

DRAFT INITIAL STUDY/ MITIGATED NEGATIVE DECLARATION

**UPPER YUBA LEVEE IMPROVEMENT PROJECT
(SIMPSON LANE TO THE GOLDFIELDS)**

YUBA COUNTY, CALIFORNIA

Three Rivers Levee Improvement Authority

February 2010



THREE RIVERS LEVEE IMPROVEMENT AUTHORITY

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Date: February 11, 2010

To: Interested Parties

From: Paul Brunner, P.E., Executive Director, Three Rivers Levee Improvement Authority

Subject: Notice of Intent to Adopt a Proposed Mitigated Negative Declaration for the Upper Yuba Levee Improvement Project

The Three Rivers Levee Improvement Authority (TRLIA) has prepared an Initial Study/Mitigated Negative Declaration (IS/MND) to evaluate the potential environmental effects of the proposed Upper Yuba Levee Improvement Project (UYLIP), which is located in the southern portion of Yuba County along the Yuba River South Levee, approximately one mile south of the Yuba River. The project area is upstream of the confluence of the Yuba River and the Feather River and east of the City of Marysville. The UYLIP proposes improvements along the Yuba River South Levee between Simpson Lane and the Yuba Goldfields. The project would involve installing slurry walls, seepage berms, levee geometry corrections, levee slope erosion protection, and relief wells in the project area.

TRLIA has prepared a Draft IS/MND in accordance with the requirements of the California Environmental Quality Act (CEQA) and the State CEQA Guidelines. To implement the proposed project, TRLIA also requires permission from the U.S. Army Corps of Engineers (USACE) pursuant to Section 408 of the Rivers and Harbors Act for alteration of a federal project levee. A separate National Environmental Policy Act (NEPA) environmental document will be prepared by the USACE to evaluate those impacts associated with their decision making processes for Sections 408 and potential future federal funding. TRLIA is moving forward with the separate IS/MND at this time to provide environmental documentation necessary to facilitate the initiation of right of way acquisitions and State and/or local approvals needed for construction of the project in 2010.

The IS/MND identifies potentially significant impacts related to: air quality, biological resources, cultural resources, geology and soils, hazards and hazardous materials, hydrology and water quality, noise, public services, and transportation and circulation. All impacts are reduced to less-than-significant levels with implementation of recommended mitigation measures.

The IS/MND is being circulated for public review and comment for a 30-day period beginning on February 11 and ending on March 15, 2010. The IS/MND may be reviewed at TRLIA's Web site, <http://www.trlia.org/>, at the Yuba County Library, 303 Second Street, Marysville; and at the Sutter County Library, 750 Forbes Ave, Yuba City. For questions regarding the IS/MND and documents referenced in the IS/MND, contact Laurie Warner Herson, (916) 569-1000, Laurie.WarnerHerson@hdrinc.com.

Please send written comments on the IS/MND to Paul Brunner, P.E., Executive Director, Three Rivers Levee Improvement Authority, 1114 Yuba Street, Suite 218, Marysville, CA 95901, fax (530) 749-6990. Comments may also be sent via e-mail to pbrunner@co.yuba.ca.us. For e-mailed comments, please include the project title in

the subject line, attach comments in MS Word format, and include the commenter's U.S. Postal Service mailing address.

TRLIA will be holding a public information meeting for the project on March 8, 2010, from 6:30 to 8:30 p.m. at the Yuba County Government Center Board Chambers at 915 Eighth Street, Marysville. TRLIA intends to consider adoption of the Mitigated Negative Declaration at its regularly scheduled board meeting on April 6, 2010, at 3:30 p.m. at the Yuba County Government Center Board Chambers at 915 Eighth Street, Marysville. This meeting will be open to the public.

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ACRONYMS AND ABBREVIATIONS

AADT	annual average daily traffic
AB	Assembly Bill
AD	Anno Domini
amsl	above mean sea level
APE	Area of Potential Effects
APN	assessors parcel number
AQCR	Air Quality Control Region
AST	aboveground storage tank
ASTM	American Society for Testing and Materials
BC	Before Christ
bgs	below ground surface
BMP	best management practices
BP	before present
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
CA FID	California Facility Inventory Database
CalARP	California Accidental Release Program
Cal/EPA	California Environmental Protection Act
Cal OSHA	California Occupational Safety and Health Administration
Caltrans	California Department of Transportation
CARB	California Air Resources Board
CDFG	California Department of Fish and Game
CDMG	California Division of Mines and Geology
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFR	Code of Federal Regulations
CGS	California Geological Survey
CHABA	Committee of Hearing, Bio Acoustics, and Bio Mechanics
CHP	California Highway Patrol
CNDDB	California Native Diversity Database
CNEL	energy average of the A-weighted noise levels during a 24-hour period
CNPS	California Native Plant Society
CO	carbon monoxide
CO ₂	carbon dioxide
Corps	U.S. Army Corps of Engineers
County	Yuba County
CRHR	California Register of Historical Resources
cu. yd.	cubic yards

CVFPB	Central Valley Flood Protection Board
CWA	Clean Water Act
dB	Decibel
dBA	A-weighted
DOE/EIA	Department of Energy/Energy Information Administration
DOT	U.S. Department of Transportation
DPR	Department of Parks and Recreation
DTSC	Department of Toxic Substances Control
DWR	California Department of Water Resources
EA	Environmental Assessment
EDR	Environmental Data Resources Inc.
EFH	essential fish habitat
EIR	environmental impact report
EPA	U.S. Environmental Protection Agency
ESA	federal Endangered Species Act (also FESA)
ESL	environmental study limits
ESU	Evolutionarily Significant Unit
FEMA	Federal Emergency Management Agency
FMMP	Farmland Mapping and Monitoring Program
FR	Federal Register
FRAQMD	Feather River Air Quality Management District
FRLRP	Feather River Levee Repair Project
FTA	Federal Transit Authority
GHG	greenhouse gas
GMSL	global mean sea level
GPS	global positioning system
GRR	General Re-evaluation Report
HAP	hazardous air pollutant
HDR	HDR, Inc.
HIST UST	Historical Underground Storage Tank Registered Database
IPCC	Intergovernmental Panel on Climate Change
IS	Initial Study
ITE	Institute of Traffic Engineers
Ldn	A-weighted noise levels during a 24-hour period

Leq	Equivalent Sound Level
Lmax	Maximum Sound Level
Lmin	Minimum Sound Level
Lv	Velocity level in decibels (i.e. VdB)
Lxx	Percentile-Exceeded Sound Level
MCL	maximum contaminant levels
MLD	most likely descendant
MRL	Marysville Ring Levee
MRZ	Mineral Resource Zone
msl	mean sea level
NAAQS	National Ambient Air Quality Standards
NAHC	Native American Heritage Commission
NCIC	North Central Information Center
NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service
NOI	Notice of Intent
NO ₂	nitrogen dioxide
NO _x	oxides of nitrogen
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resource Conservation Service
NRHP	National Register of Historic Places
O ₃	ozone
OHP	Office of Historic Preservation
OHWM	ordinary high water mark
OSHA	U.S. Occupational Safety and Health Administration
Pb	lead
PG&E	Pacific Gas and Electric Company
PLM	Project Levee Mile
PM ₁₀	Respirable particulate matter
PM _{2.5}	Fine particulate matter
PPV	peak particle velocity
PSD	Prevention of Significant Deterioration
RCRA	Resource Conservation and Recovery Act
RD	Reclamation District
ROG	reactive organic gases
RWQCB	Regional Water Quality Control Board

SACOG	Sacramento Area Council of Governments
SB	Soil-Bentonite
SCH	School Property Evaluation Program
SHPO	State Historic Preservation Officer
SIP	State Implementation Plan
SMARA	California Surface Mining and Reclamation Act
SMBRP	Site Mitigation and Brownfields Reuse Program
SO _x	sulfur oxides
SR	State Route
SRFCP	Sacramento River Flood Control Project
SVI	Sacramento Valley Intrastate
SWAT	Solid Waste Assessment Test
SWEEPS	Statewide Environmental Evaluation and Planning System
SWRCB	State Water Resources Control Board
SWPPP	storm water pollution prevention plan
TAC	toxic air contaminant
TDS	total dissolved solids
TNW	traditional navigable waters
tpy	tons per year
TRLIA	Three Rivers Levee Improvement Authority
UCMP	University of California Museum of Paleontology
USC	United States Code
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
UST	underground storage tank
UTM	Universal Transverse Mercator
UYLIP	Upper Yuba Levee Improvement Project
VdB	See 'Lv'
VELB	Valley Elderberry Longhorn Beetle
VOCs	volatile organic compounds
VPFS	vernal pool fairy shrimp
VPTS	vernal pool tadpole shrimp
WMUDS	Waste Management Unit Database System
WRDA	Water Resources Development Act
YCWA	Yuba County Water Agency
Y-FSFCP	Yuba-Feather Supplemental Flood Control Project
YRSL	Yuba River South Levee

1.0 INTRODUCTION

The Three Rivers Levee Improvement Authority (TRLIA) has prepared this initial study/proposed mitigated negative declaration (IS/MND) in compliance with the California Environmental Quality Act (CEQA) to address the environmental consequences of the proposed Upper Yuba Levee Improvement Project (UYLIP, project, or proposed project) in Yuba County, California. TRLIA is the lead agency under CEQA. The levee is maintained by Reclamation District (RD) 784.

The Upper Yuba Levee Improvement Project is located in the southern portion of Yuba County along the Yuba River South Levee (YRSL). The project area is located upstream of the confluence of the Yuba River and the Feather River and east of the City of Marysville and approximately one mile south of the Yuba River. The proposed improvements would occur along the YRSL between Simpson Lane and the Yuba Goldfields.

Studies conducted in 2006 by the California Department of Water Resources (DWR), the Corps, RD 784, and TRLIA showed that several reaches of the levee system protecting the RD 784 area, including the YRSL and the Feather River (east) bank levee, did not satisfy geotechnical criteria for seepage at the water surface elevation for a 100-year flood event. To correct the deficiencies identified along segments of the Feather and Yuba Rivers, TRLIA and the Corps undertook the Feather River Levee Repair Project (FRLRP). The FRLRP was divided into three segments for repairs/improvements; Segments 1 and 3, which included a portion of the YRSL from PLM 0.0 to PLM 0.3 were evaluated in a previous environmental assessment by the Corps (**Corps 2007**). The design objective of the FRLRP was to achieve the 1957 design flood profile, which matches the 200-year water surface profile, and to add three feet of freeboard over the 200-year water surface profile in order to provide a 200-year level of protection for portions of the Feather and Yuba Rivers.

Phase 4 of the Yuba River Levee Repair Project consisted of making repairs to the portion of the YRSL from just downstream of State Route (SR) 70 (approximately PLM 0.3) to Simpson Lane (PLM 2.3). The primary objective of Phase 4 of the Yuba River Levee Repair Project was to construct levee improvements necessary to provide 200-year freeboard and under-seepage flood protection along the project reach and to enable the project reach to retain Federal Emergency Management Agency (FEMA) certification for 100-year flood protection. Phase 4 of the Yuba River Levee Repair Project was evaluated in a previous Initial Study by TRLIA (**TRLIA 2006**).

The proposed UYLIP would complete necessary levee improvements on the YRSL in the RD 784 service area and would provide enhanced flood protection within the Yuba River Basin. The project would involve installing slurry walls, seepage berms, levee geometry corrections, levee slope erosion protection, and relief wells in the UYLIP project area.

This document includes:

- ▶ an IS to satisfy CEQA requirements,
- ▶ an MND to satisfy CEQA requirements, and
- ▶ a notice of availability and intent to adopt an IS/MND for the proposed project.

After completion of the required public review of this document, TRLIA intends to adopt the MND and the mitigation monitoring and reporting program, and to approve the proposed project.

1.1 PURPOSE OF THE INITIAL STUDY

This document is an IS/MND prepared in accordance with CEQA (Public Resources Code Section 21000 et seq.) and the State CEQA Guidelines (Title 14, Section 15000 et seq. of the California Code of Regulations). The purpose of this IS/MND is to (1) determine whether project implementation would result in potentially significant

or significant effects on the environment, and (2) incorporate mitigation measures into the project design, as necessary, to eliminate the project's potentially significant or significant project effects or reduce them to a less than-significant level. An IS/MND presents the environmental analysis and substantial evidence supporting its conclusions regarding the significance of environmental impacts. Substantial evidence may include expert opinion based on facts, technical studies, or reasonable assumptions based on facts. An IS/MND is neither intended nor required to include the level of detail used in an EIR.

CEQA requires that all state and local government agencies consider the environmental consequences of projects they propose to carry out, or over which they have discretionary authority, before implementing or approving those projects. As specified in Section 15367 of the State CEQA Guidelines, the public agency that has the principal responsibility for carrying out or approving a project is the lead agency for CEQA compliance. TRLIA has principal responsibility for carrying out the proposed project and is therefore the CEQA lead agency for this IS/MND.

As specified in Section 15064(a) of the State CEQA Guidelines, if there is substantial evidence (such as the results of an IS) that a project, either individually or cumulatively, may have a significant effect on the environment, the lead agency must prepare an EIR. The lead agency may instead prepare an IS if it determines there is no substantial evidence that the project may cause a significant impact on the environment. The lead agency may prepare an MND if, in the course of the IS analysis, it is recognized that the project may have a significant impact on the environment but that implementing specific mitigation measures would reduce any such impacts to a less-than-significant level (State CEQA Guidelines, Section 15064[f]).

TRLIA has prepared this IS to evaluate the potential environmental effects of the proposed project and has incorporated mitigation measures to reduce or eliminate any potentially significant project-related impacts. Therefore, an MND has been prepared for this project.

1.2 SUMMARY OF FINDINGS

Chapter 3 of this document contains the analysis and discussion of potential environmental impacts of the proposed project. Based on the issues evaluated in that chapter, it was determined that the proposed project would have no impact related to the following issue areas:

- ▶ aesthetics;
- ▶ mineral resources;
- ▶ population and housing; and,
- ▶ recreation.

The proposed project would result in less-than-significant impacts on the following issue areas:

- ▶ agricultural resources;
- ▶ greenhouse gas emissions;
- ▶ land use and planning; and,
- ▶ utilities and service systems.

The proposed project would result in less-than-significant impacts *after* mitigation on the following issue areas:

- ▶ air quality;

- ▶ biological resources;
- ▶ cultural resources;
- ▶ geology and soils;
- ▶ hazards and hazardous materials;
- ▶ hydrology and water quality;
- ▶ noise;
- ▶ public services; and,
- ▶ transportation and circulation.

Thus, with the incorporation of mitigation measures described in this IS/MND, the project would not have a significant effect on the environment

1.3 DOCUMENT ORGANIZATION

This document is divided into the following sections:

Notice of Availability and Intent to Adopt an IS/MND. The notice of availability and intent to adopt an IS/MND provides notice to responsible and trustee agencies, interested parties, and organizations of the availability of this IS, as well as TRLIA’s intent to adopt an IS/MND for the proposed project.

MND. The MND, which precedes the IS analysis, summarizes the environmental conclusions and identifies mitigation measures that would be implemented in conjunction with the proposed project. The MND would be signed by a representative of TRLIA.

Chapter 1, “Introduction.” This chapter provides a brief summary of the proposed project and describes the purpose of the IS/MND, provides a summary of findings, and describes the organization of this IS/MND.

Chapter 2, “Project Description.” This chapter describes the purpose of and need for the proposed project, general background, and project elements.

Chapter 3, “Environmental Setting, Impacts, and Mitigation Measures.” This chapter presents an analysis of environmental issues identified in the CEQA environmental checklist, and determines whether project implementation would result in no impact, a less-than-significant impact, a less-than-significant impact with mitigation incorporated, or a potentially significant impact on the environment in each of the issue areas. If any impacts were determined to be potentially significant, an EIR would be required. For this project, however, mitigation measures have been incorporated where needed, to reduce all potentially significant impacts to a less-than- significant level.

Chapter 4, “List of Preparers.” This chapter identifies report preparers.

Chapter 5, “References Cited.” This chapter lists the references used in preparation of this IS/MND.

1.4 RELATED STUDIES AND DOCUMENTS

The following flood control studies are being conducted currently in the region:

Yuba River General Re-evaluation Report (GRR). The Yuba River Basin Final Feasibility Report was completed by the Corps in April of 1998. Subsequent to the Water Resources Development Act (WRDA) of 1999 authorization, the Corps began developing the GRR for the Yuba River Basin. The intent of the GRR is to address current levee stability and seepage design procedures and to expand the scope to provide enhanced flood risk reduction measures within the Yuba River Basin study area, including the area served by RD 784. The Yuba River GRR is currently being drafted and is scheduled to be completed in 2010.

Marysville Ring Levee (MRL). The City of Marysville is bordered by the Yuba River to the south, Jack Slough to the north, and the Feather River to the west. It is surrounded by 16 to 28 foot high levees on all sides (Ring Levee) that serve to protect it from flooding. The Marysville Ring Levee project was authorized as part of the Water Resources Development Act WRDA of 1999.

Although the Yuba River GRR, as mentioned above is not complete, currently the GRR evaluations have not found significant changes needed in the original authorized recommendations either outside or within the MRL portion of the Yuba River Basin study area. Therefore, the current GRR effort does not substantially change the design of the MRL from what was originally authorized by the Corps. Thus, the MRL component of the authorized Yuba River Basin project was approved to proceed to design without being reevaluated as part of the GRR. This decision was based on the following: the Ring Levee is a hydraulically separate element of the Yuba River Basin project; the design has not changed substantially from the initially authorized project; and the basic technical issues regarding the stability and seepage of the Ring Levee had been resolved.

The currently proposed MRL project shows that the existing Ring Levee protecting Marysville should be strengthened through a variety of methods including cutoff walls and seepage berms. Due to project funding, the Marysville Ring Levee project is being broken into nine reaches. Reach B or Phase 1, located near Jack Slough along the north side of the City of Marysville, is the initial element of the MRL project to be designed and constructed in 2010.

The information contained in the following related documents should also be considered when reviewing this Draft IS/MND:

- ▶ U.S. Army Corps of Engineers and The Reclamation Board. 1998 (April). *Yuba River Basin Investigation, California, Final Environmental Impact Statement/Environmental Impact Report*. Sacramento, CA. Prepared by the U.S. Army Corps of Engineers, Sacramento District and The Reclamation Board, State of California.
- ▶ Yuba County Water Agency. 2003 (June). *Report on Feasibility, Yuba-Feather Supplemental Flood Control Project*, including supporting appendices. Marysville, CA. Prepared by Flood Control Study Team. Prepared for submittal to California Department of Water Resources, Sacramento, CA.
- ▶ Yuba County Water Agency. 2003 (October). *Draft Environmental Impact Report for the Yuba-Feather Supplemental Flood Control Project*. State Clearinghouse #2001072062. Marysville, CA. Prepared by EDAW, Jones & Stokes, and Flood Control Study Team.
- ▶ Yuba County Water Agency. 2004 (March). *Final Environmental Impact Report for the Yuba-Feather Supplemental Flood Control Project*. State Clearinghouse #2001072062. Marysville, CA. Prepared by EDAW, Jones & Stokes, and Flood Control Study Team.
- ▶ Three Rivers Levee Improvement Authority. 2004 (August). *Final Environmental Impact Report for the Bear River and Western Pacific Interceptor Canal Levee Improvements Project*. State Clearinghouse #2004032118. Marysville, CA. Prepared by Jones & Stokes, Sacramento, CA.
- ▶ Yuba County Water Agency and Three Rivers Levee Improvement Authority. 2004 (October). *Report on Feasibility of RD 784 Supplemental Flood Control Improvements of the Yuba-Feather Supplemental Flood*

Control Project. Marysville, CA. Prepared by Flood Control Study Team. Prepared for submittal to California Department of Water Resources, Sacramento, CA.

- ▶ Three Rivers Levee Improvement Authority. 2004 (September). *Draft Environmental Impact Report for the Feather Bear Rivers Levee Setback Project*. State Clearinghouse #2004072113. Marysville, CA. Prepared by EDAW and Flood Control Study Team.
- ▶ Three Rivers Levee Improvement Authority. 2004 (November). *Final Environmental Impact Report for the Feather Bear Rivers Levee Setback Project*. State Clearinghouse #2004072113. Marysville, CA. Prepared by EDAW and Flood Control Study Team.
- ▶ Three Rivers Levee Improvement Authority. 2006 (August). *Draft Environmental Impact Report for the Feather River Levee Repair Project, an Element of the Yuba-Feather Supplemental Flood Control Project*. State Clearinghouse #2006062071. Marysville, CA. Prepared by EDAW and Flood Control Study Team.
- ▶ Three Rivers Levee Improvement Authority. 2006 (July). *Initial Study for the Yuba River Levee Repair Project (Phase 4)*. State Clearinghouse # 2006062037. Marysville, CA. Prepared by Jones & Stokes, Sacramento, CA.
- ▶ Three Rivers Levee Improvement Authority. 2006 (November). *Final Environmental Impact Report for the Feather River Levee Repair Project, an Element of the Yuba-Feather Supplemental Flood Control Project*. State Clearinghouse #2006062071. Marysville, CA. Prepared by EDAW and Flood Control Study Team.
- ▶ U.S. Army Corps of Engineers. 2007 (July). *Environmental Assessment for the Feather River Levee Repair Project, Segments 1 and 3*. Sacramento, CA. Prepared by the U.S. Army Corps of Engineers, Sacramento District.
- ▶ U.S. Army Corps of Engineers. 2008 (May). *F4 Draft Yuba River Basin General Reevaluation Report (GRR) of the Yuba River Basin, California Study*. Sacramento, CA. Prepared by the U.S. Army Corps of Engineers, Sacramento District.
- ▶ U.S. Army Corps of Engineers. 2008 (October). *Final Environmental Impact Statement for the 408 Permission and 404 Permit to Three Rivers Levee Improvement Authority for the Feather River Levee Repair Project, California, Segment 2*. Sacramento, CA. Prepared by the U.S. Army Corps of Engineers, Sacramento District and EDAW.

2.0 PROJECT DESCRIPTION

2.1 PROJECT SETTING AND LOCATION

2.1.1 REGIONAL SETTING

The RD 784 area of Yuba County is bounded by the Yuba River on the north, the Feather River on the west, the Bear River on the south, and the Western Pacific Interceptor Canal (WPIC) on the east (**Figure 2-1**). The Yuba River is a tributary to the Feather River, and the WPIC connects with the Bear River upstream of the confluence with the Feather River. Project activities would be limited to the YRSL. The YRSL is briefly described below.

YUBA RIVER

The Yuba River drains the western slope of the Sierra Nevada and flows southwest to its confluence with the Feather River in Marysville (see **Figure 2-1**). The main stem of the Yuba River forms at the juncture of the Middle and North Yuba Rivers just south of New Bullards Bar Reservoir. The South Yuba River meets the main stem of the Yuba River near Bridgeport in Nevada County, approximately one mile east of Yuba County. Large portions of the Yuba River drainage (Middle and South Forks) are unregulated with respect to flood flows. Near Marysville, the main stem of the Yuba River drains approximately 1,390 square miles.

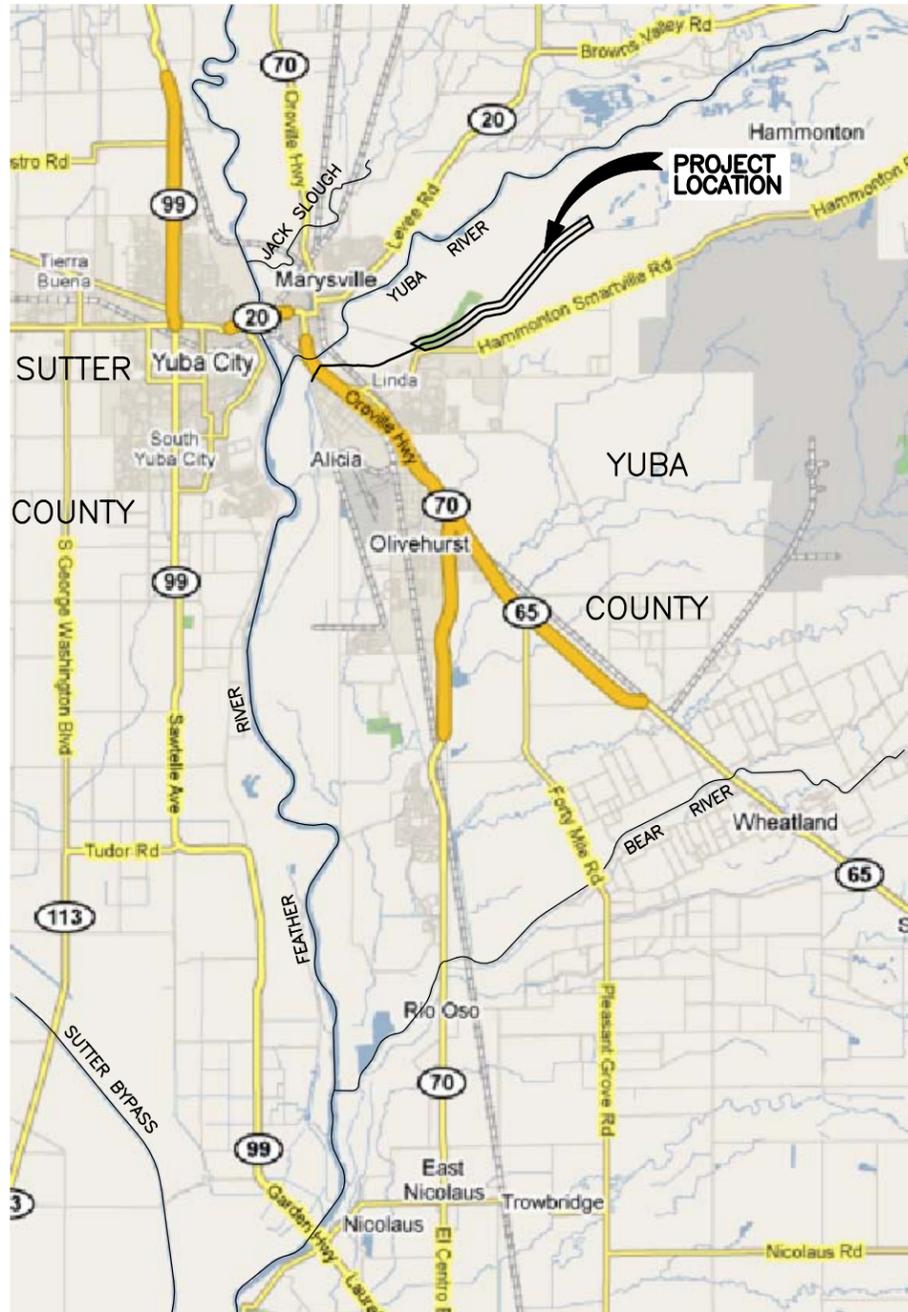
2.1.2 PROJECT LOCATION

The proposed project is located in the southern portion of Yuba County along the YRSL, upstream of the confluence of the Yuba River and the Feather River, east of the City of Marysville, and south of the Yuba River. The project area would be located from approximately Simpson Lane (PLM 2.3; Project Station 102+00) to the Yuba Goldfields (PLM 6.1; Project Station 303+59). The total length of the project is approximately 3.8 miles. The proposed project follows the alignment of Simpson Dantoni Road for approximately 6,200 feet (1.2 miles) and then extends northeast for the remainder length of approximately 13,959 feet (2.6 miles) and terminates at the southwestern edge of the Yuba Goldfields. The project improvements would be located within the area of maintenance responsibilities of RD 784.

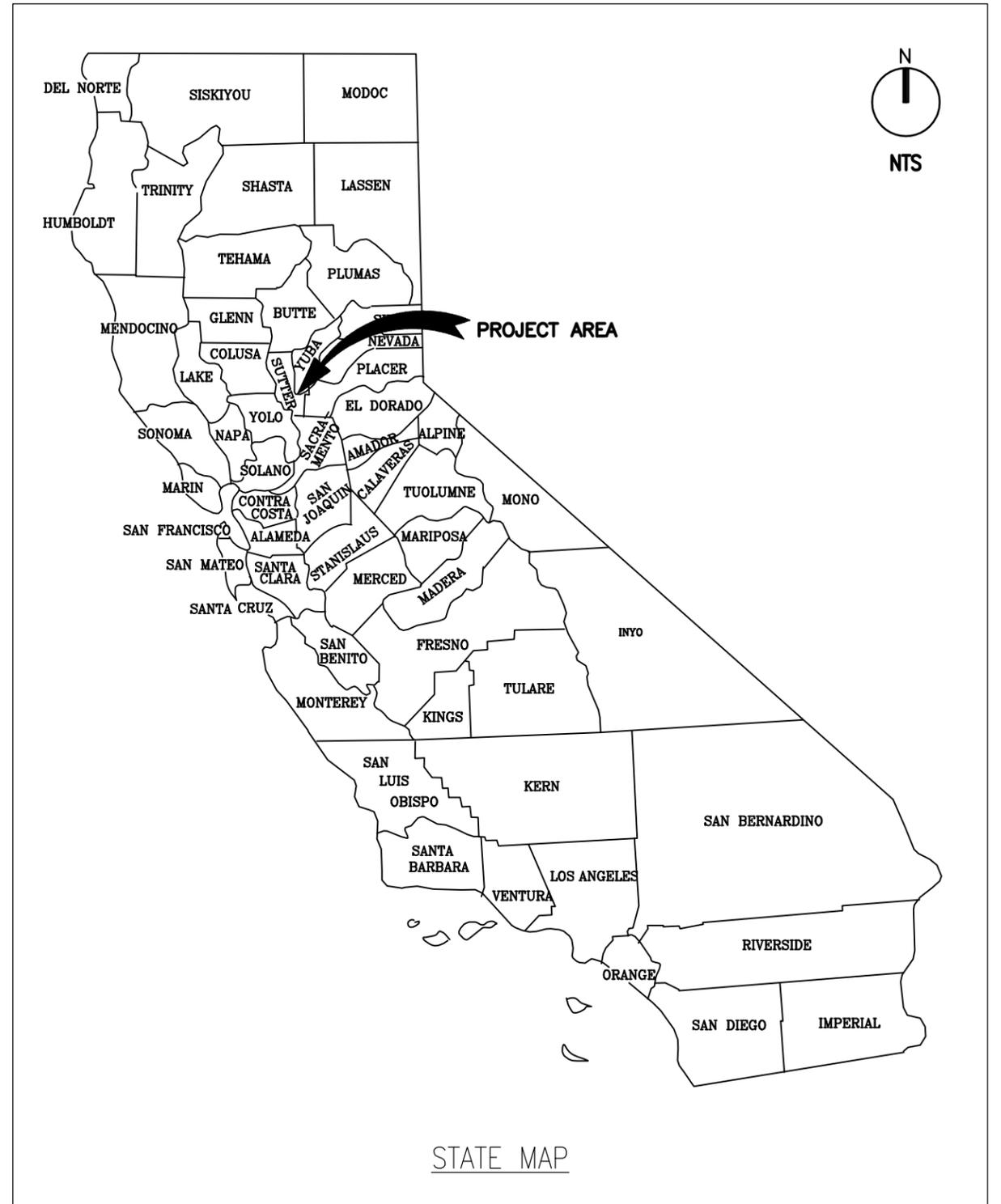
The existing YRSL is part of the federal-state Sacramento River Flood Control Project (SRFCP) within an easement obtained by the State of California through the Sacramento–San Joaquin Drainage District. The YRSL in the project area was originally built in the 1870s. Prior to that, individual farmers typically built levees to protect orchards and crops from flooding that occurred in the 1850s caused by hydraulic mining upstream in the Yuba River watershed. However, various flood events over time damaged the YRSL and it has been repaired and rebuilt over time. The current YRSL is not the original levee. In 1998, the Corps constructed various improvements along the YRSL in the project area including through levee cutoff walls, a landside seepage berm, and waterside levee slope erosion repair. The YRSL is maintained by RD 784 under the supervision of the Central Valley Flood Protection Board (CVFPB).

