# INITIAL STUDY AND MITIGATED NEGATIVE DECLARATION FOR THE LOWER MOKELUMNE RIVER SPAWNING AND REARING HABITAT IMPROVEMENT PROJECT

*Prepared by:*

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August 2014

**NOTICE OF INTENT TO ADOPT A MITIGATED NEGATIVE DECLARATION**
**for the**
**Lower Mokelumne River Spawning and Rearing Habitat Improvement Project**

**PROJECT TITLE:** Lower Mokelumne River Spawning and Rearing Habitat Improvement Project

**LEAD AGENCY:** East Bay Municipal Utility District

**PROJECT LOCATION:** The proposed project site is located northeast of Lodi near the town of Clements in San Joaquin County and would take place in a 1-mile section of the lower Mokelumne River below Camanche Dam and nearby sections of the Camanche Reservoir watershed land owned and operated by East Bay Municipal Utility District.

**PROJECT DESCRIPTION:** The proposed project is a habitat restoration project to support anadromous fish populations on the Lower Mokelumne River. The Mokelumne River is a tributary to the Sacramento-San Joaquin River Delta and supports five species of anadromous fish. Fall-run Chinook salmon and steelhead trout are the primary management focus in the river. Availability of spawning gravel in this section of the Mokelumne River has been determined to be deficient because historic gold and aggregate mining operations removed hundreds of thousands of tons of gravel annually, and upstream dams have reduced gravel transport to the area. Juvenile salmonid rearing habitat is also limiting in the Mokelumne River due to channel incision. This reach of the river is known to support fall-run Chinook salmon and steelhead spawning and rearing and contains substrate suitable for habitat improvement.

The project will place approximately 2,500 to 5,000 $yds^3$ of suitably sized salmonid spawning gravel annually for a 3-year period at two sites, and then provide annual supplementation of approximately 500 to 1,000 $yds^3$ thereafter, as part of a long term restoration program implemented since 2001. Additionally, rearing habitat would be improved by the creation of small (<1 acre) floodplains that will seasonally inundate in the East Bay Municipal Utility District's Mokelumne River Day Use Area. Gravel would be sourced from either 1) local quarries, 2) quarries in neighboring watersheds, or 3) existing cobble piles on East Bay Municipal Utility District Property in the Camanche Reservoir watershed, based on availability and permitting.

**ENVIRONMENTAL ASSESSMENT:** Pursuant to the requirements of the California Environmental Quality Act, an Initial Study has been prepared for the project. Potentially significant environmental impacts have been identified for air quality, biology, cultural resources, greenhouse gas emissions, hydrology and water quality, and noise. The Initial Study identifies numerous measures to mitigate these potential impacts to less than significant levels. EBMUD, acting as lead agency for the project, has determined that a Mitigated Negative Declaration is appropriate for the Lower Mokelumne River Spawning and Rearing Habitat Improvement Project.

**PUBLIC COMMENTS/REVIEW:** The Mitigated Negative Declaration and Initial Study are available for review at:

- East Bay Municipal Utility District, 1 Winemasters Way, Suite K, Lodi, CA 95240. Copies of this document may also be obtained by calling Terry Cummings at (209) 365-1491.
- East Bay Municipal Utility District website www.ebmud.com.

The Mitigated Negative Declaration and Initial Study are available for public review and comment for 30 days from June 24, 2014 through July 24, 2014. Written comments must be received no later than the close of business, 4:30 p.m. on July 24, 2014.

It is anticipated that the EBMUD Board of Directors will consider adoption of the proposed Mitigated Negative Declaration on August 12, 2014 at 1:00 pm. in the Board Room, at 375 11th Street, Oakland, CA 94607. Members of the community are welcomed to attend this public meeting to address the Board.

Please address comments to:

Michelle Workman
Supervising Fisheries & Wildlife Biologist
East Bay Municipal Utility District
1 Winemasters Way, Suite K
Lodi, CA 95240
209-365-1467

Dated: 6/19/14

Richard G. Sykes
Director of Water and Natural Resources

**DETERMINATION:** ***(Mitigated Negative Declaration)***

On the basis of the attached Initial Study:

☐ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

☒ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

☐ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

☐ I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

☐ I find that although the proposed project could have a significant effect on the environment because all potentially significant effects (a) have been analyzed adequately in an earlier EIR pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Richard G. Sykes
Director of Water and Natural Resources

Date 6/19/14

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This document should be cited as:

East Bay Municipal Utility District. 2014. Initial study and mitigated negative declaration for the Mokelumne River spawning and rearing habitat improvement project. August 2014. East Bay Municipal Utility District, 1 Winemasters Way, Suite K, Lodi, CA. 95240.

# Chapter 1. Introduction

This Initial Study (Study) has been prepared to identify and assess the anticipated environmental impacts of the East Bay Municipal Utility District's (EBMUD) proposed Lower Mokelumne River Spawning and Rearing Habitat Improvement Project. The lower Mokelumne River is a tributary to the Sacramento-San Joaquin Delta in the Central Valley of California (Figure 1). The project site is a 1-mile stretch of the lower Mokelumne River below Camanche Dam and an approximate 3acre site within the Camanche Reservoir watershed for gravel sourcing (Figure 2). The purpose of this Initial Study is to address specific impacts that may result from implementing the proposed project. This document relies on various site-specific studies and published reports that address in detail the effects or impacts associated with the project.

## ENVIRONMENTAL COMPLIANCE

This Initial Study has been prepared to assess the impacts of the proposed project as required by the California Environmental Quality Act (CEQA) and the State CEQA Guidelines (Public Resource Code Sections 21000-21177). EBMUD is the lead agency under CEQA for the proposed project.

An Initial Study is an informational document used in the local planning and decision-making process. The Initial Study is not intended to recommend approval or denial of the project.

EBMUD has prepared this Initial Study to determine whether the project would have a significant effect on the environment. The purposes of the Initial Study are to:

- provide the lead agency with information to use in deciding whether to prepare an environmental impact report (EIR) or a negative declaration;
- enable the lead agency to modify the project to mitigate adverse impacts before an EIR is prepared, thereby enabling the project to qualify for a negative declaration; and
- document the factual basis for the finding, in a negative declaration, that a project will not have a significant effect on the environment.

As lead agency, EBMUD is required to circulate a negative declaration for public review before adopting it. This document is being circulated for a 30-day review period. EBMUD intends to adopt a mitigated negative declaration for this project. Before adopting the project, EBMUD must consider the proposed mitigated negative declaration along with any comments received during the public review process. If EBMUD finds, on the basis of the Study and any comments received, that the Study adequately addresses the environmental issues associated with the project and that no substantial evidence indicates that the project would have a significant effect on the environment, the

mitigated negative declaration will be adopted. Adoption of the proposed mitigated negative declaration would not require implementation of the project.

### Mitigation Monitoring Program

A mitigation monitoring program (MMP) will be required for all the mitigation measures adopted by EBMUD as conditions of the project.

## FORMAT OF THE INITIAL STUDY

In addition to this introductory chapter, this Initial Study contains the following chapters:

- Chapter 2, "Project Description", contains a detailed description of the project location, objectives, and characteristics.
- Chapter 3, "Environmental Checklist Form and Explanations", contains an evaluation of the environmental setting and impacts of the project using the initial study checklist format.
- Chapter 4, "Citations", lists the documents and individuals consulted during preparation of this document.

# Chapter 2. Project Description

## PROJECT LOCATION

The proposed project occurs in the Camanche Reservoir watershed and a section of the lower Mokelumne River located northeast of Lodi in San Joaquin County (Figure 1). The Mokelumne River is a tributary to the Sacramento-San Joaquin River Delta (Delta) and supports five species of anadromous fish, including two non-natives: Striped bass (*Morone saxatillis*), and American Shad (*Alosa sapidissima*) and three natives species: Pacific Lamprey (*Entosphenus tridentatus*), Fall-run Chinook salmon *(Oncorhynchus tshawytscha),* steelhead trout *(Oncorhynchus mykiss).* Fall-run Chinook salmon and steelhead are the primary management focus in the river because of the salmon's value as a sport and commercial fishery and the listing of the steelhead by the National Marine Fisheries Service as threatened. California Department of Fish and Game (CDFG) (now California Department of Fish and Wildlife-CDFW) has determined that the stretch of river between Camanche Dam and the confluence with the Delta is of considerable importance for maintenance and restoration of Chinook salmon and steelhead (CDFG 1991).

Availability of spawning gravel in this section of the Mokelumne River has been determined to be deficient because historic gold and aggregate mining operations removed hundreds of thousands of tons of gravel annually and upstream dams have reduced gravel transport to the area. Gravel restoration areas have been identified on a 1-mile reach of the Mokelumne River immediately downstream of Camanche Dam (Figure 2). This area was chosen because it is known to have supported fall-run Chinook salmon and steelhead spawning in the past and because the substrate is suitable for habitat improvement.

Juvenile rearing habitat is limiting in the lower Mokelumne River. Channelization due to years of regulated river flows have incised the channel bed and disconnected floodplain habitats. Floodplain rearing has been shown to improve growth rates for juvenile salmonids, and larger outmigrating juvenile salmonids are better able to avoid predation risk (Sommer et al 2001). Increasing the channel slope, and grading the available floodplain habitats within the project location will improve floodplain inundation capabilities within the current flow regime.

## PROJECT OBJECTIVES

The spawning habitat objectives of the proposed project are to provide additional salmonid spawning gravel, improve intergravel water quality (i.e., the conditions between gravel particles that are conducive to spawning success), and increase bedslope thereby increasing floodplain connectivity and providing the energy needed to sustain river rehabilitation in the first 1 mile below Camanche Dam.

The proposed spawning gravel replenishment and rehabilitation activities increase available and usable spawning areas by providing spawning gravels within the appropriate size range; increase use

of spawning habitat; improve gravel permeability and intergravel water quality; decrease redd superimposition (Merz 1998); and, ultimately, increase the natural production of fall-run salmon and steelhead trout in the Mokelumne River. Increased gravel substrate will also increase production of aquatic invertebrates (Ochikubo Chan 2003), the food base for juvenile salmonids.

The rearing habitat objectives of the proposed project are to incorporate juvenile salmonid rearing habitat with the long-term spawning habitat rehabilitation that has occurred on the Mokelumne River since 1990, improve juvenile survival by providing habitat that promotes primary production and macroinvertebrate production for food, provides shallow water habitat for protection from predation, and encourages freshwater rearing to a larger size ultimately, increasing the survival of juvenile fall-run salmon and steelhead trout in the Mokelumne River. Rearing habitat will be designed to inundate under current flow regimes on the lower Mokelumne River to maximize effectiveness.

The project is a collaborative effort by EBMUD, USFWS, and CDFW. Project activities coincide with recommendations in DFG's Central Valley Stream Restoration Plan (1993), USFWS's Draft Anadromous Fish Restoration Program Plan (1997), and the CALFED Ecosystem Restoration Program Plan (2000) that spawning gravel be replenished along the lower Mokelumne River to maintain good-quality spawning areas and replace gravel that was removed or is transported downstream and enhancement of rearing habitat for juvenile salmonids.

## PROJECT BACKGROUND

The Mokelumne River system and its associated habitats have been affected by human activities for more than a century, beginning with extensive gold mining in the 1850s. Since that time, riparian and instream habitats have been modified or converted for uses such as agriculture, gravel mining, water impoundments, increased water diversions, decreased instream flows, and levees. These major actions and other events have led to the deterioration of riparian and aquatic habitat conditions on the lower Mokelumne River. In spite of habitat modifications, viable Chinook salmonid populations are still present in the lower reaches of the Mokelumne River below Camanche Reservoir.

Habitat deficiencies in the Mokelumne River include suitable gravel for salmonid reproduction, and inundated floodplain habitat for juvenile rearing. Downstream of Camanche Dam, the river's floodplain and channel were extensively mined to produce sand and gravel for construction aggregate. Reduction in flows and associated reduction in sediment transport in the lower Mokelumne River have modified the river's geomorphological and hydrological processes. Eliminating the natural processes has resulted in very limited gravel recruitment and immobility or compaction of the gravel that remains available for salmonid spawning, and reduced floodplain connectivity by increased channel incision over time. This project is intended to restore the salmonid spawning and rearing habitat lost as a result of mining and modification of geomorphological processes.

## Previous Habitat Improvement Efforts

In 1990, East Bay Municipal Utility District (EBMUD) initiated an experimental spawning gravel project by placing about 500 cubic yards ($yds^3$) of suitable sized gravel in the lower Mokelumne River just below the fish barrier fence below Camanche Dam. The objective was to enhance existing spawning areas as a means of increasing reproductive success of anadromous fishes. The project was continued in 1992, with about 300 $yds^3$ of gravel placed in the river in the vicinity of Murphy Creek. The project has been continued over subsequent years in cooperation with the California Department of Parks and Recreation, the California Department of Fish and Wildlife and the U.S. Fish and Wildlife Service. The projects have typically consisted of placing washed river gravel (1-4 inch diameter) in known spawning areas.

In the fall of 1993, 500 $yds^3$ of gravel were placed at the Mokelumne River Day Use Area (MRDUA) River Mile (RM) 63-64. The following year, the substrate was mechanically ripped to release trapped fine sediment accumulation and another 100 $yds^3$ of gravel were placed at the MRDUA. In the fall of 1996, EBMUD placed over 650 $yds^3$ of washed river gravel at three sites (two locations at the MRDUA and one near Mackville Road (RM 59)). In 1997, 1,500 $yds^3$ of gravel (1-8 inches in diameter) were placed at three sites (the MRDUA, near Mackville Road, and about 1 mile below Mackville Road). In 1998, 1,200 $yds^3$ were placed at two sites (below Mackville Road and at the MRDUA). In 1999, approximately 3,200 $yds^3$ were placed at two sites in the MRDUA. In 2000, approximately 1,200 $yds^3$ were placed at one site in the MRDUA. In the years 2001 (MRDUA), 2002 (Approximately 1 mile downstream of Camanche Dam) and 2003 (MRDUA) approximately 1,800, 2,100 and 2,300 $yds^3$ of gravel was placed in the areas noted. Data collected by EBMUD since 1996 show that the projects increase intergravel permeability, dissolved oxygen (DO) content, and reduce intergravel water temperatures in most situations (Merz 1998). Benthic macroinvertebrates began colonizing new gravel within three days and their numbers equaled or surpassed population densities at unenhanced areas within ten weeks after gravel placement (Ochikubo Chan 2003). Adult fall-run Chinook salmon also use new gravel for spawning within three months of gravel placement.

