (X) *Critical Habitat* designated for this species.

ENCLOSURE 2

ENDANGERED SPECIES CONSULTATION



United States Department of the Interior

FISH AND WILDLIFE SERVICE

Sacramento Fish and Wildlife Office
2800 Cottage Way, Room W-2605
Sacramento, California 95825-1846



In Reply Refer To:
08ESMF00-2013-F-0044-R003

MAR 31 2014

Alicia E. Kirchner
Chief, Planning Division
Corps of Engineers, Sacramento District
1325 J Street
Sacramento, California 95814-2922

Subject: Request to Reinitiate Formal Consultation on the Folsom Dam Safety/Flood Damage Reduction Project, Sacramento County, California

Dear Ms. Kirchner:

This letter is in response to your March 19, 2014, letter requesting reinitiation of formal consultation with the U.S. Fish and Wildlife Service (Service) on the proposed Folsom Dam Modification Project (project) in Sacramento County, California. At issue are effects of the proposed project on the federally-listed as threatened valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*) (beetle). Your request was received by the Service on March 24, 2014. This response is provided under the authority of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 et seq.).

The Service appended this project to the *Programmatic Formal Consultation Permitting Projects with Relatively Small Effects on the Valley Elderberry Longhorn Beetle Within the Jurisdiction of the Sacramento Field Office, California* (programmatic consultation) (Service File 1-1-96-F-66) on November 1, 2012, and was subsequently amended in reinitiation on September 23, 2013, and on December 24, 2013.

The Folsom Dam Modification Project, also referred to as the Folsom Dam Safety/Flood Damage Reduction Project or the Folsom Joint Federal Project (Folsom JFP), is a cooperative effort between the U.S. Army Corps of Engineers (Corps), Bureau of Reclamation (Reclamation), the State of California Central Valley Flood Protection Board, and the Sacramento Area Flood Control Agency. The Folsom JFP is designed to improve the dam safety, security, and flood damage reduction features at Folsom Dam and associated facilities, including construction of a gated auxiliary spillway southeast of the main dam. Subsequent technical studies and hydraulic modeling indicated that the convergence of flows from the main dam and the auxiliary spillway could erode and possibly destabilize the existing slope along the right bank of the American River.

To ensure the slope of the right bank remains stable between elevations 130 and 155, post-tensioned rock bolts will be installed below elevation 155 (Figure 1). About 40 rock bolts between 25 and 30 feet long will be placed to pin the rock mass. Holes will be drilled into the rock slope, the rock bolts will be installed, and cement or resin grout will be added to hold the rock bolts in place. Once the grout has cured, the rock bolts will be tensioned in accordance with specifications. In addition, formed concrete may be used to fill reentrant joint cavities to prevent the potential dislodging of several large rock blocks in the vicinity.



Figure 1. Approximate rock bolt locations on the right bank of the American River

The project site is located along a steep slope which is difficult for drilling equipment to access. Site preparation will involve clearing an area for a work platform to place a crane and other equipment needed for installing the rock bolts. A 20-foot-wide access road and a platform will be constructed to allow for mobilization of the crane. The crane will lower the crew and drilling equipment over the edge to install the rock bolts. Site preparation for the access road will include minor clearing, grubbing, and tree removal. The proposed project will be conducted over a 6 month period starting in the middle to late summer of 2015 when releases from Folsom Dam are expected to be minimal.

The project area totals 2 acres along the right bank of the American River. The area has been disturbed previously from the construction of Folsom Dam and the powerhouse, and supports small areas of annual grasses, forbs, and small shrubs. Cottonwoods and willows are located along the perimeter of the proposed access road.

Surveys were conducted on July 1, 2013, to collect data on elderberry shrubs near the project area. Three elderberry shrubs were identified adjacent to the powerhouse road and one elderberry shrub was identified adjacent to the proposed access road (Figure 2). The elderberry shrubs were measured as follows: 1 stem at 1 to 3 inches in diameter at ground level, 2 stems at 3 to 5 inches at ground level, and 1 stem greater than 5 inches at ground level. All four of the elderberry shrubs are in a non-riparian area and no exit holes were observed on any of them.