2.2 PURPOSE

TRLIA is a joint powers authority with the mission of advancing flood safety in Yuba County, California. The county is subject to seasonal flood threats from many rivers and creeks, including the Yuba River, Feather River, Bear River, and tributary drainages. Because of this flood risk, many local rivers have been confined by constructed levees. Therefore, TRLIA is proposing to enhance flood protection of properties within the RD 784 service area of Yuba County by improving a segment of the south levee of the Yuba River from approximately Simpson Lane (Project Levee Mile [PLM] 2.3; Project Station 102+00) to the Yuba Goldfields (PLM 6.1; Project Station 303+59). The total length of the project is approximately 3.8 miles. **Figure 2-1** shows the project location and vicinity.



SITE MAP



STATE MAP

Figure 2-1
Project Location and Vicinity

The purpose of the proposed project is to correct levee deficiencies and improve flood protection on the YRSL. The proposed project would provide a minimum 200-year level of flood protection in the project area and ensure that the project area meets the minimum requirements of Federal and State laws.

2.2.1 BACKGROUND AND NEED FOR IMPROVED FLOOD PROTECTION

Geotechnical studies concluded that there are significant problems related to under and through seepage along the YRSL (Kleinfelder 2009). In addition, based on review of existing levee conditions and the 200-year water surface elevation provided by MBK Engineers, levee improvements are required to provide adequate freeboard on portions of the YRSL. Furthermore, portions of the YRSL have slope stability deficiencies and do not meet the Corps' minimum levee slope criteria. These improvements are part of an ongoing program of levee modifications that are necessary to retain FEMA certification for 100-year or better flood protection. Therefore, the UYLIP is proposed to provide increased flood protection along the YRSL in Yuba County.

Yuba County has a long history of flooding. Historical accounts during the 1800s describe repeated occurrences of large floods on the Feather and Yuba Rivers. Attempts to protect agricultural lands from floodwaters resulted in the establishment of RD 784, which provided a way for Yuba County to build levees to provide flood protection among other services.

RD 784 was established in May 1908, and operates under the authority of the CVFPB and DWR. RD 784 covers approximately 29,000 acres including 37 miles of levees, more than 40 miles of internal drainage canals, and nine pumping stations. RD 784 includes approximately 30 miles of levees originally authorized as part of the SRFCP. RD 784 is bound to the north by the YRSL, to the south by the Bear River North Levee, to the west by the Feather River Left Bank levee and to the east by the WPIC western levee.

The levees surrounding RD 784 have historically performed poorly during flood events. Some levees were constructed by farmers and other landowners, resulting in levees that did not meet design criteria and subsequently failed during times of high water. From 1920 to 1964 the Corps took control of the levee system and constructed upgrades, either through reconstruction of existing levees or construction of new setback levees. Once the levees were built to a satisfactory standard, the Corps returned control to the State, who in turn assigned the maintenance duties to RD 784. The construction of two reservoirs, Oroville and New Bullards Bar, helped alleviate the threat of high water to the RD 784 levee system. Even with these improvements, the levees still failed along the Yuba River in 1986 and the Feather River in 1997. Both breaches resulted in federal emergency assistance, expanded authorizations, and appropriations for the Corps to assist the State of California and RD 784 with additional levee strengthening.

Despite the construction of a system of flood control levees beginning in the early 20th century, multiple recorded floods occurred in the 1900s, and five major floods—in 1950, 1955, 1964, 1986, and 1997—caused substantial property damage and loss of life. Over the past 20 years, two prominent flood events in Yuba County have led to significant efforts in evaluating the flood protection afforded by the existing levees. The first event was the flood of 1986. As a result of a levee failure on the Yuba River upstream of SR 70, flood waters inundated 10,700 acres, killed one person, and damaged or destroyed more than 4,000 homes and businesses. Following this event, the Corps and DWR started the Systems Evaluation Report.

The second prominent flood event took place in 1997, when flood waters inundated 16,000 acres in Yuba County, killed three people, and damaged or destroyed more than 850 homes and businesses. During the 1997 flood, Yuba River flows infiltrated the Yuba Goldfields and a portion of these flows exited the Goldfields through its contact point with the upstream end of the YRSL. There is no available information indicating that flood flows from the Goldfields have ever been released at this location before. The exiting flows were concentrated along the waterside toe of the YRSL, and eroded approximately one-third of the YRSL embankment for a distance of approximately 1,200 feet downstream of the Goldfields. The flows were diverted away from the levee toe further downstream through a historic minor tributary of the Yuba River. After the flood, the erosion damage was

repaired by the National Guard, under the direction of RD 784. A mixture of cobblestones and fines was put in place to restore the eroded levee section. However, the restored levee is still subject to erosion damage from any flows that may exit the Yuba Goldfields at this location in the future.

Following the 1997 flood, the Yuba County Water Agency (YCWA) formed a flood control study team and initiated a study of measures that could provide a higher level of protection to supplement the flood protection system for Yuba County. With passage of the Water Act of 2000, the efforts of the study team focused on those measures that could be achieved within the budget provisions of this act. This ongoing effort, funded through Water Act of 2000 grant monies, is the Yuba-Feather Supplemental Flood Control Project (Y-FSFCP).

In 1998, concurrently with studies conducted by the YCWA, the Corps conducted a feasibility study to increase the level of flood protection to Yuba County. This project is referred to as the Yuba River Basin Investigation or, in short, the Yuba Basin Project. Additional improvements were planned to the existing levee system to raise the levee's Probable Non-failure Point (defined as the highest water level at which it is highly likely that the levee would not fail) and thus increase the level of flood protection. An environmental impact statement/environmental impact report for the Yuba River Basin Investigation was completed by Corps and the California Reclamation Board (now referred to as the CVFPB) in 1998. Portions of the planned Yuba Basin Project work overlap with flood system improvements planned by the YCWA and others described below.

The U.S. Congress approved the Yuba Basin Project in 1998 and construction was authorized to begin in 2002. In 2003, the Corps issued new levee criteria, which lead to the reevaluation of the Yuba Basin Project's design. The Corps' new under seepage guidelines in 2003 led to the reevaluation of the project, which substantially increased the estimated cost. Because of this cost increase, the Yuba River Basin Project must be reauthorized by Congress. A General Reevaluation Report is currently being prepared by the Corps to obtain a new project authorization and to initiate construction.

A program-level draft environmental impact report for YCWA's Y-FSFCP was completed in October 2003 in compliance with the CEQA (**Yuba County Water Agency 2003a**). It evaluated various flood control elements, including improvements to the left bank levee of the Feather River below the Yuba River. The final environmental impact report was completed and certified and approved by the YCWA Board in March 2004 (**Yuba County Water Agency 2004**).

In 2003, DWR's FEMA Flood Mapping Study identified deficient levee sections in the flood protection system for the county. DWR informed RD 784, Yuba County, and YCWA that study results would be provided to FEMA. In turn, FEMA would map areas protected by the deficient levee sections as a flood hazard zone (i.e., within the 100-year floodplain) unless corrective measures were implemented.

As a response to the studies and Yuba County flood mapping, RD 784, and YCWA conducted various studies to determine necessary actions for RD 784 levees to meet current FEMA criteria. The group of agencies formed TRLIA in 2004 as a joint powers authority to facilitate cooperation and share resources to finance and construct levee improvements. Four work phases were identified to improve 29 miles of RD 784 levees along the Yuba River, Feather River, Bear River and the WPIC with the goal of achieving 200-year flood protection for South Yuba County. Priority was given to implementing improvements to: the Yuba River levee above SR 70 (Phase 1); improvements to the upper Bear River, WPIC, and Yuba River levees, and the Olivehurst detention basin (Phase 2); and construction of a setback levee along the lower Bear River, tying into the Feather River levee just below Clark Slough (Phase 3). The first construction work was initiated in September 2004. Phases 1, 2, 3, and portions of phase 4 have been completed and 10.5 miles were certified to meet FEMA requirements by the Corps on May 8, 2007.

In 2006, the YRSL between SR 70 and Simpson Lane was improved with a slurry wall and seepage berm. It was not until recent geotechnical and hydraulic studies were completed that TRLIA determined the need for additional improvements to the YRSL from Simpson Lane to the Yuba Goldfields. The proposed UYLIP, an element of the

Y-FSFCP and part of Phase 4 of planned flood protection improvements, is an update to the Yuba River Levee improvements previously proposed and evaluated in the Y-FSFCP EIR. As stated previously, the UYLIP is intended to correct levee deficiencies and improve flood protection on the YRSL, from approximately Simpson Lane to the Yuba Goldfields thereby enhancing flood protection for the RD 784 area of Yuba County.

2.3 PROPOSED PROJECT

2.3.1 OVERVIEW

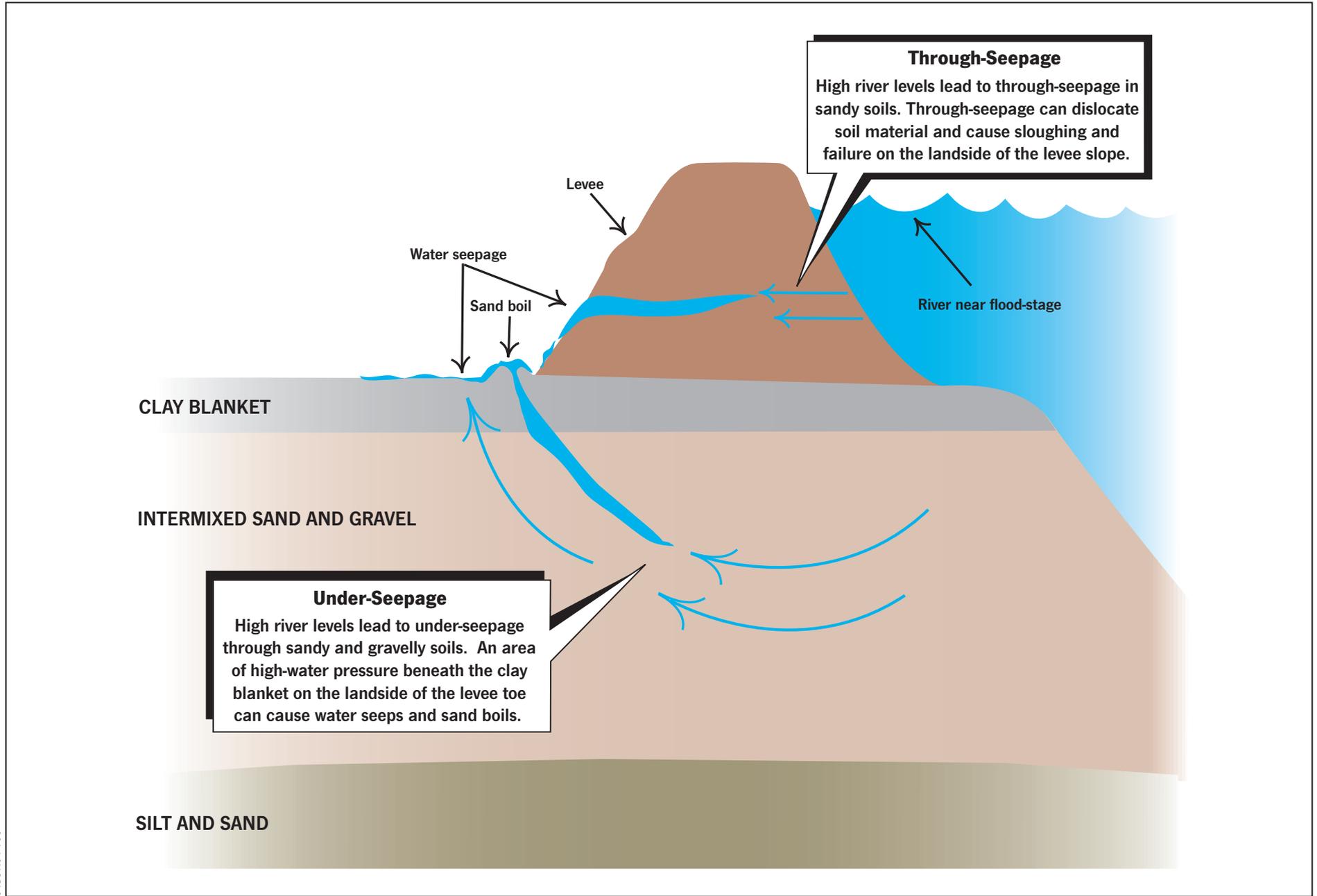
Most of the levee system in Yuba County was constructed during the 1920s using construction practices of that era. Studies by DWR, the Corps, RD 784, and TRLIA have found that several reaches of the levee system protecting the RD 784 area do not satisfy geotechnical criteria for seepage at the water surface elevation for the 100-year flood event.

A detailed analysis of the YRSL was performed and is described in the *Draft Geotechnical Basis of Design Report, Upper Yuba Levee Improvement Project, Yuba River South Levee Evaluation, Reclamation District 784, Yuba County, California (Kleinfelder 2009)*. The purpose of the analysis described in the Geotechnical Basis of Design Report was to perform a feasibility-level evaluation of subsurface geotechnical conditions and levee conditions of the YRSL in the project area in accordance with FEMA requirements. The conclusions of the Geotechnical Basis of Design Report indicate that portions of the YRSL do not currently meet FEMA geotechnical certification requirements for through-seepage or under seepage.

Through-seepage is a phenomenon wherein water moves outward from the river channel through the levee cross section (See **Figure 2-2**). The key problem associated with through-seepage is levee breach or collapse, which occurs when the earthen material within the levee becomes undermined by the pressure of the seeping water. Soil piping can occur as the result of seepage. Soil piping is when a hole in a levee becomes exploited by moving water, causing the hole to rapidly increase and threaten the levee integrity. Several factors contribute to seepage, including high water pressure, and pervious earth material within or underlying the levee.

Similar to through-seepage, under-seepage is where water moves outward and downward from the river channel below the levee and surrounding land surface (See **Figure 2-2**). The key problem with under-seepage is when the earthen material underlying the levee becomes undermined by the pressure of the seeping water. As with through-seepage, soil piping may occur and threaten levee integrity. The factors that contribute to under-seepage are the same as those discussed above in through-seepage.

The proposed project described below, and analyzed in this IS/MND, is being considered to correct seepage and freeboard deficiencies identified by recent hydraulic and geotechnical investigations and would result in improvements to the flood protection provided by the YRSL from approximately Simpson Lane (PLM 2.3; Project Station 102+00) to the project terminus at the Yuba Goldfields (PLM 6.1; Project Station 303+59), approximately 3.8 miles. Levee improvements would consist of slurry walls, seepage berms, levee geometry corrections, and levee slope erosion protection. A description and location of the proposed improvements follows.



04361.04.100

*Figure adapted from the Yuba River Levee Repair Project (Phase 4) Initial Study prepared by Jones & Stokes

Figure 2-2
Through and Under Seepage Figure

2.3.2 PROPOSED IMPROVEMENTS

- ▶ The proposed project would involve implementation of levee repairs and improvements along the entire 3.8 miles of the YRSL under consideration:
- ▶ A Soil-Bentonite (SB) Slurry Wall would be placed from Project Station 136+50 to Project Station 288+00 (2.9 miles). The Slurry Wall would be three feet wide and range in depth from 55 to 80 feet. The wall would be placed through the centerline of the levee crown into the underlying foundation. The bottom of the wall would tie into foundation strata of low permeability from Project Station 136+50 to Project Station 189+50 and Project Station 212+50 to Project Station 288+00. However, due to deep gravel deposits that exist in ancient river channels in one area, a portion of the wall (Project Station 180+00 to Project Station 216+00) would be installed as a hanging wall; the bottom of the wall would not tie into foundation strata of low permeability. The hanging wall would serve to block levee through seepage and increase the seepage path through the foundation and reduce levee under seepage. The existing levee would be degraded to about one half of its height to provide a working platform for the slurry wall construction activities. The slurry wall would be capped with clay as the levee crown is restored.
- ▶ An 80 foot wide seepage berm would be placed from Project Station 288+00 to Project Station 301+00 (0.25 miles). The seepage berm would be a minimum of three feet high at its toe and slope up towards the levee at a minimum 2percent slope, and the seepage berm at the toe of the levee would be a minimum of five feet high. The berm would be constructed of local semi-permeable material. The material would be obtained from borrow areas to be established adjacent to the YRSL.
- ▶ Above the seepage berm, a stability berm would be built at a 5:1 slope, such that the top of the stability berm meets the landside slope of the levee at the 200-year water surface elevation (WSE).
- ▶ From Project Station 301+00 to Project Station 303+59 the seepage berm would be widened from 80 to 150 feet to form a buffer with the high ground cobble mounds of the Yuba Goldfields. The height of the berm would match the existing levee crown grade.
- ▶ A waterside levee slope erosion protection blanket would be placed from Project Station 272+00 to Project Station 303+59 (0.6 miles). The blanket would extend from the 200-year WSE, down the waterside slope to the toe of the levee (approximately 22 feet on average), and project 20 feet from the levee toe out into the natural swale that parallels the levee in this area. The blanket would serve to armor this section of the levee that experienced erosion damage from waters that escaped from the Yuba Goldfields during the 1997 flood.
- ▶ Levee geometry corrections would be required to bring the levee into compliance with current Corps standards (2 to 1 landside slope, 20 foot crown width, and 3 to 1 waterside slope). Geometry corrections would be required for the portions of the existing YRSL that do not meet these criteria. Geometry corrections could include a combination of waterside slope corrections, crown width corrections, and landside slope corrections at the following approximate locations Project Station 106+00 to Project Station 123+00 and Project Station 136+00 to Project Station 303+59.
- ▶ To the extent that existing facilities would not be impacted, the project would include a continuous 50 foot wide Operations and Maintenance corridor adjacent to the landside toe of the levee and a 15 foot wide Operations and Maintenance corridor adjacent to the waterside toe of the levee. These corridors would be acquired from the adjacent landowners.
- ▶ A 16 foot wide aggregate base access road would be located along the centerline at the levee crown (top).

Figure 2-3a-d shows the project area and the proposed improvements. **Figure 2-4** shows the typical cross-section of the proposed waterside levee erosion protection blanket, the proposed seepage berm, and the

proposed slurry wall. The intended outcome of the repairs and improvements is to ensure that all portions of the YRSL meet the engineering and design standards of the CVFPB and the Corps and that the YRSL meets FEMA geotechnical requirements for through-seepage and under seepage at the water surface elevation for the 200-year flood event. Installation of additional relief wells is also proposed in some locations near the end of the project.

SLURRY CUTOFF WALLS

Because of the depths and thickness of pervious strata generally present along the YRSL, the most practical method of constructing a cutoff wall is the slurry wall method. In the slurry wall method, a cutoff trench is excavated and filled with a soil-bentonite slurry to keep the trench from collapsing during excavation; the trench is then backfilled with native soil mixed with cement-bentonite (for cutoff walls constructed through the levee embankment) or bentonite (for cutoff walls through the waterside levee foundation) to provide a cutoff with reduced permeability.

Slurry cutoff walls are proposed along those portions of the levees where strata of permeable sands and gravels exist in the foundations. To achieve maximum effectiveness, the slurry cutoff wall must extend completely through the permeable strata and terminate some distance into an underlying, reasonably continuous layer with lower permeability.

A soil-bentonite slurry cutoff wall is proposed to be constructed through the centerline of the levee crown and through sand and gravel layers in the foundation to preclude levee through and under seepage from Project Station 136+50 to Project Station 288+00. The wall would be approximately three-feet wide and range from 55 to 80 feet deep. The existing levee would be degraded by approximately one-half of its height in order to provide a sufficient work platform for a long arm excavator to excavate the slurry wall trench and to backfill with the soil-bentonite slurry mix. The slurry wall would be capped with a clay layer after initial set has occurred and the levee crown would be restored. A six-inch minimum aggregate base trafficking surface would be placed on the levee crown to comprise a 16 feet wide access road. After construction, erosion resistant mulch with grass seed would be sprayed over the levee slopes.



GEOMETRY CORRECTIONS
STA 104+00 - 125+00

SLURRY WALL ELEV +13
STA 135+10 - 182+00

TRLIA PHASE 4 - UPPER YUBA RIVER LEVEE
(PLM 2.2 TO 6.1 / STA. 102+00 TO 303+59)
THREE RIVERS LEVEE IMPROVEMENT AUTHORITY

LEGEND					
	LEVEE CROWN		LEVEE SLOPE EROSION PROTECTION (RIPRAP)		SB CUTOFF WALL ELEV VARIES
	O&M CORRIDOR 15' WATERSIDE, 50' LANDSIDE		BORROW SITE OR STAGING AREA		LIMITS OF DISTURBANCE
	LEVEE SLOPES		GEOMETRY CORRECTION		EXISTING PROPERTY LINES
	SEEPAGE BERM 80'		EXISTING ELDERBERRY SHRUB LOCATIONS		HAUL ROUTES
	TEMPORARY CONSTRUCTION EASEMENT (TCE) 50'				RELIEF WELL
					PIEZOMETER

DATE: MON, 01-05-2010

- NOTES:**
1. THE AERIAL PHOTOGRAPHY THAT IS REFERENCED TO THESE PLANS (OR TO THIS MAPPING) IS BASED ON HIGH-ALTITUDE AERIAL PHOTOGRAPHY INTENDED FOR PLANNING AND EXHIBIT PURPOSES ONLY. THIS PHOTOGRAPHY HAS NOT BEEN FULLY ORTHO-RECTIFIED; THEREFORE, IT IS NOT SUITABLE FOR DESIGN PURPOSES BECAUSE THE ACTUAL LOCATION OF GROUND FEATURES MAY DIFFER SOMEWHAT FROM WHAT IS SHOWN HEREON.
 2. THE PROPERTY LINES SHOWN HEREON ARE DERIVED FROM DIGITAL ASSESSOR MAPPING AND ARE THEREFORE APPROXIMATE IN NATURE.



SCALE: 1" = 400'



Figure 2-3a
Proposed Project Improvements



SLURRY WALL ELEV +13
STA 135+10 – 182+00

SLURRY WALL ELEV 0
STA 182+00 – 221+00

TRIA PHASE 4 – UPPER YUBA RIVER LEVEE
(PLM 2.2 TO 6.1 / STA. 102+00 TO 303+59)
THREE RIVERS LEVEE IMPROVEMENT AUTHORITY

LEGEND

- | | | | | | |
|--|---|--|---|--|-------------------------------------|
| | LEVEE CROWN | | LEVEE SLOPE EROSION PROTECTION (RIPRAP) | | SB CUTOFF WALL ELEV VARIES |
| | O&M CORRIDOR
15' WATERSIDE, 50' LANDSIDE | | BORROW SITE OR STAGING AREA | | LIMITS OF DISTURBANCE |
| | LEVEE SLOPES | | GEOMETRY CORRECTION | | EXISTING PROPERTY LINES |
| | SEEPAGE BERM 80' | | HAUL ROUTES | | RELIEF WELL |
| | TEMPORARY CONSTRUCTION EASEMENT (TCE) 50' | | PIEZOMETER | | EXISTING ELDERBERRY SHRUB LOCATIONS |

DATE: MON, 01-05-2010

NOTES:

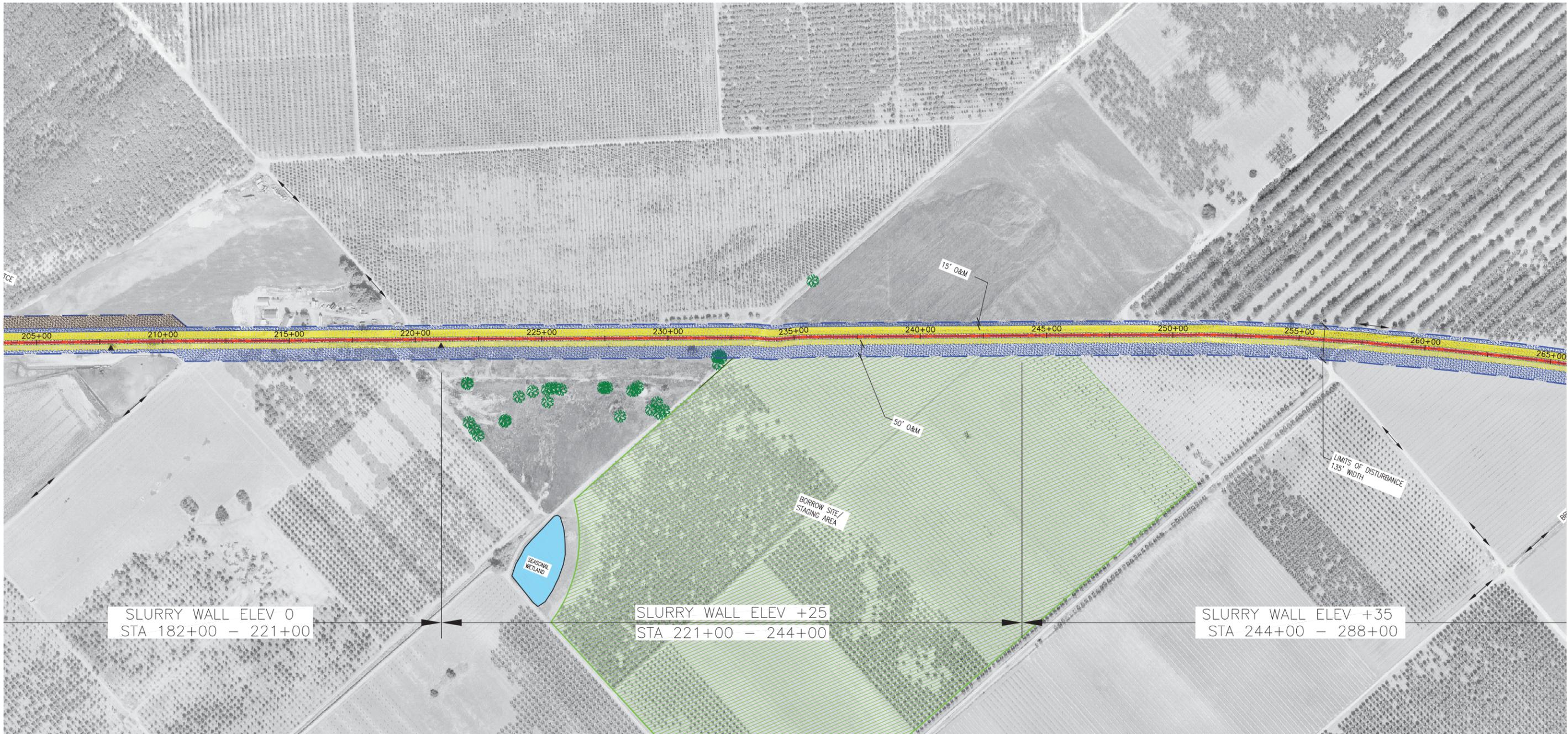
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SCALE: 1" = 400'



Figure 2-3b
Proposed Project Improvements



TRIA PHASE 4 – UPPER YUBA RIVER LEVEE
 (PLM 2.2 TO 6.1 / STA. 102+00 TO 303+59)
 THREE RIVERS LEVEE IMPROVEMENT AUTHORITY

LEGEND

	LEVEE CROWN		LEVEE SLOPE EROSION PROTECTION (RIPRAP)		SB CUTOFF WALL ELEV VARIES
	O&M CORRIDOR 15' WATERSIDE, 50' LANDSIDE		BORROW SITE OR STAGING AREA		LIMITS OF DISTURBANCE
	LEVEE SLOPES		GEOMETRY CORRECTION		EXISTING PROPERTY LINES
	SEEPAGE BERM 80'		HAUL ROUTES		RELIEF WELL
	TEMPORARY CONSTRUCTION EASEMENT (TCE) 50'		PIEZOMETER		EXISTING ELDERBERRY SHRUB LOCATIONS

DATE: MON, 01-05-2010

NOTES:

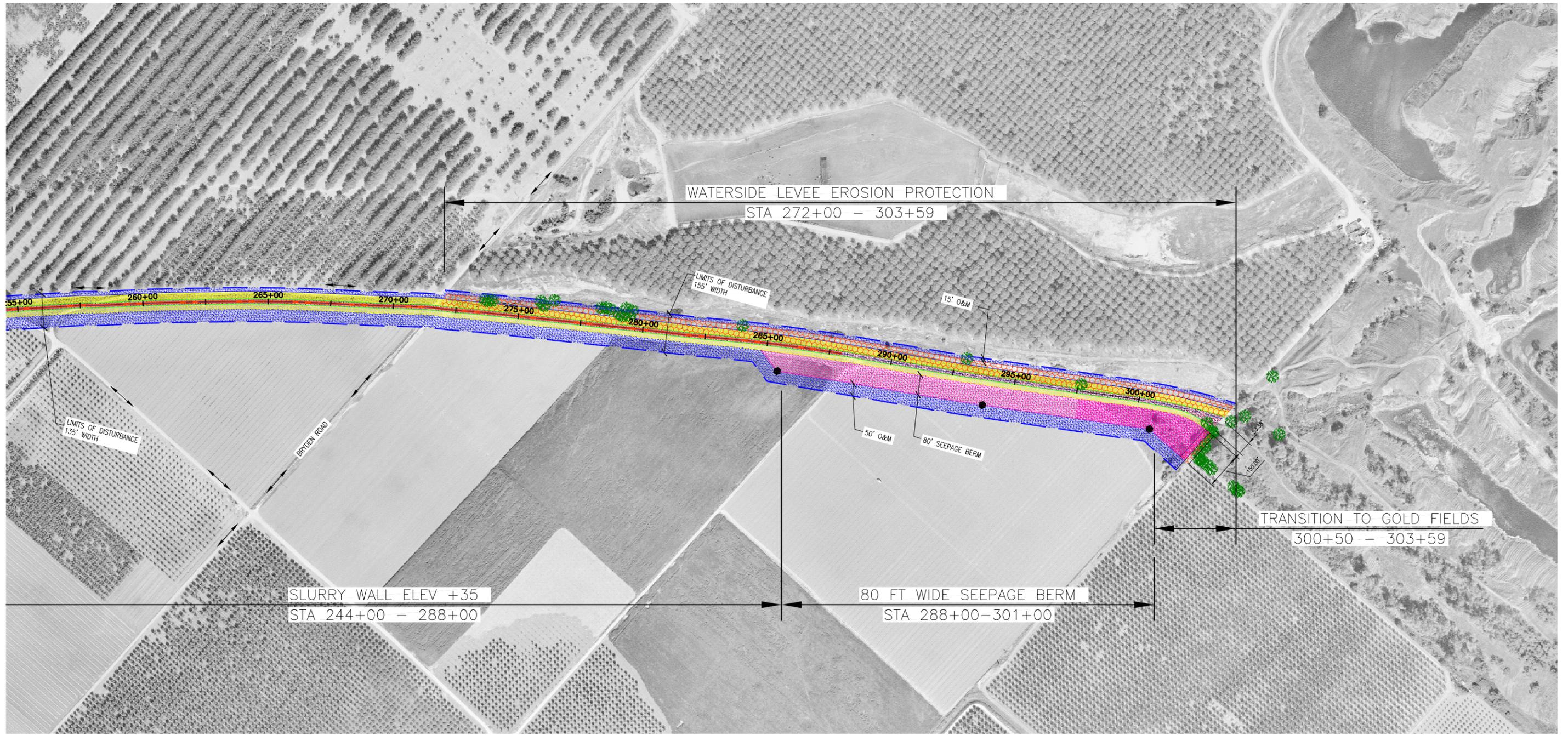
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SCALE: 1" = 400'