In 2001, EBMUD and the University of California Davis collaborated on designing and implementing spawning gravel rehabilitation on the lower Mokelumne River. Gravel placements were designed and monitored using the Spawning Habitat Integrated Rehabilitation Approach (SHIRA) (Wheaton et al. 2004a, 2004b), which uses the status of salmonid spawning physical habitat conditions as an indicator of ecosystem health. This work culminated in a three-phase rehabilitation plan for the 0.55 mile river section immediately downstream of Camanche Dam. Implementation began in 2001, and Phases 1 and 2 were completed by 2012 with the addition of 23,000 $yds^3$ of gravel. The modeling and design work completed by U.C. Davis for the 2011 and 2012 project sites revealed that there was enough available slope to extend rehabilitation an additional 0.3 river miles, through the Mokelumne River Day Use Area. Phase 3 will require annual supplementation of approximately 500 – 1,000 $yds^3$ of gravel to replace annual volume loss.

## Previous Environmental Documents

Salmon spawning gravel improvements and juvenile rearing habitat enhancement for the lower Mokelumne River have been identified as priority actions in USFWS's Anadromous Fish Restoration Program Plan (U.S. Fish and Wildlife Service 1997) and several DFG publications and plans (California Department of Fish and Game 1991, 1993a, 1993b) as part of the effort to improve spawning and rearing habitat for fall-run Chinook salmon and steelhead trout in the Mokelumne River. In addition, the following environmental documents have addressed the issues being considered in this initial study.

- **Central Valley Project Improvement Act and Anadromous Fish Restoration Program Plan** - In Section 3406(b)(1) of the Central Valley Project Improvement Act (CVPIA), the Secretary of the Interior is required to develop and implement a program that makes all reasonable efforts to double natural production of anadromous fish in Central Valley rivers and streams by 2002. In response to this directive, USFWS prepared a draft plan for the Anadromous Fish Restoration Program (AFRP) and identified anadromous fish habitat deficiencies in each tributary within the Central Valley. The Mokelumne River system was included in the AFRP evaluation, which documents the degraded aquatic habitat conditions.

  The AFRP and the CVPIA Restoration Fund provide funding for habitat improvement actions. The AFRP effort includes a process to collaborate with other agencies, organizations, and the public by augmenting and assisting restoration efforts presently conducted or proposed by local watershed workgroups, DFG, and others to increase natural production of anadromous fish in the Central Valley.

- **Federal Energy Regulatory Commission(FERC) 1993 FEIS** – FERC's 1993 Final Environmental Impact Statement, Proposed Modifications to the Lower Mokelumne River Project (California FERC Project No. 2916-004), which is herein incorporated by reference, evaluated instream flows and habitat conditions on the lower Mokelumne River. The FEIS was prepared in conjunction with license modification proceedings that investigated proposed actions that would require modifications of hydropower facilities and/or operations of the Lower Mokelumne River Project for the specific purpose of conserving anadromous fish. FERC staff examined, and reported, an array of potential flow-related and non-flow-related mitigation actions that could be implemented to improve anadromous fish habitat conditions and contribute to protecting and enhancing fish and wildlife resources in and along the river. Non-flow actions that were evaluated included habitat enhancement measures intended to benefit the natural reproductive cycle of Chinook salmon and steelhead trout in the lower river, including spawning gravel rehabilitation.

- **Lower Mokelumne River Joint Settlement Agreement** - In the Lower Mokelumne River Joint Settlement Agreement (Settlement Agreement), dated March 23, 1998,

EBMUD, DFG, and USFWS agreed that flow and non-flow measures, including improving spawning gravels, would provide reasonable protection and enhancement above current conditions for the anadromous fishery and other resources of the lower Mokelumne River ecosystem. The Settlement Agreement recognizes that the flow and non-flow measures included constitute a reasonable contribution on the part of EBMUD toward the restoration goals for the lower Mokelumne River set forth in the California Salmon, Steelhead Trout, and Anadromous Fisheries Program Act and the CVPIA.

- **Initial Study and Mitigated Negative Declaration for the Mokelumne River Spawning Habitat Improvement Project -** East Bay Municipal Utility District completed a mitigated negative declaration in July 1998 for the placement of spawning gravel in the lower Mokelumne River at six sites. Gravel placement continued over a subsequent six-year period (1998-2003) commensurate with the permits issued by the California Department of Fish and Game, California Regional Water Quality Control Board and the U.S. Army Corps of Engineers.

- **Initial Study and Mitigated Negative Declaration for the Mokelumne River Spawning Habitat Improvement Project -** East Bay Municipal Utility District completed a mitigated negative declaration in July 2003 for the continued placement of spawning gravel in the lower Mokelumne River at six sites. Gravel placement continued over a subsequent six-year period (2003-2008) commensurate with the permits issued by the California Department of Fish and Game, California Regional Water Quality Control Board and the U.S. Army Corps of Engineers.

- **Initial Study and Mitigated Negative Declaration for the Mokelumne River Spawning Habitat Improvement Project -** East Bay Municipal Utility District completed a mitigated negative declaration in December of 2008 for the continued placement of spawning gravel in the lower Mokelumne River at two sites. Gravel placement and reach maintenance continued over a subsequent five-year period (2009-2012), commensurate with the permits issued by the California Department of Fish and Game, California Regional Water Quality Control Board and the U.S. Army Corps of Engineers.

Spawning gravel restoration is recommended in the AFRP plan, the FERC FEIS, and the Settlement Agreement. The FERC FEIS evaluated potential effects of spawning gravel restoration actions and included general analyses of the effects on the river and fisheries. The FERC FEIS acknowledges that the beneficial effects of individual actions may not result in initially significant improvements but proposes that, when combined with other recommended actions for the river system, these actions could be substantially beneficial to anadromous fish. The success of the spawning habitat enhancement project was noted in the JSA 10 year review and it was recommended that the project be continued (JSA Partnership Committee 2008).

## Site Selection

Previous habitat improvement efforts have resulted in spawning gravel rehabilitation on approximately the first 0.6 miles of the Mokelumne River below Camanche Dam. For the gravel restoration, the remaining 0.4 miles of the 1-mile reach of the lower Mokelumne River below Camanche Dam is the focus of this restoration project, and annual supplementation may occur though the entire reach. As shown on Figure 2, one site has been identified for the floodplain restoration aspect of the project, and additional stippled areas on Figure 2 highlight additional opportunities for floodplain creation in the vicinity of the project Within these areas, specific site selection will be made by representatives of EBMUD, CDFW, and USFWS based on SHIRA design criteria for spawning and floodplain rearing. All portions of these sites are accessible from EBMUD property.

## Gravel Sources

Gravel for restoration purposes will come from a number of sources, depending on availability, pricing, and permitting and may vary annually between and among the sites listed below (Table 1). Specified sources that have been used in the past and will be used as part of this project include in-basin gravel quarries: George Reed, Inc in Clements and Knife River, Inc. in Lodi; gravel quarries in neighboring basins including Teichert Aggregates and Granite Construction in Sacramento, and 711 Materials, Inc. in Oakdale Ca. Each of these quarries has limited volumes of appropriate size spawning gravel for Chinook salmon, although spawning gravel for steelhead may still be available. To compensate for the limited gravel availability at these quarries, existing cobble piles on the Camanche Reservoir watershed are a good option for appropriate sized material that can be acquired with low transportation costs. One approximate 3 acre site on Camanche Reservoir watershed property has been identified for use of extant cobble piles that may be remnant from the construction of Camanche Reservoir or from aggregate mining (Figure 2). The chosen source of gravel, from the options listed above, in any one year will be dependent on supply, cost, and accessibility to appropriate permits to support the source.

**Table 1**. Description of potentail spawning gravel sources and their proximity to the restoration site at the Mokelumne River Day Use Area.

| Vendor | Type | Location | Distance to Mokelumne River Day Use Area (mi.) |
|---|---|---|---|
| Decorative Rock Network, Inc. | Gravel supply distributor | Wallace, CA | 5.5 |
| George Reed, Inc. | In-basin floodplain quarry | Clements, CA | 6.9 |
| Camanche Cobble Piles | In-basin floodplain tailings | Wallace, CA | 8.0 |
| Knife River Corporation | In-basin floodplain quarry | Lodi, CA | 10.3 |
| 711 Materials, Inc. | Out-of-basin floodplain quarry | Jenny Lind, CA | 19.1 |
| Teichert Aggregates | Out-of-basin floodplain quarry | Sacramento, CA | 42.9 |
| Granite Construction | Out-of-basin floodplain quarry | Sacramento, CA | 44.8 |
| 711 Materials, Inc. | Out-of-basin floodplain quarry | Waterford, CA | 59.2 |

## DESCRIPTION OF THE PROPOSED PROJECT

### Existing Conditions

Three native anadromous fish species (fall-run Chinook salmon, steelhead trout, and Pacific lamprey) are present in the 1-mile reach of the lower Mokelumne River that is the focus of this restoration project. Chinook salmon and steelhead are the primary focus of management efforts.

Fall-run Chinook salmon in the Mokelumne River typically emigrate to the ocean in the spring of their first year and spend 2-4 years in the ocean before returning to their natal stream to spawn. Most anadromous forms of steelhead first spawn after spending 2 to 3 years in freshwater and then 1 to 2 years in the ocean, although small males that have spent only one year in freshwater and one year at sea occur regularly in some streams. Both resident and anadromous forms may be produced in the same nest and anadromous forms are known to spawn with residents. Prior to the completion of Camanche Dam (1964), Chinook salmon and steelhead spawned primarily between Clements and the canyon approximately 3 miles below Pardee Dam. Most of the spawning now takes place between Camanche Dam and Elliott Road. The average salmon run for the 19-year period before Camanche Reservoir was impounded was 3,300 adults. For the 50-year period since the dam was completed, Chinook salmon runs averaged 4,698 adults.

### Project Characteristics

The proposed project would take place in the 1-mile reach of the river below Camanche Dam. Over the first 3-year period of the project, approximately 7,500-15,000 $yds^3$ of gravel would be added to the remaining 0.4 miles of the 1-mile reach (Figure 2). Thereafter, annual supplementation of up to approximately 1,000 $yds^3$ would occur within the 1-mile reach downstream of Camanche dam in the areas identified as needing spawning gravel restoration.

Additionally, rearing habitat would be improved by recontouring streambank habitat along EBMUD's Mokelumne River Day Use Area (MRDUA) to create seasonal floodplain habitat for juvenile salmonid rearing.

The potential exists to use cobble piles as a source of gravel and fines for spawning habitat and rearing habitat. If existing cobble piles were used, material would be sorted on site, then transported via county and state roadways to the restoration site on the lower Mokelumne River.

Project activities are described in more detail below.

## Construction Activities

*Spawning Habitat Restoration*

The proposed project consists of the annual placement, for the first three years, of approximately 2,500 to 5,000 $yds^3$ of gravel (1,500-3,000 $yds^3$ of gravel 0.5-4 inches in diameter with a mean of 3 inches, 1,000-2,000 $yds^3$ of gravel 0.25-2.5 inches in diameter with a mean of 2 inches,) in configurations designed by the Spawning Habitat Integrated Rehabilitation Approach (SHIRA) developed by the University of California, Davis, at each site. After completion of the first three year volume (7,500 – 15,000 $yds^3$), annual maintenance gravel inputs of 500-1,000 $yds^3$ of the same sized gravel for the remaining permitted years, or 2019, whichever comes first. SHIRA incorporates a 2-d hydraulic model with a sediment mobility index and a habitat suitability model. The outcome is a specific design to enhance spawning habitat based on the hydraulic and sediment conditions at each site and the quantity of gravel placed.

In past years, the gravel for the enhancement project was taken from an open, gravel quarry on the Mokelumne River floodplain which provided a source of pre-washed, smooth, uncrushed river rock. The supply of appropriate size gravel is no longer available at this site, and alternative sources have been investigated. For gravel placements under this Initial Study, three general sources of material will be used based on annual supply, and approved permitting. These sources include 1) in basin gravel from exiting quarry operations if supplies are available (George Reed, Inc., Knife River Inc., , 2) out of basin existing quarries in Sacramento or Oakdale (Teichert Aggregate, Granite Construction, and 711 Materials), or 3) one patch of remnant cobble piles from within East Bay Municipal Utility District property boundaries, located on an approximate 3 acre area in the watershed that may be remaining from the creation of Camanche Reservoir and Dam, or from aggregate mining operations. The out-of-basin quarries listed in Table 1 are the next closest quarries to the restoration site, outside of in basin quarries, and were selected to keep transport time, distance, and cost low. The preferred option is to use in-basin supplies when available.

All gravel for placement will be transported in steam-cleaned tractor-trailer transfer trucks or superdumps (with a capacity of 20-22 $yds^3$), and stockpiled onsite. Stockpile locations will be a minimum of 50 feet from the streambank, on disturbed annual grassland within the Mokelumne River Day Use Area. Gravel will be deposited instream at locations with sparse riparian vegetation. No riparian vegetation will need to be removed to provide river access. Material will be manipulated by a rubber-tired front-end loader, fueled with non-petroleum based fuel products. Fueling and equipment maintenance will occur in designated staging areas only. Vegetable oil products will be used to supply equipment hydraulics systems. This equipment and material will travel to the spawning replenishment sites on public or private roads and easement areas (existing roads), depending on the location of the site. If extant cobble piles are used as source material, a temporary, transportable gravel sorter will be established in the project site where cobbles will be processed and sorted. This processing plant, associated equipment, and temporary gravel stockpiles will have an approximate footprint of 200 ft x 200 ft (61 m X 61 m), and will all be removed following restoration work. Smooth, uncrushed river rock of the appropriate size will be transported (i.e., by steam-cleaned tractor-trailer transfer trucks with a capacity of 7 – 20 tons) and staged onsite.

Instream gravel placement work will be accomplished during late-summer, low-flow periods (when flows are approximately 300 cubic feet per second [cfs]), and non-resident salmonids are at their lowest abundances in the river, to minimize effects on anadromous fish. Placement of gravel for each year will require approximately 2 weeks, with instream construction work requiring 5-7 days. Gravel placement for both initial placement, and supplementation, will take place from August 15 through September 30 annually.