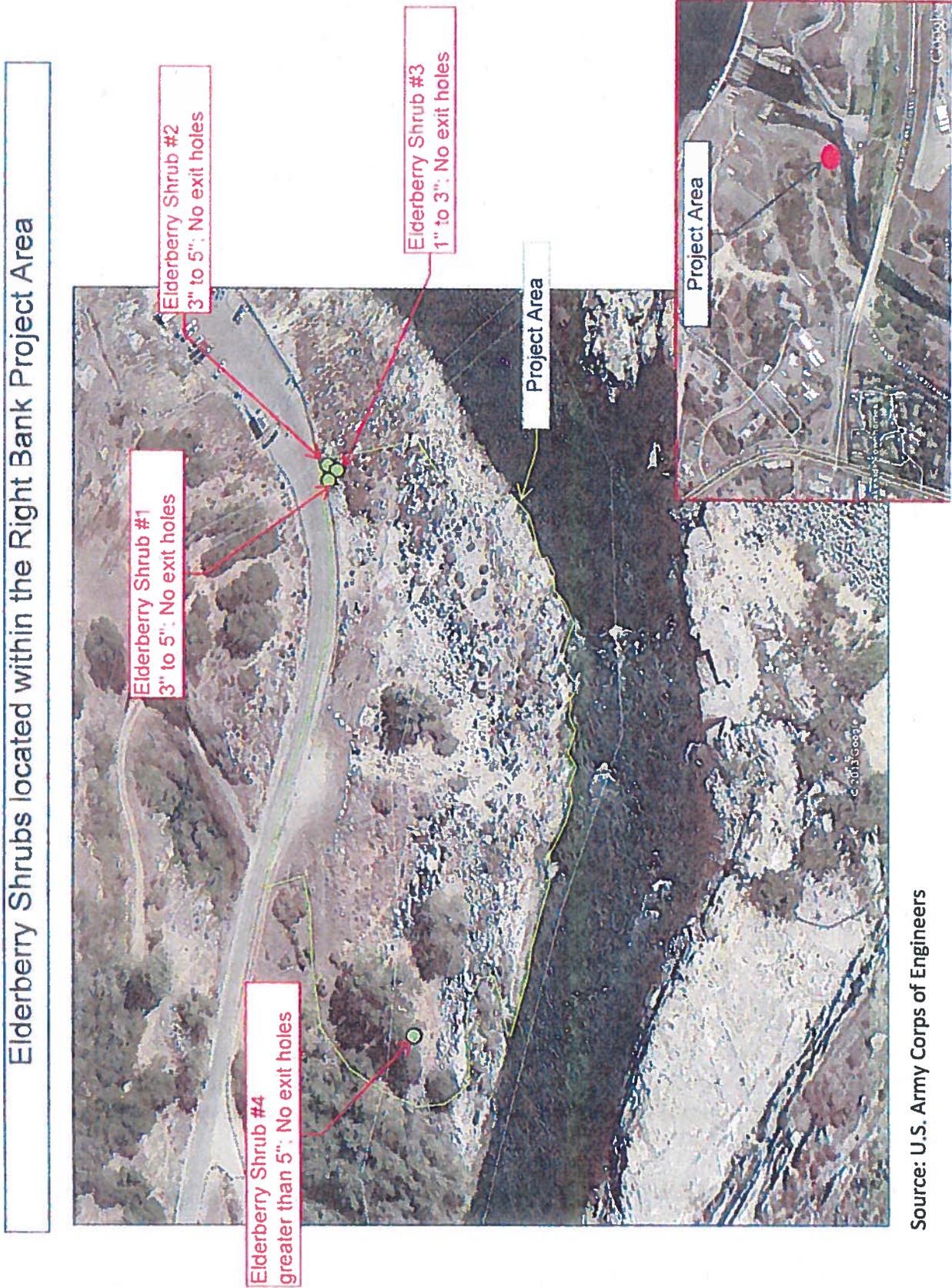


Figure 2. Elderberry shrub locations on the right bank of the American River

The elderberry shrubs will not be directly impacted by the proposed project. Staging area space is limited at the project site; therefore, it will be difficult to observe the Service recommended 100-foot radius buffer zone for protection of the elderberry shrubs and still meet the project purpose. The Corps is proposing a minimum 20-foot radius buffer zone, using k-rails for protection.