Figure 2-3c
Proposed Project Improvements



TRLIA PHASE 4 – UPPER YUBA RIVER LEVEE
 (PLM 2.2 TO 6.1 / STA. 102+00 TO 303+59)
 THREE RIVERS LEVEE IMPROVEMENT AUTHORITY

LEGEND	
	LEVEE CROWN
	O&M CORRIDOR 15' WATERSIDE, 50' LANDSIDE
	LEVEE SLOPES
	SEEPAGE BERM 80'
	TEMPORARY CONSTRUCTION EASEMENT (TCE) 50'
	LEVEE SLOPE EROSION PROTECTION (RIPRAP)
	BORROW SITE OR STAGING AREA
	GEOMETRY CORRECTION
	EXISTING ELDERBERRY SHRUB LOCATIONS
	SB CUTOFF WALL ELEV VARIES
	LIMITS OF DISTURBANCE
	EXISTING PROPERTY LINES
	HAUL ROUTES
	RELIEF WELL
	PIEZOMETER

DATE: MON, 01-05-2010

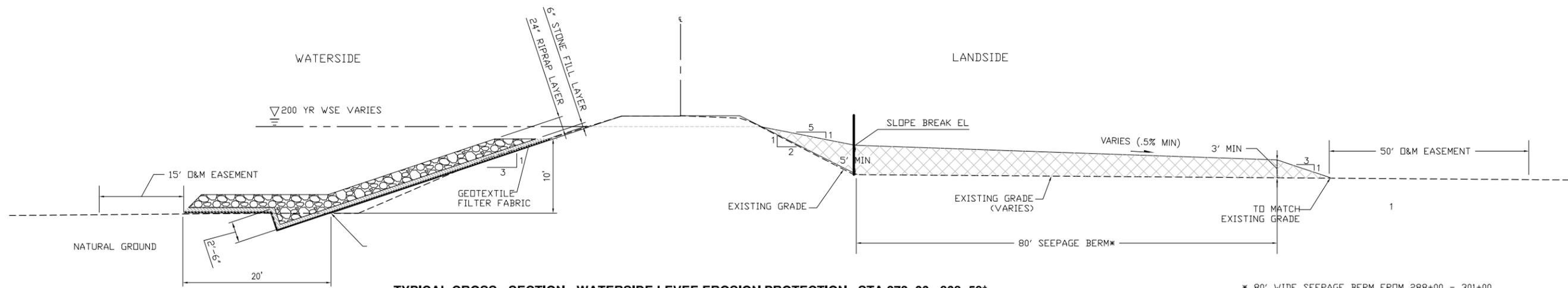
- NOTES:
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SCALE: 1" = 400'

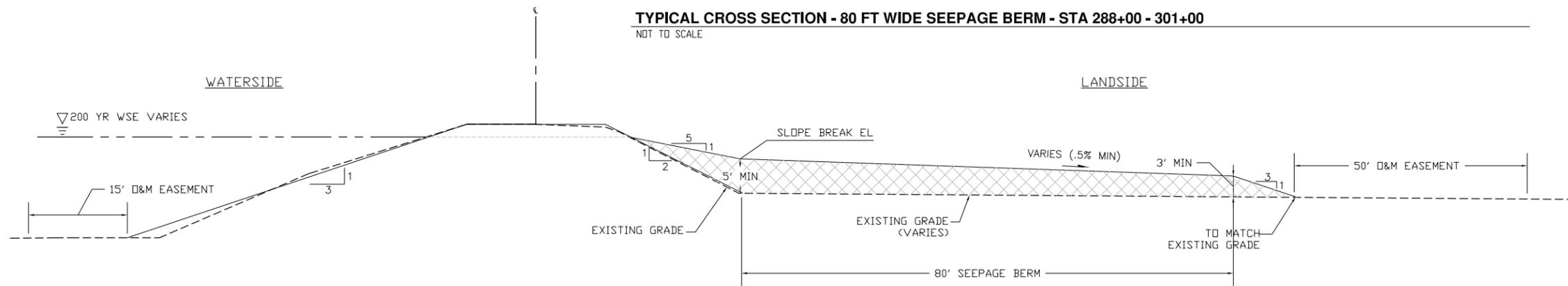


Figure 2-3d
 Proposed Project Improvements

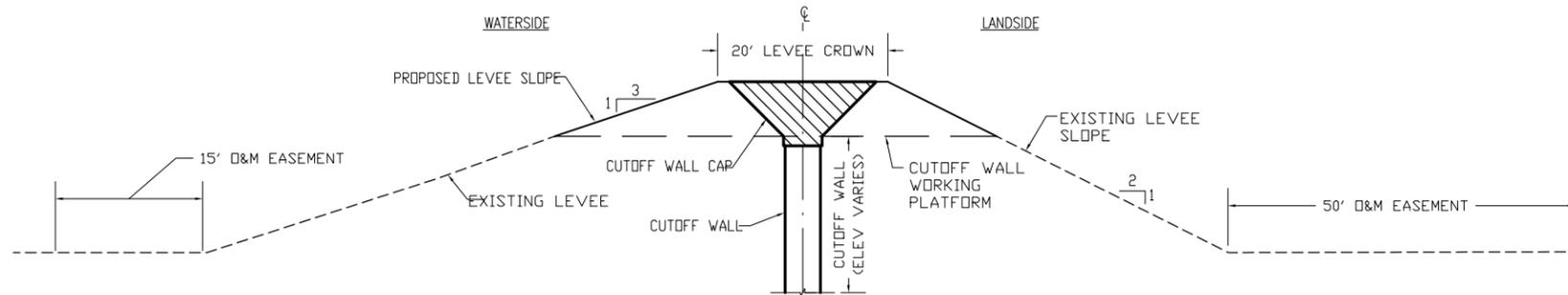


TYPICAL CROSS - SECTION - WATERSIDE LEVEE EROSION PROTECTION - STA 272+00 - 303+59*
NOT TO SCALE

* 80' WIDE SEEPAGE BERM FROM 288+00 - 301+00
* 150' WIDE SEEPAGE BERM FROM 301+00 - 303+59



TYPICAL CROSS SECTION - 80 FT WIDE SEEPAGE BERM - STA 288+00 - 301+00
NOT TO SCALE



TYPICAL CROSS - SECTION 70 FT DEEP SLURRY WALL (ELEV VARIES) - STA 135+10 -288+00
NOT TO SCALE

Figure 2-4

Typical Cross Section of the Proposed Waterside Levee Erosion Protection Blanket, the Seepage Berm, and the Slurry Wall



SEEPAGE AND STABILITY BERMS

Seepage berms are wide embankment structures made up of low-permeability materials that resist accumulated water pressure and safely release seeping water. A seepage berm is typically one-third the height of the levee, extending outward from the landside levee toe a sufficient distance (up to 400 feet), and laterally along the levee as needed relative to the seepage conditions. A seepage berm mainly addresses the deficiency of under-seepage.

A stability berm provides a weighted, filtered seepage path (i.e., via drainage blanket at the base of the berm) that allows seepage to occur but reduces the potential for boil formation and the associated erosion and loss of embankment and foundation material.

An 80-foot wide seepage berm is proposed that would be placed from Project Station 288+00 to Project Station 301+00 (approximately 1,300 feet). The 80 foot wide seepage berm would be a minimum of three feet high at its toe and slope up towards the levee at a minimum slope of 2percent. The berm, at the toe of the levee, would be approximately 5.5 feet high and would be constructed of local semi-permeable material obtained from borrow areas located adjacent to the project..

Above the seepage berm, a stability berm would be built at a 5:1 slope, such that the top of the stability berm meets the landside slope of the levee at the 200-year WSE. The stability berm would be constructed of local semi-permeable material obtained from borrow areas located adjacent to the project.

From Project Station 301+00 to Project Station 303+59 (approximately 259 feet), the seepage berm would be widened to 150-feet, and raised to match the elevation of the existing levee crown, forming a project interface buffer with the high ground cobble mounds of the Yuba Goldfields. This thickened levee berm would tie to existing grades with 2:1 slopes.

Construction of the seepage berm would consists of clearing, grubbing, and stripping the existing ground surface and placing a one-foot-thick layer of drain material across the ground surface. Bulldozers would then excavate and stockpile borrow material from a nearby borrow site. Front-end loaders load haul trucks with the borrow material, and the haul truck subsequently transports it to the berm site. The haul trucks dump the material and motor graders spread it evenly, placing approximately three to five feet of embankment fill material over the drain material. Sheepsfoot rollers compact the material, and water trucks distribute water over the material to ensure proper moisture for compaction. After construction, erosion resistant mulch with grass seed would be sprayed over the levee slopes.

RESTORE LEVEE CROSS SECTION

The Corps design criteria requires that levees providing protection to urban areas have 2:1 landside slopes, 20 foot levee crown widths, and 3:1 waterside slopes. The portions of the YRSL that do not meet these criteria would be modified to meet the current Corps standard.

To analyze existing levee geometry, the most recent digital terrain model and topographic surveys were utilized to generate cross sections of the existing levee surface, at 100 foot intervals along the centerline of the levee crown, and compared to the criteria listed above to determine which areas require geometry corrections.

Based on the levee cross section data it was determined that the levee crown widths throughout most of the project area do not meet the minimum Corps levee geometry criteria. The crown width narrows to less than eight feet wide in some areas and would be corrected to the Corps required 20-foot width. In

addition, all areas where existing waterside levee slopes are steeper than 3:1 or landside levee slopes are steeper than 2:1, would be corrected to meet the minimum requirements.

The levee slope and all areas to have fill placed on them would be cleared and grubbed of all vegetation and stripped to a depth of six inches. These surfaces would then be appropriately prepared (i.e., laid back, keyed, over excavated, etc.) to allow for effective placement of material and to allow for a fully integrated composite levee section when construction is complete. Material similar to that comprising the remaining portion of the levee would be placed in six inch lifts and compacted to achieve 95percent density at optimum moisture content. The replaced portion of the levee would be appropriately keyed into the existing body of the levee. Erosion resistant mulch with grass seed would be sprayed over the restored levee slope.

WATERSIDE LEVEE SLOPE EROSION PROTECTION

To protect against future potential erosion of the YRSL immediately downstream of the Yuba Goldfields, the waterside slope would be protected with rock slope protection. The proposed rock slope protection blanket would extend from Project Station 272+00 to Project Station 303+59 (approximately 3,159 feet). The rock slope protection would be two feet thick, with a 6-inch aggregate base fill layer and geotextile fabric, an average of 42 feet wide, and extend from the 200-year WSE down the waterside slope to the toe of the levee (approximately 22 feet on average), and 20 feet from the waterside toe out into the adjacent swale.

The waterside levee slope and the adjacent swale invert area that would lie beneath the riprap blanket would be cleared and grubbed and stripped of all vegetation for a minimum depth of six inches. Suitable filter fabric material would be placed on the stripped foundation. A six inch layer of stone fill would also be placed on top of the filter fabric. An additional two foot thick layer of riprap would be placed on top of the stone fill.

RELIEF WELLS

Relief wells are another means of providing a filtered seepage path for reduction of water pressure in the foundation soils. Relief wells are passive systems that are constructed near the levee landside toe to provide a low-resistance pathway for under-seepage to exit to the ground surface in a controlled and observable manner. A low resistance pathway allows under-seepage to exit without creating sand boils or piping levee foundation materials. Relief wells are an option only where geotechnical analyses have identified continuous sand and gravel layers. Relief wells would be used to address the levee deficiency of under-seepage and would be installed from approximately Project Station 285+00 to Project Station 300+50.

EROSION PROTECTION AND STORMWATER POLLUTION PREVENTION

Where soil along the waterside or landside surface of the existing YRSL is disturbed during project implementation, an approved grass cover would be placed for erosion protection. Temporary erosion/runoff control measures would be implemented during construction to minimize stormwater pollution resulting from erosion and sediment migration from the construction and staging areas. These temporary control measures may include implementing construction staging in a manner that minimizes the amount of area disturbed at any one time; secondary containment for storage of fuel and oil; and the management of stockpiles and disturbed areas by means of earth berms, diversion ditches, straw wattles, straw bales, silt fences, gravel filters, mulching, revegetation, and temporary covers as appropriate. Erosion and stormwater pollution control measures would be consistent with National Pollutant

Discharge Elimination System (NPDES) permit requirements and would be included in a storm water pollution prevention plan (SWPPP).

After completion of construction activities, temporary facilities would be removed and disturbed areas would be restored and reclaimed as appropriate. Site restoration activities for areas disturbed by construction activities, including laydown/staging areas, may include regrading, reseeding, use of straw wattles and bales, application of straw mulch, and other measures deemed appropriate.

BORROW SOURCES

It is estimated that a total of approximately 70,000 cubic yards (cu. yd.) of borrow material would be required for the proposed project improvements. The need for off-site borrow material would be limited where possible; for example, material excavated from the existing levee and slurry cutoff wall trenches would be used to the extent practicable. However, it is still anticipated that borrow material would be needed from off-site, but local, sources. Borrow materials would come from two adjacent parcels to the project alignment located between Project Station 232+50 to Project Station 245+00 (**See Figure 2-3c**). Once removed, borrow material could be used in the construction of seepage berms, in the required levee geometry corrections, for reconstruction of levee embankments degraded during slurry wall construction, in the levee crown restoration or for other purposes. The two adjacent parcels to the project alignment are more than sufficient to meet the borrow material needs for the project.

Fill material for the slurry wall cap would be obtained from a permitted source. Permitted sources could include approved borrow sites or commercial sources. Approximately 37,000 cu. yd. of material is needed to construct the cap for the slurry wall. The material would come from a permitted commercial source and would be transported to the project area by haul trucks on the identified access routes, described in further detail below.

Aggregate base needed to surface the access road on the levee crown, drain material required for berm construction, and similar materials would be obtained from commercial sand and gravel operations in the Marysville–Yuba City area and would be hauled to the project alignment by truck.

RELOCATION OF UTILITIES AND LEVEE PENETRATIONS

The Pacific Gas and Electric Company (PG&E) power lines may need to be deenergized or temporarily relocated for clearance during excavation operations for the slurry cutoff wall. In addition, there are several PG&E utility poles that are located within the proposed operation and maintenance corridors. Due to requirements from the CVFPB to maintain a vegetation and structure free zone in the proposed project's operation and maintenance corridors, it is anticipated that any PG&E poles located within the proposed project's operation and maintenance corridors would be relocated approximately 10 feet outside of the proposed operation and maintenance corridors. A two inch PG&E gas pipeline is also located at Project Station 137+28 to serve the Peach Tree Golf and Country Club. The gas pipeline would be removed during degradation of the levee. After installation of the slurry wall a new replacement pipeline would be installed in coordination with PG&E and to meet the CVFPB's requirements.

Other levee penetrations (i.e., pipelines, conduits, or similar structures passing through the levee) related to the Linda County Water District Wastewater Treatment Plant, the Peach Tree Golf and Country Club, and the Luis Farm would be addressed during construction of the slurry cutoff walls as summarized below.

Linda County Water District – The domestic water line for the Peach Tree Golf and Country Club located at Project Station 148+55 consists of a six-inch diameter ductile iron pipeline located three feet

deep through the foundation of the levee. Prior to installation of the slurry wall, the levee would be locally degraded and the pipeline removed. After slurry wall installation, a new replacement pipeline would be installed in coordination with Linda County Water District and to meet the CVFPB's requirements.

Peach Tree Golf and Country Club – The two inch sanitary sewer force main located at Project Station 125+22 that was installed in 2008 would be removed during degradation of the levee. After installation of the slurry wall a new replacement pipeline would be installed in coordination with the Golf and Country Club and to meet the CVFPB's requirements.

Luis Farm – The 24-inch corrugated metal irrigation pipe located at Project Station 195+20.56 approximately 5.5 feet deep would also be relocated prior to installation of the slurry wall when the levee is locally degraded. After slurry wall installation a new replacement pipeline would be installed in coordination with the owners of the Farm and the CVFPB's requirements.

There are also three existing 12 inch corrugated metal drain pipes located at Project Stations 149+29, 157+32, and 163+32. These pipelines provide drainage between the project levee and an adjacent berm. During construction of the proposed project it is anticipated that these pipelines would be removed and replaced.

STAGING AREAS AND ACCESS

Prior to and during construction of the proposed project several staging areas would be developed to allow for efficient use and distribution of materials and equipment. Additional staging areas within the project area may be developed based on contractor needs. Personnel, equipment, and imported materials would reach the project site via SR 70, N Beale Road, Hammonton-Smartville Road, Simpson Lane, and Simpson-Dantoni Road. At the project site, the primary construction corridor would include the crest of the existing YRSL, existing levee toes, and roads used for access to the work area, including Dantoni Road, Griffith Avenue, and Bryden Road. The access roads would also serve as haul routes to move the borrow material around the project area.

OPERATION AND MAINTENANCE CORRIDORS

To provide space for operation and maintenance of the levee, for flood fighting, and for possible expansion of the levee in the future, TRLIA would acquire land to provide a 50-foot operation and maintenance corridor at the landside toe of the levee. Where this corridor conflicts with existing structural facilities, this corridor would be reduced to a minimum of ten feet. An operation and maintenance corridor of 15-feet would be acquired along the waterside levee toe. All property acquisitions and relocations conducted as part of the proposed project would be in compliance with both the Federal Uniform Relocation Act and the California Relocation Assistance Law.

DISPOSAL OF EXCESS MATERIALS

Because of the nature of the proposed project it is expected that excess materials (e.g., organic soils from stripping, soils not meeting specifications, etc.) would be generated that would require disposal. Excess excavated materials would be placed in the borrow area temporarily and then either disposed of on-site, or hauled off-site and placed in a suitable disposal area. Debris and excess material requiring disposal in a landfill would be hauled off-site to a suitable facility.

CONSTRUCTION EQUIPMENT

Contractor plant equipment would include construction office and equipment trailers; slurry batch plants, including soil-bentonite storage facilities, mixing tanks, pumps, and piping; warehousing and equipment maintenance facilities; water storage tanks; and, fuel pumps and fuel storage tanks.

Mobile equipment for the proposed levee improvements is assumed to include the following typical equipment:

- ▶ two hydraulic excavators,
- ▶ two long-stick hydraulic excavators,
- ▶ two utility excavators,
- ▶ two bulldozers,
- ▶ two low-ground pressure bulldozers,
- ▶ two graders,
- ▶ three self-propelled sheepsfoot or tramping-foot rollers,
- ▶ two water wagons,
- ▶ 20 highway dump trucks,
- ▶ one drill rig to install relief wells,
- ▶ a lubricating truck,
- ▶ a front-end loader,
- ▶ a truck-mounted crane,
- ▶ three integrated tool carriers, and
- ▶ numerous pickup trucks.

Additional equipment would include air compressors to operate tools and other equipment; welding equipment; pumps and piping; communications and safety equipment; erosion control materials; miscellaneous equipment customary to the mechanical and electrical crafts; and vehicles used to deliver and move equipment, materials, and personnel.

CONSTRUCTION-RELATED TRAFFIC

Personnel, equipment, and imported materials would reach the project area via SR 70, North Beale Road, Hammonton-Smartville Road, Simpson Lane, Simpson-Dantoni Road, Dantoni Road, Griffith Avenue, and Bryden Road, which are paved, all-weather roads, and suitable for the anticipated loads. The construction labor force is estimated to average about 50 persons over the construction period. Peak staffing could be close to 100 depending on the contractor's schedule.

It is expected that about 40 trailer (“low-boy”) truck round trips would be required to transport the contractor’s plant and equipment listed above to the project area. A similar number of round trips would be needed to remove the equipment from the site as the work is completed.

Necessary aggregate base and rock revetment material would be obtained from a commercial sand and gravel operation, most likely in the Marysville–Yuba City area. The construction contractor would select the specific supplier based on suitability and pricing. About 1,000 highway truck trips would be needed to bring the aggregate base and rock revetment material to the site from the quarry of origin. Approximately five truckloads would be needed to bring dry soil-bentonite to the site. The soil-bentonite would probably be processed in Wyoming or South Dakota and transported to the Marysville–Yuba City area by rail. An additional 25–30 trailer truckloads would be required to bring other permanent materials to the site, such as geotextile fabric, erosion control materials, piping, well casings, and ancillary equipment. In addition, about 100 highway truckloads may be needed to carry construction debris and waste materials to a suitable landfill.

Within the construction areas, the main sources of construction traffic would be the installation of the slurry cutoff wall, required transport of material for the slurry cutoff wall (including borrow material), and required transport of borrow material for berm construction and levee crown restoration. Transport of an estimated 70,000 cu. yd. of borrow material would require approximately 3,500 haul trips if a load of 20 cu. yd. per trip is assumed. Larger haul unit sizes would reduce the number of trips and impacts on air quality. Dust control measures would be applied to roads and work areas on a systematic basis.

CONSTRUCTION SCHEDULING

A construction period of up to approximately four months is planned for the project, beginning in July 2010 with contractor mobilization, and ending in November 2010 with clean-up and contractor demobilization. The proposed project could be constructed using two different scenarios: Scenario 1 consists of constructing the proposed project over a four month timeframe working 15 hours per day, and Scenario 2 consists of constructing the proposed project over a three month timeframe working 24 hours per day. It is likely that under Scenario 2 construction would not need to occur continuously for 24 hours per day for the entire three month period and would likely include a combination of 15 hour per day activities and 24 hour per day activities. Schedule highlights are as follows:

- ▶ **Mobilization:** Mobilization would include setting up construction offices and the slurry batch plant and transporting heavy earthmoving equipment to the site. These activities may take approximately two weeks.
- ▶ **Slurry cutoff wall installation:** This activity would begin soon after mobilization with construction of the work pad along the levee crown. Construction would take approximately 3–5 months depending on the amount of equipment working simultaneously.
- ▶ **Construction of seepage berms:** Seepage berms would be constructed concurrently with installation of the slurry cutoff wall.
- ▶ **Levee geometry corrections:** Levee cross sectional geometry corrections would be constructed concurrently with the installation of the slurry cutoff wall.
- ▶ **Utilities/Penetrations:** Any required temporary utility relocations or work associated with levee penetrations would be conducted concurrent with construction of the slurry cutoff wall.

- ▶ **Relief wells:** Relief wells would likely be installed toward the end of the construction period to reduce the likelihood of damage by construction traffic.
- ▶ **Demobilization:** Demobilization would include removal of equipment and materials from the project site, disposal of excess materials at appropriate facilities, and restoration of staging areas and temporary access roads to pre-project conditions. Demobilization activities would likely occur in various locations as construction proceeds along the project alignment, but would be completed in November 2010.

HYDROLOGY AND FLOOD CONTROL BENEFITS

The proposed project would not significantly alter the location or configuration of the existing YRSL and therefore would not provide any increased flood storage or conveyance capacity. Because the proposed project would not alter the hydraulic conditions in the Yuba River, the hydrology during both normal flows and flood flow conditions would not be changed. The proposed improvements to the existing YRSL would provide significant flood control benefits. The proposed improvements to the YRSL between Simpson Lane and the Yuba Goldfields would provide a levee that is more resistant to under seepage, through-seepage, and erosion, and less susceptible to catastrophic breaches.

OPERATION AND MAINTENANCE

The YRSL that would be improved as part of the UYLIP would remain under the existing easements for operation and maintenance. As is the current practice, landowners would be assessed fees for levee operation and maintenance, which would be performed by RD 784 under the supervision of DWR. The only substantial difference between the operation and maintenance of the repaired levee segments and current practice would result from the installation of additional relief wells at the end of the project alignment. Relief wells can be prone to plugging and damage from vandalism, and they require operation (water removal) and periodic maintenance (flushing, cleaning, and replacement) to remain effective over the long term. Seepage from any new wells installed as part of the project would be directed to existing drainage facilities. The wells would be maintained by RD 784, which could contract out the well maintenance or perform it with its own forces.

ALTERNATIVES CONSIDERED BUT ELIMINATED FROM FURTHER DISCUSSION

Considerations in developing project alternatives included evaluating various methods to correct levee deficiencies while providing continuity of design and minimizing impacts to natural resources and land uses in the project area. TRILIA and the Corps considered alternatives that would meet the proposed project's purpose and need. These alternatives included installing soil bentonite slurry walls at depths ranging from 55-80 feet from Project Station 136+50 through Project Station 215+50 and seepage berms at widths ranging from 80-250 feet from Project Station 212+00 to the end of the project (Project Station 303+59). Due to the environmental impacts associated with the footprint of the seepage berm from Project Station 212+00 to Project Station 303+59 and the inability to verify that a seepage berm would sufficiently correct the existing levee deficiencies and would provide improved flood protection in the project area, along with the inconsistency of the subsurface geology and material data, the seepage berm alternative was dismissed from further evaluation. In addition, the seepage berm alternative would have resulted in several relocations and impacts to adjacent land uses, which is further cause for dismissal.

3.0 ENVIRONMENTAL CHECKLIST

PROJECT INFORMATION	
1. Project Title:	Upper Yuba Levee Improvement Project
2. Lead Agency Name and Address:	Three Rivers Levee Improvement Authority 1114 Yuba Street, Suite 218 Marysville, CA 59501
3. Contact Person and Phone Number:	Paul Brunner, Executive Director, (530) 749-7841
4. Project Location:	Simpson Lane to the Yuba Goldfields, along the south levee of the Yuba River, Yuba County, California
5. Project Sponsor's Name and Address:	Three Rivers Levee Improvement Authority 1114 Yuba Street, Suite 218, Marysville, CA 95901
6. General Plan Designation:	Valley Agriculture
7. Zoning:	Exclusive Agricultural; Ag/Rural Residential
8. Description of Project: (Describe the whole action involved, including but not limited to later phases of the project, and any secondary, support, or off-site features necessary for its implementation. Attach additional sheets if necessary.)	
<p>The purpose of the proposed project is to correct levee deficiencies and improve flood protection on the Yuba River South Levee, located east of the City of Marysville and south of the Yuba River from approximately Simpson Lane to the Yuba Goldfields. The total length of the project is approximately 3.8 miles. The project would involve installing slurry walls, seepage berms, levee geometry corrections, levee slope erosion protection, and relief wells in the project area. The proposed project would provide a minimum 200-year level of flood protection in the project area and ensure that the project area meets the minimum requirements of Federal and State laws.</p>	
9. Surrounding Land Uses and Setting: (Briefly describe the project's surroundings)	Undeveloped land, sand and gravel business, agriculture (orchards) and open space on the waterside. Residential neighborhoods, roads, and agricultural land on the land side of the levee.
10: Other public agencies whose approval is required: (e.g., permits, financing approval, or participation agreement)	CDFG, USACE, RWQCB, USFWS, CARB, CVFPB, FRAQMD
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.	
<input type="checkbox"/> Aesthetics	<input type="checkbox"/> Agriculture and Forestry Resources
<input checked="" type="checkbox"/> Biological Resources	<input checked="" type="checkbox"/> Cultural Resources
<input type="checkbox"/> Greenhouse Gas Emissions	<input checked="" type="checkbox"/> Hazards/Hazardous Materials
<input type="checkbox"/> Land Use/Planning	<input type="checkbox"/> Mineral Resources
<input type="checkbox"/> Population/Housing	<input checked="" type="checkbox"/> Public Services
<input checked="" type="checkbox"/> Transportation/Traffic	<input type="checkbox"/> Utilities/Service Systems
	<input checked="" type="checkbox"/> Air Quality
	<input checked="" type="checkbox"/> Geology/Soils
	<input checked="" type="checkbox"/> Hydrology/Water Quality
	<input checked="" type="checkbox"/> Noise
	<input type="checkbox"/> Recreation
	<input type="checkbox"/> Mandatory Findings of Significance

DETERMINATION (To be completed by the Lead Agency)

On the basis of this initial evaluation:

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” impact 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 or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Signature

Date

Printed Name

Title

Agency

EVALUATION OF ENVIRONMENTAL IMPACTS

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. Once the lead agency has determined that a particular physical impact may occur, then the checklist answers must indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant. “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 Than 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 “Earlier Analyses,” as described in (5) below, 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). In this case, a brief discussion should identify the following:
 - a) Earlier Analysis Used. Identify and state where they are available for review.
 - b) Impacts Adequately Addressed. Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards, and state whether such effects were addressed by mitigation measures based on the earlier analysis.
 - c) Mitigation Measures. For effects that are “Less than Significant with Mitigation Measures Incorporated,” describe the mitigation measures which were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the project.
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 formats; however, lead agencies should normally address the questions from this checklist that are relevant to a project’s environmental effects in whatever format is selected.
9. The explanation of each issue should identify:
 - a) the significance criteria or threshold, if any, used to evaluate each question; and,
 - b) the mitigation measure identified, if any, to reduce the impact to less than significance.

3.1 AESTHETICS

Environmental Issues (and Supporting Information Sources):	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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

This section describes the visual character of existing views in the project vicinity and evaluates potential effects of the proposed project on those views.