The project proponent will comply with Section 401 of the Clean Water Act and obtain certification that project-related activities will maintain water quality (i.e., control sediment) at and downstream of the project site. The project will also follow guidelines required in Lake and Streambed Alteration Permits (CDFW) and Section 404 permits (ACOE) issued for the project. To minimize risks of increasing turbidity and adding fine sediment to the water, the sorted gravel will be washed at the quarry site before being loaded into steam-cleaned tractor-trailer transfer trucks for delivery to the enhancement sites. Additionally, instream gravel placement work will be accomplished during summer low-flow periods (approximately 300 cfs), and sediment that would be disturbed by the rubber tires and gravel ripping actions is expected to settle quickly out of the water column. Streambank disturbance will be minimized to small areas of low bank at each site. Once work at individual sites is completed, the riverbank will be restored, if necessary, by sloping the bank and adding suitable quantities of appropriate-sized gravel to prevent bank sloughing and introduction of fine sediment in the river. Once every four hours during construction operations, water quality monitoring for turbidity and settleable solids will be performed using procedures in accordance with Standard Methods 17th edition (American Public Health Association). EBMUD will perform surface water sampling when performing any in-water work, in the event that project activities result in any materials reaching surface waters, or when any activities result in the creation of a visible plume in surface waters. Limits during in-water working periods shall not exceed a turbidity increase of 15 NTU over background turbidity. At no point shall turbidity be allowed to exceed 20 NTU. Activities shall not cause settleable matter to exceed 0.1 ml/l in surface waters as measured in surface waters 300 feet downstream from the project. Monitoring shall be conducted 100 feet upstream from the project area (out of the influence of the project) and 300 feet downstream of the active work area. Sampling results will be submitted to the CARWQCB within 2 weeks of initiation of sampling and every 2 weeks thereafter. See Mitigation Measure IX-I, p. 3-35 below.

*Floodplain Restoration*

The floodplain will be graded and material will be sorted on site, and will be screened to appropriate size classes (¼ to 5 in [0.6 to 12.7 cm] of round river rock; AFRP specifications) and incorporated into the spawning habitat portion of the project, or used to fill captured mine pit habitat in developing the floodplain features. Larger cobbles will be used as base material for gravel placement or filling of deep areas, and fines will be redistributed on the floodplain to encourage riparian species recruitment. Additional unused material will be used to recontour the landscape adjacent to the created floodplain habitat. All graded areas and disturbed adjacent areas will be revegetated with native grasses and appropriate riparian plantings post construction.

All construction activity would be accomplished during late-summer, low-flow periods, when flows are approximately 300 cfs and when anadromous salmonids in the area are at minimum levels to minimize effects on anadromous fish.

## RESPONSIBLE AGENCIES AND REQUIRED PERMITS AND APPROVALS

The following agencies are responsible for obtaining permits and approvals for the proposed project:

- EBMUD is responsible for preparing this Study/Negative Declaration.
- EBMUD will obtain the following:
    - Section 1600 streambed alteration agreement (California Department of Fish and Wildlife)
    - California Endangered Species Act Section 2081 and 2090 consultation (California Department of Fish and Wildlife)
    - Section 401 Clean Water Act certification from the Central Valley Region of the California Regional Water Quality Board
    - Section 404 Clean Water Act authorization (from the U.S. Army Corps of Engineers) under Nationwide Permit Number 27
    - Endangered Species Act Section 7 consultation (with NMFS)
    - Central Valley Flood Protection Board permit(s) (if required)
    - Coverage under General Permit for Storm Water Discharges Associated with Construction Activities, Construction General Permit Order No. 2009-009-DWQ, State Water Resources Control Board
- USFWS will coordinate the following:
    - compliance with the National Environmental Policy Act
    - compliance with Section 106 of the National Historic Preservation Act

- compliance with the Fish and Wildlife Coordination Act
- Endangered Species Act Section 7 consultation (Intra-Service)

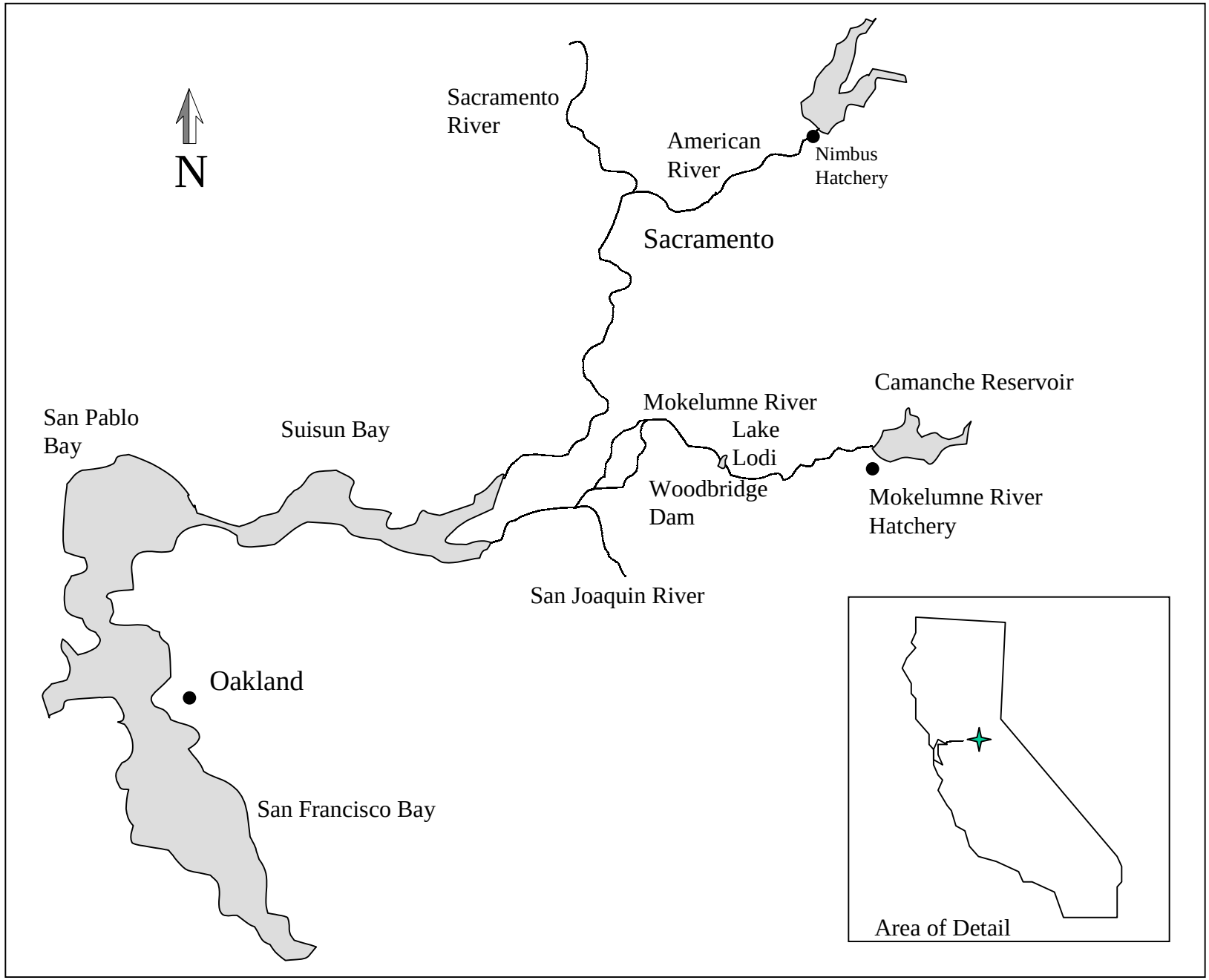
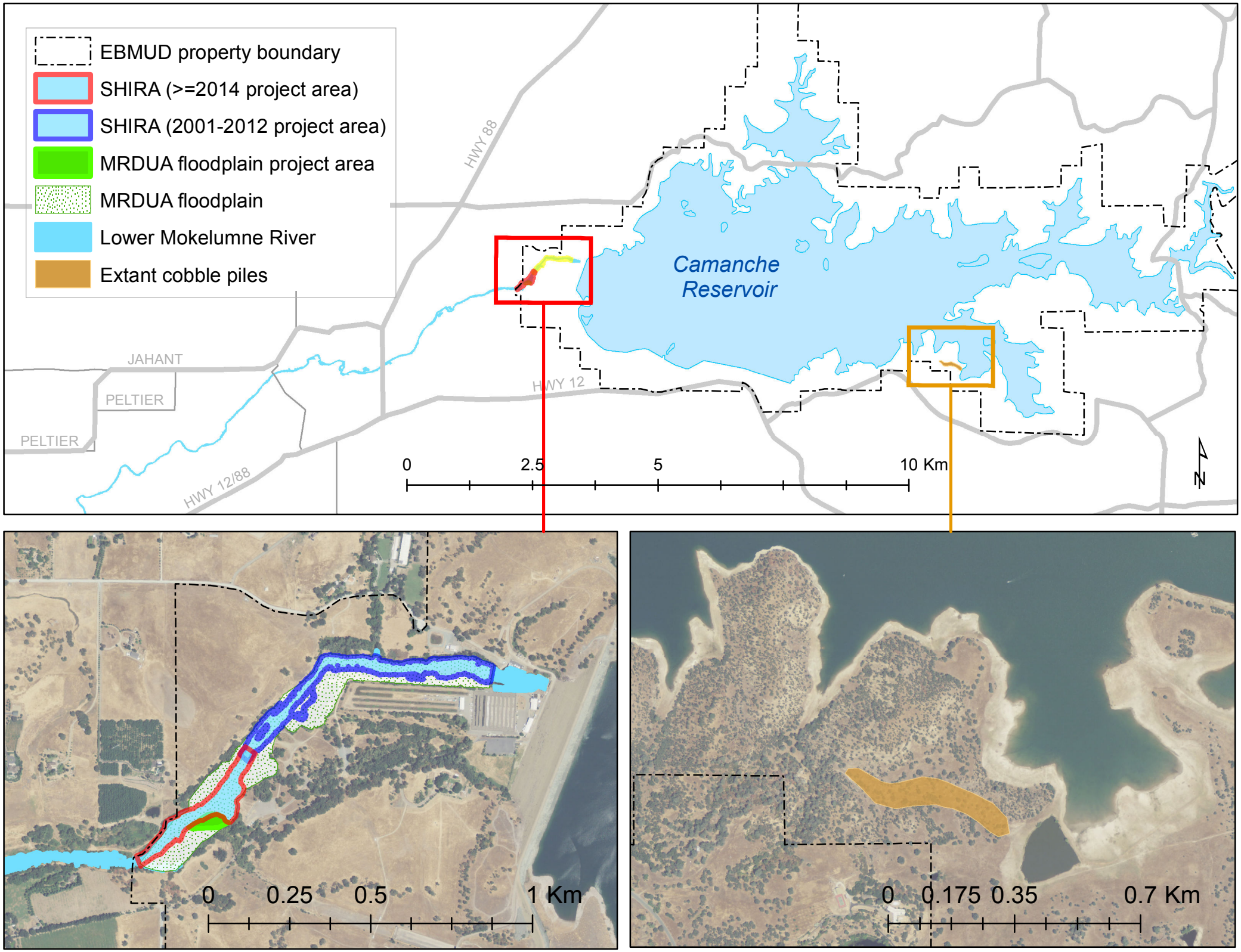



Figure 1. The lower Mokelumne and American rivers and associated Sacramento San Juaquin deltas.


EBMUD property boundary
SHIRA (>=2014 project area)
SHIRA (2001-2012 project area)
MRDUA floodplain project area
MRDUA floodplain
Lower Mokelumne River
Extant cobble piles
HWY 88
Camanche Reservoir
JAHANT
PELTIER
PELTIER
HWY 12
HWY 12/88
0
2.5
5
10 Km
N
0
0.25
0.5
1 Km
0
0.175
0.35
0.7 Km

# Chapter 3. Environmental Checklist Form and Explanations

## INTRODUCTION

This section discusses potential environmental impacts associated with approval, construction, operation, and maintenance of the proposed project.

The following guidance, adapted from Appendix G of the State CEQA Guidelines (October 26, 1998), was followed in answering the checklist questions:

1. *A brief explanation is required for all answers except "No Impact" answers that are adequately supported by the information sources a lead agency cites in the parentheses following each question. A "No Impact" answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g., the project falls outside a fault rupture zone). A "No Impact" answer should be explained where it is based on project-specific factors as well as general standards (e.g., the project will not expose sensitive receptors to pollutants, based on a project-specific screening analysis).*

2. *All answers must take account of the whole action involved, including off-site as well as on-site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.*

3. *"Potentially Significant Impact" is appropriate if there is substantial evidence that an effect may be significant. If there are one or more "Potentially Significant Impact" entries when the determination is made, an EIR is required.*

4. *"Negative Declaration: Less Than Significant With Mitigation Incorporated" applies where the incorporation of mitigation measures has reduced an effect from "Potentially Significant Impact" to a "Less Significant Impact." The lead agency must describe the mitigation measures, and briefly explain how they reduce the effect to a less than significant level (mitigation measures from Section XVII, "Earlier Analyses," may be cross-referenced).*

5. *Earlier analyses may be used where, pursuant to the tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR or negative declaration. Section 15063 (c) (3) (D). Earlier analyses are discussed in Section XVII at the end of the checklist.*

6. *Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g., general plans, zoning ordinances). Reference to a previously prepared or outside document should, where appropriate, include a reference to the page or pages where the statement is substantiated.*

7. *Supporting Information Sources: A source list should be attached, and other sources used or individuals contacted should be cited in the discussion.*

8. *This is only a suggested form, and lead agencies are free to use different ones.*

*9. The analysis of each issue should identify:*

*a) the significance criteria or threshold used to evaluate each question; and*
*b) the mitigation measure identified, if any, to reduce the impact to less than significance.*

# Environmental Checklist Form

| | | |
|---|---|---|
| **1.** | **Project Title:** | Initial Study and Mitigated Negative Declaration for the Mokelumne River Spawning and Rearing Habitat Improvement Project |
| **2.** | **Lead Agency Name and Address:** | East Bay Municipal Utility District<br>375 Eleventh Street<br>Oakland, CA 94623-1055 |
| **3.** | **Contact Person and Phone Number:** | Michelle Workman<br>(209)365-1467 |
| **4.** | **Project Location:** | Mokelumne River Day Use Area in 1 mile reach downstream of Camanche Dam |
| **5.** | **Project Sponsor's Name and Address:** | East Bay Municipal Utility District<br>375 Eleventh Street<br>Oakland, CA 94623-1055 |
| **6.** | **General Plan Designation:** | Open Space |
| **7.** | **Zoning** | OS |

**8. Description of Project:**

The proposed project would take place in the 1-mile reach of the river downstream of Camanche Dam. During the first three year period of the project, an approximate 1 acre area of floodplain habitat will be created and a total of approximately 7,500 – 15,000 $yds^3$ of gravel would be added to the remaining 0.4 miles of the 1-mile SHIRA reach. Afterwards, a total of approximately 500 – 1,000 $yds^3$ will be added annually the 1-mile reach to supplement existing spawning habitat. For additional detail, please see chapter 2, above.