To minimize potential take of the beetle, the following additional measures will be incorporated into the right bank protection portion of the project:

- A minimum setback of 100 feet from the dripline of all elderberry shrubs will be established, if possible. If the 100 foot minimum buffer zone is not possible, the next maximum distance allowable will be established. Due to the limited space within the project area, it will be difficult to observe the 100-foot radius buffer zone for protection of all the elderberry shrubs located at the site. The Corps is proposing a minimum 20-foot radius buffer zone, using k-rails for protection. These areas will be fenced, flagged, and maintained during construction.

The Service has reviewed the Folsom JFP revised project description and evaluated its potential effect to the beetle. The Service finds that the effects of the proposed work are consistent with the effects analyzed in the biological opinion and subsequent reinitiations.

The November 1, 2012, biological opinion is amended to include:

On Page 2 - In the first paragraph, the following should be changed from:

The findings and recommendations in this formal consultation are based on: 1) your October 31, 2012, letter requesting formal consultation; 2) phone and email conversations between Corps and Service staff; 3) site visits on June 6, 2012, June 11, 2012, August 8, 2012, and December 4, 2013; 4) the Corps' September 18, 2013, request for reinitiation of formal consultation; 5) the Corps December 18, 2013, request for reinitiation of formal consultation; and 6) other information available to the Service.

To:

The findings and recommendations in this formal consultation are based on: 1) your October 31, 2012, letter requesting formal consultation; 2) phone and email conversations between Corps and Service staff; 3) site visits on June 6, 2012, June 11, 2012, August 8, 2012, **December 4, 2013, and February 11, 2014**; 4) the Corps' September 18, 2013, request for reinitiation of formal consultation; 5) the Corps December 18, 2013, request for reinitiation of formal consultation; **6) the Corps March 19, 2014, request for reinitiation of formal consultation; and 7) other information available to the Service.**

On Page 2 - In the Description of the Proposed Project section after the 3rd paragraph, add:

To ensure the slope of the right bank remains stable, about 40 post-tensioned rock bolts between 25 and 30 feet in length will be placed to pin the rock mass. Holes will be drilled into the rock

slope and then filled with cement grout or resin grout to hold the rock bolts in place. The rock bolts will be installed perpendicular to the slope and subsequently tensioned. In addition, formed concrete may be required to fill reentrant joint cavities to prevent the potential dislodging of several large rock blocks in the vicinity.

The project site is located along a steep slope, which is difficult for drilling equipment to access. Site preparation will involve clearing an area for a work platform to place a crane and other equipment needed for installing the rock bolts. The crane will lower the crew and drilling equipment over the edge to install the rock bolts. A 20-foot-wide access road and a platform will be constructed to allow for mobilization of the crane. Site preparation for the access road will include minor clearing, grubbing, and tree removal. The proposed project will be conducted over a six month period starting in the middle to late summer of 2015.

On Page 3 - In the Conservation Measures section, the following should be changed from:

The Corps will implement the following conservation measures proposed in the October 31, 2012, September 18, 2013, and December 18, 2013, letters in addition to those listed in the programmatic consultation.

To:

The Corps will implement the following conservation measures proposed in the October 31, 2012, September 18, 2013, **December 18, 2013, and March 19, 2014**, letters in addition to those listed in the programmatic consultation.

All other sections of the November 1, 2012, biological opinion for the Folsom Dam Modification Project remain the same. If you have any questions regarding this reinitiation, please contact Amber Aguilera, Fish and Wildlife Biologist, or Doug Weinrich, Chief, Habitat Conservation Division, at (916) 414-6600.

Sincerely,



Daniel Welsh
Acting Field Supervisor

cc:

Jamie LeFevre, Army Corps of Engineers, Sacramento, California