ENVIRONMENTAL SETTING

The proposed project consists of improving/repairing the existing YRSL from Simpson Lane to the Yuba Goldfields, approximately 3.8 miles. Potential viewers of the project area primarily include local residents and motorists. The regional viewshed includes large areas of agricultural, residential, commercial, and industrial urban development. There are no State-designated visual resources in the project area. The project area is primarily rural in nature and includes rural residential areas with orchard and crop lands with little topographic variation. Some parts of the levee slope are sparsely vegetated with grasses and weeds. Other visual features in the project vicinity include local roadways and the Peach Tree Golf and Country Club.

Although the project area and the areas north and south are informally used by people in passenger and agricultural related vehicles, the project area and adjacent areas are not open to the public. Extensive areas in the project area are planted in orchards. The main channel of the Yuba River is located approximately one mile north of the project area. Approximately five residences are located adjacent to the levee.

DISCUSSION

a) Have a substantial adverse effect on a scenic vista?

No Impact. A scenic vista is generally considered a view of an area that has remarkable scenery or a natural or cultural resource that is indigenous to the area. Views in the area do not include remarkable landscape elements that create scenic vistas. Furthermore, there are no designated scenic vistas in the project area. Therefore the proposed project would have no effect on a scenic vista and no mitigation would be required.

b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?

No Impact. No designated or eligible state scenic highways are located in the project vicinity (Caltrans 2007). Therefore, the proposed project would not damage scenic resources, including but not limited to trees, outcroppings, and historic buildings within a state scenic highway. As a result, no impact would occur and no mitigation would be required.

c) Substantially degrade the existing visual character or quality of the site and its surroundings?

Less-than-Significant Impact. The proposed project consists of improving/repairing the existing YRSL. The only new project features that would be visible to viewers in the project area would be relief wells, raising/improving the existing YRSL crown, and an additional landside seepage berm. Only a small portion of the relief well structures would be visible. New relief wells would not alter the visual character of the project area. The landside seepage berm would consist of engineered earthen fill placed against the existing levee with the same soil stabilizing vegetation planted on the surface as found on the levees. The majority of the proposed project improvements, which include both raising/improving the existing YRSL crown or constructing a new seepage berm, would result in minor alterations to the shape of the existing YRSL and therefore, would not substantially alter the existing visual quality of the project area. Furthermore, a new or modified landside seepage berm would not alter the visual character of the project area.

Alterations to the visual character of the project area during construction (i.e., presence of construction equipment and staging areas) would be isolated, temporary, and would be observed by a relatively small number of viewers due to the agricultural and rural nature of the project area. Upon completion of construction activities all equipment would be removed from the project area. Therefore, the project would result in a less than significant impact to the existing visual character only during construction. As a result, no mitigation would be required.

d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?

Less-than-Significant Impact. Work associated with the proposed project is described above under item c). Prior to the beginning of construction activities, staging areas would be established in the project area and along the top of the YRSL. The area along the levee crown is visible from the residences in the project area, where approximately five single-family residences are within 100 feet of the existing YRSL. However, the proposed project's construction activities would be temporary and would be completed within four months. To the extent practicable, construction activities would be completed in 10- to 12-hour shifts during daylight hours. Nighttime construction would not occur unless it was determined to be necessary to complete construction before the beginning of the flood season on November 1. In the event of nighttime construction (Scenario 2), the project area would be lit. However, it is estimated that construction activities would not be concentrated near sensitive receptors for longer than 10 days at a time therefore, it is anticipated that nighttime construction activities under Scenario 2 would not significantly affect nighttime views. Although local residents are considered a sensitive viewer group, changes in views from nearby residences (e.g., views of construction vehicles and materials along the levee crown) would be temporary, and the introduction of any new sources of light and glare would be short term and would terminate upon completion of the proposed construction activities. Thus, no substantial long-term sources of light or glare would be associated with the proposed project and this impact would be less than significant and no mitigation would be required.

MITIGATION

None required.

3.2 AGRICULTURE AND FORESTRY RESOURCES

Environmental Issues (and Supporting Information Sources):	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
II. AGRICULTURE AND FOREST RESOURCES				
<p>In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state’s inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the project:</p>				
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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))?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Result in the loss of forest land or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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 or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

This section describes existing agricultural uses in the project vicinity and evaluates potential effects of the proposed project on agricultural land and on lands mapped as part of the Farmland Mapping and Monitoring Program (FMMP) by the California Department of Conservation, Division of Land Resource Protection.

ENVIRONMENTAL SETTING

AGRICULTURAL LAND USES IN THE PROJECT AREA

The project area is located along the existing YRSL. The Yuba County General Plan designates the majority of the project area as Valley Agriculture, a classification which is used to identify areas on the

valley floor located outside of urban areas to retain agriculture as the primary land use; protect the agricultural community from encroachment of unrelated agricultural uses that, by their nature, would be injurious to the physical and economic well-being of the agricultural community; and encourage the preservation of agricultural land, both productive and potentially productive. Approximately 60 percent of the project footprint is in active orchard production. The remaining portions of the project footprint include row/grain crop production (9%), cattle/ grazing (2%), urban (3%), and undeveloped (26%). The specific project area is a levee, which is compatible with the Valley Agricultural land use designation because it protects agricultural lands from damage and property loss attributable to flooding.

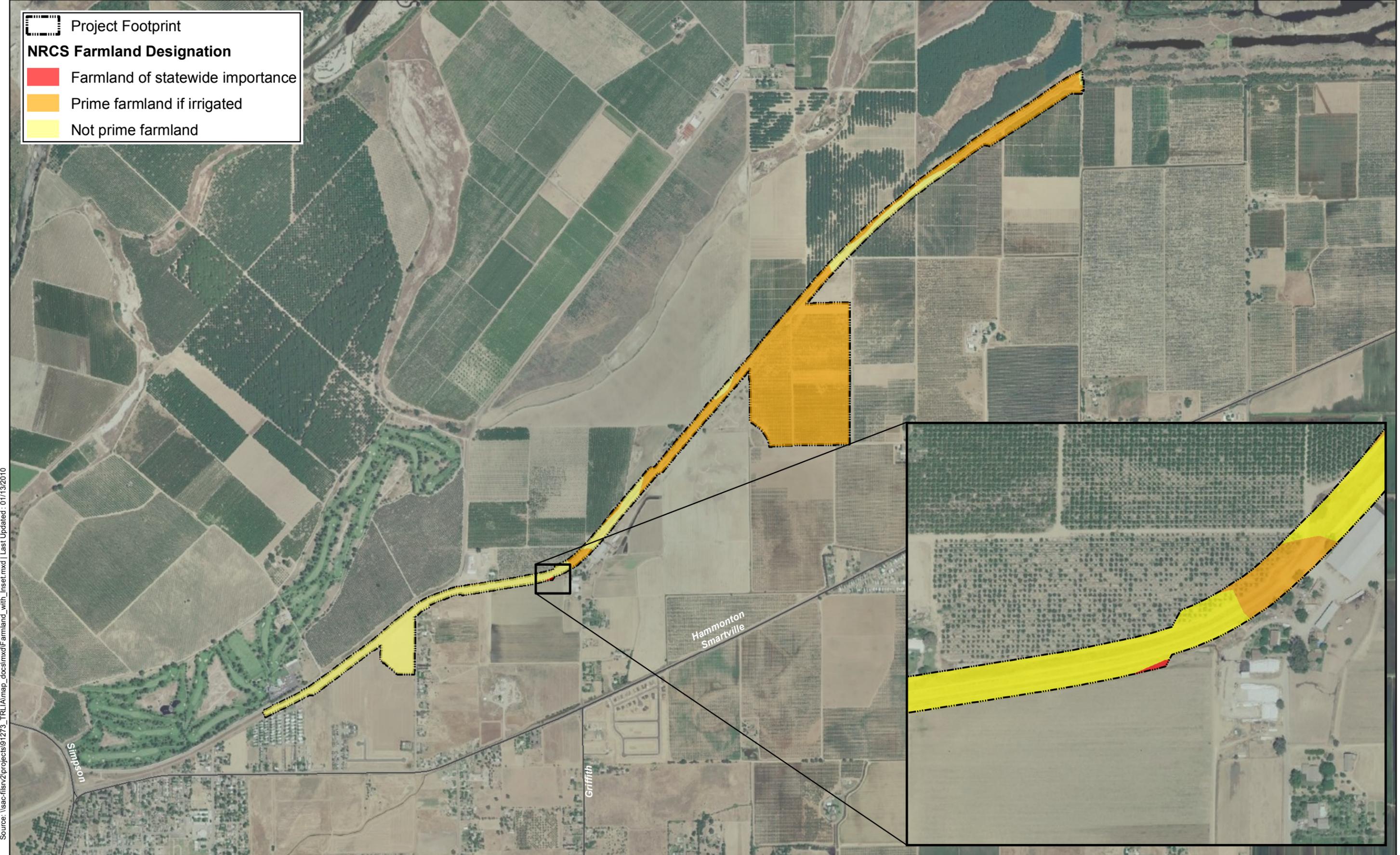
FARMLAND MAPPING AND MONITORING PROGRAM

The California Department of Conservation Division of Land Resource Protection works with landowners, local governments, and researchers to conserve the state's farmland and open space, and it maintains a statewide inventory of farmlands. These lands are mapped as part of the FMMP based on a classification system that combines technical soil ratings and current land use. Lands are divided and mapped into the following farmland categories (often referred to as Important Farmland categories) and other categories based on their suitability for agricultural use:

- ▶ **Prime Farmland**—Farmland with the best combination of physical and chemical features able to sustain long-term agricultural production. This land has the soil quality, growing season, and moisture supply needed to produce sustained high yields. Land must have been used for irrigated agricultural production at some time during the 4 years before the mapping date.
- ▶ **Farmland of Statewide Importance**—Farmland similar to Prime Farmland but with minor shortcomings, such as greater slopes or less ability to store soil moisture. Land must have been used for irrigated agricultural production at some time during the 4 years before the mapping date.
- ▶ **Unique Farmland**—Farmland of lesser quality soils used for the production of the state's leading agricultural crops. This land is usually irrigated, but may include non-irrigated orchards or vineyards as found in some climatic zones in California. Land must have been cropped at some time during the 4 years before the mapping date.
- ▶ **Farmland of Local Importance**—Land of importance to the local agricultural economy as determined by each county's board of supervisors and a local advisory committee.
- ▶ **Grazing Land**—Land on which the existing vegetation is suited to the grazing of livestock.
- ▶ **Urban and Built-up Land**—Land occupied by structures with a building density of at least one unit to 1.5 acres, or approximately six structures to a 10-acre parcel.
- ▶ **Other Land**—Land not included in any other mapping category. Common examples include low-density rural developments; brush, timber, wetland, and riparian areas not suitable for livestock grazing; confined livestock, poultry, or aquaculture facilities; strip mines; borrow pits; and water bodies smaller than 40 acres. Vacant and nonagricultural land surrounded on all sides by urban development and greater than 40 acres is mapped as Other Land.
- ▶ **Water**—Perennial water bodies with an extent of at least 40 acres.

As designated by the FMMP, the project area includes prime farmland-if irrigated, farmland of statewide importance, and grazing land. **Figure 3.2-1** shows the important farmlands within the project footprint, including the staging area, borrow area, and temporary construction easement.

 Project Footprint
NRCS Farmland Designation
 Farmland of statewide importance
 Prime farmland if irrigated
 Not prime farmland



Source: \\sac-fisrv2\projects\91273_TRL\A\map_docs\mxd\Farmland_with_inset.mxd | Last Updated: 01/13/2010

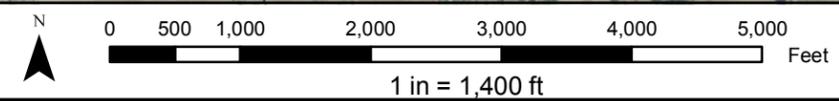


Figure 3.2-1 - Important Farmlands In the Project Footprint

DISCUSSION

a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?

Less-than-Significant Impact. The proposed project is being considered to correct seepage and freeboard deficiencies identified by recent hydraulic and geotechnical investigations and would result in improvements to the flood protection provided by the YRSL from approximately Simpson Lane to the project terminus at the Yuba Goldfields. Levee improvements would consist of slurry walls, seepage berms, levee geometry corrections, and levee slope erosion protection.

These improvements would be consistent with existing uses in the project area and would ultimately protect agricultural uses. As described previously, the project area includes prime farmland-if irrigated, a small portion of farmland of statewide importance, and grazing land. **Table 3.2-1** indicates the types of important farmlands within the project footprint that would be impacted both permanently through conversion of prime farmland-if irrigated to nonagricultural uses and temporarily by implementation of the proposed project. It should be noted that portions of the land within the footprint of the existing YRSL have been mapped by the FMMP as prime farmland-if irrigated, however, this land has not been in active agricultural production for over 50 years.

**Table 3.2-1
Important Farmlands within the Project Area**

Farmland Type	Acreage within the project footprint (Permanent Impact)	Acreage within the staging area, borrow area, and temporary construction easement (Temporary Impact)
Farmland of Statewide Importance	0.05	--
Prime Farmland if Irrigated	99.07	70.23
Non-Prime Farmland	34.82	9.51

It is anticipated that staging areas and temporary-access haul roads would be developed on agricultural lands in the project area during project construction. Land at construction staging areas and haul roads classified as prime farmland-if irrigated could be temporarily converted for up to four months to accommodate preconstruction and construction activities.

Although the proposed project would result in the removal of approximately 0.05 acres of Farmland of Statewide Importance and approximately 99.07 acres of prime farmland-if irrigated from agricultural production, these are not considered substantial amounts relative to the Important Farmland available in Yuba County. In 2006 there were approximately 85,384 acres of Important Farmland in Yuba County. A conversion of a combined 99.12 acres would account for approximately 0.15% of the total Important Farmland in Yuba County.

Temporarily disturbed areas would be returned to pre-project conditions and agricultural uses could resume once construction is completed. Therefore, there would be no direct conversion of prime farmland-if irrigated to nonagricultural uses within the staging area, borrow area, or temporary construction easement.

Agricultural operators and land owners would receive appropriate compensation for any temporary disturbance or permanent loss of agricultural or other lands associated with implementation of the proposed project. In addition, all property acquisitions and relocations conducted as part of the proposed project would be in compliance with both the Federal Uniform Relocation Act and the California Relocation Assistance Law. Therefore, this impact would be less than significant and no mitigation would be required.

b) Conflict with existing zoning for agricultural use or a Williamson Act contract?

No Impact. Yuba County does not participate in the Williamson Act; therefore, no lands in the project area are under Williamson Act contract.

Construction of the proposed project would occur in unincorporated Yuba County. The project area is designated as Valley Agriculture in the Yuba County General Plan. The majority of the project area is zoned Exclusive Agricultural and Ag/Rural Residential. As mentioned above under item a), because the proposed project would result in the removal of land from agricultural production, implementation of the proposed project could conflict with the Yuba County General Plan and Yuba County Zoning Ordinance. However, the proposed improvements to the flood control system would benefit thousands of acres of valuable agricultural lands, including prime farmland, prime farmland – if irrigated, and other important farmland designated by the FMMP, by providing increased protection from future flood damages. Therefore, while the direct land use changes associated with the proposed project would conflict with local land use policies, in the long term the proposed project would provide greater protection for agricultural lands and soils, consistent with these policies.

In addition, no new uses are proposed that would conflict with Yuba County’s land use designations or zoning in the project area. Therefore, no impact would occur.

c) Conflict with existing zoning for, or cause rezoning of, forest land, timberland, or timberland zoned Timberland Production?

No Impact. No forest land, timberland, or timberland zoned Timberland Production lies within the project area or would be affected by the proposed project. Therefore, no impact would occur.

d) Result in the loss of forest land or conversion of forest land to non-forest use?

No Impact. As mentioned under c) above, no forest land lies within the project area or would be affected by the proposed project. Therefore, no impact would occur.

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 or Forest land to non-forest use?

Less-than-Significant Impact. See responses to items a), b), and c) above.

MITIGATION

None required.

3.3 AIR QUALITY

Environmental Issues (and Supporting Information Sources):	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
III. AIR QUALITY				
Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:				
a) Conflict with or obstruct implementation of the applicable air quality plan?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Expose sensitive receptors to substantial pollutant concentrations?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Create objectionable odors affecting a substantial number of people?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

This section describes ambient air quality conditions, summarizes applicable regulations, and analyzes potential short-term construction and long-term operational impacts of the proposed project on air quality. Mitigation measures are recommended as necessary to reduce any potentially significant air quality impacts to a less-than-significant level.

ENVIRONMENTAL SETTING

PHYSICAL SETTING

The proposed project is located in Yuba County, which is within the Sacramento Valley Intrastate (SVI) Air Quality Control Region (AQCR). The proposed project is in the Feather River Air Quality Management District (FRAQMD) and is subject to rules and regulations developed by the FRAQMD. The FRAQMD is responsible for implementing and enforcing state and Federal air quality regulations in Yuba County, Sutter County, and portions of the Northern Sacramento Valley Air Basin. The air quality in Yuba County has been characterized by the U.S. Environmental Protection Agency (USEPA) as unclassified/attainment for all criteria pollutants (USEPA 2002a). However, the California Air Resources Board (CARB) has designated Yuba County as a nonattainment area for 8-hour ozone (O₃) and particulate matter equal to or less than 10 microns in diameter (PM₁₀)(CARB 2007).

REGULATORY SETTING

In accordance with Federal Clean Air Act (CAA) requirements, the air quality in a given region or area is measured by the concentration of criteria pollutants in the atmosphere. The air quality in a region is a result of not only the types and quantities of atmospheric pollutants and pollutant sources in an area, but

also surface topography, the size of the topological “air basin,” and the prevailing meteorological conditions.

Under the CAA, the USEPA developed numerical concentration-based standards, or National Ambient Air Quality Standards (NAAQS), for pollutants that have been determined to affect human health and the environment. The NAAQS represent the maximum allowable concentrations for O₃ - measured as either volatile organic compounds (VOCs) or total oxides of nitrogen (NO_x), carbon monoxide (CO), nitrogen dioxide (NO₂), sulfur oxides (SO_x), respirable particulate matter (including PM₁₀ and particulate matter equal to or less than 2.5 microns in diameter [PM_{2.5}]), and lead (Pb) (40 Code of Federal Regulations [CFR] Part 50). The CAA also gives the authority to states to establish air quality rules and regulations. The State of California has adopted the NAAQS and promulgated additional California Ambient Air Quality Standards (CAAQS) for criteria pollutants. The CAAQS are more stringent than the Federal primary standards. **Table 3.3-1** presents the USEPA NAAQS and CAAQS.

USEPA classifies the air quality in an AQCR, or in subareas of an AQCR, according to whether the concentrations of criteria pollutants in ambient air exceed the NAAQS. Areas within each AQCR are therefore designated as either “attainment,” “nonattainment,” “maintenance,” or “unclassified” for each of the six criteria pollutants. Attainment means that the air quality within an AQCR is better than the NAAQS; nonattainment indicates that criteria pollutant levels exceed NAAQS; maintenance indicates that an area was previously designated nonattainment but is now attainment; and an unclassified air quality designation by USEPA means that there is not enough information to appropriately classify an AQCR, so the area is considered attainment. USEPA has delegated the authority for ensuring compliance with the NAAQS to CARB. CARB has delegated responsibility for implementation of the Federal CAA and California CAA to local air pollution control agencies. In accordance with the CAA, each state must develop a State Implementation Plan (SIP), which is a compilation of regulations, strategies, schedules, and enforcement actions designed to move the state into compliance with all NAAQS.

The General Conformity Rule requires that any Federal action meet the requirements of a SIP or Federal Implementation Plan. More specifically, CAA conformity is ensured when a Federal action does not cause a new violation of the NAAQS; contribute to an increase in the frequency or severity of violations of NAAQS; or delay the timely attainment of any NAAQS, interim progress milestones, or other milestones toward achieving compliance with the NAAQS. The General Conformity Rule applies only to regionally significant actions in nonattainment or maintenance areas.

Table 3.3-1 National and State Ambient Air Quality Standards

Pollutant	Averaging Time	Standard Value		Federal Standard Type
		Federal	State	
CO	8-hour ^a	9 ppm (10 mg/m ³)	Same	Primary
	1-hour ^a	35 ppm (40 mg/m ³)	20 ppm (23 mg/m ³)	Primary
NO ₂	Annual Arithmetic Mean	0.053 ppm (100 µg/m ³)	0.030 ppm (57 µg/m ³)	Primary and Secondary
	1-hour	--	0.18 ppm (339 µg/m ³)	None
O ₃	8-hour ^b	0.075 ppm (147 µg/m ³)	0.070 ppm (137 µg/m ³)	Primary and Secondary
	1-hour ^c	--	0.09 ppm (180 µg/m ³)	Primary and Secondary
Pb	Quarterly average	1.5 µg/m ³	--	Primary and Secondary
	30-Day	--	1.5 µg/m ³	
PM ₁₀	Annual Arithmetic Mean	--	20 µg/m ³	
	24-hour	150 µg/m ³ ^d	50 µg/m ³	Primary and Secondary
PM _{2.5}	Annual Arithmetic Mean ^e	15 µg/m ³	12 µg/m ³	Primary and Secondary
	24-hour ^f	35 µg/m ³	Same	Primary and Secondary
SO ₂	Annual Arithmetic Mean	0.030 ppm	--	Primary
	24-hour ^a	0.14 ppm	0.04 ppm	Primary
	3-hour ^a	0.5 ppm (1,300 µg/m ³)	--	Secondary
	1-hour	--	0.25 ppm--	None
Visibility Reducing Particles	8-hour	0.23 per km ^g	--	None
Sulfates	24-hour	25 µg/m ³	--	None
Hydrogen Sulfide	1-hour	0.03 ppm	--	None
Vinyl Chloride	24-hour	0.01 ppm	--	None

Sources: **USEPA 2008 and CARB 2008**

Notes: Parenthetical values are approximate equivalent concentrations.

- a. Not to be exceeded more than once per year.
- b. To attain this standard, the 3-year average of the fourth-highest daily maximum 8-hour average ozone concentrations measured at each monitor within an area over each year must not exceed 0.075 ppm. This standard is effective on May 27, 2008, and replaces the 1997 8-hour ozone standard of 0.08 ppm. However, the 1997 standard and its implementing rules remain in effect while USEPA undergoes rulemaking to transition to the 2008 standard.
- c. As of June 15, 2005, USEPA revoked the Federal 1-hour ozone standard in all areas except the 14 8-hour ozone nonattainment Early Action Compact Areas.
- d. Not to be exceeded more than once per year on average over 3 years.
- e. To attain this standard, the 3-year average of the weighted annual mean PM_{2.5} concentrations from single or multiple community-oriented monitors must not exceed 15.0 µg/m³.
- f. To attain this standard, the 3-year average of the 98th percentile of 24-hour concentrations at each population-oriented monitor within an area must not exceed 35 µg/m³. This standard is effective December 17, 2006.
- g. Extinction coefficient of 0.23 per kilometer – visibility of 10 miles or more due to particles when relative humidity is < 70%.

Key: ppm = parts per million; mg/m³ = milligrams per cubic meter; µg/m³ = micrograms per cubic meter; km = kilometer

Federal Prevention of Significant Deterioration (PSD) regulations also define air pollutant emissions from proposed major stationary sources or modifications to be “significant” if (1) a proposed project is within 10 kilometers of any Class I area, and (2) regulated pollutant emissions would cause an increase in the 24-hour average concentration of any regulated pollutant in the Class I area of 1 $\mu\text{g}/\text{m}^3$ or more (40 CFR 52.21[b][23][iii]). A Class I area includes national parks larger than 6,000 acres, national wilderness areas and national memorial parks larger than 5,000 acres, and international parks. PSD regulations also define ambient air increments, limiting the allowable increases to any area’s baseline air contaminant concentrations, based on the area’s Class designation (40 CFR 52.21[c]). According to 40 CFR Part 81, no Class I areas are located in the vicinity of the proposed project. Therefore, Federal PSD regulations would not apply (USEPA 2009).

On 22 September 2009, the USEPA issued a final rule for mandatory greenhouse gas (GHG) reporting from large GHG emissions sources in the United States. The purpose of the rule is to collect comprehensive and accurate data on carbon dioxide (CO_2) and other GHG emissions that can be used to inform future policy decisions. In general, the threshold for reporting is 25,000 metric tons or more of CO_2 equivalent per year. The first emissions report is due in 2011 for 2010 emissions. Although GHGs are not currently regulated under the CAA, the USEPA has clearly indicated that GHG emissions and climate change are issues that need to be considered in future planning. GHGs are produced by the burning of fossil fuels and through industrial and biological processes.

Title V of the CAA Amendments of 1990 requires states and local agencies to permit major stationary sources. A major stationary source has the potential to emit more than 100 tons per year (tpy) of any one criteria air pollutant, 10 tpy of a hazardous air pollutant (HAP), or 25 tpy of any combination of HAPs. The purpose of the permitting rule is to establish regulatory control over large, industrial-type activities and monitor their impact on air quality. Section 112 of the CAA defines the sources and kinds of HAPs.

METHODOLOGY

The environmental consequences to local and regional air quality conditions near a proposed project are determined based upon the increases in regulated pollutant emissions relative to existing conditions and ambient air quality. The primary criteria for evaluating air emissions impacts is whether annual emissions of pollutants for which the district is in nonattainment with the federal standards exceed USEPA’s general conformity thresholds. Conformity thresholds are based on the *de minimis* thresholds included in USEPA’s general conformity guidelines. The thresholds are as follows: 50 tons per year of NO_x , 50 tons per year of reactive organic gases (ROG), and 100 tons per year of PM_{10} .

However, Yuba County is designated as either in attainment or unclassified for all other federal standards. Therefore, as the agency responsible for protecting present and future air quality affect environment, FRAQMD has established guidelines to outline air quality thresholds for projects that, when exceeded, indicate a project is potentially significant. The project-specific significance thresholds are intended for use as a guide rather than strict, absolute values. Depending on factors specific to the project, projects exceeding thresholds may trigger a refined emissions analysis, exploration of any mitigating characteristics of the project or site, and identification of feasible mitigation measures to reduce the impact to a less than significant level. Significance thresholds for FRAQMD are shown below in **Table 3.3-2**.

Almost all increased pollutant emissions that would be associated with the proposed project would be generated by construction activities. Assumptions regarding construction equipment and personnel, haul distances, areas of disturbance, and durations and timing of different construction activities were developed based on the information provided in Section 2 Alternatives and coordination with project engineers.

Implementation of the proposed project would not result in any major sources of odor, and the project does not involve operation of any of the common types of facilities that are known to produce odors (e.g., landfill, coffee roaster, wastewater treatment facility). In addition, the diesel exhaust from the use of on-site construction equipment would be intermittent and temporary, and it would dissipate rapidly from the source with an increase in distance. Thus, implementation of the proposed project would not expose sensitive receptors to odorous emissions, and this issue is not discussed further.

In addition to the *de minimis* emissions thresholds, Federal PSD regulations define air pollutant emissions to be significant if the source is within 10 kilometers of any Class I area, and emissions would cause an increase in the concentration of any regulated pollutant in the Class I area of 1 µg/m³ or more (40 CFR 52.21[b][23][iii]). According to 40 CFR Part 81, no Class I areas are located in the vicinity of the proposed project. Therefore, Federal PSD regulations would not apply (USEPA 2009).

Table 3.3-2 FRAQMD Significance Thresholds

Project Type	Ozone Precursor Emissions		Respirable Particulate Matter Emissions
	NO _x (pounds per day)	ROG (pounds per day)	PM ₁₀ (pounds per day)
All	25	25	80

Source: FRAQMD 2009

Key:

NO_x = nitrogen oxides

ROG = reactive organic gases

PM₁₀ = respirable particulate matter (including particulate matter equal to or less than 10 microns in diameter)

DISCUSSION

a,b,c) Conflict with or obstruct implementation of the applicable air quality plan?

Violate any air quality standard or contribute substantially to an existing or projected air quality violation?

Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or State ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?

Less than Significant with Mitigation Incorporated. As described in Section 2 of this Draft IS/MND, the proposed project can be constructed using two different scenarios: Scenario 1 consists of constructing the proposed project over a four month timeframe working 15 hours per day, and Scenario 2 consists of constructing the proposed project over a three month timeframe working 24 hours per day.

Emissions from construction activities associated with the proposed project using both construction scenarios would have short-term impacts on local air quality and would have negligible impacts on regional air quality. Implementation of the proposed project would not result in violations of any ambient air quality standards. However, construction activities would exceed FRAQMD significance thresholds for NO_x.

Construction activities would generate air pollutant emissions because of grading, filling, compacting, trenching, and operation of construction equipment. Construction activities would also generate total suspended particulate and PM₁₀ emissions as fugitive dust from ground-disturbing activities (e.g., grading, trenching, soil piles) and from combustion of fuels in construction equipment. Fugitive dust emissions would be greatest during the initial site preparation activities and would vary from day to day depending on the construction phase, level of activity, and prevailing weather conditions. The quantity of uncontrolled fugitive dust emissions from a construction site is proportional to the area of land being worked and the level of construction activity. Construction activities would incorporate Best Management Practices (BMP) and Environmental Protection Measures to minimize fugitive particulate matter emissions. Additionally, construction workers commuting daily to and from the construction site in their personal vehicles would result in criteria pollutant emissions. All portable construction equipment larger than 50 brake-horse-power would be registered in the CARB Portable Equipment Registration Program prior to commencing construction activities.

Since the proposed project is located in an unclassified/attainment area for criteria pollutants identified by the USEPA, no formal conformity analysis is required. Emissions for the construction activities in the proposed project were calculated using the Road Construction Emissions Model, Version 6.3.2, which is used in California to evaluate the air quality impacts of linear land development projects such as levees. The Road Construction Emissions Model is approved by the FRAQMD. The Road Construction Emissions Model was run using optional data inputs in order to estimate emissions as accurately as possible. For construction conservation measures, the most conservative conservation measures were chosen although actual conservation measures may be more stringent and result in lower emissions.

SCENARIO 1

Emission estimates for Scenario 1 are shown below in **Table 3.3-3**. As shown in **Table 3.3-3**, emissions estimated for Scenario 1 are below the FRAQMD significance thresholds for all regulated pollutants with the exception of NO_x. Although the proposed project's daily NO_x emission rate exceeds the FRAQMD threshold, emissions would be temporary in nature. **Appendix A** contains detailed calculations and the assumptions used to estimate the air quality emissions from construction activities.

Table 3.3-3 Daily and Annual Construction Emissions Resulting from the Proposed Project: Scenario 1 for Comparison to FRAQMD Significance Thresholds and Regional Emissions

Activity	NO _x	VOC ¹	CO	CO ₂	PM ₁₀	PM _{2.5}
<i>Daily Construction Emissions (lb/day)</i>						
<i>2010 Construction Emissions</i>	<i>115.8</i>	<i>17.7</i>	<i>165.1</i>	<i>15,860</i>	<i>14.2</i>	<i>6.5</i>
Feather River AQMD Significance Threshold	25	25	--	--	80	--
<i>Annual Construction Emissions (tons/year)</i>						
<i>2010 Construction Emissions</i>	<i>5.1</i>	<i>0.8</i>	<i>7.1</i>	<i>699.7</i>	<i>0.4</i>	<i>0.2</i>
SVI AQCR Inventory (USEPA 2002b)	77,802	66,345	350,347	0000 ²	57,082	18,787
Percent of SVI AQCR Inventory	0.007	0.001	0.002	0.0002³	0.001	0.001

Notes:

¹Road Construction Emissions Model, Version 6.3.2 estimates emissions of ROG. Emissions of ROG are assumed to equal VOC emissions.