**9. Surrounding Land Uses and Setting:**

Wildlife habitat, recreation area, agricultural operations, and mineral extraction.

**10. Other public agencies whose approval is required (e.g., permits, financing approval, or participation agreement)**

See "Permits and Approvals" in Chapter 2.

**ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED:**
The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact" as indicated by the checklist on the following pages.

| | | | | | |
|---|---|---|---|---|---|
| | Aesthetics | | Agriculture and Forest Resources | | Air Quality |
| | Biological Resources | | Cultural Resources | | Geology/Soils |
| | Greenhouse Gas Emissions | | Hazards/Hazardous Materials | | Hydrology/Water Quality |
| | Land Use/Planning | | Mineral Resources | | Noise |
| | Population/Housing | | Public Services | | Recreation |
| | Transportation/Traffic | | Utilities/Service Systems | | Mandatory Findings of Significance |

## ENVIRONMENTAL CHECKLIST AND ANSWERS

| **Issues** | | **Potentially Significant Impact** | **Less Than Significant With Mitigation Incorporated** | **Less Than Significant Impact** | **No Impact** |
|---|---|---|---|---|---|
| **I.** | **AESTHETICS –** Would the project: | | | | |
| a) | Have a substantial adverse effect on a scenic vista? | | | | **X** |
| b) | Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway? | | | | **X** |
| c) | Substantially degrade the existing visual character or quality of the site and its surroundings? | | | **X** | |
| d) | Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area? | | | | **X** |

**Discussion**

a) The proposed project would not affect a scenic vista as defined by the State of California.

b) The proposed project is not in the viewshed of a scenic highway as defined by the State of California

c) Temporary changes in visual resources would result from the transportation of gravel and use of equipment to place gravel instream in mainly rural, open space, and agricultural areas of

Calaveras and San Joaquin Counties. Under the proposed project, the transportation of gravel along private access roads and the placement of gravel in areas open to public recreation use have the potential to temporarily affect views from rural residences and public recreation areas. However, viewer exposure would be low to moderate depending on the location of viewers. Furthermore, because the impacts would be relatively short term and temporary, impacts on visual resources are considered less than significant. Further, the 3 acre area on EBMUD land proposed as a gravel source is not within the view of any roadway including any scenic highways identified in the Calaveras County General Plan. In addition, work would be temporary, and the amount of gravel removed would be small relative to the size of the gravel source site.

d) The proposed project would not create a new source of light or glare; therefore the project would not adversely affect day or nighttime views.

**Conclusion**

The proposed project would not have an adverse impact on aesthetic resources. Additionally, the Project is not in the viewshed of a scenic highway and will not create a new source of light or glare.

| Issues | | Potentially Significant Impact | Less Than Significant With Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|---|
| **II.** | **AGRICULTURAL AND FOREST RESOURCES –** Would the project: | | | | |
| a) | Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use? | | | | **X** |
| b) | Conflict with existing zoning for agricultural use, or a Williamson Act contract? | | | | **X** |
| c) | Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g)) | | | | **X** |
| d) | Result in the loss of forest land or conversion of forest land to non-forest use? | | | | **X** |
| e) | Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use? | | | | **X** |

## Discussion

a-e) The project does not involve land conversion, does not conflict with existing zoning for agricultural use or a Williamson Act contract. It is not in an area zoned as forest land as defined in Public Resource Code section 12220(g)) or timberland (as defined by Government Code section 51104 (g)). The project will not result in the loss of forest land or conversion of forest land to non-forest use, or involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use. Therefore, no impacts to agriculture or forest resources will occur.

## Conclusion

The proposed project would not have an adverse impact on agriculture or forest resources for the reasons stated above.

| Issues | | Potentially Significant Impact | Less Than Significant With Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|---|
| **III.** | **AIR QUALITY –** Would the project: | | | | |
| a) | Conflict with or obstruct implementation of the applicable air quality plan? | | **X** | | |
| b) | Violate any air quality standard or contribute substantially to an existing or projected air quality violation? | | **X** | | |
| c) | Result in a cumulatively considerable net increase of any criteria pollutant for which the region is non-attainment under any applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)? | | **X** | | |
| d) | Expose sensitive receptors to substantial pollutant concentrations? | | **X** | | |
| e) | Create objectionable odors affecting a substantial number of people? | | | | **X** |

**Discussion**

a-d) The proposed project is within the San Joaquin Valley Air Basin and the Mountain Counties Air Basin. The San Joaquin Valley Air Pollution Control District (SJVAPCD) is responsible for monitoring air quality in San Joaquin County, and the Calaveras County Air Pollution Control District (CCAPCD) is responsible for monitoring air quality in Calaveras County. Currently, San Joaquin County is designated as a nonattainment area for federal and state standards with regard to particulate matter less than 10 microns in diameter (PM10) and ozone. The remaining portions of the county, outside the Stockton urban area, are designated as an attainment area for both federal and state carbon monoxide (CO) standards. Calaveras County is designated as a nonattainment area for state standards for ozone and particulate matter less than 10 microns (PM10) and federal ozone standards. It is designated as unclassified for state standards for CO, and federal standards for PM10, and CO. The proposed project, without mitigation, could have significant construction-related impacts on air quality. Effects on air quality would include generation of dust and PM10 matter from the sorting, loading and transportation of material from source sites to enhancement sites; placement of gravel in the river; and, the operation of heavy equipment.

Sensitive land uses near access roads and construction sites (such as nearby residences and recreation areas) may be subject to short-term episodes of blowing dust and increased levels of PM10 from construction equipment. Construction-related emissions include CO, reactive organic gases, oxides of nitrogen, and PM10. These pollutants would be emitted in equipment exhaust over the course of project implementation and from trucks hauling material to the

various project sites. Although construction-related impacts would be temporary, construction activity has the potential to generate measurable amounts of pollutants, adding to regional ozone and PM10 levels that are already in violation of state and federal standards. The SJVAPCD considers the emission of any nonattainment pollutant to be a significant impact. This impact would be reduced to a less-than-significant level with implementation of the following mitigation measures.

The SJVAPCD has established criteria for determining local air basin impact significance. For the purpose of determining significance, the District's criteria for emissions from both nitrogen oxides (NOx) and/or reactive organic gases (ROG) is 10 tons per year. For PM-10 emissions, projects that comply with the Districts Regulation VIII are considered to have a less than significant impact. The purpose of Regulation VIII is to reduce the amount of fine particulate matter (PM-10) entrained into the ambient air from man-made sources. Project emissions that exceed the threshold limits set forth by the District are considered significant and require mitigation. Additionally, exposure of sensitive receptors to substantial pollutant concentrations will be considered a significant impact.

The Calaveras County "Guidelines for Assessing and Mitigating Air Quality Impacts of Land Use Projects" lists project-level thresholds of significance for ROG, NOx and PM-10 at 150-lbs/day. Projects exceeding these levels must mitigate impacts. For San Joaquin County, Projects that exceed the short-term construction threshold of 85 pounds per day of NOx must mitigate the air quality impact.

The project may cause temporary changes in air quality resulting from the transportation and soting of gravel, and the use of equipment to move gravel tailings and to place gravel instream. However, these activities will all occur in the mainly rural, open space, areas in San Joaquin and Calaveras Counties and changes in air quality will not be excessive. Under the proposed project, the processing, screening, and transportation of gravel along private access roads and the movement and placement of gravel in areas open to public recreation use [within the project site] have the potential to temporarily affect air quality, but these effects are not expected to exceed California air quality standards or persist past the short construction time window. Over the long term the project would contribute to improving air quality, as floodplain function, including native tree establishment and growth, are restored. Table 2 provides the calculations of air quality impacts for the proposed work. As Table 2 shows, the project's anticipated emissions are minimal and fall below all applicable emissions thresholds.

**Table 2**. Summary of modeled project-generated construction-related emissions for the Mokelumne River Day Use Area restoration site.

| Gravel Source | $No_x$ Emissions (lb/day) | $No_x$ Emissions (Tons/yr) | ROG Emissions (lb/day) | $PM_{10}$ Emissions (lb/day) |
|---|---|---|---|---|
| ***In-basin (Camanche cobble piles)*** | | | | |
| On-road Emissions - Gravel from cobble piles located along Camanche south shore (Wallace)[1] | 21.93 | 0.08 | 1.67 | 0.69 |
| Equipment Exhaust Emissions (3 front-end loaders, 1 gravel-sorter)[2] | 23.96 | 0.08 | 2.23 | 1.02 |
| Worker Commute Exhaust[1] | 0.47 | 0.00 | 0.08 | 0.02 |
| **Total** | **46.36** | **0.16** | **3.98** | **1.73** |
| | | | | |
| ***In-basin (Clements/Wallace/Lodi - CA)*** | | | | |
| On-road Emissions - Gravel from in-basin source located in Clements, Wallace, or Lodi[1] | 20.56 | 0.04 | 1.57 | 0.65 |
| Equipment Exhaust Emissions (2 front-end loaders)[2] | 14.86 | 0.04 | 1.15 | 0.39 |
| Worker Commute Exhaust[1] | 0.32 | 0.00 | 0.05 | 0.01 |
| **Total** | **35.74** | **0.08** | **2.77** | **1.05** |
| | | | | |
| ***Out-of-basin (Jenny Lind/Sacramento/Waterford - CA)*** | | | | |
| On-road Emissions - Gravel from out-of-basin source located in Jenny Lind, Sacramento or Waterford[1] | 49.08 | 0.17 | 3.74 | 1.55 |
| Equipment Exhaust Emissions (2 front-end loaders)[2] | 14.86 | 0.05 | 1.15 | 0.39 |
| Worker Commute Exhaust[1] | 0.32 | 0.00 | 0.05 | 0.01 |
| **Total** | **64.26** | **0.22** | **4.94** | **1.95** |
| | | | | |
| **SJVAPCD Air Quality Standard Thresholds** | **100.00** | **10.00** | **100.00** | **100.00** |
| **Calaveras County Thresholds of Significance (lb/day)** | **150.00** | | **150.00** | **150.00** |

[1] Calculations based on 2011 EMFAC Emissions Database accessed at http://www.arb.ca.gov/emfac/ on 6/4/2014. The total amount

[2] Calculations based on SMAQMD Construction Mitigation Calculator Outputs (Version 6.1 .1 updated by TIAX LLC for SMAQMD/SJVUAPCD, 12 January 2012). Two Caterpillar 966F or 950F rubber tire front-end loaders are used to place gravel at the restoration site. The largest size front-end loader was used as input for the model and annual construction activities would occur for 5-7 working days.

**Mitigation Measure III-1.** Implement the following dust reduction measures during sorting, loading and transportation of materials from source sites to project sites to reduce construction-related emissions:

- wet materials to limit visible dust emissions using water, or
- provide at least 6 inches of freeboard space from the top of the transport container, or
- cover the transport container.

**Mitigation Measure III-2.** Implement the following dust reduction measure during gravel placement to reduce construction-related emissions:

- Limit or promptly remove any accumulation of mud or dirt on construction equipment and vehicles at the end of each workday or once every 24 hours.
- Wet construction area during construction activities using a water-tender truck and trailer.

e) The proposed project will not create any objectionable odors.

**Conclusion**

The proposed project could result in significant air quality impacts during construction of the project. However, incorporation of the identified mitigation measures into the project will reduce the impact to a less-than-significant level.

| Issues | | Potentially Significant Impact | Less Than Significant With Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|---|
| **IV.** | **BIOLOGICAL RESOURCES –** Would the project: | | | | |
| a) | Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service? | | **X** | | |
| b) | Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service? | | | **X** | |
| c) | Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means? | | | **X** | |
| d) | Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites? | | | **X** | |
| e) | Conflict with any local policies or ordinances protecting biological resources, such as tree preservation policy or ordinance? | | | | **X** |
| f) | Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional or state habitat conservation plan? | | | | **X** |

## Discussion

a) The uplands adjacent to river sections that support spawning salmonids also support riparian habitat, annual grassland scattered with sparse areas of residual riparian and oak woodland habitats, and many orchards and vineyards. Based on location and habitat types, several species that have been listed by the California Department of Fish

and Wildlife and/or the U.S. Fish and Wildlife Service as threatened, endangered, or a species of concern may occur in the project vicinity (CDFW 2014a and 2014b), USFWS 2014. Table 1 lists the special status species that may occur in the proposed project area and may be affected by the construction and operation of the proposed project.

**Table 3**

**Special Status Species That May Occur In The Proposed Project Area**

| Species | USFWS | CDFG | CNPS | Habitat | Potential Occurrence |
|---|---|---|---|---|---|
| **Plants** | | | | | |
| **Henderson's bent grass** *Agrostis hendersonii* | — | — | 3.2 | valley grassland, freshwater wetlands, wetland-riparian | No vernal pools or wetland-riparian pools are known to exist within the project sites. |
| **Hoover's calycadenia** *Calycadenia hooveri* | — | — | 1B.3 | valley grassland, foothill woodland | Low potential to occur within the project site. |
| **Ione manzanita** *Arctostaphylos myrtifolia* | FT | — | 1B.2 | chaparral, foothill woodland | Soil type not present on project site |
| **legenere** *Legenere limosa* | — | — | 1B.1 | valley grassland, freshwater wetlands, wetland-riparian | No wetland-riparian pools are known to exist within the project sites. |
| **Parry's horkelia** *Horkelia parryi* | — | — | 1B.2 | chaparral, foothill woodland | Low potential to occur within the project site. |
| **Invertebrates** | | | | | |
| **vernal pool fairy shrimp** *Branchinecta lynchi* | FT | — | — | vernal pools | No vernal pools are known to exist within the project site. |
| **valley elderberry longhorn beetle** *Desmocerus californicus dimorphus* | FT | — | — | valley grassland, foothill woodland, chaparral, freshwater wetlands, wetland-riparian | Elderberry bushes are known to occur in the project area. |
| **vernal pool tadpole shrimp** *Lepidurus packardi* | FT | — | — | vernal pools | No vernal pools are known to exist within the project site. |
| **Fish** | | | | | |
| **Delta smelt** *Hypomesus transpacificus* | FT | CE | — | San Francisco Estuary; Sacramento-San Joaquin River Delta; Sacramento River | Low potential to occur within the project site. |
| **Central Valley steelhead** *Oncorhynchus mykiss* | FT | — | — | ocean; San Francisco Estuary; Sacramento-San Joaquin River Delta; Sacramento River; San Joaquin River | Known to occur within the restoration project area. |
| **Central Valley spring-run Chinook salmon** *Oncorhynchus tshawytscha* | FT | CT | — | Ocean; San Francisco Estuary; Sacramento-San Joaquin River Delta; Sacramento River | Known to occur within the restoration project area. |
| **Winter-run Chinook salmon** *Oncorhynchus tshawytscha* | FE | CE | — | ocean; San Francisco Estuary; Sacramento-San Joaquin River Delta; Sacramento River | Known to occur within the restoration project area. |

| | | | | | |
|---|---|---|---|---|---|
| **Amphibians** | | | | | |
| **California tiger salamander, central population** *Ambystoma californiense* | FT | CT | — | valley grassland, foothill woodland, freshwater wetlands, wetland-riparian | Potential habitat exists within the project site. |
| **California red-legged frog** *Rana aurora draytonii* | FT | SSC | — | valley grassland, foothill woodland, freshwater wetlands, wetland-riparian | Potential habitat exists within the project site. |
| **Foothill yellow-legged frog** *Rana boylii* | C | SSC | — | Rocky streams and rivers with open, sunny banks, in forests, chaparral, and woodlands. | Potential habitat exists within the project site. |
| **Western Spadefoot** *Spea hammondii* | — | SSC | — | grasslands, valley-foothill hardwood woodlands | Potential habitat exists within the project site. |
| **Reptiles** | | | | | |
| **Giant garter snake** *Thamnophis gigas* | FT | CT | — | freshwater wetlands, wetland-riparian | Low potential to occur within the project site. |
| **Western pond turtle** *Actinemys marmorata* | — | SSC | — | foothill woodland, valley grassland, wetland - riparian | Potential habitat exists within the project site. |
| **Birds** | | | | | |
| **Bald Eagle** *Haliaeetus leucocephalus* | Delisted | CE/FP | — | Large fish-bearing waters. | Known to occur within the project area. |
| **Bank Swallow** *Riparia riparia* | — | CT | — | Spring and fall migrant. Riparian areas with vertical cliffs and banks with fine textured or sandy soils. | Unlikely to occur within the project area. |
| **Burrowing owl** *Athene cunicularia* | — | SSC | — | foothill woodland, valley grassland | Potential to occur within the project area. |
| **Common Loon** *Gavia immer* | — | SSC | — | large fish-bearing waters. Migrant visitor | Unlikely to occur within the project area. |
| **Golden Eagle** *Aquila chrysaetos* | — | FP | — | Rolling foothills, mountain areas, sage juniper flats, desert. | Potential to occur within the project area. |
| **Osprey** *Pandion haliaetus* | — | WL | — | Large fish-bearing waters. | Potential to occur within the project area. |
| **Prairie Falcon** *Falco mexicanus* | — | WL | — | grasslands, savannahs, rangeland, some agricultural fields, and desert scrub. | Potential to occur within the project area. |
| **Swainson's hawk** *Buteo swainsoni* | — | CT | — | foothill woodlands, valley grassland, wetland - riparian | Known to occur within the project area. |
| **Tricolored blackbird** *Agelaius tricolor* | — | SSC | — | foothill woodlands, valley grassland, wetland - riparian | Potential to occur within the project area. |
| **White-tailed kite** *Elanus leucurus* | — | FP | — | foothill woodlands, valley grassland, wetland - riparian | Potential to occur within the project area. |

| | | | | | |
|---|---|---|---|---|---|
| **Yellow-breasted chat** *Icteria virens* | — | SSC | — | Foothill riparian forest | Potential to occur within the project area. |

| **U.S. Fish and Wildlife Service (USFWS) Federal Listing Categories:** | |
|---|---|
| FE | Federal Endangered |
| FT | Federal Threatened |
| C | Candidate to become a proposed Species |
| **California Department of Fish and Game (CDFG) State Listing Categories:** | |
| CE | California Endangered |
| CT | California Threatened |
| SSC | Species of Special Concern |
| FP | Fully Protected |
| WL | Watch List |
| **California Native Plant Society (CNPS) Categories:** | |
| 1B | Plants Rare, Threatened, or Endangered in California and elsewhere. |
| 2 | Plants Rare, Threatened, or Endangered in California but more common elsewhere. |
| 3 | Plants about which we need more information |
| 4 | Plants of limited distribution |
| 0.1 | Seriously threatened in California |
| 0.2 | Fairly threatened in California |
| 0.3 | Not very threatened in California |

**Plants**

**Henderson's bent grass**

Henderson's bent grass (*Agrostis hendersonii*) is an annual herb that is native to California and Oregon. It is commonly found in vernal pools. It grows to a maximum height from 6 to 70 centimeters. It has short, narrow leaves only a few centimeters long. The inflorescence is a dense, narrow, cylindrical tuft no longer than 5 centimeters in length, made up of small spikelets with hair like tips and bent awns.

The closes know population is 0.3 miles east (CNDDB May 2014) of the proposed gravel source site. The gravel source site is in Blue oak savanna, habitat that does not support Henderson bent grass. No other population is known to occur within 5 miles of the project sites. Surveys to date have not identified any vernal pool habitat in the project area or access routes; therefore, these species will not be affected by the construction and operation of the proposed project.

**Hoover's calycadenia**

Hoover's calycadenia (*Calycadenia hooveri*) is an annual herb that is native and endemic to California. It is found in valley grasslands and foothill woodlands. It is an annual herb producing thin, spindly stems 10 to 60 centimeters tall. The leaves are linear in shape and arranged alternately along the stem, especially on the lower part. The largest is up to 8 centimeters long. The inflorescence bears several bracts, each with a bulbous gland on it. It also bears one or more tiny, glandular flower heads, each with 1 or 2 disc florets and sometimes 1 or 2 lobed white ray florets. The fruit is an achene; those arising from the disc florets may have a pappus of scales at the tip.

The only know population is 3 miles south east (CNDDB May 2014) of the proposed gravel source site. There is no known population within 5 miles of the restoration site. Surveys to date have not identified any Hoover’s calycadenia in the project area or access routes; therefore, these species will not be affected by the construction and operation of the proposed project.

**Ione manzanita**

Ione manzanita (*Arctostaphylos myrtifolia*) is a perennial shrub that is native and endemic to California. It grows in chaparral and woodland plant communities with acidic soils. It is a red-barked, bristly shrub reaching just over a meter in maximum height. The small bright green leaves are coated in tiny glandular hairs and are shiny but rough in texture. They are less than 2 centimeters long. The inflorescence is a raceme of urn-shaped manzanita flowers on bright red branches. The fruit is a cylindrical drupe only a few millimeters long. There are multiple occurrences within 5 miles of the project site to the north east (CNDDB May 2014). The soil types associated with the Ione manzanita do not occur on the project site. Surveys to date have not identified any Ione manzanita in the project area or access routes; therefore, these species will not be affected by the construction and operation of the proposed project.

**Legenere**

Legenere (*Legenere limosa*) is an annual herb that is native and endemic to California. It is found in vernal pools in valley grassland and wetland riparian habitat. Stems are reclining and ten to thirty centimeters in lengh, but the lateral slender branches are rigid. Multiple occurrence are located 3.7 miles south east , and 0.7 miles east(CNDDB May 2014) of the project site. Surveys to date have not identified any vernal pool habitat in the project area or access routes; therefore, these species will not be affected by the construction and operation of the proposed project.

**Parry's horkelia**

Parry's horkelia (*Horkelia parryi*) is a perennial herb that is in the rose family. It is endemic to California, where it grows in the chaparral of the Sierra Nevada foothills. It forms a low mat on the ground. The leaves are compound, 5 to 10 centimeters long, with oval shaped leaflets with serrated edges. The steams are hairy green to reddish-green, 10 to 30 cm long. There is one occurrence in the CNDDB (2014) 3.4 miles north east of the source site. Surveys to date have not identified any Parry's horkelia in the project area or access routes; therefore, these species will not be affected by the construction and operation of the proposed project.

**Invertebrates**

***Valley Elderberry Longhorn Beetle***

The Valley Elderberry Longhorn Beetle (*Desmocerus californicus dimorphus*) is a medium-sized beetle associated with elderberry shrubs and trees (*Sambucus* spp.) in the California Central Valley. Elderberry shrubs are known to occur in the project area. Disturbance of individual plants as a result of construction activities could result in take of larva or adults of the beetle. Determination of occupancy is difficult, so impacts on elderberry shrubs is considered by the USFWS as a potential take of Valley Elderberry Longhorn Beetle. The District's Safe Harbor Agreement (SHA) with the USFWS allows the District to work within the 100 foot exclusion zone surrounding the elderberry bush provided the District submits a notice of take to the USFWS more than 30 days in advance of the projected project date, as is required in the SHA, Section 7. A. 1. The location of any elderberry plants will be marked with a sign identifying it as habitat for a federally protected species. The signage from the USFWS "Conservation Guidelines for the Valley Elderberry Longhorn Beetle" (USFWS 1999) should be used. For the SHA, a baseline condition is has been determined for number of elderberry bushes. In order to receive the assurances regarding take of covered species specified in Section 10, EBMUD must maintain on the property at least as much habitat for the covered species as is defined in the baseline condition. Implementation of SHA is expected to provide a "net conservation benefit" to the covered species, because the collective management activities performed by EBMUD pursuant to the SHA are expected to provide an increase in the covered species' populations by restoring and maintaining the covered species' habitat. Therefore, no significant impacts to the species are anticipated from this project.

***Other Special Status Invertebrate Species***

Special Status vernal pool crustaceans (vernal pool fairy shrimp, *Branchinecta lynchi* and vernal pool tadpole shrimp, *Lepidurus packardi*) may occur in vernal pools, vernal swales, and other seasonal wetlands that pond water for 3 weeks or more. Surveys to date have not identified any vernal pool habitat in the project area or access routes; therefore, these species will not be affected by the construction and operation of the proposed project.

**Fish**

***Central Valley Steelhead***

Steelhead have the greatest diversity of life history patterns of any Pacific salmonid species, including varying degrees of anadromy, differences in reproductive biology, and plasticity of life history between generations. They prefer cold water between 55 and 70° F that is saturated with dissolved oxygen. In the Mokelumne River, steelhead exhibit two forms, a resident form that may remain in the river its entire life, and an anadromous form that migrates to the ocean and returns to the river to spawn.

Most Mokelumne River resident steelhead mature in 2 to 3 years. Most anadromous forms first spawn after spending 2 to 3 years in freshwater and then 1 to 2 years in the ocean, Although small males that have spent only one year in freshwater and one year at sea occur regularly in some streams. Both resident and anadromous forms may be produced in the same nest and anadromous forms are known to spawn with residents. Spawning occurs in the spring in the Mokelumne River, but the spawning migration of anadromous forms extends from summer until the following spring. Most anadromous adults ascend the Mokelumne River between December and May. Females excavate a nest in gravel-bottomed riffles and select a mate. The eggs are buried in the nest after spawning. They hatch in 3 to 4 weeks and the fry emerge from the gravel 2 to 3 weeks later and begin feeding.

The project's proposed improvement of steelhead spawning habitat by placing gravel could temporarily result in increased siltation and reduced dissolved oxygen, which could, without mitigation, potentially have a significantly temporary impact on steelhead. However, the long-term goal of the project is to significantly improve habitat for steelhead.

***Pacific Lamprey***

Pacific lampreys are found in the Pacific coast streams from Japan through Alaska and down to Baja California. They spend the predatory phase of their life (6-19 months) in the ocean, where they attach themselves to a variety of fishes with their suckerlike mouth and extract blood and body fluids. Adults usually move into spawning streams, including the lower Mokelumne River between early March and late June. They build a nest in a gravel-bottomed area, spawn and usually die. The embryos hatch in about 19 days at 15°C and the ammocoetes are carried downstream to mud- or sand-bottomed backwaters and stream edges. They burrow into the bottom and spend the next 5 to 7 years growing on a diet of detritus and algae. Downstream migration begins when the ammocoetes metamorphose into active predatory adults. Pacific

lamprey are common in the lower Mokelumne River and the proposed project could, without mitigation, potentially have a significant impact.

The project's proposed improvement of salmon and steelhead spawning habitat by placing gravel could temporarily result in increased siltation and reduced dissolved oxygen, which could, without mitigation, potentially have a significantly temporary impact on Pacific lamprey. However, over the long-term, the project will significantly improve habitat for lamprey.

***Other Special Status Fish Species***

Other Special Status fish species that may occur in the vicinity of the proposed project (delta smelt, *Hypomesus transpacificus*; winter-run Chinook salmon, *O. tshawytscha*; have not been observed in the lower Mokelumne River above Woodbridge Irrigation District Dam; therefore, these species will not be affected by the construction and operation of the proposed project.

**Amphibians**

***California Tiger Salamander***

California tiger salamanders (*Ambystoma californiense*) live west of the Sierra Nevada crest, from Sonoma and Yolo Counties in the north to Santa Barbara County in the south, and west to the outer coast range. Adult tiger salamanders are rarely seen. For most of the year they aestivate in the burrows of ground squirrels, gophers and other rodents in open wooded or grassy areas. They are found on the surface during periods of damp weather, almost exclusively at night. Breeding occurs during the winter rainy season. Salamanders metamorphose into land-dwelling juveniles by May or June. California tiger salamanders require a complex mixture of habitats, consisting of seasonally filled pools bordering on wooded savanna, although permanent ponds and reservoirs may also be used. Multiple occurrences are recorded around the project and source sites (CNDDB May 2014, personal observations). The closest known population to the restoration site is 0.2 miles south (personal observation). Ground-disturbing activities associated with the project could result in the loss of adults of the species; therefore, without mitigation, these effects are considered potentially significant.