²Total Adjusted State of California CO₂ emissions (2005).

³Percent of State of California CO₂ emissions (2005).

Implementation of the proposed project under Scenario 1 is not expected to result in violations of any ambient air quality standards; however, construction activities are expected to exceed the 25 lb per day FRAQMD significance threshold for NO_x. TRLIA has entered into an agreement with the FRAQMD to off-set these emissions by providing funding for the District’s Carl Moyer Grant Program (see **Appendix A**). The purpose of the Carl Moyer Grant Program is to reduce air pollution emissions by providing grants for the incremental cost of replacing older heavy-duty diesel engines with electric, alternative fuel, or cleaner diesel technology. The FRAQMD has agreed that providing the necessary funding to achieve NO_x reductions equal to construction emissions through the Carl Moyer Grant Program will reduce the impact to the affected environment to below the level of significance.

SCENARIO 2

Emission estimates for Scenario 2 are shown below in **Table 3.3-4**. As shown in **Table 3.3-4**, emissions estimated for Scenario 2 are below the FRAQMD significance thresholds for all regulated pollutants with the exception of NO_x. Although the proposed project’s daily NO_x emission rate exceeds the FRAQMD threshold, emissions would be temporary in nature. **Appendix A** contains detailed calculations and the assumptions used to estimate the air quality emissions from construction activities.

Table 3.3-4 Daily and Annual Construction Emissions Resulting from the Proposed Project: Scenario 2 for Comparison to FRAQMD Significance Thresholds and Regional Emissions

Activity	NO _x	VOC ¹	CO	CO ₂	PM ₁₀	PM _{2.5}
<i>Daily Construction Emissions (lb/day)</i>						
<i>2010 Construction Emissions</i>	170.3	24.9	217.3	21,405.7	19.7	9.4
Feather River AQMD Significance Threshold	25	25	--	--	80	--
<i>Annual Construction Emissions (tons/year)</i>						
<i>2010 Construction Emissions</i>	5.6	0.8	7.0	705.2	0.4	0.3
SVI AQCR Inventory (USEPA 2002b)	77,802	66,345	350,347	0000 ²	57,082	18,787
Percent of SVI AQCR Inventory	0.007	0.001	0.002	0.0002³	0.001	0.001

Notes:

¹Road Construction Emission Model, Version 6.3.2 estimates emissions of ROG. Emissions of ROG are assumed to equal VOC emissions.

²Total Adjusted State of California CO₂ emissions (2005).

³Percent of State of California CO₂ emissions (2005).

Implementation of the proposed project under Scenario 2 is not expected to result in violations of any ambient air quality standards; however, construction activities are expected to exceed the 25 lb per day FRAQMD significance threshold for NO_x. TRLIA has entered into an agreement with the FRAQMD to off-set these emissions by providing funding for the District’s Carl Moyer Grant Program (see **Appendix A**). The purpose of the Carl Moyer Grant Program is to reduce air pollution emissions by providing grants for the incremental cost of replacing older heavy-duty diesel engines with electric, alternative fuel, or cleaner diesel technology. The FRAQMD has agreed that providing the necessary funding to achieve NO_x reductions equal to construction emissions through the Carl Moyer Grant Program will reduce the impact to the affected environment to below the level of significance.

As shown in **Table 3.3-3** and **Table 3.3-4**, air quality emissions from the proposed project would be less than 10 percent of the emissions inventory for SVI AQCR. Therefore, a conformity determination in accordance with 40 CFR 93-153(1) is not required. NO_x emissions from the proposed project are above

FRAQMD significance thresholds under both scenarios. TRLIA has entered into an agreement with the FRAQMD to off-set these emissions by providing funding for the District's Carl Moyer Grant Program; therefore, no impacts to local or regional air quality would occur from implementation of the proposed project.

Implementation of the FRAQMD-recommended control measures presented in **Mitigation Measure AQ-1** listed below would further reduce construction-related emissions as a result of the proposed project to a less-than-significant level beyond the mitigation provided by the Carl Moyer Grant Program.

d) Expose sensitive receptors to substantial pollutant concentrations?

Less-than-Significant Impact. Project construction, including site preparations and construction of the proposed project would result in short-term generation of diesel exhaust emissions from the use of off-road diesel equipment required for site grading and other construction activities. Particulate exhaust emissions from diesel fueled engines were identified as a toxic air contaminant (TAC) by CARB in 1998. The dose to which the receptors are exposed (a function of concentration and duration of exposure) is the primary factor used to determine health risk (i.e., potential exposure to TAC emission levels that exceed applicable standards). According to the Office of Environmental Health Hazard Assessment, health risk assessments, which determine the exposure of sensitive receptors to TAC emissions, should be based on a 70-year exposure period; however, such assessments should be limited to the period/duration of activities associated with the project.

The possible sensitive receptor exposure period for the proposed project is short (approximately four months). There are five single-family homes and one mobile home park in the project area that are located within 50 feet of the proposed construction activities. However, construction activities are not anticipated to be in the immediate vicinity of these sensitive receptors for extended periods of time (up to 5 days for levee degradation and up to 10 days for slurry wall construction). FRAQMD does not have any current guidance on TAC emissions from mobile equipment, nor does it have a threshold of significance for exposure to emissions of diesel exhaust. In addition, diesel particulate exhaust is highly dispersive and studies have shown that measured concentrations of vehicle-related pollutants, including ultra-fine particles, decrease dramatically within approximately 300 feet of the source (**Zhu et al. 2002**). Because the use of mobilized equipment would be temporary, in combination with the dispersive properties of diesel particulate exhaust, and because the construction activities would not be concentrated near sensitive receptors for longer than 10 days at a time, construction-related TAC emissions would not be anticipated to expose sensitive receptors to substantial pollutant concentrations in the short-term or long-term. Therefore, this impact would be less than significant and no mitigation would be required.

e) Create objectionable odors affecting a substantial number of people?

Less-than-Significant Impact. Construction of the proposed project would result in diesel exhaust emissions from on-site construction equipment. The diesel exhaust emissions would be intermittent and temporary and would dissipate rapidly from the source with an increase in distance. Therefore, these emissions would not result in an objectionable odor that would affect a substantial number of people. In addition, no existing sources of odors (other than related to a dairy operation) are located in the project vicinity, and the proposed project would not include the long-term operation of any new sources. Operation of the proposed project would not result in new permanent odor sources or the siting of sensitive receptors in proximity to odor sources. Therefore, this impact would be less than significant and no mitigation is required.

MITIGATION

Mitigation Measure AQ-1: Implement FRAQMD-Recommended Emissions Reduction Measures. FRAQMD's Indirect Source Review Guidelines provide mitigation measures for reducing short-term air quality impacts. As recommended by FRAQMD, TRLIA shall ensure that the following mitigation measures (summarized from FRAQMD guidance) are implemented during all project construction activities to the extent practicable. In addition, construction of the proposed project is required to comply with all applicable FRAQMD rules and regulations, in particular Rule 3.0 (Visible Emissions), Rule 3.16 (Fugitive Dust Emissions), and Rule 3.15 (Architectural Coatings).

- ▶ Implement a Fugitive Dust Control Plan that includes the following measures:
- ▶ All grading operations on a project should be suspended when winds carry dust beyond the property line despite implementation of all feasible dust control measures. Consideration should be given to suspending all project grading when winds exceed 20 mph to minimize the risk of dust being carried beyond the property line.
- ▶ Construction sites shall be watered as directed by the [Yuba County] Department of Public Works or FRAQMD and as necessary to prevent fugitive dust violations.
- ▶ An operational water truck should be on-site at all times. Apply water to control dust as needed to prevent visible emissions violations and offsite dust impacts.
- ▶ On-site dirt piles or other stockpiled particulate matter should be covered, wind breaks installed, and water and/or soil stabilizers employed to reduce windblown dust emissions. Incorporate the use of approved nontoxic soil stabilizers according to manufacturer's specifications to all inactive construction areas.
- ▶ All transfer processes involving a free fall of soil or other particulate matter shall be operated in such a manner as to minimize the free fall distance and fugitive dust emissions.
- ▶ Apply approved chemical soil stabilizers according to the manufacturers' specifications, to all inactive construction areas (previously graded areas that remain inactive for 96 hours) including unpaved roads and employee/equipment parking areas.
- ▶ To prevent track-out, wheel washers should be installed where project vehicles and/or equipment exit onto paved streets from unpaved roads. Vehicles and/or equipment shall be washed prior to each trip. Alternatively, a gravel bed may be installed as appropriate at vehicle/equipment site exit points to effectively remove soil buildup on tires and tracks to prevent/diminish track-out.
- ▶ Paved streets shall be swept frequently (water sweeper with reclaimed water recommended; wet broom) if soil material has been carried onto adjacent paved, public thoroughfares from the project site.
- ▶ Provide temporary traffic control as needed during all phases of construction to improve traffic flow, as deemed appropriate by the Department of Public Works and/or the California Department of Transportation (Caltrans) and to reduce vehicle dust emissions.
- ▶ Reduce traffic speeds on all unpaved surfaces to 15 mph or less and reduce unnecessary vehicle traffic by restricting access. Provide appropriate training, on-site enforcement, and signage.
- ▶ Reestablish ground cover on the construction site as soon as possible and prior to final occupancy, through seeding and watering.

- ▶ No open burning of vegetative waste (natural plant growth wastes) or other materials (trash, demolition debris et al.) may be conducted at the project site. Materials also may not be hauled off-site for disposal by open burning. Vegetative wastes should be chipped or delivered to waste to energy facilities (permitted biomass facilities), mulched, composted, or used for firewood.
- ▶ Cover all trucks hauling dirt, sand, soil or other loose material, or maintain at least 2 feet of freeboard (minimum vertical distance between the top of the load and the top of the trailer) in accordance with the requirements of California Vehicle Code Section 23114. This provision would be enforced by local law enforcement agencies.
- ▶ Construction equipment exhaust emissions shall not exceed FRAQMD Regulation III, Rule 3.0 (“Visible Emissions”) limitations (40% opacity or Ringelmann 2.0). Operators of vehicles and equipment found to exceed opacity limits shall take action to repair the equipment within 72 hours or remove the equipment from service. Failure to comply may result in a Notice of Violation.
- ▶ The primary contractor shall be responsible to ensure that all construction equipment is properly tuned and maintained prior to and for the duration of onsite operation.
- ▶ Limit vehicle and equipment idling times to 10 minutes—saves fuel and reduces emissions.
- ▶ Use existing power sources (e.g., power poles) or clean fuel generators rather than temporary power generators.
- ▶ Develop and implement a traffic plan to minimize traffic flow interference from construction activities. The plan may include advance public notice of routing, use of public transportation, and satellite parking areas with a shuttle service. Schedule operations affecting traffic for off-peak hours. Minimize obstruction of through-traffic lanes. Provide a flag person to guide traffic properly and ensure safety at construction sites.
- ▶ Portable engines and portable engine-driven equipment units used at the project work site, with the exception of on-road and off-road motor vehicles, may require CARB Portable Equipment Registration with the state or a local district permit. The owner/operator shall be responsible for arranging appropriate consultations with CARB or the FRAQMD to determine registration and permitting requirements prior to equipment operation at the site.
- ▶ The proponent shall assemble a comprehensive inventory list (i.e., make, model, engine year, horsepower, and emission rates) of all heavy-duty off-road (portable and mobile) equipment (50 horsepower and greater) that will be used an aggregate of 40 or more hours for the construction project and apply the following mitigation measure:
 - ▶ The project shall provide a plan for approval by FRAQMD demonstrating that the heavy-duty (equal to or greater than 50 horsepower) off-road equipment to be used in the construction project, including owned, leased and subcontractor vehicles, will achieve a projectwide fleet-average 20 percent NO_x reduction and 45 percent particulate reduction compared to the most recent CARB fleet average at time of construction.

3.4 BIOLOGICAL RESOURCES

Environmental Issues (and Supporting Information Sources):	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 Game or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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 Game or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

This section includes a summary of the existing conditions of biological resources within the project area, describes the potentially significant impacts from implementation of the proposed project, and includes mitigation measures to reduce these potentially significant impacts to a less-than-significant level. The full description of the environmental setting can be found in **Appendix B**.

ENVIRONMENTAL SETTING

EXISTING CONDITIONS SUMMARY

Environmental study limits (ESL) were defined for the purposes of documenting existing biological resources in the project site, as well as any potential direct and/or indirect impacts to these resources. The

ESL includes the area that would be directly impacted by construction of the proposed project plus a buffer deemed to be of sufficient size to encompass any areas of potential indirect impacts. The ESL extends to approximately 300 feet from the waterside levee toe and to approximately 500 feet from the landside levee toe. It also includes potential staging/stockpile areas, temporary construction easements, and potential borrow areas. The boundaries of the ESL are shown on **Figures 3.4-1A through H**, which is the map of habitat types in the ESL.

Habitat Types

Habitat types in the ESL are shown on **Figures 3.4-1A through H in the checklist**. Detailed habitat descriptions are provided in **Appendix B**. The descriptions of habitat types and species presence are based on observations made during field surveys. Terrestrial plant communities/habitat types within the ESL include riparian, coyote brush scrub, cattle pen, golf course, urban/developed, orchard, agricultural fields, and ruderal. Aquatic communities/habitat types within the ESL include vernal pool, pond, dairy waste lagoons, seasonal wetland, and agricultural/roadside ditches. **Table 3.4-1** summarizes the acreages of habitat types in the ESL and within the project impact area, which is defined as all areas that could potentially be permanently or temporarily impacted by construction activities.

Table 3.4-1 Habitat Types (by Acre) Within the ESL		
Habitat Type	Acreage Within the ESL	Acreage within the Project Impact Area*
Terrestrial Habitats		
Orchard	220.13	80.8395
Agricultural (Row Crop/Grain Crop/Pasture)	82.67	12.0121
Urban/Developed	64.03	3.1106
Ruderal	61.77	34.6145
Cattle Pen	26.89	2.6658
Golf Course	19.09	0.00
Riparian (Non-Wetland)	2.79	0.35
Coyote Brush Scrub	0.23	0.00
Aquatic Habitats		
Roadside/Agricultural ditches	2.29	0.19
Dairy Waste Lagoon	1.48	0.00
Vernal Pool	1.19	0.00
Seasonal Wetland	0.38	0.00
Pond	0.03	0.00
Total	482.97	133.78

Note:*Includes all areas that are anticipated to be permanently or temporarily impacted by construction of the proposed project including borrow and staging areas and temporary construction easements.

Wildlife Movement Corridors

The levee and adjacent agricultural fields provide a movement corridor of marginal quality for areas between the Yuba Goldfields and other portions of the Yuba River. Wildlife is expected to use these areas to travel during the night in order to avoid contact with humans in the adjacent populated areas. Construction of the proposed project would temporarily interfere with wildlife movement during the daytime hours, but wildlife would be free to move through the project area at night. Once construction is complete, the wildlife movement in the area is expected to return to pre-project conditions.

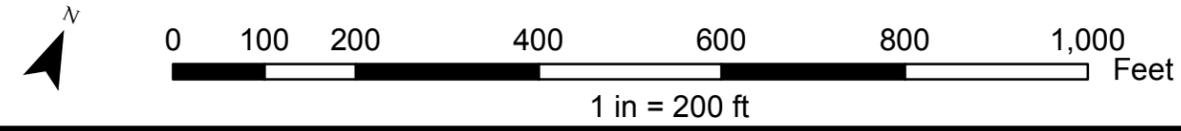
Implementation of the proposed project would not remove, degrade or otherwise interfere substantially with the structure or function of this marginal wildlife movement corridor.

Source: \\sac-fls\env\projects\91273_TR1\map_docs\mxd\ElderBerry_Location.mxd | Last Updated: 01/13/2010



	Elderberry Shrub Location		Agricultural/Roadside Ditch
	Elderberry Shrub - To be removed		Agricultural Fields
	Haul Roads		Cattle Pen
	Levee Alignment		Golf Course
	20 Foot Shrub Buffer		Orchard
	100 Foot Shrub Buffer		Ruderal
	Environmental Study Limit		Urban/Developed
	Pond		Seepage Berm
	Seasonal Wetland		Crest
	Vernal Pool		Levee Slope
	Dairy Waste Lagoon		O&M Corridor 15' Waterside, 50' Landside
	Riparian (Non-Wetland)		Storage Area
	Coyote Brush Scrub		Temporary Construction Easement
			Levee Slope Erosion Protection (Riprap)

Figure 3.4-1A - Habitat Map

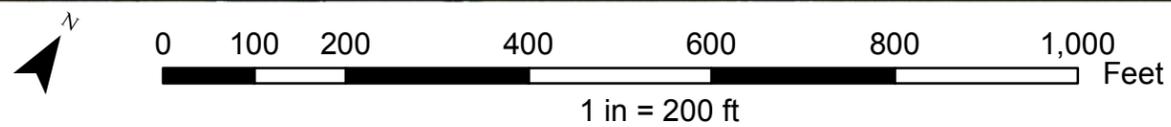


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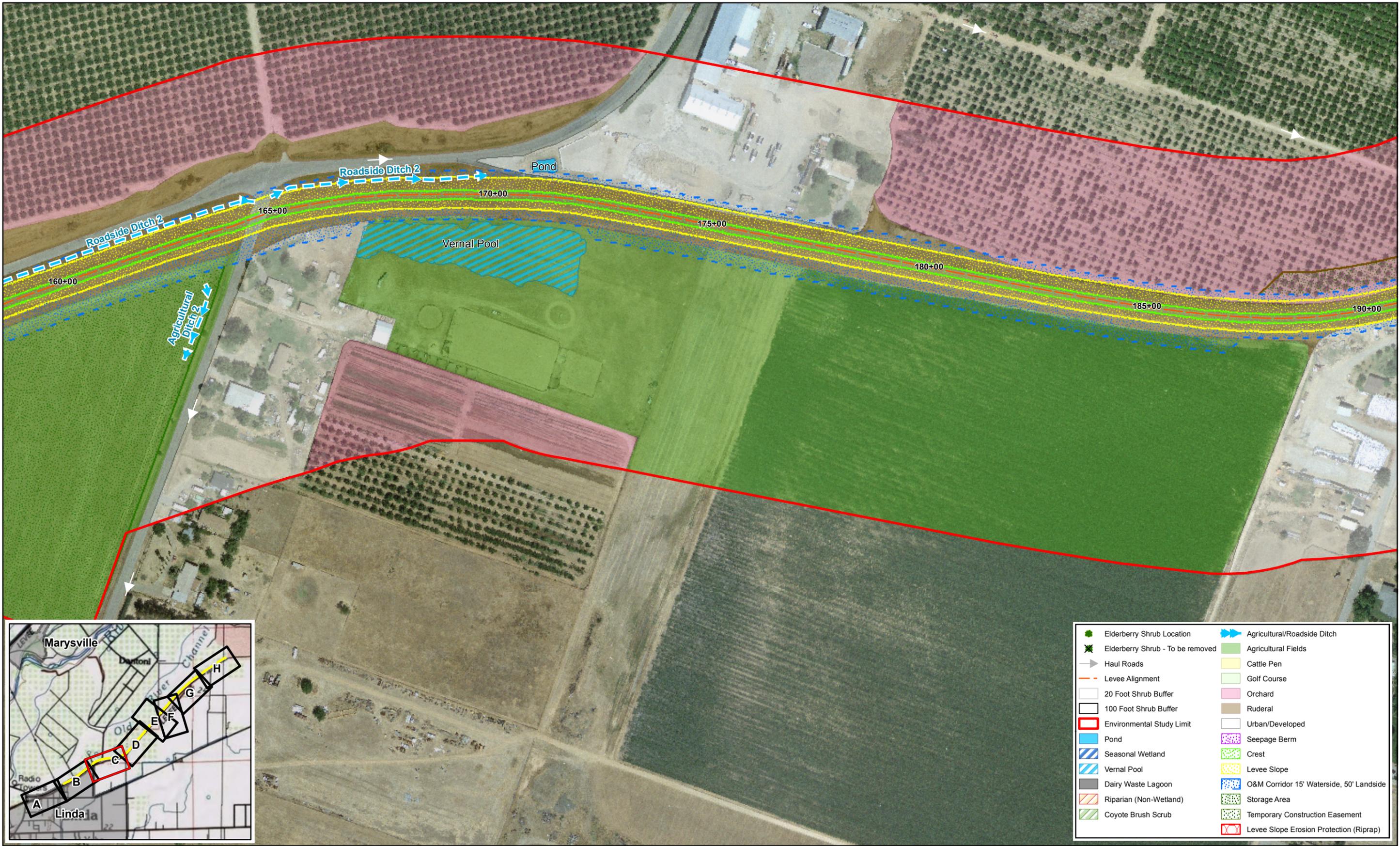


Elderberry Shrub Location	Agricultural/Roadside Ditch
Elderberry Shrub - To be removed	Agricultural Fields
Haul Roads	Cattle Pen
Levee Alignment	Golf Course
20 Foot Shrub Buffer	Orchard
100 Foot Shrub Buffer	Ruderal
Environmental Study Limit	Urban/Developed
Pond	Seepage Berm
Seasonal Wetland	Crest
Vernal Pool	Levee Slope
Dairy Waste Lagoon	O&M Corridor 15' Waterside, 50' Landside
Riparian (Non-Wetland)	Storage Area
Coyote Brush Scrub	Temporary Construction Easement
	Levee Slope Erosion Protection (Riprap)

Figure 3.4-1B - Habitat Map

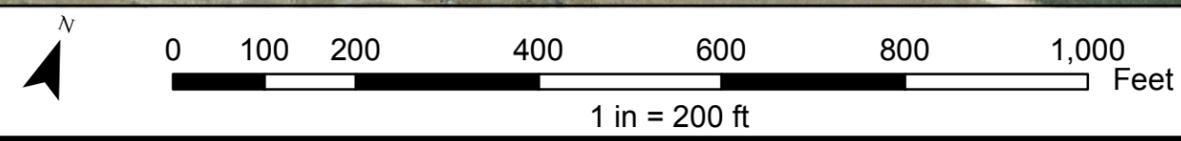


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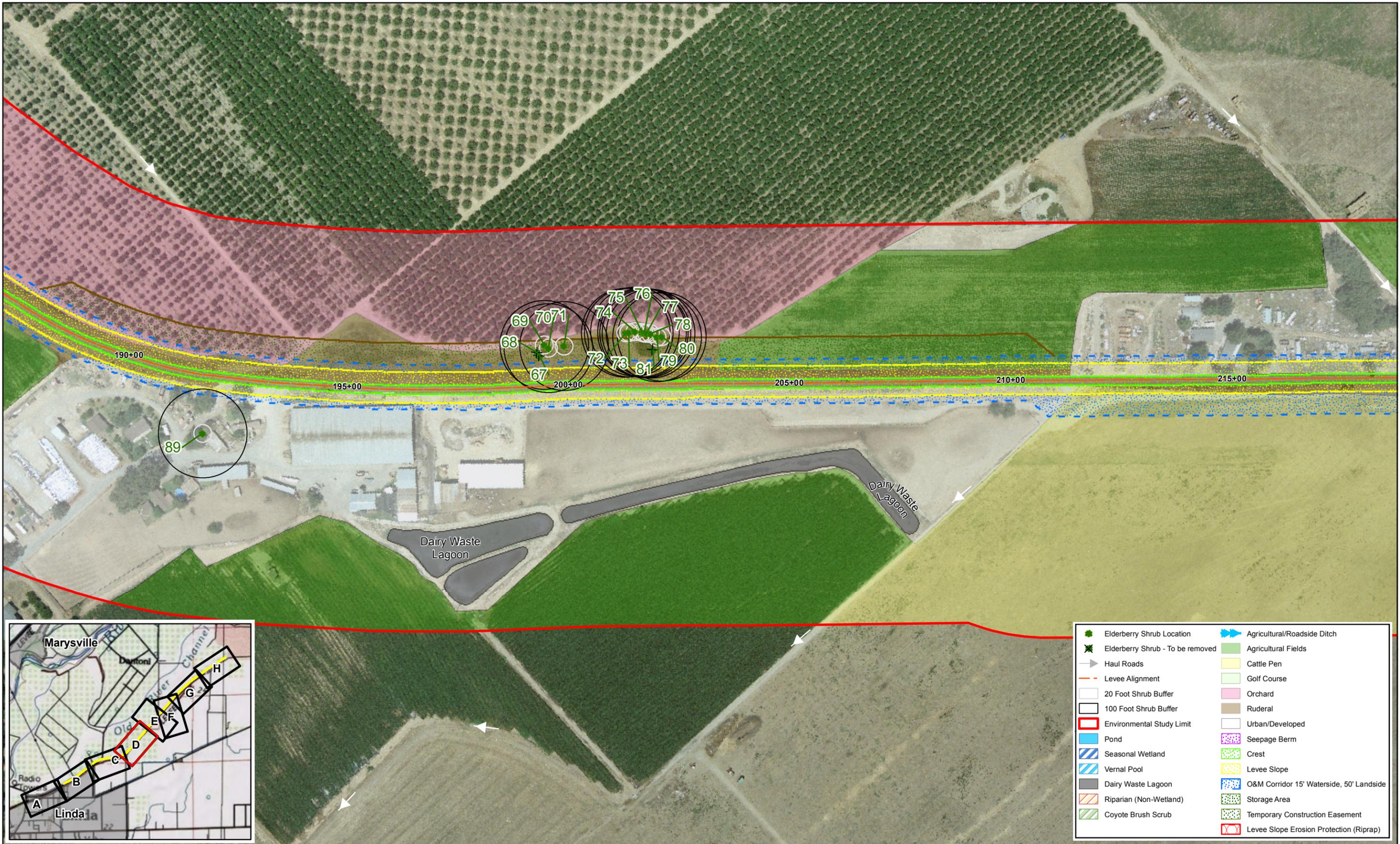


Elderberry Shrub Location	Agricultural/Roadside Ditch
Elderberry Shrub - To be removed	Agricultural Fields
Haul Roads	Cattle Pen
Levee Alignment	Golf Course
20 Foot Shrub Buffer	Orchard
100 Foot Shrub Buffer	Ruderal
Environmental Study Limit	Urban/Developed
Pond	Seepage Berm
Seasonal Wetland	Crest
Vernal Pool	Levee Slope
Dairy Waste Lagoon	O&M Corridor 15' Waterside, 50' Landside
Riparian (Non-Wetland)	Storage Area
Coyote Brush Scrub	Temporary Construction Easement
	Levee Slope Erosion Protection (Riprap)

Figure 3.4-1C - Habitat Map

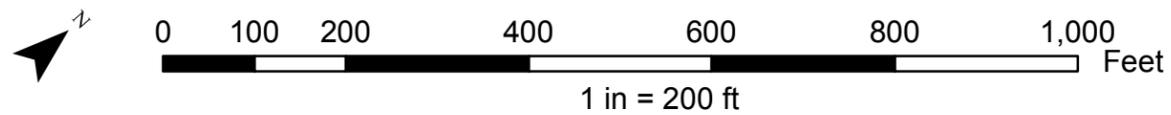


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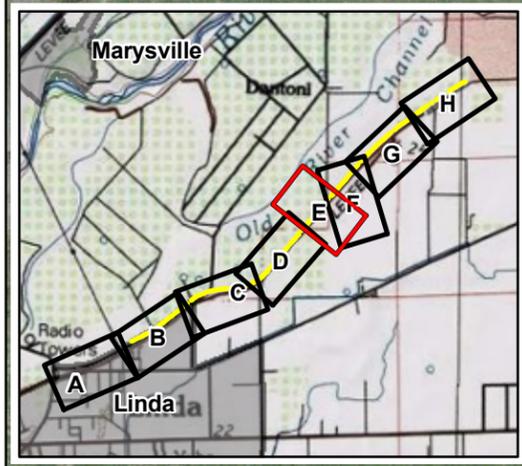


Elderberry Shrub Location	Agricultural/Roadside Ditch
Elderberry Shrub - To be removed	Agricultural Fields
Haul Roads	Cattle Pen
Levee Alignment	Golf Course
20 Foot Shrub Buffer	Orchard
100 Foot Shrub Buffer	Ruderal
Environmental Study Limit	Urban/Developed
Pond	Seepage Berm
Seasonal Wetland	Crest
Vernal Pool	Levee Slope
Dairy Waste Lagoon	O&M Corridor 15' Waterside, 50' Landside
Riparian (Non-Wetland)	Storage Area
Coyote Brush Scrub	Temporary Construction Easement
	Levee Slope Erosion Protection (Riprap)

Figure 3.4-1D - Habitat Map

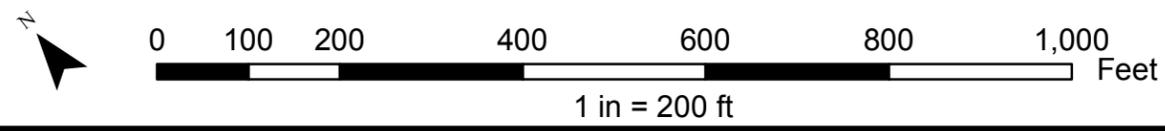


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	Elderberry Shrub Location		Agricultural/Roadside Ditch
	Elderberry Shrub - To be removed		Agricultural Fields
	Haul Roads		Cattle Pen
	Levee Alignment		Golf Course
	20 Foot Shrub Buffer		Orchard
	100 Foot Shrub Buffer		Ruderal
	Environmental Study Limit		Urban/Developed
	Pond		Seepage Berm
	Seasonal Wetland		Crest
	Vernal Pool		Levee Slope
	Dairy Waste Lagoon		O&M Corridor 15' Waterside, 50' Landside
	Riparian (Non-Wetland)		Storage Area
	Coyote Brush Scrub		Temporary Construction Easement
			Levee Slope Erosion Protection (Riprap)

Figure 3.4-1E - Habitat Map



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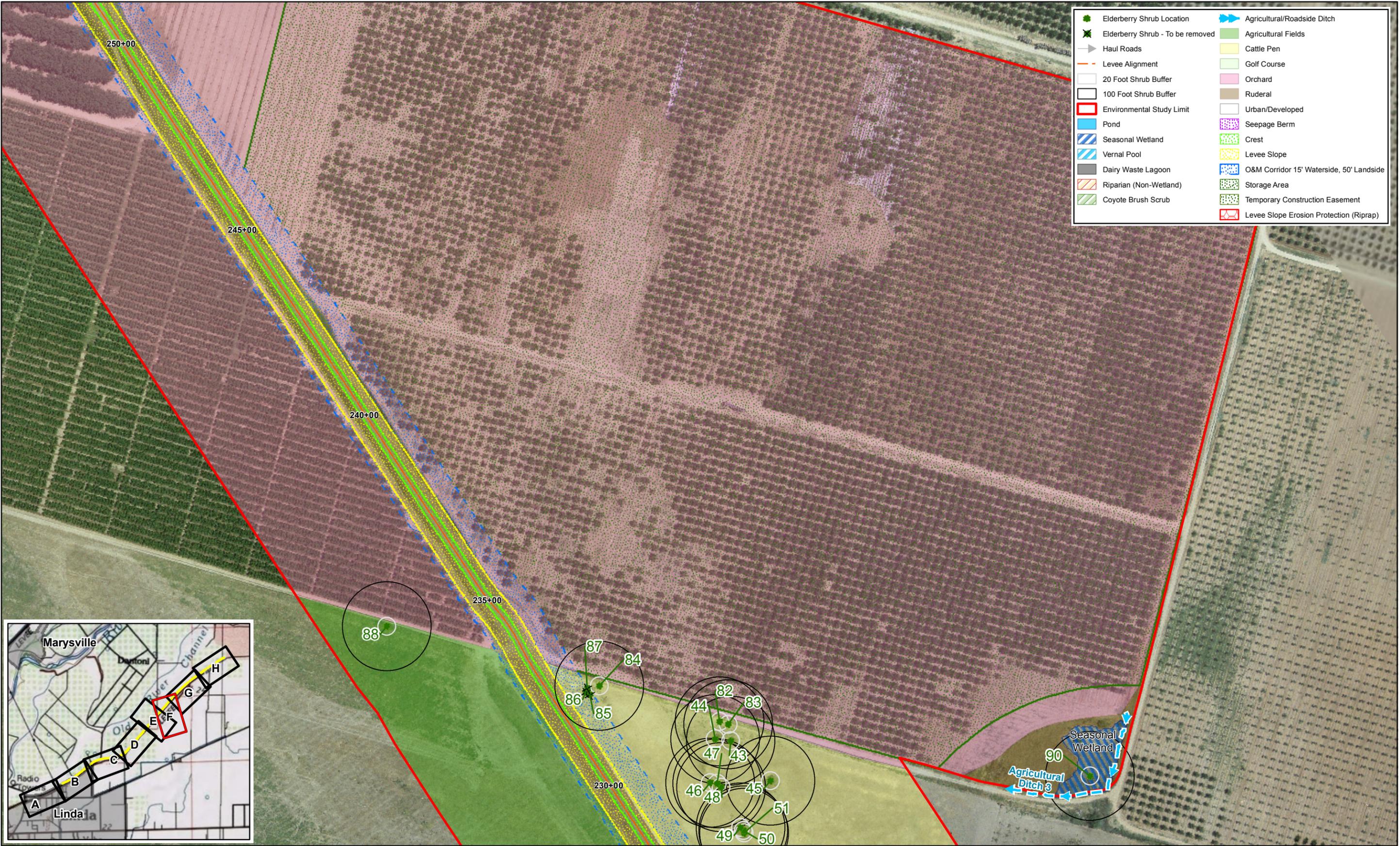


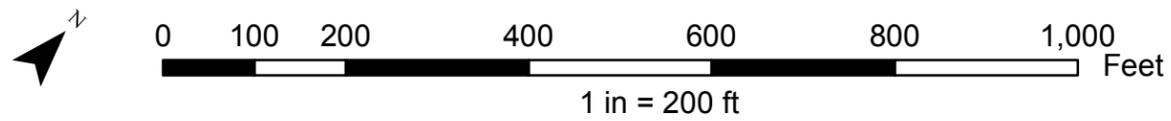
Figure 3.4-1F - Habitat Map

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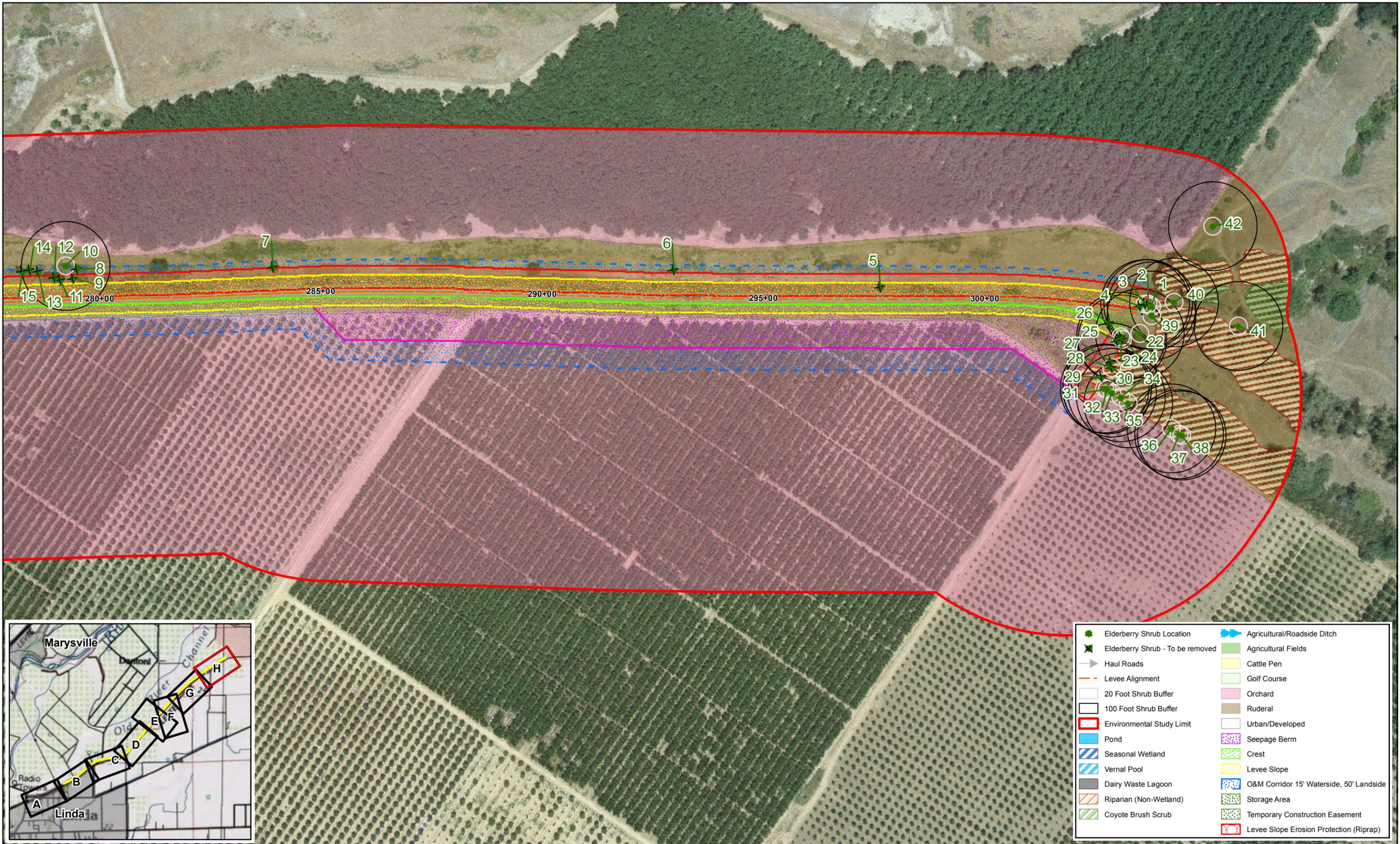


Elderberry Shrub Location	Agricultural/Roadside Ditch
Elderberry Shrub - To be removed	Agricultural Fields
Haul Roads	Cattle Pen
Levee Alignment	Golf Course
20 Foot Shrub Buffer	Orchard
100 Foot Shrub Buffer	Ruderal
Environmental Study Limit	Urban/Developed
Pond	Seepage Berm
Seasonal Wetland	Crest
Vernal Pool	Levee Slope
Dairy Waste Lagoon	O&M Corridor 15' Waterside, 50' Landside
Riparian (Non-Wetland)	Storage Area
Coyote Brush Scrub	Temporary Construction Easement
	Levee Slope Erosion Protection (Riprap)

Figure 3.4-1G - Habitat Map

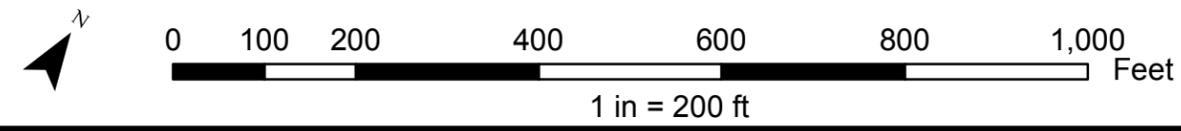


Source: \\sac-filsrv2\projects\91273_TR1A\map_docs\mxd\ElderBerry_Location.mxd | Last Updated: 01/13/2010



Elderberry Shrub Location	Agricultural/Roadside Ditch
Elderberry Shrub - To be removed	Agricultural Fields
Haul Roads	Cattle Pen
Levee Alignment	Golf Course
20 Foot Shrub Buffer	Orchard
100 Foot Shrub Buffer	Ruderal
Environmental Study Limit	Urban/Developed
Pond	Seepage Berm
Seasonal Wetland	Crest
Vernal Pool	Levee Slope
Dairy Waste Lagoon	O&M Corridor 15' Waterside, 50' Landside
Riparian (Non-Wetland)	Storage Area
Coyote Brush Scrub	Temporary Construction Easement
	Levee Slope Erosion Protection (Riprap)

Figure 3.4-1H - Habitat Map



Sensitive Biological Resources

Sensitive biological resources addressed below are those that are afforded special protection through federal, state, and/or local laws and ordinances due to a variety of factors (summarized in the regulatory setting section). Plant and animal species are typically considered “sensitive” if they are determined to be rare or have a limited geographic range by USFWS, NMFS, CDFG or other local agencies. Vegetation communities (habitats) are generally considered “sensitive” if: (a) they are considered rare within the region by various agencies including USFWS, CDFG, and other local agencies; (b) if they are known to support sensitive animal or plant species; and/or (c) they are known to serve as important wildlife corridors. Sensitive habitats are typically depleted throughout their known ranges, or are highly localized and/or fragmented. Detailed methodology is provided in **Appendix B**.

Special-Status Plant Species

Sensitive plant species that were determined to have the potential to occur in the ESL based on habitats present are listed in **Table 3.4-2**. Detailed descriptions of these sensitive plant species are provided in **Appendix B**.

Species	Listing Status USFWS/ State/Other	Habitat	Distribution	Flowering Period	Potential for Occurrence in the ESL
<i>Downingia pusilla</i> Dwarf downingia	--/--/CNPS List 2.2	Habitat consists of valley and foothill grassland (mesic) and vernal pools at elevations between 1 and 445 meters.	Known populations from Fresno, Merced, Mariposa, Napa, Placer, Sacramento, San Joaquin, Solano, Sonoma, Stanislaus, Tehama, and Yuba counties.	March to May	The vernal pool within the ESL may provide suitable habitat for this species.
<i>Juncus leiospermus</i> var. <i>ahartii</i> Ahart’s dwarf rush	--/--/ CNPS List 1B.1	Habitat consists of valley and foothill grassland (mesic) at elevations between 30 and 229 meters.	Known populations from Butte, Calaveras, Placer, Sacramento, Tehama, and Yuba counties.	March to May	The vernal pool within the ESL may provide suitable habitat for this species.
<i>Juncus leiospermus</i> var. <i>leiospermus</i> Red Bluff dwarf rush	--/--/ CNPS List 1B.1	Habitat consists of chaparral, cismontane woodland, meadows and seeps, valley and foothill grassland, and vernal pools/vernally mesic areas from an elevation of 35 to 1,020 meters.	Known populations from Butte, Placer, Shasta, and Tehama counties.	March to May	The vernal pool within the ESL may provide suitable habitat for this species.
<i>Legenere limosa</i> legenere	--/--/ CNPS List 1B.1	Habitat consists of vernal pools at elevations between 1 and 880 meters.	Known occurrences in Lake, Napa, Placer, Sacramento, Shasta, San Mateo, Solano, Sonoma, Stanislaus, and Tehama counties.	April to June	The vernal pool within the ESL may provide suitable habitat for this species.

Species	Listing Status USFWS/ State/Other	Habitat	Distribution	Flowering Period	Potential for Occurrence in the ESL
<i>Navarretia leucocephala</i> ssp. <i>bakeri</i> Baker's navarretia	--/--/ CNPS List 1B.1	Habitat consists of vernal pools, meadows and seeps, montane coniferous forest, grassland, and cismontane woodland at elevations between 5 and 1,740 meters.	Known occurrences in Western Sacramento Valley and northern Coast Range, including Colusa, Glenn, Lake, Mendocino, Marin, Napa, Solano, Sonoma, Sutter, Tehama, and Yolo counties.	April to July	The vernal pool within the ESL may provide suitable habitat for this species.
<i>Paronychia ahartii</i> Ahart's paronychia	--/--/ CNPS List 1B.1	Habitat consists of well-drained rocky outcrops, vernal pool edges, and volcanic uplands, up to about 500 meters.	Known occurrences in Shasta, Tehama and Butte Counties.	March to June	The vernal pool within the ESL may provide suitable habitat for this species.
<i>Trichocoronis wrightii</i> var. <i>wrightii</i> Wright's trichocoronis	--/--/ CNPS List 2.1	Habitat consists of meadows, seeps, marshes, swamps, riparian forest, and vernal pools with alkaline soils at elevations between 5 and 435 meters.	Known occurrences within California in Colusa, Merced, Riverside, San Joaquin, and Sutter counties.	May to September	The vernal pool within the ESL may provide suitable habitat for this species.

Status: CNPS: 1B = Rare, threatened, or endangered in California and elsewhere; 1B.1 = Seriously endangered in California (over 80% of occurrences threatened/high degree and immediacy of threat); 2 = Rare, threatened, or endangered in California but more common elsewhere; 2.1 = Seriously endangered in California (over 80% of occurrences threatened/high degree and immediacy of threat); 2.2 = Fairly endangered in California (20-80% occurrences threatened)

Special-Status Wildlife Species

Sensitive wildlife species that were determined to have the potential to occur in the ESL based on habitats present are listed in **Table 3.4-3**. Detailed descriptions of these sensitive wildlife species are provided in **Appendix B**.

Species	Listing Status USFWS/State/ Other	Habitat	Potential for Occurrence on the Project Site
<i>Branchinecta lynchi</i> Vernal pool fairy shrimp	FT/--/--	The vernal pool fairy shrimp occupies a variety of different vernal pool habitats, from small, clear, sandstone rock pools to large, turbid, alkaline, grassland valley floor pools. Although the species has been collected from large vernal pools, including one exceeding 25 acres, it tends to occur in smaller pools. It is most frequently found in pools measuring less than 0.05 acre. These are most commonly in grass or mud bottomed swales, or basalt flow depression pools in unplowed grasslands. Vernal pool fairy shrimp is currently known to occur in a wide range of vernal pool habitats in the southern and Central Valley areas of California (USFWS 2005).	Potential habitat for this species occurs in the 1.19 acre vernal pool within the ESL.

**Table 3.4-3
Special-Status Wildlife Species with Potential to Occur in the Project Vicinity**

Species	Listing Status USFWS/State/ Other	Habitat	Potential for Occurrence on the Project Site
<i>Desmocerus californicus dimorphus</i> Valley elderberry longhorn beetle	FT/--/--	Valley elderberry longhorn beetle is endemic to the riparian habitats in the Sacramento and San Joaquin Valleys where it resides on elderberry (<i>Sambucus</i> spp.) plants. The beetle's current distribution is patchy throughout the remaining riparian forests of the Central Valley from Redding to Bakersfield (USFWS 1984).	Potential habitat for this species occurs within the elderberry shrubs located within the ESL.
<i>Lepidurus packardii</i> Vernal pool tadpole shrimp	FE/--/--	This animal inhabits vernal pools containing clear to highly turbid water, ranging in size from 54 square feet in the former Mather Air Force Base area of Sacramento County, to the 89-acre Olcott Lake at Jepson Prairie. The vernal pool tadpole shrimp is currently distributed across the Central Valley of California and in the San Francisco Bay area (USFWS 2005).	Potential habitat for this species occurs in the 1.19 acre vernal pool within the ESL.
<i>Athene cunicularia</i> Burrowing owl	--/SSC/--	The burrowing owl is a yearlong resident of open, dry grassland and desert habitats, as well as in grass, forb and open shrub stages of pinyon-juniper and ponderosa pine habitats. Formerly common within the described habitats throughout the state except the northwest coastal forests and high mountains (CDFG 2008).	Marginal habitat for this species is present along the edge of the levee and along the perimeter of agricultural fields and cattle pens within the ESL.
<i>Buteo swainsoni</i> Swainson's hawk	--/ST/--	In California, Swainson's hawk breeds in the Central Valley, Klamath Basin, Northeastern Plateau, Lassen County, and Mojave Desert. Very limited breeding reported from Lanfair Valley, Owens Valley, Fish Lake Valley, Antelope Valley, and in eastern San Luis Obispo County. Breeds in stands with few trees in juniper-sage flats, riparian areas, and in oak savannah. Requires adjacent suitable foraging areas such as grasslands, alfalfa, or grain fields supporting rodent populations (CDFG 2006).	Trees within the Yuba Goldfields provide suitable nesting habitat for this species and nearby fallow fields provide suitable foraging habitat.
<i>Circus cyaneus</i> Northern harrier	--/SSC/--	The Northern harrier is a permanent resident of the northeastern plateau and coastal areas and a less common resident of the Central Valley. Coastal scrub, Great Basin grassland, marsh and swamp (coastal and fresh water), riparian scrubs, valley and foothill grassland, and wetlands provide habitat for this species. This species nests on the ground, usually in tall, dense clumps of vegetation, either alone or in loose colonies. Northern harrier occurs from annual grassland up to lodgepole pine and alpine meadow habitats, as high as 3,000 meters (CDFG 2008).	While suitable nesting habitat is not present within the site, the site provides suitable foraging habitat. A pair of northern harriers was observed foraging over the site during field surveys.

**Table 3.4-3
Special-Status Wildlife Species with Potential to Occur in the Project Vicinity**

Species	Listing Status USFWS/State/ Other	Habitat	Potential for Occurrence on the Project Site
<i>Elanus leucurus</i> White-tailed kite	--/--/CFP	Permanent resident of coastal and valley lowlands. Nests in dense oak, willow or other tree stands near open foraging areas. Hunts in herbaceous lowlands with variable tree growth (NatureServe 2009).	Trees within the Yuba Goldfields provide suitable nesting habitat for this species and nearby fallow fields provide suitable foraging habitat.

Status: Federal Endangered (FE); Federal Threatened (FT); State Threatened (ST); Fully Protected (CFP); State Species of Special Concern (SSC).

Waters of the U.S., Including Wetlands, and Waters of the State

A Delineation of Waters of the U.S. was prepared in order to identify whether potential waters of the U.S., including wetlands, occur within the ESL (**HDR 2009b**). No potentially jurisdictional wetlands or other waters of the U.S. were identified in the project site. Features believed to not be jurisdictional waters of the U.S. identified in the ESL include one vernal pool, one pond, one seasonal wetland, three dairy waste lagoons, two roadside ditches, and three agricultural ditches. These features occupy a total of 3.56 acres. Although the vernal pool and seasonal wetland do not meet the criteria for waters of the U.S. subject to Corps jurisdiction under Section 404 of the CWA, they are potential waters of the State subject to RWQCB jurisdiction under Section 401 of the CWA. The dairy waste lagoons and the roadside and agricultural ditches in the ESL are not believed to be waters of the U.S. or waters of the State. All mapped aquatic features in the ESL are described in **Appendix B** and shown on the habitat map (**Figures 3.4-1A through H**).

REGULATORY SETTING SUMMARY

The following is a list of federal and state regulations that protect biological resources and water resources and are applicable to the proposed project. Detailed descriptions of each regulation are provided in **Appendix B**.

- Federal Endangered Species Act
- Executive Order 11990: Protection of Wetlands
- Executive Order 13186: Migratory Bird Act
- Bald and Golden Eagle Protection Act
- Executive Order 13112: Invasive Species Prevention Act
- Magnuson-Stevens Fishery Conservation and Management Act
- California Endangered Species Act/California Environmental Quality Act
- California Native Plant Protection Act
- California Fish and Game Code Subsections 3503, 3503.5, and 3800 and California Fish and Game Code Section 3511: Nesting Birds

- Section 404 of the Clean Water Act (CWA; 33 USC 1344) and Section 10 of the Rivers and Harbors Act of 1899 (CWA; 33 USC 403): Wetlands and Waters of the U.S.
- California Fish and Game Code Subsection 1601-1603, 5650F: Lake and Streambed Alteration Agreement
- Section 401 of the Clean Water Act: Water Quality Certification
- Fish and Wildlife Coordination Act (16 U.S.C. 661-666)
- National Wild and Scenic Rivers Act (16 U.S.C. 1271-1287)

DISCUSSION

- 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 Game or the U.S. Fish and Wildlife Service?**

Less than Significant Impact with Mitigation Incorporated. The proposed project would have potential impacts on the following species and/or their habitat: Vernal pool fairy shrimp (*Branchinecta lynchi*), vernal pool tadpole shrimp (*Lepidurus packardii*), special status plant species (vernal pool), valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*), western burrowing owl (*Athene cunicularia*), Swainson's hawk (*Buteo swainsoni*), northern harrier (*Circus cyaneus*), white-tailed kite (*Elanus leucurus*), and other raptors and migratory birds. The following is a description of the proposed project's effects on these species and/or their habitat.

Vernal pool fairy shrimp, vernal pool tadpole shrimp, and several special status plant species have the potential to occur within vernal pool habitat within the vicinity of the ESL. One vernal pool that is approximately 1.19 acres in size occurs within the ESL adjacent to the landside toe of the levee near Dantoni Road. No direct or indirect impacts to the vernal pool are anticipated as a result of the proposed project. Therefore, no direct or indirect impacts are anticipated to special-status plants or vernal pool branchiopods with the potential to occur in the vernal pool (HDR 2009a). Project design has been modified to avoid direct impacts to the vernal pool. The operations and maintenance easement has been reduced from the standard 50 feet in width to 15 feet in width adjacent to the vernal pool. The following potential indirect effects to the vernal pool were evaluated and are discussed in the following paragraph: potential for alteration of the size of the watershed of the vernal pool, alteration of hydrology in the form of hydrologic disruption post-construction (e.g., causing the pool to drain or fill more quickly), or impacts to water quality during construction as a result of construction activities and post-construction as a result of an increase in contaminated runoff. No indirect impacts were identified.

The size of the vernal pool's watershed is not anticipated to change as a result of the proposed project. The new levee would be similar in size to the existing levee. Construction would occur during the dry season so that temporary construction related impacts to watershed size as a result of degrading the upper 10 feet of levee do not occur. Construction is not expected to disrupt the long-term hydrology of the vernal pool. The new levee would be in the same location as the existing levee and the portion of the levee that is within the watershed of the vernal pool (the portion of the levee beginning at the levee crown and extending landward to the levee toe) would not change significantly. The slurry cutoff wall would reduce under-seepage, but under-seepage would only occur to any significant degree when water is present on the water side levee slope. Water would only be present on the water side levee slope during a major flood event; during normal conditions the river is over a mile from the levee. Therefore, under-seepage is not expected to contribute significantly to the hydrology of the vernal pool and reduction of under seepage would not significantly reduce hydrologic input to the vernal pool except for during major food events. Construction would occur during the dry season so the vernal pool would not be inadvertently drained during excavation of the hole for the slurry wall. Construction related impacts to water quality are not

anticipated because construction would occur during the dry season. Long-term impacts as a result of potential contaminated runoff from new levee materials are not anticipated to be significant because the new levee would be constructed primarily from the existing material. The only new material is anticipated to be the new slurry wall and a new clay cap, which is placed onto the top of the slurry wall. These new materials are not expected to result in significant amounts of contaminated runoff into the vernal pool. Implementation of **Mitigation Measures BIO-1 and BIO -7** below would further reduce any potential impacts to the vernal pool to a less-than-significant level.

Ninety elderberry shrubs with at least one stem \geq one inch in diameter at ground level were observed within the ESL, most containing multiple stems. Although no exit holes were observed on the elderberry shrubs within the ESL and the location of the shrubs makes them marginal to poor habitat for the beetle, these shrubs could be utilized by the Valley elderberry longhorn beetle (VELB) due to their proximity to known sightings (**HDR 2009a**). Based on preliminary project design, it is anticipated that 30 elderberry shrubs located within the ESL (elderberry shrubs 36-38, 41, 42, 45-65, 82, 83, 88 and 90) would be avoided by a buffer of 100-foot or greater and would not be impacted by construction activities. A total of 26 elderberry shrubs occur within 100 feet of the proposed construction activities but are anticipated to be protected on site during construction (shrubs 1, 22, 30-35, 39, 40, 43, 44, 69-80, 84, and 89). It is anticipated that 34 elderberry shrubs (shrubs 2-21, 23-29, 66-68, 81, and 85-87) would need to be transplanted or removed to facilitate construction activities.

Construction activities have the potential to result in direct and indirect impacts to VELB. Direct impacts to the VELB could occur during transplanting of elderberry shrubs. Transplanting of elderberry shrubs has the potential to “take” individual VELB during transplanting procedures because larvae, if present in the stems, could be crushed or dislodged from the stems and become separated from the shrub. Transplanted elderberry shrubs may also experience stress, decline in health, or die due to changes in soil, hydrology, microclimate, or associated vegetation. Indirect impacts to VELB could occur as a result of construction related disturbances in the vicinity of the shrubs. These construction related disturbances could include an increase in airborne dust/contaminants that could settle on adjacent elderberry shrubs, indirect negative impacts to elderberry shrub health due to temporary construction impacts within the vicinity of the shrubs that result in soil compaction, or an increase/decrease in runoff reaching the root zone of the shrubs. These adverse impacts to the elderberry shrubs could result in decreased shrub vigor/vitality and an associated decrease in shoot, leaf, and flower production and ultimately reduce the suitability of the shrubs to provide potential habitat for the VELB.

As discussed above, temporal loss of potential habitat for the VELB would occur as a result of transplanting shrubs; however, habitat for this species in the ESL is marginal. Even though potential habitat for the VELB that is impacted by construction would be replaced, it generally takes five or more years for newly planted elderberry cuttings/seedlings to become large enough to support beetles, and it generally takes 25 years or longer for riparian habitats to reach their full value (**USFWS 1994**). Implementation of **Mitigation Measures BIO-2, BIO-3, and BIO-7** below would further reduce any potential impacts to VELB and VELB habitat to a less-than-significant level.

No potential western burrowing owl, Swainson’s hawk, northern harrier, or white-tailed kite nests were observed in the ESL, but one potential kestrel nest was observed in the ESL. Most biological surveys were conducted outside of the optimal time period for observing nests of these species and nests could be present in the vicinity of the ESL that remain undetected. One survey for western burrowing owls was conducted on January 26 during which time no burrowing owls were observed. In addition, these species could begin nesting in or adjacent to the ESL prior to the commencement of construction activities.

If any of these raptor or migratory bird species began nesting in the ESL prior to the commencement of construction, project related disturbances could potentially result in “take” of individuals through nest abandonment of eggs or juveniles by adult birds or forced fledging. Construction of the proposed project would also result in the temporary loss of ruderal habitat that provides potential nesting habitat for burrowing owl and foraging habitat for other raptor species as well as temporary loss of agricultural habitat that provides potential

foraging habitat. Construction activities would temporarily disturb 12.01 acres of agricultural fields comprised of row crops, grain crops, or pasture and 34.61 acres of ruderal areas on the levee crown and slopes and disturbed areas adjacent to the levee. Areas that are temporarily impacted are expected to return to potential foraging habitat upon completion of construction because ruderal vegetation will re-establish in all areas with the exception of the levee crown. Other habitats that would be impacted by construction of the proposed project are considered low quality or unsuitable for raptor foraging and include orchards, cattle pens, and urban/developed areas. Implementation of **Mitigation Measures BIO-4, BIO-6, and BIO-7** below would further reduce any potential impacts to burrowing owls, nesting raptors, and migratory birds to a less-than-significant level.

The proposed project is not expected to remove any known nest trees utilized by Swainson's hawk and/or other raptors or remove any trees that could potentially be utilized by Swainson's hawk for nesting. With the implementation of the proposed mitigation measures, the project is not expected to result in take of Swainson's hawks or any other raptors and migratory birds through nest disturbance of individuals potentially nesting in or adjacent to the ESL. Temporary impacts to potential foraging habitat are not expected to adversely affect Swainson's hawk or other raptors because foraging habitat is abundant elsewhere in the vicinity of the project site. Implementation of **Mitigation Measures BIO-5 and BIO-7** below would further reduce any potential impacts Swainson's hawk to a less-than-significant level.

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 Game or the U.S. Fish and Wildlife Service?

Less-than-Significant Impact. Riparian habitat occurs at the eastern edge of the project footprint within the Goldfields area. The proposed project is being designed to avoid any potential impacts to riparian habitat. Therefore, the proposed project is not anticipated to have a substantial adverse effect on any riparian habitat or other sensitive natural community. As described under a) above, the vernal pool feature within the ESL will also be avoided. Therefore this impact would be less than significant and no mitigation is required.

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?

Less-than-Significant Impact. As mentioned under a) a large vernal pool occurs in the project area along with several agricultural/roadside ditches, and commercial pond, and a seasonal wetland (**Figures 3.4-1A:H**). A wetland delineation has been drafted for the project and has been submitted to the Corps for a determination on project effects to waters of the U.S. At this time, none of the features are expected to be jurisdictional. In addition, all features within the project area, with the exception of portions of a roadside ditch (roadside ditch 2), would be avoided. Therefore this impact would be less than significant and no mitigation is required.

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?

Less-than-Significant Impact. The proposed project would disturb soils along the existing YRSL and within the project area. Any resulting erosion could temporarily increase turbidity and sedimentation downstream of the construction areas if soils are transported in stormwater runoff. (See Section 3.9 Hydrology and Water Quality for additional information)

Fish population levels and survival have been linked to levels of turbidity and siltation in a watershed. Prolonged exposure to high levels of suspended sediment could create a loss of visual capability in fish, leading to a reduction in feeding and growth rates; a thickening of the gill epithelia, potentially causing the loss of respiratory function; clogging and abrasion of gill filaments; and increases in stress levels, reducing the tolerance of fish to disease and toxicants (**Waters 1995**).