***Western Spadefoot Toad***

Western spadefoots (*Spea hammondii*) may be found in coastal sage scrub, chaparral, and grasslands habitats, but is most common in grasslands with vernal pools or mixed grassland/coastal sage scrub areas. They spend most of the year underground burrows, which they construct themselves. Some individuals also use mammal burrows. Breeding and egglaying occur almost exclusively in shallow, temporary pools formed by heavy winter rains. Egg masses are attached to plant material, or the upper surfaces of small submerged rocks. Western spadefoots become surface-active following relatively warm (10.0-12.8°C) rains in late winter-spring and fall, emerging from burrows in loose soil. Surface activity may occur in any month between October and April if enough rain has fallen. Oviposition may occur between late February and late May, eggs hatch in 0.6-6 days, depending on temperature, and larval development can be completed in 3-11 weeks. Rainfall is important in the formation and

maintenance of breeding ponds. Most surface movements by adults are associated with rains or high humidity at night. Grasslands with shallow temporary pools are optimal habitats for the western spadefoot toads. Spadefoot toads were not observed during initial reconnaissance surveys of the specific project sites, however, they have been observed breeding 0.5 miles south of the restoration project (personal observation) and 1.1 miles south east of the source site (personal observation). Ground-disturbing activities associated with the project could result in the loss of adults of the species; therefore, without mitigation, these effects are considered potentially significant.

***Other Special Status Amphibian Species***

Other Special Status amphibian species that may occur in the vicinity of the proposed project (California red-legged frog, *Rana aurora draytonii*; and, foothill yellow-legged frog, *Rana boylii*) have not been observed in the lower Mokelumne River area (CNDB 2014, personal observations); therefore, these species will not be affected by the construction and operation of the proposed project.

**Reptiles**

***Western Pond Turtle***

Western pond turtles (*Actinemys marmorata*) are freshwater turtles that hibernate by submerging themselves in stream-bottom mud. It is an aquatic turtle that usually leaves the aquatic site to reproduce, to aestivate, and to overwinter. Western pond turtles markedly increase their level of activity when water temperatures near the surface increase. They typically become active in March or April, and disappear to overwintering sites in October or November. Mating typically occurs in late April or early May and egg laying occurs during May and June. Most hatchling turtles are thought to emerge from the nest and move to the aquatic site in the spring. Habitat associated with the western pond turtles (freshwater wetlands, wetland-riparian) occur along the river adjacent to the project. Western pond turtles are known to occur 0.75 miles south east of the source site (personal observations) and 2.0 miles south east of the restoration site (CNDDB 2014). No western pond turtles were observed during site surveys. Ground-disturbing activities associated with the project could result in the loss of adults of the species; therefore, without mitigation, these effects are considered potentially significant.

***Giant Garter Snake***

The giant garter snake (*Thamnophis gigas*) is one of the larger species of garter snakes. Historically, the range of this snake was the San Joaquin Valley from the vicinity of Sacramento and Antioch southward to Buena Vista and the Tulare Lake Basin. The current distribution extends from near Chico, Butte County, to the vicinity of Burrel, Fresno County. This species is one of the most aquatic garter snakes and is usually found in areas of freshwater marsh and low-gradient streams. Additionally, it has adapted to human-made habitats, such as drainage canals and irrigation ditches, especially those associated with rice farming. The giant garter snake inhabits small mammal burrows and other soil crevices above prevailing flood elevations throughout its winter dormancy period. Giant garter snakes typically select burrows

with sunny exposure along south and west facing slopes. The breeding season extends through March and April, and females give birth to live young from late July through early September. Young immediately scatter into dense cover and absorb their yolk sacs, after which they begin feeding on their own.

Habitat requirements consist of (1) adequate water during the snake's active season (early-spring through mid-fall) to provide food and cover; (2) emergent, herbaceous wetland vegetation, such as cattails and bulrushes, for escape cover and foraging habitat during the active season; (3) grassy banks and openings in waterside vegetation for basking; and (4) higher elevation uplands for cover and refuge from flood waters during the snake's dormant season in the winter. There are no CNDDB (2014) records of giant garter snakes within 5 miles of the project sites, and no impacts to the species are expected. Ground-disturbing activities associated with the project could result in the loss of adults of the species; therefore, without mitigation, these effects are considered potentially significant.

**Birds**

***Bald Eagle***

The bald eagle (*Haliaeetus leucocephalus*) is a common resident and winter migrant at Camanche Reservoir. The bald eagle is an opportunistic carnivore with the capacity to prey on a great variety of species. Throughout their range, fish often comprise the majority of the eagle's diet. The bald eagle occurs during in virtually any kind of wetland habitat such as seacoasts, rivers, large lakes, marshes, or other large bodies of open water with an abundance of fish. The bald eagle typically requires old-growth and mature stands of coniferous or hardwood trees for perching, roosting, and nesting. Tree species reportedly is less important to the eagle pair than the tree's height, composition and location. Most nests are within 200 m (660 ft.) of open water. Three separate nesting territories are known to occur on Camanche Reservoir (personal observation). All three are located within 5 miles of the project and source site, with one nest occurring 0.3 miles west of the source site. The nest location is visually separated from the source site by a 100 foot high ridge. The project will not occur during the breeding season, February to July. Due to the avoidance of the nesting season the affects would not be significant.

**Golden Eagle**

The golden eagle (*Aquila chrysaetos*) is a common year round resident at Camanche Reservoir. It is the most widely distributed species of eagle in North America. Golden eagles use their agility and speed combined with powerful feet and massive, sharp talons to snatch up a variety of prey (mainly hares, rabbits, and ground squirrels). Golden eagles maintain home ranges or territories that may be as large as 200 $km^2$ (77 sq mi). They build large nests in high places (mainly cliffs) to which they may return for several breeding years. Golden eagles are fairly adaptable in habitat but often reside in areas with a few shared ecological characteristics. They are best suited to hunting in open or semi-open areas and search them out year-around. Native vegetation seems to be attractive to them and they typically avoid developed areas of any type.

There are no known occupied nesting territories around Camanche Reservoir (CNDDB 2014, Personal observations). The project will not occur during the breeding season, January thru June. Due to the avoidance of the nesting season the affects would not be significant.

***Swainson's Hawk***

The Swainson's hawk (*Buteo swainsoni*) is a medium-sized hawk that breeds in California and may spend the winter in Mexico and South America. Central Valley birds appear to winter in Mexico and Columbia. Swainson's hawks often nest peripherally to riparian systems of the valley as well as utilizing lone trees or groves of trees in agricultural fields. Swainson's hawks require large, open grasslands with abundant prey in association with suitable nest trees. Suitable foraging areas include native grasslands or lightly grazed pastures, alfalfa and other hay crops, and certain grain and row croplands.

Migrating individuals move south through the southern and central interior of California in September and October, and north March through May. Breeding occurs late March to late August, with peak activity late May through July. Swainson's hawks are known to nest within 5 miles of the project sites (CNDB 2014, personal observations). Due to the avoidance of the nesting season the affects would not be significant.

***Other Special Status Bird Species***

Other Special Status bird species that may occur in the vicinity of the proposed project (bank swallow, *Riparia* riparia; burrowing owl, *Athene cunicularia hypugaea*; common loon, *Gavia* immer; osprey *Pandion haliaetus*; prairie alcon *Falco mexicanus*; tricolored blackbird, *Agelaius tricolor*; white-tailed kite, *Elanus leucurus*; and yellow-breasted chat *Icteria virens*; either have not been observed in the lower Mokelumne River (CNDDB 2014, personal observations) area or will not be affected by the construction and operation of the proposed project because of the timing of the project (see Mitigation Measure IV-2).

TABLE 4. Critical periods of Special Status Species that May be Affected by the Proposed Project

| Species | Critical Period |
|---|---|
| **Invertebrates** | |
| vernal pool fairy shrimp | November through June |
| valley elderberry longhorn beetle | November through June |
| vernal pool tadpole shrimp | November through June |
| **Fish** | |
| Delta smelt | March-Apil |
| Central Valley steelhead | December through May |
| Central Valley spring-run Chinook salmon | October through April |
| Winter-run Chinook salmon | October through April |
| **Amphibians** | |
| California tiger salamander | November through June |
| California red-legged frog | October through July |
| Foothill yellow-legged frog | March through July |
| Western Spadefoot | October through July |
| **Reptiles** | |
| Giant garter snake | March through July |
| Western pond turtle | March through July |
| **Birds** | |
| Bald Eagle | November through July |
| Bank Swallow | March through July |
| Burrowing owl | January through July |
| Golden Eagle | November through July |
| Osprey | February through July |
| Prairie Falcon | March through July |
| Swainson's hawk | March through July |
| Tricolored blackbird | March through July |
| White-tailed kite | March through July |
| Yellow-breasted chat | March through July |

The only potentially substantial adverse effects of the project are those associated with gravel transport and stockpiling, and placing washed spawning gravel in the river that may temporarily impact individuals or populations of special status species during the limited construction period of the project. The following measures will reduce any such potentially significant impacts to less than significant.

**Mitigation Measure IV-1.** East Bay Municipal Utility District property in San Joaquin County is covered by a Certificate of Inclusion to USFWS incidental take permit TE12194-0 for valley elderberry longhorn beetle (USFWS 2007) under the Lower Mokelumne River Safe Harbor Agreement. Pursuant to this authorization, EBMUD shall notify in writing with 90 day notice

any change in land use likely to reduce the number of living elderberry bushes with one or more stems 1-inch or greater within the Mokelumne River Day Use Area. The Project will no t disturb any existing elderberry plants. The location of any elderberry plants near the Project site will be marked with a sign identifying it as habitat for a federally protected species. The signage from the USFWS "Conservation Guidelines for the Valley Elderberry Longhorn Beetle" (USFWS 1999) should be used.

**Mitigation Measure IV-2.** Table 4 lists the critical periods when disturbance could result in significant impacts to individuals or populations of special status species. To avoid these impacts, all project ground disturbing activities will be conducted during the period August through mid-September, outside the listed critical periods. Additionally, biological surveys will be conducted 10 days prior to any construction activities to assure no impacts to species that are likely to occur in the vicinity. If sensitive species are present during biological surveys, CDFW or USFWS will be consulted prior to any construction activities. Appropriate measures to prevent impacts to sensitive species will be implemented, including but not limited to fencing off sensitive areas, limiting or adjusting work time frames to avoid sensitive species, moving sensitive species to adjacent existing high quality habitat outside of work area.

b) The riparian habitat along this section of the Mokelumne River has been, and continues to be, affected by human disturbances. In several areas, the riparian community has been substantially narrowed by mining and agricultural conversion. It continues to be disturbed and degraded by water diversions, instream flow limitations, water quality changes, gravel mining activities, and agricultural activities. The proposed project has potential to impact the riparian habitat during Construction. To mitigate these potential impacts the following mitigation measures will be implemented.

**Mitigation Measure IV-3.** Transportation routes and work areas will be designated to avoid damaging trees and shrubs in riparian habitats. Potential impacts on riparian vegetation during transport of gravel from stockpile sites to the river will be minimized to the greatest extent practicable by selecting routes that avoid or minimize damage. All impacts on heritage size trees (i.e., greater than 16 inches in diameter) will be avoided.

c) The proposed project will not have a substantial adverse effect on federally protected wetlands in the area as defined by Section 404 of the Clean Water Act. Impacts to state or federal jurisdictional waters are considered significant if they result in a permanent decrease in the function and value of wetland and riparian habitat within the project reach. No non-riverine wetland habitats occur within the project reach, and additional wetland habitats will be created as part of the floodplain restoration. This project will result in a net gain in wetland acreage to the area, which is expected to be seasonally inundated.

d) Disturbances to the movement of native fish and wildlife species because of the presence of ground-disturbing equipment and resulting noise during operations will be minor and temporary and are not expected to substantially obstruct animal movements. Table 2 (above)

describes critical timing for special status species, and all fall outside the range of the construction schedule for this project. Construction activities will not block known migration corridors or timing for native fish and wildlife. This disturbance will have no temporary or long-term effect on dispersal or movements. (See mitigation Measure IV-2 above).

e, f) The proposed project does not conflict with any known local policies or ordinances protecting biological resources or the provisions of any adopted Habitat Conservation Plans, Natural Community Conservation Plans or other approved local, regional, or state habitat conservation plans. The proposed project does not conflict with the San Joaquin County Multi-Species Habitat Conservation and Open-Space Plan (SJMSCP), which incorporates similar measures aimed at averting the actual killing or injury of individual SJMSCP Covered Species and minimization of impacts to habitat.

**Conclusion**

Effects of gravel transport and placement, and floodplain development on wildlife, vegetation, and fisheries resources within the project area will be minor and temporary. The placement of gravel is beneficial to listed steelhead and fall-run Chinook salmon. Mitigation measures adopted to protect VELB and riparian habitats, and limiting project implementation to specific time periods will reduce impacts to less-than-significant levels.

| Issues | | Potentially Significant Impact | Less Than Significant With Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|---|
| **V.** | **CULTURAL RESOURCES –** Would the project: | | | | |
| a) | Cause a substantial adverse change in the significance of a historic resource as defined in § 15064.5? | | **X** | | |
| b) | Cause a substantial adverse change in the significance of an archeological resource pursuant to § 15064.5? | | **X** | | |
| c) | Directly of indirectly destroy a unique paleontological resource or site or unique geologic feature? | | **X** | | |
| d) | Disturb any human remains, including those interred outside of formal cemeteries? | | **X** | | |

**Discussion**

Impacts to cultural resources are considered if the resource is a "historical resource" or "unique archaeological resource" under the provisions of CEQA Sections 15064.5 and 15126.4. For potential historical resources, importance and significance under CEQA (14 CCR 15064.5) is determined based on whether the resource in question has been listed or determined eligible for listing in the California Register of Historical Resources (CRHR) , whether it has been listed in a local register of historical resources, or whether the lead agency has determined that the resource is historically significant., The following criteria are used to determine whether a resource should be considered historically significant for CEQA purposes:

- Whether the resource is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;
- Whether the resource is associated with the lives of persons significant in our past;
- Whether the resource places that embody the distinctive characteristics of a type, period, or method of construction; or represents the work of a of an important creative individual, or possesses high artistic values; or,
- Whether the resource has yielded, or may be likely to yield, information important in prehistory or history.

No resources designated through one of the four historical resource registration programs managed by the Office of Historic Preservation (Ca. Historical Landmarks, Ca. Points of Historical Interest, Ca. Register of Historical Resources, or the California Native American Heritage Commission) are found in the project area, and the lead agency has not identified any historical resources or unique archaeological resources that could be affected by the project

Under a previous FONSI for the similar activities and locations (USFWS 2009), the proposed action had been determined to be a routine undertaking with little to no potential to affect historic properties under Appendix A of the Cultural Resources Programmatic Agreement between the USFWS, the California State Historic Preservation Office, and the Advisory Council for Historic Preservation. There were no previously recorded cultural resources identified within the project area of potential effect (APE), and thus impacts are not anticipated. Additionally, compliance with Section 106 of the National Historic Preservation Act (NHPA) is necessary.