Also, high levels of suspended sediments would cause the movement and redistribution of fish populations, and could affect physical habitat. Once suspended sediment is deposited, it could reduce water depths in pools, decreasing the water's physical carrying capacity for juvenile and adult fish (**Waters 1995**). Increased sediment loading could degrade food-producing habitat downstream of the project area as well. Sediment loading could interfere with photosynthesis of aquatic flora and displace aquatic fauna. Many fish are sight feeders, and turbid waters reduce the ability of these fish to locate and feed on prey. Some fish, particularly juveniles, could become disoriented and leave areas where their main food sources are located, ultimately reducing their growth rates. Fish will not occupy areas unsuitable for survival unless they have no other option. Some fish, such as bluegill and bass species, will not spawn in excessively turbid water (**Bell 1991**). In addition, the potential exists for contaminants such as fuels, oils, and other petroleum products used in construction activities to be introduced into the water system directly or through surface runoff. Contaminants may be toxic to fish or may alter oxygen diffusion rates and cause acute and chronic toxicity to aquatic organisms, thereby reducing growth and survival.

The proposed project area is located over one mile from the Yuba River at the Yuba Goldfields and throughout the project area; therefore, construction activities related to the proposed project would not cause fish habitat in the Yuba River to become limited and would not preclude a species from occupying habitat required for specific life stages in the Yuba River. Therefore, although special-status fish species are present in the lower Yuba River, these species would not likely be affected by the project. Furthermore, the proposed project's construction activities would be completed prior to November 1 thereby avoiding any potential impacts to fisheries as a result of construction-related erosion. Therefore, fisheries would not be affected by the proposed project and impacts to fisheries would be considered less than significant. Because of the location of the project, no effect on wildlife nursery sites would occur.

The existing YRSL and adjacent agricultural fields provide a movement corridor of marginal quality for areas between the Yuba Goldfields and other portions of the Yuba River. Wildlife is expected to use these areas to travel during the night in order to avoid contact with humans in the adjacent populated areas. Construction of the proposed project would temporarily interfere with wildlife movement during the daytime hours and nighttime hours under construction Scenario 2 only. Under construction Scenario 1 wildlife would be free to move through the project area at night. Once construction is complete, the wildlife movement in the area is expected to return to pre-project conditions. Implementation of the proposed project would not remove, degrade or otherwise interfere substantially with the structure or function of this marginal wildlife movement corridor. Therefore, this impact would be less than significant and no mitigation would be required.

e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

No Impact. The project would not conflict with any local policies or ordinances protecting biological resources. Therefore, no impact would occur.

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?

No Impact. The project would not conflict with the provisions of a Habitat Conservation Plan, Natural Communities Conservation Plan, or other conservation plan. Therefore, no impact would occur.

MITIGATION

Mitigation Measure BIO-1. Implement Avoidance and Minimization Measures to Avoid Impacts on Vernal Pool Species.

a) Focused botanical surveys for special-status plant species will be conducted within the vernal pool and immediately adjacent areas at least once a month (minimum of four survey events) during March through June of the year prior to the start of construction activities in the vicinity of the vernal pool habitat. The results of the

surveys will be submitted to CDFG prior to the commencement of construction. USFWS fairy shrimp protocol surveys will also be completed in the vernal pool during the 2009/2010 wet season and a Report of Findings will be submitted to the USFWS. If listed fairy shrimp species are found during the protocol surveys then concurrence will be sought from USFWS that the proposed project will not adversely affect any listed fairy shrimp species.

b) The following mitigation measures will be implemented:

- Construction activities in the vicinity of the vernal pool shall be limited to the dry season (roughly June 15 to October 15) to avoid potential indirect impacts to the vernal pool as a result of hydrologic disruption or runoff of harmful substances into the vernal pool.
- Brightly colored orange fencing shall be placed and maintained around the vernal pool habitat to prevent impacts from construction activities. Signs shall be placed on the fencing delineating the vernal pool as an environmentally sensitive area. No construction activities or personnel shall be allowed within the environmentally sensitive area.
- Appropriate best management practices (BMP) such as hay bales or silt fencing shall be installed to prevent soil and other construction materials from entering the vernal pool during construction activities in adjacent areas. The BMPs shall be removed once construction activities are finished adjacent to the vernal pool to prevent possible hydrologic disruption to the vernal pool once the wet season commences.
- A USFWS-approved biologist shall inspect the environmentally sensitive area fencing and BMPs to ensure that they are properly installed prior to any work occurring adjacent to the vernal pool. The biologist shall inspect the vernal pool periodically during construction-related activities in the vicinity of the vernal pool to ensure that no unnecessary take of listed species or destruction of their habitat occurs. The biologist shall have the authority to stop all activities that may result in such take or destruction until appropriate corrective measures have been completed. The biologist also shall be required to report immediately any unauthorized impacts to USFWS.
- A USFWS-approved biologist shall conduct worker awareness training to ensure that all on-site construction personnel receive instruction regarding the presence of listed species and the importance of avoiding impacts to these species and their habitat.
- If no federally-listed branchiopods are found in the vernal pool upon completion of USFWS protocol presence/absence surveys, a Report of Findings shall be submitted to USFWS requesting concurrence that this species can be assumed to be absent from the project site and that species specific mitigation measures can be suspended.

No compensatory mitigation is necessary because no direct or indirect impacts to special-status plants or federally-listed vernal pool branchiopods are anticipated.

Mitigation Measure BIO-2. Implement Minimization and Avoidance Measures for Elderberry Shrubs.

a) A buffer zone of 100-feet or greater shall be established and maintained around elderberry shrubs within the project site as feasible. Complete avoidance may be assumed when a 100-foot (or wider) buffer is established and maintained around elderberry plants containing stems measuring 1.0 inch or greater in diameter at ground level.

b) The following mitigation measures shall be implemented for construction operations in the vicinity of any elderberry shrubs that would not be removed.

- All areas to be avoided during construction activities, specifically the 100-foot buffer zone around elderberry shrubs, shall be fenced and flagged. In areas where encroachment on the 100-foot buffer has

been approved by the USFWS, a minimum setback of at least 20 feet from the dripline of each elderberry shrub shall be provided in most cases. In some cases, construction activity may be required within 20 feet of a shrub. In these cases, fencing shall be placed at the greatest possible distance from the shrubs.

- A worker awareness training program for construction personnel shall be conducted by a qualified biologist prior to beginning construction activities. The program shall inform all construction personnel about the life history and status of the beetle, requirements to avoid damaging the elderberry plants, and the possible penalties for not complying with these requirements. Written documentation of the training shall be submitted to USFWS within 30 days of its completion.
- Signs shall be erected every 50 feet along the edge of avoidance areas with the following information: “This area is habitat of the valley elderberry longhorn beetle, a threatened species, and must not be disturbed. This species is protected by the Endangered Species Act of 1973, as amended. Violators are subject to prosecution, fines, and imprisonment.” The signs shall be clearly readable from a distance of 20 feet, and shall be maintained for the duration of construction.
- Pre-construction and post-construction surveys shall be done of the elderberry shrubs in the project area. Pre-construction surveys shall document compliance with mitigation measures. The post-construction survey shall confirm that there was no additional damage to any of the elderberry shrubs than as described in this document.
- Temporary construction impacts within the buffer area (area within 100 feet of elderberry shrubs) shall be restored. If any portion of the buffer area is temporarily disturbed during construction, it shall be revegetated with native plants and erosion control shall be provided.
- Buffer areas shall continue to be protected after construction from adverse effects of the project. Measures such as fencing, signs, weeding, and trash removal shall be implemented as appropriate.
- No insecticides, herbicides, fertilizers, or other chemicals that might harm the beetle or its host plant shall be used in the buffer areas, or within 100 feet of any elderberry plant with one or more stems measuring 1.0 inch or greater in diameter at ground level. All drainage water during and following construction shall be diverted away from the elderberry shrubs.
- A written description of how the buffer areas are to be restored, protected, and maintained after construction is completed shall be provided to USFWS.
- Mowing of grass can occur between July through April to reduce fire hazard, however, no mowing should occur within five feet of elderberry shrub stems. Mowing shall be done in a manner that avoids damaging shrubs.
- Dirt roadways and other areas of disturbed bare ground within 100 feet of elderberry shrubs shall be watered at least twice a day to minimize dust emissions.

Mitigation Measure BIO-3. Compensate for Unavoidable Impacts to Elderberry Shrubs.

a) The following compensatory mitigation measures shall apply:

- Elderberry shrubs that occur within the project footprint and need to be removed to facilitate construction activities would be transplanted to an appropriate location within the project area or an alternative suitable site agreed upon by USFWS according to the transplantation guidelines outlined in the Conservation Guidelines for the Valley Elderberry Longhorn Beetle (USFWS 1999). These transplantation guidelines dictate the necessary timing and details of the transplanting. At the discretion of USFWS, shrubs that are

unlikely to survive transplantation because of poor condition or location, or a plant that would be extremely difficult to move because of access problems, may be exempted from transplantation. In cases where transplantation is not possible, minimization ratios would be increased to offset the additional habitat loss.

- Each elderberry stem measuring 1.0 inch or greater in diameter at ground level that is adversely affected (i.e., transplanted or destroyed) would be replaced, in the conservation area, with elderberry seedlings or cuttings at a ratio ranging from 1:1 to 8:1 (new plantings to affected stems). The numbers of elderberry seedlings/cuttings and associated riparian native trees/shrubs to be planted as replacement habitat are determined by stem size class of affected elderberry shrubs, presence or absence of exit holes, and whether the shrub lies in a riparian or non-riparian area. Stock of either seedlings or cuttings would be obtained from local sources. Cuttings may be obtained from the plants to be transplanted if the project site is in the vicinity of the conservation area.

b) The following measures/procedures shall be implemented during transplantation:

- A qualified biologist (monitor) must be on-site for the duration of the transplanting of the elderberry shrubs to insure that no unauthorized take of VELB occurs. If unauthorized take occurs, construction activities in the area shall stop until corrective measures have been completed. The monitor shall immediately report any unauthorized take of the beetle or its habitat to the USFWS.
- Elderberry shrubs shall be transplanted when the plants are dormant, approximately November through the first two weeks in February, after they have lost their leaves. Increased mitigation ratios shall apply to plants that can not be transplanted during the dormant period. A multiplier of 2.5 shall be applied to the ratio (new plantings to affected stems) of required elderberry mitigation plantings as well as riparian native trees/shrubs to be planted as replacement habitat.

c) The following transplanting procedure shall be followed:

- The plant shall be cut back 3 to 6 feet from the ground or to 50 percent of its height (whichever is taller) by removing branches and stems above this height. The trunk and all stems measuring 1.0 inch or greater in diameter at ground level shall be replanted. Any leaves remaining on the plant shall be removed.
- A hole shall be excavated of adequate size to receive the transplant.
- The plant shall be excavated using a Vermeer® spade, backhoe, front end loader, or other suitable equipment, taking as much of the root ball as possible, and shall be replanted immediately at the conservation area. The plant shall only be moved by the root ball. The root ball shall be secured with wire and wrapped with damp burlap. The burlap shall be dampened as necessary to keep the root ball wet. Care shall be taken to ensure that the soil is not dislodged from around the roots of the transplant. Soil at the transplant site shall be moistened prior to transplant if the soil at the site does not contain adequate moisture.
- The planting area shall be at least 1,800 square feet for each elderberry transplant. The root ball shall be planted so that its top is level with the existing ground. Soil shall be compacted sufficiently so that settlement does not occur. As many as five additional elderberry plantings (cuttings or seedlings) and up to five associated native species plantings may also be planted within the 1,800 square foot area with the transplant. The transplant and each new planting shall have its own watering basin measuring at least three feet in diameter. Watering basins should have a continuous berm measuring approximately eight inches wide at the base and six inches high.

- Soil shall be saturated with water. Fertilizers or other supplements shall not be used, as the effects of these compounds on the beetle are unknown. Shrubs shall be monitored and watered as necessary. The use of a drip watering system, water truck, or other apparatus may be used.
- A mix of native plants associated with the elderberry shrubs at the project site or similar sites shall be planted at a 1:1 ratio. Native plant stock shall be obtained from local sources.

Mitigation Measure BIO-4. Preconstruction Surveys for Burrowing Owls and Passive Relocation if Necessary.

In the year prior to construction, surveys shall be conducted by a qualified biologist to determine presence/absence of burrowing owls and/or occupied burrows in and within 500 feet of the project site according to the California Department of Fish and Game’s Staff Report on Burrowing Owls (**Oct. 1995**). A winter survey shall be conducted between December 1 and January 31 and a nesting survey shall be conducted between April 15 and July 15. Preconstruction surveys shall also be conducted within 30 days prior to construction to ensure that no additional burrowing owls have established territories since the initial surveys. A report shall be submitted to CDFG prior to construction reporting the results of the preconstruction surveys. If no burrowing owls are found during any of the surveys, no further mitigation shall be necessary.

If burrowing owls are found, then the following mitigation measures shall be implemented prior to the commencement of construction:

- During the non-breeding season (September 1 through January 31) burrowing owls occupying the project site should be evicted from the project site by passive relocation as described in the California Department of Fish and Game’s Staff Report on Burrowing Owls (**Oct. 1995**).
- During the breeding season (February 1 through August 31) occupied burrows shall not be disturbed and shall be provided with a 75 meter protective buffer unless a qualified biologist approved by CDFG verifies through non-invasive means that either: 1) the birds have not begun egg laying, or 2) juveniles from the occupied burrows are foraging independently and are capable of independent survival. Once the fledglings are capable of independent survival, the burrow can be destroyed.

Mitigation Measure BIO-5. Preconstruction Surveys for Swainson’s Hawk and Establishment of Buffers if Necessary.

In winter/spring of the year that construction is scheduled to commence, Swainson’s hawk nesting surveys shall be conducted by a qualified biologist within the ESL and accessible areas outside the ESL within 0.25 mile of proposed construction activities according to the Recommended Timing and Methodology for Swainson’s Hawk Nesting Surveys in California’s Central Valley (Swainson’s Hawk Technical Advisory Committee, May 31, 2001). A report shall be submitted to CDFG prior to construction reporting the results of the preconstruction surveys.

If no active Swainson’s hawk nests are identified in or within 0.25 mile of proposed construction activities, then no further mitigation for nesting Swainson’s hawks is necessary. If active Swainson’s hawk nest(s) is identified within 0.25 mile of proposed construction activities, impacts to active nests shall be avoided by establishment and maintenance of buffers around the nests. The appropriate size and shape of the buffers shall be determined by a qualified biologist in conjunction with CDFG and may vary, depending on the nest location, nest stage, and construction activity. No project activity shall commence within the buffer area until the biologist confirms that the nest is no longer active. Monitoring shall be conducted to confirm project activity is not resulting in detectable adverse effects to active nests. A post-construction report shall be submitted to CDFG documenting the results of Swainson’s hawk nest monitoring within 30 days of completion of construction activities.

Mitigation Measure BIO-6. Preconstruction Surveys for Northern Harrier, White-tailed Kite, and Other Raptors and Migratory Birds.

If construction begins during the typical avian breeding season (February 15 to September 15), pre-construction surveys shall be conducted by a qualified biologist within two weeks prior to commencement of construction to determine presence/absence of raptor and migratory bird nests. Surveys shall be conducted in the ESL and in accessible areas outside of the ESL that fall within 500 feet of construction activities. A report shall be submitted to CDFG prior to construction reporting the results of the preconstruction surveys. If no nests are found during the survey, no further mitigation shall be necessary. If nests are found, then the following mitigation shall be implemented.

Impacts to active nests shall be avoided by establishment and maintenance of buffers around the nests. The appropriate size and shape of the buffers shall be determined by a qualified biologist in conjunction with CDFG and may vary, depending on the nest location, nest stage, and construction activity. No project activity shall commence within the buffer area until the biologist confirms that the nest is no longer active. Monitoring shall be conducted to confirm project activity is not resulting in detectable adverse effects to active nests.

Mitigation Measure BIO-7. Implement Avoidance and Minimization Measures for Construction Related Impacts to Listed Species.

- a) A USFWS approved biologist shall identify boundaries of sensitive habitats and have the contractor fence the areas with orange construction fencing. Erosion control fencing shall be placed at the edges of construction where the construction activities are upslope of aquatic habitats to prevent washing of sediments into these features. All fencing shall be installed prior to any construction activities beginning and shall be maintained throughout the construction period.
- b) During construction operations, stockpiling of construction materials, portable equipment, vehicles, and supplies shall be restricted to the designated construction staging areas. To eliminate an attraction to predators, all food-related trash items, such as wrappers, cans, bottles, and food scraps, shall be disposed of in closed containers. Revegetation shall occur on all areas temporarily disturbed during construction.
- c) Fugitive dust emissions shall be minimized by adhering to the Feather River Air Quality Management Districts requirements for the control of dust emissions.

3.5 CULTURAL RESOURCES

Environmental Issues (and Supporting Information Sources):	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 historical resource as defined in §15064.5?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Disturb any human remains, including those interred outside of formal cemeteries?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

This section addresses the sensitivity of the project area for cultural and paleontological resources. This section includes a summary of the environmental setting. The full description of the environmental setting can be found in **Appendix C**.

CEQA provides a broad definition of what constitutes a cultural or historical resource. Cultural resources can include traces of prehistoric habitation and activities, historic-era sites and materials, and places used for traditional Native American observances or places with special cultural significance. In general, any trace of human activity more than 50 years in age is required to be treated as a potential cultural resource. CEQA states that if a project would have significant impacts on important cultural resources, then alternative plans or mitigation measures must be considered. However, only significant cultural resources (termed “historical resources”) need to be addressed. The State CEQA Guidelines define a historical resource as a resource listed or eligible for listing on the California Register of Historical Resources (CRHR) (Public Resources Code Section 5024.1). A resource may be eligible for inclusion in the CRHR if it:

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

The State CEQA Guidelines also require consideration of unique archaeological resources (Section 15064.5). As used in the Public Resources Code (Section 21083.2), the term “unique archaeological resource” means an archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:

1. contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information,

2. has a special and particular quality such as being the oldest of its type or the best available example of its type, or
3. is directly associated with a scientifically recognized important prehistoric or historic event or person.

In addition to meeting one or more of the above criteria, resources eligible for listing in the CRHR must retain enough of their historic character or appearance to be recognizable as historical resources and to convey the reasons for their significance. Integrity is evaluated with regard to the retention of location, design, setting, materials, workmanship, feeling, and association (**California Office of Historic Preservation 1999:69–70**).

ENVIRONMENTAL SETTING

PREHISTORIC, ETHNOGRAPHIC, AND HISTORIC CONTEXT

The prehistoric, ethnographic, historic, and geologic context of the project area and region are briefly described below and in full detail in **Appendix C**.

With the exception of the Lake Tahoe area, most early archaeological work in the Central Sierra Nevada was conducted at the lower to middle elevations along the major rivers draining the western Sierran slope, including the North, Middle, and South Forks of the Yuba River, the Bear River, and the North and Middle Forks of the American River. Early research efforts focused on the development of local cultural chronology in the Lake Tahoe vicinity.

Significant research conducted after 1980 has attempted to place the project area within a broader regional and transregional context. Studies such as Kowta's (1988) examination of Plumas and Butte county prehistory, the *Framework for Archaeological Research and Management for the North-central Sierra Nevada* (Jackson et al. 1994), and Moratto and Hull's (1999) *Archaeological Synthesis and Research Design, Yosemite National Park* have synthesized large bodies of data, expanded our understanding of prehistoric land use and settlement systems, and identified "...broad research themes that structure the discussion of significant archaeological interpretations since 1980" (Hull 2007:183).

The project area is generally considered the homeland of the Nisenan, also referred to as the Southern Maidu, the southernmost branch of the Maidu-Konkow group occupying the Yuba, Bear, and American River drainages and the lower drainages of the Feather River. Nisenan is a sub-group of the Californian Penutian linguistic family.

The history of Yuba County begins with Pioneer John Sutter. Much of the Sacramento Valley was granted to Sutter in 1841 by Mexican Governor Alvarado. In 1848 California was officially made a U.S. territory after the end of the Mexican-American War. In January of the same year gold was discovered at Sutter's mill near Coloma. The great California gold rush not only accelerated the pace of economic development, but precipitated a turnover in the regions economic development as adventurers and ranchers gave way to entrepreneurs and commercial gold miners. In the early days of the gold rush much of the wealth generated flowed through Marysville due to its favorable location. Gold seekers arriving by river boat would prefer to dock at Marysville because it was on the same side of the Feather River as the goldfields (Fletcher and Crawford 2000).

Linda was originally laid out in 1850 by John Rose at the furthest navigable point on the Yuba River. The town at that site lasted only two years before moving to its present location. The original town site is now buried under tailings from hydraulic mining. After nearby Marysville was established in 1851, miners did not take long to venture up the Yuba River in search of gold (Yuba County Historical Commission 1976). The towns of Smartville and Timbuctoo were founded and prospered due to mining activities.

Toward the end of the 1850s the search for gold became a commercial affair with individual miners with pick and gold pans being replaced by hydraulic mining. High-pressure water nozzles were capable of washing away entire

hillside to recover placer gold. When the gold rush subsided farmers soon realized the agricultural potential of the fertile lands along the rivers. Farms began to prosper within a few years after the initial gold rush. By the 1860s and 1870s agriculturists developed notable varieties of crops including Proper Wheat, which could be shipped long distances without decay, and the world-renowned Thompson Seedless grape, named for farmer William Thompson (**Fletcher and Crawford 2000**).

Through the late 19th and early 20th century the Marysville/Linda region was primarily agricultural, and then a military element was introduced into the community. Camp Beale opened in 1942 as the training ground of the 13th Armored and the 81st and 96th Infantry divisions (**California State Military Department 2003**). The post was named for 19th century pioneer Edward Fitzgerald Beale, founder of the Army Camel Corps. The camp was transferred from the army to the air force in 1948 and has since been known as Beale Air Force Base.

Geologic Setting

The proposed project is located in the Sacramento Valley. The Sacramento Valley and the San Joaquin Valley comprise the Great Valley of California, which is located between the Sierra Nevada to the east and the Coast Range mountains to the west. Most of the surface of the Great Valley is covered with Holocene (10,000 years BP to present day) and Pleistocene (10,000–1,800,000 years BP) alluvium. This alluvium is composed of sediments from the Sierra Nevada and the Coast Range that were carried by water and deposited on the valley floor. The primary sedimentary deposits in the alluvium are siltstone, claystone, and sandstone.

The geological Map of California (Chico Sheet) indicates that the project area is underlain by Holocene deposits (**Kleinfelder 2009**). These deposits are characterized by alluvium consisting of old natural levee and channel deposits. Soil borings indicate that sediments beneath the levee crown consist of alternating layers of sand, silt, clay and gravels over 120 feet deep (**Kleinfelder 2009**). None of these deposits are known to contain paleontological resources. Significant paleontological finds, if any, would be sparsely distributed and are not anticipated due to the dynamic nature of sediment deposition in this area. However, these shallow Holocene age alluvial deposits overlay the Riverbank Formation throughout most of the project area. The Riverbank Formation is Pleistocene in age, and estimates place it between 130,000 and 450,000 years BP. The primary sediments of the Riverbank Formation typically consist of weathered reddish gravel, sand, and silt that form alluvial terraces and fans.

METHODOLOGY

Cultural Resources Records Search

A record and literature search and pedestrian survey were completed to aid in the identification of cultural resources within the study area and Area of Potential Effects (APE). The record and literature search was performed at the California Historical Resources Information System, North Central Information Center (NCIC), California State University, Sacramento. The record search was completed for the levee and a buffer zone a quarter mile wide. The combined APE and buffer zone are designated as the study area. Research was performed by identifying and reviewing reports relevant to the study area, site record forms, historic period maps, and National Register of Historic Places (NRHP) and CRHR listings, and other publications (**State of California Department of Parks and Recreation 1976, 2009**).

In accordance with revised implementing regulations of the NHPA, Title 36 CFR Part 800.4(a) (4), HDR on behalf of TRLIA contacted the Native American Heritage Commission (NAHC) on November 25, 2009 to request a review of its Sacred Lands File and to obtain a list of individuals or tribes that the NAHC believes should be contacted regarding information or concerns related to the project. The NAHC responded on December 3, 2009 with negative results for its search of the Sacred Lands File.

A complete listing of the reports researched in support of the cultural resources assessment conducted for the proposed project is included in **Appendix C**. Review of all researched reports indicated that the APE has been previously surveyed, in part, for cultural resources at the reconnaissance level.

One previously recorded prehistoric period cultural resource was identified within the study area. The site is the levee itself, which was previously recorded by Kraft (2002) as P-58-1620 (CA-YUB-1442H, “the Linda Levee”). The site record for this site is fairly recent and adequate.

In 1990 Far Western Anthropological Research Group, Inc. conducted a survey of various levees. Two-person crews examined the surface of the levee by moving up and down the levee faces. No archaeological sites were identified, but the levee itself was not evaluated at this time for archaeological significance (Bouey 1990).

Kraft (2002) prepared an evaluation for selected levees located in Yuba County, including the Linda Levee. After extensive historic research, Kraft concluded that the Linda Levee, and others examined during their study, do not qualify as significant resources under National Historic Preservation Act (NHPA) Section 106 criteria. Their argument rests largely on the basis of integrity. The Linda Levee is an evolving structure having been continually rebuilt and altered over its period of existence. Kraft states that the Linda Levee does not appear to have any historical significance outside the general context of flood control in Yuba County.

The Linda Levee was later evaluated by Jones and Stokes in 2004, for the portion of the levee west of Simpson Lane and the segment reviewed here. The levee was found to be “not eligible”.

A pedestrian archaeological survey was also completed within the APE. The purpose of archaeological survey was to verify locations of previously recorded cultural resources, assess their current conditions, and examine all accessible lands not previously surveyed or which were surveyed to less than adequate standards to identify previously unrecorded archaeological sites that may be present in the APE. Newly discovered cultural resources, loci or features were fully documented. Previously recorded cultural resources were verified and re-recorded only when their existing site records or other documentation did not meet current standards for recording, or if the condition and/or integrity of the property had changed since the previous recordings.

Cultural Resources Records Search and Survey Results

As a result of the record search and survey, one cultural resource was identified within the APE. The site is the levee itself which was previously recorded by Kraft (2002) as P-58-1620 (CA-YUB-1442H, Linda Levee). Four specific locations (locus) were identified, of which location (loci) 1 is the levee itself. These loci are described briefly below and in full detail in **Appendix C**.

Locus 1, earthen levee: The levee is a large earthen berm made up of gravel, sand, silt and clay. Its sides are mostly covered in native and non-native grasses. A levee was originally built in this general area in 1877; however, the original structure has been compromised and largely removed by flood damage and subsequent episodes of repair and reconstruction. Repair and reconstruction occurred in 1884, 1890, 1892, 1896, 1907 and 1986 (Kraft 2002, Gilreath et al. 1990). There are very few features directly associated with the levee.

Locus 2, railroad tracks: There was once a railroad spur embedded in the levee. Although the railroad has been removed, a short segment of rails and ties were left in place and are exposed at the levee’s intersection with Dantoni Road. According to Kraft (2002) this railroad spur was used to transport fruit.

Locus 3, refuse scatter: It is apparent that the levee is made up of a variety of soils deposited at different times. One area on the southern side of the levee contains a mixed array of household refuse with artifacts dating between the 1920s-1960s period. These materials include bottle glass, ceramics, can fragments and other items.

Locus 4, refuse scatter: An additional scatter of refuse was noted at the northern margin of the west end of the levee. The scatter contains primarily red brick fragments, and pieces of concrete. A piece of plain white ceramic and an aqua colored insulator fragment were also noted at this location.

As part of the survey, tax records for lands with standing structures within the study area were checked. It was noted that a number of standing structures over 50 years of age are near the levee and within the study area, however, they are not situated within the APE. These structures are listed in **Appendix C**.

Paleontological Resources Assessment and Record Search Results

The potential paleontological importance of the project area can be assessed by identifying the paleontological importance of exposed rock units within the area. Because the areal distribution of a rock unit can be delineated on a topographic map, this method is conducive to delineating parts of the site that are of higher and lower sensitivity for paleontological resources and to delineating parts of the project area that may, therefore, require mitigation in the form of monitoring during construction.

In order to establish the paleontological importance of each rock unit within the project area, the potential paleontological productivity of each rock unit was assessed, based on the number of fossil remains previously documented within the rock unit, and the potential for rock units within the project area to contain unique paleontological resources was considered. The full details of the paleontological resources assessment criteria that were used in the assessment of paleontological resources for the proposed project is described in **Appendix C**.

Results of a search of publicly available paleontological records at the University of California Berkeley, Museum of Paleontology (UCMP) indicated no fossil remains within the project area (**UCMP 2010**). Although fossil sites in Yuba County were not documented, nearby sites in Sutter County have yielded vertebrate fossils recovered from Pleistocene age sediments, including the Riverbank Formation (**Corps 2007**). Fossil remains were also documented at numerous other locations in the vicinity and region, suggesting that there is a potential for uncovering additional similar fossil remains in appropriate rock/soil types during construction-related earthmoving activities within the project area.

THRESHOLDS OF SIGNIFICANCE

Beyond the thresholds of significance provided in the checklist table above, the following information is also used to assist in evaluating the significance of impacts on cultural resources.

A substantial adverse change in the significance of a historical resource means the physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of a historical resource would be materially impaired. Actions that would materially impair the significance of a historical resource are any actions that would demolish or adversely alter those physical characteristics of a historical resource that convey its significance and qualify it for inclusion in the CRHR or in a local register or survey that meets the requirements of Public Resources Code Sections 5020.1(k) and 5024.1(g).

DISCUSSION

a) Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5?

Less than Significant with Mitigation Incorporated. While a number of standing structures are within the study area, none are within the APE and would not be directly affected by implementation of the proposed project. With the exception of one structure built in 1924, nearby structures were built during the World War II era, probably in response to population growth associated with Camp Beale and the acute need for housing during this period.

It is apparent that the Linda Levee (Locus 1) has been evaluated previously. It is not considered significant or eligible for listing in the NRHP/CRHR. The levee is considered to be an evolving resource lacking integrity. No finds were made during the pedestrian survey that would alter that evaluation. Locus 3 and 4 are highly disturbed refuse deposits that were probably imported with soil from elsewhere during efforts to repair the levee. They do not add significance to the levee.

Locus 2, the segment of railroad, represents only a small portion of a railroad spur. Except for a portion of track adjacent to Dantoni Road, very little remains of the railroad bed. The railroad bed has been removed and the levee has repaired and substantially altered over time. Due to lack of integrity, the railroad spur is not considered significant and it is not eligible for listing in the NRHP/CRHR.