Even with these measures undertaken, it is possible that during construction activities unknown cultural resources could be unearthed. However, project-related construction activities (loading of gravel from stockpile sites) could unearth previously unknown cultural resources. This potentially significant impact would be mitigated to less than significant levels by implementation of the following mitigation measure.

**Mitigation Measure V-1.** If buried cultural materials are unearthed during construction, the project proponent shall require its contractor to halt work in the vicinity of the finds until a qualified archaeologist can assess its significance. If human remains are unearthed during construction, the project proponent will comply with the California Health and Safety Code Section 7050.5, which states no further disturbance shall occur until the County Coroner has made the necessary findings as to origin and disposition in accordance with Public Resources Code Section 5097.98. All actions would be taken consistent with CEQA Guidelines section 15064.5(e).

**Conclusion**

The proposed project could affect previous unknown cultural resources, however, with mitigation measures adopted to protect any buried cultural materials unearthed during construction, impacts on cultural resources are considered less than significant.

| Issues | Potentially Significant Impact | Less Than Significant With Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| **VI. GEOLOGY AND SOILS –** Would the project: | | | | |
| a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving: | | | | |
| i) Rupture of a known earthquake fault, as defined on the most recent Alquist-Priolo Earthquake Fault Zoning Map issues by the State Geologist for the area or based on other substantial evidence of a known fault? | | | | **X** |
| ii) Strong seismic ground shaking? | | | | **X** |
| iii) Seismic-related ground failure, including liquefaction? | | | | **X** |
| iv) Landslides? | | | | **X** |
| b) Result in substantial soil erosion or the loss of topsoil? | | **X** | | |
| c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse? | | | | **X** |
| d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property? | | | | **X** |
| e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water? | | | | **X** |

## Discussion

a) San Joaquin County and Calaveras Counties are in a region of west-central California that is seismically active. The seismicity of the region is primarily related to the San Andreas Fault system. The proposed project area is likely to experience moderate ground shaking from regional seismic sources. The potentially active Melones-Bear Mountain fault zone, approximately 10 miles northeast of the project area, is the closest earthquake source to the project area. However, because the proposed project does not include the construction of any buildings or residential structures, there are no impacts associated with exposing people to fault rupture, seismic ground shaking, seismic ground failure, liquefaction, or landslides.

b) Construction activities associated with the proposed project could result in temporary increases in erosion of soils and changes in topography within the project area. The discharge of soil into open water and its effect on water quality and fisheries resources are discussed in Section

IX-HYDROLOGY AND WATER QUALITY. The project would not result in substantial soil erosion or the loss of topsoil. In fact project activities would contribute to the retention of soil across the recovered floodplain. Mitigation Measure IX-1, discussed in the Hydrology and Water Quality section, below, would protect water quality during project construction, so no significant impact is anticipated from project activities. That mitigation measure requires EBMUD to perform water sampling during construction operations so ensure that turbidity does not exceed predetermined levels.

c) The proposed project area is located in the nearly level historic floodplain of the lower Mokelumne River and is composed of alluvial sandy loam, sand and gravel. These soils are relatively stable and would not become unstable as a result of the project and would not result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse.

d) The proposed project is not located on an expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994).

e) The proposed project does not involve the disposal of wastewater.

**Conclusion**

The proposed project could result in temporary increases in turbidity from deposition of gravel in the Mokelumne River streambed. However, because this impact would be temporary, post-construction erosion control measures would be implemented, and mitigation mentioned above will be implemented, it is considered less than significant.

| Issues | Potentially Significant Impact | Less Than Significant With Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| **VII. GREENHOUSE GAS EMISSIONS –** Would the project: | | | | |
| a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment? | | X | | |
| b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases? | | | | **X** |

**Discussion**

On October 24, 2008, the Air Resources Board (ARB) released its Preliminary Draft Staff Proposal, *Recommended Approaches for Setting Interim Significance Thresholds for Greenhouse Gases under the California Environmental Quality Act.* ARB staff believes that zero thresholds are not warranted in light of the fact that (1) some level of emissions in the near term and at mid-century is still consistent with climate stabilization and (2) current and anticipated regulations and programs apart from CEQA will proliferate and increasingly will reduce the GHG contributions of past, present, and future projects.

In August 2008, the San Joaquin Valley Air Pollution Control District's (SJVAPCD) Governing Board adopted a Climate Change Action Plan (CCAP). The CCAP directed the District Air Pollution Control Officer to develop guidance to assist Lead Agencies, project proponents, permit applicants, and interested parties in assessing and reducing the impacts of project specific greenhouse gas (GHG) emissions on global climate change. The guidance is still interim and not fully approved.

For air quality constituents that contribute to GHG emissions, the SJVAPCD has established criteria for determining local air basin impact significance. For the purpose of determining significance, the District's criteria for emissions from both nitrogen oxides (NOx) and/or reactive organic gases (ROG) is 10 tons per year, or 85 pounds per day. The Calaveras County "Guidelines for Assessing and Mitigating Air Quality Impacts of Land Use Projects" describes their GHG emissions standards for project-level thresholds of significance for ROG and NOx at 150 lbs/day. Projects exceeding these levels must mitigate impacts. In their GHG plan, however, he SJVAPCD has concluded, Best Performance Standards (BPS) is a legitimate means of addressing the significance of GHG emissions in a CEQA context, and may be the only legitimate means, given the inability to scientifically assign a numeric significance threshold. The CCAP investigates BPS as potential Emission Reduction Measures for stationary and development projects only, temporary construction impacts are not summarized.

**Mitigation Measure VII-1.** Best Performance Standards from available GHG reduction plans will be used to maintain temporary construction impacts to less than significant. The single BPS relevant to this project is: Preserving existing trees, and planting replacement trees at a set ratio in the unlikely event that any trees were removed during construction will be implemented as part of the Project.

**Conclusion**

The project does involve the use of heavy machinery, but the project duration is short (2 weeks) and the emission of greenhouse gases limited. This project is a short term construction project that does not meet the criteria of a stationary and development project emission source. Given this and the project's limited emissions, it would not result in significant impacts related to the release of GHGs. Nonetheless, Mitigation Measure VII-1 will be implemented to ensure that the project GHG-related impacts will be minimized to the greatest extent possible. For these reasons, impact to the environment is less than significant and may be offset by the improvement in habitat conditions (floodplain inundation should lead to improved riparian recruitment and additional carbon fixing plants to alleviate GHG impacts over time.) This project does not conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

| Issues | | | | | |
|---|---|---|---|---|---|
| | | **Potentially Significant Impact** | **Less Than Significant With Mitigation Incorporated** | **Less Than Significant Impact** | **No Impact** |
| **VIII.** | **HAZARDS AND HAZARDOUS MATERIALS –** Would the project: | | | | |
| a) | Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials? | | **X** | | |
| b) | Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment? | | **X** | | |
| c) | Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within on-quarter mile of an existing or proposed school? | | | | **X** |
| d) | Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment? | | | | **X** |
| e) | For a project located within an airport land use plan, or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area? | | | | **X** |
| f) | For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area? | | | | **X** |
| g) | Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan? | | | | **X** |
| h) | Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands? | | | | **X** |

**Discussion**

a) Equipment necessary for gravel transport and placement would include fuel, oil and similar substances. Mitigation Measure VIII-1 below describes measures taken to reduce impacts from fuels. No unregulated hazardous substances are to be used during proposed project implementation, and no unregulated hazardous substances will be present when all project components are complete.

b) Accidental release of small quantities of fuel and oil during construction would be contained and controlled through Mitigation Measure VIII-1 below. Following mitigation, minor spills would not pose a major risk to public safety.

c) There is no school in or near the proposed project area, so there would be no impact.

d) None of the project sites are a listed hazardous materials site.

e-f) The project will have no impact to an airport land use plan, as the project is not located within the vicinity of any public or private airstrip, airport or runway approach path. Therefore no hazard to construction workers is anticipated as a result of this project.

g) The project will not affect the implementation of any emergency response or evacuation plan.

h) The project is within a rural agricultural area with limited and widely dispersed residential sites. Development of project facilities will not pose an increased risk to residents from wildland fires. Water tender trucks will be onsite during construction to maintain wetted work areas to reduce fire potential, and can also be used in fire suppression actions if necessary.

**Mitigation Measure VIII-1 Use Clean Equipment and Bio-degradable Lubricants.** All equipment will be clean and use biodegradable lubricants and hydraulic fluids. All equipment working within the stream channel will be inspected daily for fuel, lubrication, and coolant leaks; and, for leak potentials (e.g. cracked hoses, loose filling caps, stripped drain plugs). Vehicles are to be fueled and lubricated in a designated staging area located outside the stream channel and banks. Clean gravels will be added to the river using the front-end loaders. Front-end loaders will be wheeled (rubber tire) to minimize impacts. Construction specifications will require that any equipment used in or near the river is properly cleaned to prevent any hazardous materials from entering the river, and containment material will be on site in case of an accident. Contracted construction personal will regularly monitor contractors to insure environmental compliance. Spill prevention kits will be located close to construction areas, with workers trained in its use.

**Conclusion**

The proposed project would not create significant hazards or hazardous materials for the reasons stated above. The mitigation measure discussed above will be implemented, and impacts would

be less than significant.

| Issues | | Potentially Significant Impact | Less Than Significant With Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|---|
| **IX.** | **HYDROLOGY AND WATER QUALITY** – Would the project: | | | | |
| a) | Violate any water quality standards or waste discharge requirements? | | **X** | | |
| b) | Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level? | | | | **X** |
| c) | Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site? | | | | **X** |
| d) | Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site? | | | | **X** |
| e) | Create or contribute runoff water which would exceed the capacity of existing of planned stormwater drainage systems or provide substantial additional sources of polluted runoff? | | | | **X** |
| f) | Otherwise substantially degrade water quality? | | | **X** | |
| g) | Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map? | | | | **X** |
| h) | Place within a 100-year flood hazard structures which would impede or redirect flood flows? | | | | **X** |
| i) | Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam? | | | | **X** |
| j) | Inundation by seiche, tsunami, or mudflow? | | | | **X** |

**Discussion**

a). Instream gravel placement actions associated with the proposed project would result in soil disturbance and could cause a potential discharge of oils and grease from the heavy equipment that would be used to move gravel into the river. Soil and associated contaminants that enter stream channels can increase turbidity, stimulate the growth of algae, increase sedimentation of aquatic habitat, and introduce compounds that are toxic to aquatic organisms.

**Mitigation Measure IX-1.** The project proponent will comply with Section 401 of the Clean Water Act and obtain certification that project-related activities will maintain water quality (i.e., control sediment) at and downstream of the project site. The project will also follow guidelines required in Lake and Streambed Alteration Permits (CDFW) and Secion 404 permits (ACOE) issued for the project. To minimize risks of increasing turbidity and adding fine sediment to the water, the sorted gravel will be washed at the quarry site before being loaded into steam-cleaned tractor-trailer transfer trucks for delivery to the enhancement sites. Additionally, instream gravel placement work will be accomplished during summer low-flow periods (approximately 300 cfs), and sediment that would be disturbed by the rubber tires and gravel ripping actions is expected to settle quickly out of the water column. Streambank disturbance will be minimized to small areas of low bank at each site. Once work at individual sites is completed, the riverbank will be restored, if necessary, by sloping the bank and adding suitable quantities of appropriate-sized gravel to prevent bank sloughing and introduction of fine sediment in the river. Once every four hours during construction operations, water quality monitoring for turbidity and settleable solids will be performed using procedures in accordance with Standard Methods 17th edition (American Public Health Association). EBMUD will perform surface water sampling when performing any in-water work, in the event that project activities result in any materials reaching surface waters, or when any activities result in the creation of a visible plume in surface waters. Limits during in-water working periods shall not exceed a turbidity increase of 15 NTU over background turbidity. At no point shall turbidity be allowed to exceed 20 NTU. Activities shall not cause settleable matter to exceed 0.1 ml/l in surface waters as measured in surface waters 300 feet downstream from the project. Monitoring shall be conducted 100 feet upstream from the project area (out of the influence of the project) and 300 feet downstream of the active work area. Sampling results will be submitted to the CARWQCB within 2 weeks of initiation of sampling and every 2 weeks thereafter.

b). The proposed project would not result in a change in the quantity of groundwater, alter the direction or rate of groundwater flow, affect groundwater quality, or result in the substantial reduction in the amount of groundwater otherwise available for public water supplies. Because the composition of the gravel to be placed is similar in size to that typically occurring in the substrate of the enhancement sites, groundwater infiltration should remain similar to existing

conditions. No activities are proposed that would create or affect the surface/groundwater interface.

c-d) The proposed project could cause minor changes in existing currents and change the direction of existing water movements near the gravel placement areas. Such changes are intentional to enhance spawning and rearing conditions for anadromous fish. These changes are highly localized and beneficial to aquatic organisms, therefore, this impact is considered less than significant. Development of the proposed project would not affect existing absorption rates, drainage patterns, or the rate and amount of surface runoff in the area. Implementation of the proposed project would occur in an area of the Mokelumne River floodplain that is permanently inundated. The relatively small amount of deposited gravels will constitute a negligible encroachment on the capacity of the river to convey flood flows, and the project would comply with any permitting requirements of the Central Valley Flood Protection Board. Regardless of any permitting requirements, however, for the reasons stated above the project would not substantially alter the river's drainage pattern in a way that would cause significant impacts related to erosion, siltation, or flood conveyance capacity.

e) The proposed project would not create or contribute runoff water because no water is used during gravel placement activities and no activities are proposed that would result in the reconfiguration of existing topography above the high water mark.

f) The proposed project will have minor, short-term impacts to water quality due to localized increases in turbidity, and long-term improvements to water quality resulting from increased intergravel flows, dissolved oxygen and lower temperatures. Under the proposed project, the project proponent will comply with Section 401 of the Clean Water Act and obtain certification that project-related activities will maintain water quality (i.e., control sediment) at and downstream of the project site. For these reasons, this impact is considered less than significant. In addition, the project will comply with the General Permit for Storm Water Discharges Associated with Construction Activities, Construction General Permit Order No. 2009-009-DWQ by developing and implementing a Storm Water Pollution Prevention Plan (SWPPP). While the project would have minimal, short-term water quality impacts even without implementation of the SWPPP, implementation of the SWPPP will further minimize any water quality impacts.

g-i) The proposed project does not include the construction of any buildings or residential structures; there are no impacts associated with exposing people or property to flooding.

j) The proposed project will not be subject to nor create any potential for inundation by seiche, tsunami or mudflow.

**Conclusion**

The proposed project has the potential to affect surface water quality and cause minor changes in water currents near the gravel placement areas. However, incorporation of the identified mitigation measure into the project will reduce the impacts on hydrology and surface water quality to less than significant levels.

| Issues | | Potentially Significant Impact | Less Than Significant With Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|---|
| **X.** | **LAND USE AND PLANNING –** Would the project: | | | | |
| a) | Physically divide an established community? | | | | X |
| b) | Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over a project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect? | | | | X |
| c) | Conflict with any applicable habitat conservation plan or natural community conservation plan? | | | | X |

**Discussion**

a) The proposed project site is within the lower Mokelumne River corridor. The proposed project would not disrupt or divide the existing physical arrangement of an established community.

b) The proposed project will occur within a 1-mile reach of the lower Mokelumne River between Camanche Dam and Mackville Road. The proposed project area is designated as Open Space in the San Joaquin County General Plan (General Plan). Specific land uses in this designation include wildlife habitat, recreation, and agriculture. According to the "Resources" section of the General Plan, open space areas are for the preservation of natural resources, the managed production of natural resources, recreation, and public safety. Implementation of the proposed project has the potential to contribute to the protection, restoration, and improvement of the lower Mokelumne River; therefore, it is consistent with the General Plan designation for the project area.

c) The proposed project has been identified in several state and federal planning documents. Salmon spawning gravel and rearing habitat improvements for the lower Mokelumne River have been identified as priority actions in the USFWS's Anadromous Fish Restoration Plan (1997) and several DFG publications and plans (California Department of Fish and Game 1991, 1993a, 1993b) to improve spawning habitat and rearing habitat for fall-run Chinook

salmon and steelhead trout in the river. The Mokelumne River system was also included in FERC's 1993 FEIS. The proposed project is consistent with applicable environmental plans or policies adopted by agencies with jurisdiction over the project. Land uses surrounding the proposed project sites consist of open space (e.g., wildlife habitat, recreation area, agricultural operations, and mineral extraction). The proposed project has the potential to restore and improve the lower Mokelumne River. Therefore, the proposed project is consistent with existing land uses in the vicinity of the project site. The proposed project does not conflict with any known local policies or ordinances protecting biological resources or the provisions of any adopted Habitat Conservation Plans, Natural Community Conservation Plans or other approved local, regional, or state habitat conservation plans. The proposed project does not conflict with the San Joaquin County Multi-Species Habitat Conservation and Open-Space Plan (SJMSCP), which incorporates similar measures aimed at averting the actual killing or injury of individual SJMSCP Covered Species and minimization of impacts to habitat.

**Conclusion**

The proposed project would not have an adverse impact on land use and planning issues for the reasons stated above.

| **Issues** | | **Potentially Significant Impact** | **Less Than Significant With Mitigation Incorporated** | **Less Than Significant Impact** | **No Impact** |
|---|---|---|---|---|---|
| **XI.** | **MINERAL RESOURCES –** Would the project: | | | | |
| a) | Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state? | | | | **X** |
| b) | Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan? | | | | **X** |

**Discussion**

a-b) San Joaquin County and Calaveras County have a wide variety of mineral resources. The proposed project does not include extraction of mineral resources listed in the General Plan for either County and does not preclude or prevent the extraction of mineral resources in the future through any restrictions to land use.

**Conclusion**

The proposed project would have no impact on mineral resources for the reasons stated above.

| Issues | | Potentially Significant Impact | Less Than Significant With Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|---|
| **XII.** | **NOISE –** Would the project result in: | | | | |
| a) | Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies? | | **X** | | |
| b) | Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels? | | **X** | | |
| c) | A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project? | | | | **X** |
| d) | A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project? | | **X** | | |
| e) | For a project located within an airport land use plan, or where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels? | | | | **X** |
| f) | For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels? | | | | **X** |

a,b,d) Under the proposed project, one potential source of gravel for the enhancement project will be an existing open, floodplain gravel quarry on the Mokelumne River. If gravel is provided from the George Reed, Inc. quarry operation would not contribute to or increase existing noise levels at the quarry site. However, if gravel must be sorted from cobble piles, or due to construction equipment (e.g., rubber-tired front-end loader) and gravel haul trucks that would operate at the individual gravel placement sites, there would be a temporary increase in ambient noise levels in the vicinity of the sites. Haul trucks would also operate along public and private access roads during the construction phase of the project. Construction equipment and vehicles would be properly maintained to minimize noise generation. The types of construction equipment used for this project will typically generate noise levels of 80-90 decibels above reference noise (dBA) at a distance of 50 feet while the equipment is operating. Rural residents and recreationists are 3,000-4,000 feet away from several of the individual gravel placement and source sites. Ambient noise levels in this area are likely to be 30-40 dBA under normal conditions.

The Noise Element in the Calaveras General Plan describes significance thresholds for noise in proximity to single and multiple family dwellings (at 60 and 65 decibels respectively, and schools/hospitals at 70 decibels. This project may create noise at or near this level for a temporary time period (4-6 weeks) for up to five years. A limited number of individuals will be impacted by the change in noise, as the area is mostly rural and there are limited numbers of individuals and no businesses in the immediate project area. The San Joaquin County General plan cites the state regulations of 65 decibels. This impact is considered to be potentially significant because of the magnitude of the increase in noise levels that can be expected during construction of the proposed project. This impact will be mitigated to a less-than-significant level with implementation of the measures listed below.

**Mitigation Measure XII-1.** To mitigate noise-related impacts, the project proponent will require that the contractor comply with the following conditions:

- Restrict construction that could adversely affect residences to daytime hours and prohibit construction on Sundays and legal holidays.

- All equipment will have sound-control devices no less effective than those provided on the original equipment. No equipment shall have unmuffled exhaust.

- As directed by the project proponent, implement appropriate additional noise mitigation measures, including, but not limited to, changing the location of stationary construction equipment, shutting off idling equipment, rescheduling construction activity, notifying nearby residences in advance of construction work, or installing acoustic barriers around stationary construction noise sources.

c) There will be no permanent increase in ambient noise levels associated with the proposed project because the project is short-term in duration and no permanent noise above ambient is generated by the proposed project.

e,f) The project is not located within the vicinity of any public or private airstrip, airport or runway approach path. Therefore no impact is anticipated as a result of this project.

**Conclusion**

Construction of the proposed project is likely to result in temporary, short-term noise increases for nearby residences or recreationists. The project proponent will implement the identified mitigation measures to reduce potential noise impacts to a less-than-significant level.

| Issues | | Potentially Significant Impact | Less Than Significant With Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|---|
| **XIII.** | **POPULATION AND HOUSING –** Would the project: | | | | |
| a) | Induce substantial population growth in an area, either directly or indirectly? | | | | **X** |
| b) | Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere? | | | | **X** |
| c) | Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere? | | | | **X** |

**Discussion**

a) The proposed project would not create housing or attract new development; therefore, the proposed project would not directly or indirectly contribute to substantial population growth.

b) Implementation of the habitat improvement project on the Mokelumne River would not displace residential, commercial, or other development adjacent to the project site. Therefore, the proposed project would not necessitate construction of replacement housing elsewhere.

c) The proposed project does not involve displacing any people. Therefore, replacement housing would not need to be constructed elsewhere.

**Conclusion**

The proposed project would not have an adverse impact on population or housing for the reasons stated above.

| Issues | | Potentially Significant Impact | Less Than Significant With Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|---|
| **XIV.** | **PUBLIC SERVICES** | | | | |
| a) | Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered government facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services? | | | | **X** |
| | • Fire protection? | | | | **X** |
| | • Police protection? | | | | **X** |
| | • Schools? | | | | **X** |
| | • Parks? | | | | **X** |
| | • Other public facilities? | | | | **X** |

**Discussion**

a) The proposed project would not result in any impacts to government facilities and would not affect existing fire protection, police protection, schools, parks or other public facilities. During construction of the proposed project, additional trucks (30 trucks per site) would use the existing roadway network. This impact is expected to be less than significant because the additional trucks would be temporary and a limited number would be required for construction.

**Conclusion**

The proposed project would not have an adverse impact on public services for the reasons stated above.

| Issues | | Potentially Significant Impact | Less Than Significant With Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|---|
| **XV.** | **RECREATION** | | | | |
| a) | Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated? | | | **X** | |
| b) | Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment? | | | | **X** |

## Discussion

a) The proposed project would not increase the demand for parks or recreation facilities, and would not result in substantial physical deterioration of the existing recreational facilities. Recreational activities in the vicinity of the proposed project are limited to public access at the Mokelumne River Day Use Area because the majority of adjacent river property is privately owned. Most recreational activities taking place in the project area include onshore fishing, picnicking, limited hiking, and non-motorized boating.

b) The proposed project does not include or require the construction or expansion of recreational facilities in the area.

## Conclusion

The proposed project would not have an adverse impact on recreation for the reasons stated above.

| Issues | | Potentially Significant Impact | Less Than Significant With Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|---|
| **XVI.** | **TRANSPORTATION/TRAFFIC –** Would the project: | | | | |
| a) | Cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections)? | | | **X** | |
| b) | Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways? | | | **X** | |
| c) | Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety issues? | | | | **X** |
| d) | Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)? | | | | **X** |
| e) | Result in inadequate emergency access? | | | | **X** |
| f) | Result in inadequate parking capacity? | | | | **X** |
| g) | Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)? | | | | **X** |

## Discussion

a,b) Construction of the proposed project will require use of only a few pieces of construction equipment at any time. Transportation of gravel to the various project sites will be accomplished using tractor-trailer trucks with a capacity of up to 20-22 $yds^3$. Access from the gravel source sites to the construction sites will be by public and private roads and easement areas. Distance from the gravel sources to the enhancement sites are less than 10 miles, if in basin quarry, or cobble piles are used. If out of basin gravel is purchased distance could be as much as 50 miles from the construction site. Gravel placement at each site is expected to require an estimated 60-120 truck trips annually. Although delivery of the gravel to the project sites would increase the number of vehicle trips on existing roadways, the increase is considered relatively minimal and would be temporary. Consequently, the proposed project is not expected to significantly increase vehicle trips or traffic congestion or result in inadequate emergency access. This impact is considered less than significant.

c) The proposed project will not affect air traffic patterns because there are no airports or airstrips located within 2 miles of the project site.

d) The proposed project is not expected to create any roadway safety hazards associated with a project design feature or incompatible use because gravel placement sites are located off public roads and highways and vehicle traffic generated by the proposed project is commensurate with existing uses.

e,f) The proposed project would not result in insufficient emergency access or parking capacity onsite or offsite. No parking is required to support the proposed project.

g) The proposed project would not result in conflicts with adopted policies supporting alternative transportation because the project does not generate the need for public transportation, and the traffic generated by the proposed project does not exceed the capacity of the existing public roads.

**Conclusion**

The proposed project would not have an adverse impact on transportation/traffic issues for the reasons stated above.

| Issues | | Potentially Significant Impact | Less Than Significant With Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|---|
| **XVII.** | **UTILITIES AND SERVICE SYSTEMS –** Would the project: | | | | |
| a) | Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board? | | | **X** | |
| b) | Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects? | | | | **X** |
| c) | Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects? | | | | **X** |
| d) | Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed? | | | | **X** |
| e) | Result in a determination by the wastewater treatment provider which serves or may serve the project that has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments? | | | | **X** |
| f) | Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs? | | | | **X** |
| g) | Comply with federal, state, and local statutes and regulations related to solid waste? | | | | **X** |

## Discussion

a) The proposed project would not exceed wastewater treatment requirements of the Regional Water Quality Control Board. Under the proposed project, the project proponent will comply with Section 401 of the Clean Water Act and obtain certification from the Central Valley Regional Water Quality Control Board that project-related activities will maintain water quality (i.e., control sediment) at and downstream of the project site. This impact is considered less than significant.

b,c) The proposed project will not result in or require construction of new water, wastewater, or storm water drainage facilities nor require expansion of existing facilities.

d-f) The proposed project does not require the services of water, wastewater treatment, or landfill service providers.

g) The proposed project will not generate solid waste.

**Conclusion**

The proposed project would not have an adverse impact on utilities and service systems for the reasons stated above.

| Issues | | Potentially Significant Impact | Less Than Significant With Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|---|
| **XVIII.** | **MANDATORY FINDINGS OF SIGNIFICANCE** | | | | |
| a) | Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory? | | **X** | | |
| b) | Does the project have impacts that are individually limited, but cumulatively considerable?("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)? | | **X** | | |
| c) | Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly | | | | **X** |

**Discussion of Checklist Answers**

a)

There will be temporary and minor adverse effects that will occur at the construction and processing sites; however, the overall improvement to the environment will outweigh these effects. This project will not contribute to the accumulation of impacts in the watershed. However, cumulative actions to improve stream habitats in the watershed are expected to provide long-term benefits to associated vegetation, wildlife, and fish. Because vegetation communities and wildlife habitats within the Mokelumne River watershed have been substantially modified to suit human land uses and will likely continue to be modified as human populations increase, the project will benefit aquatic species and their habitat by improving spawning and rearing habitat. In addition, there are no examples of important periods of California history or prehistory that would be affected by the project, and implementation of Mitigation Measure V-1 will ensure that impacts to cultural resources would be less than significant.

b) The proposed project would result in short-term construction related impacts. Projects aimed at salmonid production, enhancement, restoration, and mitigation may be implemented in the future for the Mokelumne River system and Central Valley under directives of the CVPIA, AFRP, or other entities. These activities may include screening water diversions, water acquisition, improving fish passage, riparian habitat restoration, and other enhancement actions. The project is not expected to contribute to cumulative impacts because the mitigation measures set forth above, which will reduce all project impacts to a less-than-significant level, will also ensure that the project's contribution to any cumulatively considerable impacts would be minimal.

Given the project's short duration, minimal footprint, and limited scope, the proposed project would not result in a considerable contribution to cumulative impacts. As a result, cumulative impacts would be less than significant. Additionally, mitigation measures are included to reduce all project impacts to a less-than-significant level.

c) The proposed project would not result in environmental effects that would cause substantial adverse effects on human beings, either directly or indirectly.

# Chapter 4. Citations

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