Implementation of the proposed project is not anticipated to result in disturbance of eligible/significant cultural resources. As a result of work done in 2002 and 2004, the levee was determined not eligible to the NRHP. No other resources were identified within the APE. Nonetheless, while unlikely, buried or previously unidentified cultural resources could exist. Record search and survey results indicate that there are no significant cultural resources on the surface of the APE, and there are few known cultural resources in the immediate area. While the surface of the project area has been heavily altered and severely impacted, prehistoric and historic period archaeological sites could occur in buried contexts. Prehistoric deposits may be indicated by the presence of a shell, flaked and ground stone tools, bone and darkened soil. Historic period deposits are indicated by the presence of ceramics, glass, metal, milled lumber and other refuse. There is always a possibility that buried resources could be discovered during construction. TRLIA shall implement **Mitigation Measure CUL-1** outlined below to reduce potential project impacts related to unknown cultural resources to a less-than-significant level. Following construction, operation of the proposed project would not require any activities that could expose or disturb cultural resources. Therefore, implementation of **Mitigation Measure CUL-1** would sufficiently reduce this impact to a less-than-significant level.

b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?

Less than Significant with Mitigation Incorporated. Although as mentioned under item a) above, archival and field research revealed the presence of four historic-era cultural resources within the APE, none of which are NRHP/CRHR eligible, undiscovered subsurface cultural remains may be present in the area and could be disturbed by the proposed project. In light of the potential to uncover unknown or undocumented subsurface cultural remains, this impact would be potentially significant. Implementation of **Mitigation Measure CUL-1** would reduce this impact to a less-than- significant level.

c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

Less than Significant with Mitigation Incorporated. Based on the UCMP database search, there are no previously recorded fossil sites within the project area. Additionally, the ground surface within the project area is highly disturbed from previous agricultural activities and flood protection and largely covered with fill. Construction activities for the proposed project that would occur within alluvial deposits would be located within Holocene sediments. By definition, an object must be more than 10,000 years old to be considered a fossil; therefore, construction activities in most of the sediments contained within and adjacent to the project area would not result in disturbance of paleontological resources. However, as described above, Holocene age deposits in the project area overlay Pleistocene age sediments of the Riverbank Formation, which is considered paleontologically sensitive.

Construction activities occurring on and slightly below the existing ground surface would not adversely affect paleontological resources, as Pleistocene-age fossils would not be encountered until approximately 10 feet below ground surface. However, deep excavation activities have the potential to encounter undiscovered paleontological

resources, as it is possible to discover significant fossil deposits even in areas thought to have low potential. To reduce potential for disturbance of paleontological resources, TRLIA shall implement **Mitigation Measure CUL-2** outlined below to reduce potential project impacts related to unknown paleontological resources to a less-than-significant level. Following construction, operation of the proposed project would not require any activities that could expose or disturb paleontological resources. Therefore, implementation of **Mitigation Measure CUL-2** would sufficiently reduce this impact to a less-than-significant level.

d) Disturb any human remains, including those interred outside of formal cemeteries?

Less than Significant with Mitigation Incorporated. Although no evidence of human remains or recorded cemeteries were found in documentary research and during the intensive field investigation, future ground-disturbing activities in the project area could adversely affect presently unknown prehistoric burials. California law recognizes the need to protect interred human remains, particularly Native American burials and associated items of patrimony, from vandalism and inadvertent destruction. In light of the potential to uncover unknown or undocumented Native American burials, this impact would be potentially significant. Implementation of **Mitigation Measure CUL-1** would reduce this impact to a less-than-significant level.

MITIGATION

TRLIA, or its primary construction contractor, shall implement the following measures:

Mitigation Measure CUL-1 Immediately Halt Construction Activities if Any Cultural Materials or Human Remains Are Discovered.

- Prior to construction, construction personnel shall be briefed regarding what to do in the event buried cultural materials are encountered. If previously undocumented archaeological materials, such as historic building or structure remains, historic artifact deposits or scatters, or prehistoric artifacts such as stone tool flaking debitage, mortars, pestles, shell, or bone are encountered during project construction, all ground-disturbing activity shall be suspended temporarily within a 100-foot radius of the find (or an appropriate distance determined by a qualified professional archaeologist) based on the potential for disturbance of additional resource-bearing soils. A qualified professional archaeologist shall identify the materials, determine their possible significance, and formulate appropriate mitigation measures. Appropriate mitigation may include no action, avoidance of the resource, and/or potential data recovery. Ground disturbance in the zone of suspended activity shall not recommence without authorization from the archaeologist. Implementing this mitigation measure would ensure proper identification and treatment of any significant cultural resources uncovered as a result of project-related ground disturbance.
- If human remains are uncovered during project construction, all ground-disturbing activities shall immediately be suspended within a 100-foot radius of the find (or an appropriate distance determined by a qualified professional archaeologist) based on the potential for disturbance of additional remains, and TRLIA or its designated representative shall be notified. TRLIA shall immediately notify the Yuba County Coroner and a qualified professional archaeologist, if one is not already on-site. The coroner shall examine the discovery within 48 hours. If the Coroner determines that the remains are those of a Native American, he or she shall contact the NAHC by phone within 24 hours. The NAHC shall contact the most likely descendant (MLD) of the remains. TRLIA or its appointed representative and the archaeologist shall consult with the MLD regarding the removal or preservation and avoidance of the remains, and the parties shall rebury or preserve the remains as appropriate. Ground disturbance in the zone of suspended activity shall not recommence without authorization from the archaeologist.

Mitigation Measure CUL-2 Immediately Halt Construction Activities if Any Paleontological Resources Are Discovered.

- Before the start of construction activities, construction personnel involved with earthmoving activities shall be informed of the possibility of encountering fossils, the appearance and types of fossils likely to be encountered during construction activities, and the proper notification procedures should fossils be encountered. Worker training may either be prepared and presented by an experienced field archaeologist at the same time as construction worker education on cultural resources, or may be prepared and presented separately by a qualified paleontologist.
- If paleontological resources are encountered during earthmoving activities, the construction crew shall immediately cease work. TRLIA shall retain a qualified paleontologist to evaluate the resource and prepare a proposed mitigation plan. The proposed mitigation plan may include a field survey, construction monitoring, sampling and data recovery procedures, museum storage coordination for any specimen recovered, and a report of findings. Recommendations determined by TRLIA to be necessary and feasible shall be implemented before construction activities can resume at the site where the paleontological resources were discovered.

3.6 GEOLOGY/ SOILS

Environmental Issues (and Supporting Information Sources):	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
VI. GEOLOGY, SOILS, AND SEISMICITY —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 delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? (Refer to Division of Mines and Geology Special Publication 42.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
ii) Strong seismic ground shaking?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
iii) Seismic-related ground failure, including liquefaction?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
iv) Landslides?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Result in substantial soil erosion or the loss of topsoil?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Be located on 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of waste water?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

This section describes the geologic and soil conditions in the project area and evaluates potential effects of the project related to unstable soils, soil erosion, and seismic activity.

ENVIRONMENTAL SETTING

REGIONAL GEOLOGY AND SOILS

The proposed project is located in the Sacramento Valley. The Sacramento Valley and the San Joaquin Valley comprise the Great Valley of California, which is located between the Sierra Nevada to the east and the Coast Range mountains to the west. Most of the surface of the Great Valley is covered with Holocene (10,000 years before present day (BP) to present day) and Pleistocene (10,000–1,800,000 years BP) alluvium. This alluvium is composed of sediments from the Sierra Nevada and the Coast Range that were carried by water and deposited on the valley floor. The primary sedimentary deposits in the alluvium are siltstone, claystone, and sandstone.

The geological Map of California (Chico Sheet) indicates that the project area is underlain by Holocene deposits (**Kleinfelder 2009**). These deposits are characterized by alluvium consisting of old natural levee and channel deposits. Soil borings indicate that sediments beneath the levee crown consist of alternating layers of sand, silt, clay and gravels over 120 feet deep (**Kleinfelder 2009**). The shallow Holocene age alluvial deposits overlay the Riverbank Formation throughout most of the project area. The Riverbank Formation is Pleistocene in age, and estimates place it between 130,000 and 450,000 years BP. The primary sediments of the Riverbank Formation typically consist of weathered reddish gravel, sand, and silt that form alluvial terraces and fans.

Most of the soils on the valley floor are shallow to moderately deep, sloping, well-drained soils with very slowly permeable subsoils underlain with hardpan. These soils have good natural drainage, slow subsoil permeability, and slow runoff, and are primarily used for pasture, range, and cultivation of grains and rice.

PROJECT AREA GEOLOGIC AND SOIL CONDITIONS

The proposed project is located in the southern portion of Yuba County along the YRSL, upstream of the confluence of the Yuba River and the Feather River, east of the City of Marysville, and south of the Yuba River. The proposed improvements would be located from approximately Simpson Lane to the Yuba Goldfields. The total length of the project is approximately 3.8 miles.

A detailed analysis of the YRSL was performed and is described in the *Draft Geotechnical Basis of Design Report, Upper Yuba Levee Improvement Project, Yuba River South Levee Evaluation, Reclamation District 784, Yuba County, California* (**Kleinfelder 2009**). The purpose of the analysis described in the report was to perform a feasibility-level evaluation of subsurface geotechnical conditions and levee conditions of the YRSL in the project area in accordance with FEMA requirements. The conclusions of the report indicated that portions of the YRSL do not currently meet FEMA geotechnical certification requirements for through-seepage or under seepage.

The project area is in the eastern portion of the Sacramento Valley, and the project site lies within the floodplains of the Feather and Yuba Rivers. The natural floodplains of these rivers are wide in this area because the land is relatively flat. These major drainage ways were originally confined within broad natural levees that sloped away from the rivers or streams. The existing YRSL in the project area was originally built in the 1870s. Prior to that, individual farmers typically built levees to protect orchards and crops from flooding that occurred in the 1850s. However, various flood events over time damaged the YRSL and it has been repaired and rebuilt over time. The current YRSL is not the original levee. In 1998, the Corps constructed various improvements along the YRSL in the project area including through levee cutoff walls, a landside seepage berm, and waterside levee slope erosion repair.

SOIL RESOURCES

A variety of soil map units are present in the project area. The project area generally consists of deep soils derived from alluvial sources. The soils are well drained and range from low to high permeability rates that, combined with the nearly level topography, result in low runoff rates and low risk of erosion. Soil types and their distribution in the project area were identified through a review of the *Soil Resource Report for Yuba County* (**NRCS 2009**). Soil types within the project area include: Columbia fine sandy loam, 0 to 1 percent slopes; Columbia fine sandy loam, 0 to 1 percent slopes, occasionally flooded; Columbia-Urban land complex, 0 to 1 percent slopes; Dumps and Mine Tailings; Holillipah loamy sand, 0 to 1 percent slopes; Kimball loam, 0 to 1 percent slopes; Oakdale-Urban land complex, 0 to 1 percent slopes; Perkins Loam, 0 to 2 percent slopes; San Joaquin loam, 0 to 1 percent slopes; San Joaquin-Urban land complex, 0 to 1 percent slopes; Shanghai silt loam, 0 to 1 percent slopes, Shanghai silt loam, 0 to 1 percent slopes, occasionally flooded; and Tujunga sand, 0 to 1 percent slopes. Soil descriptions are included below in **Table 3.6-1**.

Table 3.6-1 Project Area Soil Descriptions

Soil Type	Soil Description
Columbia fine sandy loam, 0 to 1 percent slopes	Found in flood plains and natural levees at elevations from 10 feet below mean sea level (msl) to 155 feet above mean sea level (amsl); very deep, moderately well drained soils formed in alluvium from mixed sources; negligible to medium runoff and have moderately rapid permeability.
Columbia fine sandy loam, 0 to 1 percent slopes, occasionally flooded	Found in floodplains and shares similar characteristics to the Columbia fine sandy loam, 0 to 1 percent slopes.
Columbia-Urban land complex, 0 to 1 percent slopes	Shares similar characteristics to the Columbia fine sandy loam, 0 to 1 percent slopes described above; soil has an Urban component (urban soils are found in watersheds that provide drinking water, food, waste utilization, and natural resources to communities, and are also located within cities, parks, recreation areas, community gardens, green belts, lawns, septic absorption fields, sediment basins and other uses)
Dumps and Mine Tailings	The Yuba Goldfields contain dumps and mine tailings that do not fit into any one soil classification. Due to past extensive surface mining activities in the area, the soil is mixed and lower layers of soil have been brought to the surface and surface layers buried.
Holillipah loamy sand, 0 to 1 percent slopes	Found in alluvial fans and floodplains at elevations from 20 to 150 feet amsl; somewhat excessively drained soils formed in stratified alluvium from mixed sources; flooded unless protected by levees; very slow runoff with moderately rapid permeability.
Kimball loam, 0 to 1 percent slopes	Found on low terraces at elevations from 30 to 1,000 feet amsl; very deep, well drained soils formed in alluvium from mixed sources; low to medium runoff with slow saturated hydraulic conductivity.
Oakdale-Urban land complex, 0 to 1 percent slopes	Found on smooth, nearly level to gently sloping alluvial fans and terraces and in slightly depressed stream channels at elevations from 50 to 150 feet amsl; very deep, well drained soils that formed in alluvium derived from granitic rock sources; very slow to slow runoff and moderately rapid permeability; soil has an urban component.
Perkins loam, 0 to 2 percent slopes	Found on terraces at elevations from 50 to 1,700 feet amsl; very deep, well drained soils that formed in alluvium derived from mixed rock sources; slow to rapid runoff and moderately slow permeability.
San Joaquin loam, 0 to 1 percent slopes	Found on undulating low terraces at elevations between 20 and 500 feet amsl; moderately deep to a duripan, well and moderately well drained soils that formed in alluvium derived from mixed but dominantly granitic rock sources; medium to very high runoff and very slow permeability.
San Joaquin-Urban land complex, 0 to 1 percent slopes	Shares similar characteristics to the San Joaquin loam, 0 to 1 percent slopes; soil has an urban component.
Shanghai silt loam, 0 to 1 percent slopes	Found on floodplains at elevations between 20 and 150 feet amsl; very deep, somewhat poorly drained soils that formed in alluvium from mixed sources; very slow runoff and permeability is moderate, but may be slow below 40 inches.

Shanghai silt loam, 0 to 1 percent slopes, occasionally flooded	Found in floodplains and shares similar characteristics to the Shanghai silt loam, 0 to 1 percent slopes.
Tujunga sand, 0 to 1 percent slopes	Found on alluvial fans and floodplains at elevations between 5 and 4,300 feet amsl; very deep, somewhat excessively or excessively drained soils formed in alluvium weathered mostly from granitic sources; negligible or very low runoff and rapid permeability.

Source: Kleinfelder 2009

Erosion Hazard

The erosion hazard on the level and nearly level terrain that exists on the landside of the levee is slight; however, the hazard of erosion on the steeper levee banks is greater. Erosion hazard on the waterside of the levee varies. During various historic flood incidents, flows in the project area have resulted in erosion of portions of the YRSL embankment. Previous erosion damage has been repaired under the direction of RD 784; however, the restored levee is still subject to erosion damage from future flows that may exit the Yuba Goldfields.

Subsidence

Land surface subsidence can be induced by both natural phenomena and human activities. Natural phenomena include subsidence resulting from tectonic deformations and seismically induced settlements; soil subsidence caused by consolidation, hydrocompaction, or rapid sedimentation; subsidence resulting from oxidation or dewatering of organically rich soils; and subsidence related to subsurface cavities. Human activities that can cause subsidence include withdrawal of subsurface fluids or sediments. Pumping of water from subsurface water tables can be a cause of subsidence in California. According to the Yuba County General Plan, excessive groundwater extraction occurred from 1950 through 1984 within the valley area of Yuba County, but no concomitant land subsidence was recorded (**Yuba County 1994**).

PROJECT AREA SEISMICITY

Fault Rupture and Ground Shaking

In California, the Alquist-Priolo Earthquake Fault Zoning Act was passed in 1972 to mitigate the hazard of surface faulting to structures intended for human occupancy (**California Geological Survey (CGS) 2010a**). The main purpose of the Alquist-Priolo Earthquake Fault Zoning Act is to prevent the construction of buildings used for human occupancy on the surface trace of active faults. The Seismic Hazards Mapping Act, passed in 1990, addresses non-surface fault rupture earthquake hazards, including liquefaction and seismically induced landslides. For the purpose of fault zonation under the Alquist-Priolo Act, the CGS defines active faults as those that show evidence of surface displacement during the Holocene (i.e., within the last 11,000 years). Faults that show evidence of displacement within the Pleistocene (i.e., between 11,000 and 1.6 million years ago) are considered to be potentially active.

According to the Yuba County General Plan, the County lies within an area experiencing relatively low seismic activity, and there are no active faults, potentially active faults, or Alquist-Priolo Earthquake Fault Zones in the vicinity of the project area (**Yuba County 1994**). The nearest active fault to the County is the Cleveland Hill fault located approximately four miles from the northern county boundary (over 20 miles north of the project area). Accordingly, the project area is not likely to be affected by surface fault rupture but could be subject to secondary hazards such as ground shaking or liquefaction from this and other regional, active or potentially active faults.

LIQUEFACTION

Liquefaction is the process by which soils lose shear strength and liquefy during episodes of intense ground shaking. As a general rule, liquefaction is most likely to occur in areas underlain by loose, fine sands and/or silts, and a water table that resides within 50 feet of the ground surface. According to the Geologic Map of California (Chico Sheet) the project area is underlain by natural levee and channel deposits, and soil borings of the existing levee crown generally encountered relatively clean, poorly-graded fine to medium grained sand to silty sand soils (Kleinfelder 2009). Two groundwater wells in the project area have ranged between approximately 35 and 50 feet amsl, and 40 and 70 feet amsl respectively (Kleinfelder 2009). Groundwater elevations and soil moisture conditions within the project area fluctuate depending on the actual regional and local recharge, rainfall, irrigation practices, and/or runoff conditions.

According to California Geological Survey geologic hazard mapping (California Geological Survey 2010b), the Marysville area is subject to a peak ground acceleration of 0.17 g (where one g is equal to the force of gravity). This low-to-moderate strength of shaking presents a low-to-moderate hazard of liquefaction at the project area.

REGULATORY SETTING

Section 402 of the Clean Water Act/National Pollutant Discharge Elimination System

Section 402 of the Clean Water Act establishes a framework for regulating municipal and industrial stormwater discharges under the NPDES program. The USEPA has delegated responsibility for implementation of the NPDES program in California to the SWRCB, where it is implemented by the RWQCBs. Under the NPDES, any construction activity disturbing one acre or more must obtain coverage under the General Permit. General Permit applicants are required to prepare a SWPPP which describes the BMPs that would be implemented to avoid adverse effects on receiving water quality as a result of construction activities, including earthwork. The NPDES program and SWPPP are described in further detail in Section 3.8 – Hydrology and Water Quality.

Yuba County Grading Ordinance

Proponents of projects in Yuba County that involve excavations more than two feet deep or fills more than one foot deep must comply with the requirements of the Yuba County Grading Ordinance. Depending on the extent of the proposed cut and fill, compliance with these requirements may require the submittal of a detailed grading plan, soils engineering report, engineering geology report, and liquefaction study. In all instances, the project applicant must prepare and implement an erosion control plan that details BMPs that would be implemented to control stormwater runoff, erosion, and sedimentation until final approval of grading operations is issued by the Yuba County Department of Public Works.

METHODOLOGY

Effects associated with geology and soils that could result from construction activities were evaluated qualitatively based on expected construction practices, materials, and locations, and the expected duration of project construction and related activities. Operations effects were also evaluated qualitatively based on anticipated flood operations. It was assumed that the design and construction of the proposed improvements would meet or exceed applicable design standards for static and dynamic stability, secondary effects related to ground shaking, and seepage.

DISCUSSION

- a) **Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:**

No Impact. According to the Yuba County General Plan, the County lies within an area experiencing relatively low seismic activity, and there are no active faults, potentially active faults, or Alquist-Priolo Earthquake Fault Zones in the vicinity of the project area (**Yuba County 1994**). The nearest active fault to the County is the Cleveland Hill fault located approximately four miles from the northern county boundary (over 20 miles north of the project area). Accordingly, the project area is not likely to be affected by surface fault rupture but could be subject to secondary hazards such as ground shaking or liquefaction from this and other regional, active or potentially active faults. However, construction activities for the proposed project would be temporary and short-term, and would not expose people or structures to any increase in existing potential for substantial effects from earthquake, seismic ground shaking, seismic ground failure, or landslides. Therefore, no impact would occur and no mitigation would be required.

b) Result in substantial soil erosion or the loss of topsoil?

Less than Significant with Mitigation Incorporated. Ground disturbance caused by proposed project construction activities has the potential to increase erosion and sedimentation rates above existing conditions. A total of approximately 70,000 cubic yards of borrow material is estimated to be required for the proposed project improvements. The need for off-site borrow material would be limited where possible; for example, material excavated from the existing levee and slurry cutoff wall trenches would be used to the maximum extent. However, it is still anticipated that borrow material would be needed from off-site but local sources. Fill material would be obtained from a permitted source, including approved borrow sites or commercial sources, and would be transported to the project area by haul trucks on the identified access routes.

Where soil along the waterside or landside surface of the existing YRSL is disturbed during project implementation, an approved grass cover would be placed for erosion protection. Temporary erosion/runoff control measures would be implemented during construction to minimize potential stormwater pollution resulting from erosion and sediment migration from the construction and staging areas. These temporary control measures may include implementing construction staging in a manner that minimizes the amount of area disturbed at any one time; secondary containment for storage of fuel and oil; and the management of stockpiles and disturbed areas by means of earth berms, diversion ditches, straw wattles, straw bales, silt fences, gravel filters, mulching, revegetation, and temporary covers as appropriate. After completion of construction activities, temporary facilities would be removed and disturbed areas would be restored and reclaimed as appropriate. Site restoration activities for areas disturbed by construction activities, including laydown/staging areas, may include regrading, reseeding, use of straw wattles and bales, application of straw mulch, and other measures deemed appropriate.

Mitigation outlined below under Hydrology and Water Quality states that TRLIA's contractor would prepare and implement a SWPPP to address erosion, stormwater runoff, sedimentation, and other construction-related pollutants during project construction until all areas disturbed during construction have been permanently stabilized. The preparation and implementation of the SWPPP is necessary to comply with the requirements of the county's erosion control ordinance and the state's NPDES general construction activity stormwater permit. Erosion and stormwater pollution control measures that would be incorporated into the SWPPP would be determined during the final design phase of the selected alternative, and would be consistent with NPDES permit requirements. Potential BMPs to be implemented for the proposed project are also described in further detail below under Hydrology and Water Quality. Implementation of **Mitigation Measure WQ-1** in Section 3.9, Hydrology and Water Quality, which includes the SWPPP and associated BMPs would reduce the potential for erosion and sedimentation as a result of the proposed project construction activities to a less-than-significant level. Further, the proposed project would improve the stability of the levee by further reducing seepage and the potential for seepage-related failures.

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?

No Impact. Construction activities would be temporary and are not likely to be located on unstable geological units or soils. Construction activities would not result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse. The proposed project would improve the stability of the levee by further reducing seepage and the potential for seepage-related failures. Therefore, no impact would occur and no mitigation would be required.

d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994, as updated), creating substantial risks to life or property?

No Impact. The project alignment is in an area with soils exhibiting low shrink-swell potential, and no structures for human occupancy would be constructed as part of the proposed project. Because the soils in the project area have a low shrink-swell potential and no new risks to life or property would be created, the project would have no effect related to expansive or unstable soils. No impact would occur.

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?

No Impact. The project would not generate wastewater. Therefore, no impact would occur and no mitigation would be required.

MITIGATION

Mitigation to address the potential for erosion and sedimentation would be the same as described in Section 3.9, Hydrology/ Water Quality. No further mitigation is required.

3.7 GREENHOUSE GAS EMISSIONS

Environmental Issues (and Supporting Information Sources):	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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

ENVIRONMENTAL SETTING

While climate change has been a concern since at least 1988, as evidenced by the establishment of the United Nations and World Meteorological Organization’s Intergovernmental Panel on Climate Change, the efforts devoted to GHG emissions reduction and climate change research and policy have increased dramatically in recent years. These efforts are primarily concerned with the emissions of GHGs related to human activity that include CO₂, methane, nitrous oxide, tetrafluoromethane, hexafluoroethane, sulfur hexafluoride, HFC-23 (fluoroform), HFC-134a (s, s, s, 2 –tetrafluoroethane), and HFC-152a (difluoroethane).

In 2002, with the passage of Assembly Bill (AB) 1493, California launched an innovative and pro-active approach to dealing with GHG emissions and climate change at the state level. AB 1493 required CARB to develop and implement regulations to reduce automobile and light truck GHG emissions.

On June 1, 2005, Governor Arnold Schwarzenegger signed Executive Order S-3-05. The goal of this Executive Order is to reduce California’s GHG emissions to: 1) 2000 levels by 2010, 2) 1990 levels by the 2020 and 3) 80 percent below the 1990 levels by the year 2050. In 2006, this goal was further reinforced with the passage of AB 32, the Global Warming Solutions Act of 2006. AB 32 requires that statewide GHG emissions be reduced to 1990 levels by 2020. This reduction will be accomplished through an enforceable statewide cap on GHG emissions that will be phased in starting in 2012. To effectively implement the cap, AB 32 directs CARB to develop and implement regulations to reduce statewide GHG emissions from stationary sources. AB 32 specifies that regulations adopted in response to AB 1493 should be used to address GHG emissions from vehicles. However, AB 32 also includes language stating that if the AB 1493 regulations cannot be implemented, then CARB should develop new regulations to control vehicle GHG emissions under the authorization of AB 32. AB 32 requires that CARB adopt a quantified cap on GHG emissions representing 1990 emissions levels and disclose how it arrives at the cap; institute a schedule to meet the emissions cap; and develop tracking, reporting, and enforcement mechanisms to ensure that the state achieves the reductions in GHG emissions necessary to meet the cap. AB 32 also includes guidance to institute emissions reductions in an economically efficient manner and conditions to ensure that businesses and consumers are not unfairly affected by the reductions.

In October 2008, CARB published its *Climate Change AB 32 Scoping Plan*, which is the state’s plan to achieve GHG reductions in California required by AB 32. The scoping plan was approved by CARB on December 11, 2008.

Executive Order S-20-06 further directs state agencies to begin implementing AB 32, including the recommendations made by the state’s Climate Action Team.

Climate change and GHG reduction is also a concern at the federal level; however, at this time, no legislation or regulations have been enacted specifically addressing GHG emissions reductions and climate change. California, in conjunction with several environmental organizations and several other states, sued to force the USEPA to regulate GHG as a pollutant under the CAA (Massachusetts vs. Environmental Protection Agency et al., 549 U.S. 497 (2007)). The court ruled that GHG does fit within the CAA's definition of a pollutant, and that the USEPA does have the authority to regulate GHG. Despite the Supreme Court ruling, there are no promulgated federal regulations to date limiting GHG emissions.

CEQA requires that lead agencies consider the reasonably foreseeable adverse environmental effects of projects they are considering for approval. GHGs have the potential to adversely affect the environment because such emissions contribute, on a cumulative basis, to global climate change. In turn, global climate change has the potential to result in rising sea levels, which can inundate low-lying areas; to reduce snowpack, leading to less overall water storage in the Sierra Nevada; to affect rainfall, leading to changes in water supply, increased frequency and severity of droughts, and increased wildfire risk; and to affect habitat and agricultural land, leading to adverse effects on biological and agricultural resources.

Cumulative impacts are the collective impacts of one or more past, present, and future projects that, when combined, result in adverse changes to the environment. When the adverse change is substantial and the project's contribution to the impact is considerable, the cumulative impact would be significant. The cumulative project list for this issue (global climate change) comprises anthropogenic (i.e., human-made) GHG emission sources across the entire planet. No project alone would contribute to a noticeable incremental change to the global climate. However, AB 32 and executive order S-3-05 have established a statewide context for GHG emissions, and an enforceable statewide cap on GHG emissions. Given the nature of environmental consequences from GHGs and global climate change, CEQA requires that the cumulative impacts of GHGs, even additions that are relatively small on a global basis, need to be considered. Because of the cumulative nature of the climate change problem, even relatively small contributions may be potentially considerable (and therefore, significant).

Section 15064.4 of the recently adopted CEQA Guidelines states:

“(a) The determination of the significance of greenhouse gas emissions calls for a careful judgment by the lead agency consistent with the provisions in section 15064. A lead agency should make a good-faith effort, based to the extent possible on scientific and factual data, to describe, calculate or estimate the amount of greenhouse gas emissions resulting from a project. A lead agency shall have discretion to determine, in the context of a particular project, whether to:

(1) Use a model or methodology to quantify greenhouse gas emissions resulting from a project, and which model or methodology to use. The lead agency has discretion to select the model or methodology it considers most appropriate provided it supports its decision with substantial evidence. The lead agency should explain the limitations of the particular model or methodology selected for use; and/or,

(2) Rely on a qualitative analysis or performance based standards.

(b) A lead agency should consider the following factors, among others, when assessing the significance of impacts from greenhouse gas emissions on the environment:

(1) The extent to which the project may increase or reduce greenhouse gas emissions as compared to the existing environmental setting;

(2) Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project.

(3) The extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of greenhouse gas emissions. Such requirements must be adopted by the relevant public agency through a public review process and must reduce or mitigate the project's incremental contribution of greenhouse gas emissions. If there is substantial evidence that the possible effects of a particular project are still cumulatively considerable notwithstanding compliance with the adopted regulations or requirements, an EIR must be prepared for the project (CEQA 2009).

At the time of the analysis conducted for the proposed project, no state or local air quality regulatory agency in California, including FRAQMD, has identified a significance threshold for GHG emissions generated by a proposed project, or a methodology for analyzing impacts related to GHG emissions or global climate change. Therefore, to make the determination whether the incremental impacts of the proposed project are “cumulatively considerable” the incremental impacts of the proposed project must be compared with the effects of past, current, and probable future projects. To gather sufficient information on a global scale of all past, current, and future projects in order to make this determination is a difficult if not impossible task.

DISCUSSION

a and b) **Generate greenhouse gas emissions either directly or indirectly?**

Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

Less-than-Significant Impact. GHG emissions generated by the proposed project would be primarily in the form of CO₂ from construction equipment exhaust. Although emissions of other GHGs such as methane and nitrous oxide are important with respect to global climate change, the emissions levels of these GHGs for the sources associated with project construction are nominal compared with CO₂ emissions, even considering their higher global warming potential. Therefore, all GHG emissions for construction and operation are evaluated as CO₂ emissions.

Emissions factors and calculation methods for estimating GHG emissions associated with infrastructure projects have not been formally adopted for use by the state, FRAQMD, or any other air district. As described in Section 3.3, Air Quality, the construction-related GHG emissions associated with project implementation were calculated using Road Construction Emissions Model, Version 6.3.2. Minimal to no electricity, water, or operational GHG emissions would be associated with implementation of the proposed project. Construction activities associated with the proposed project would occur over an approximately four month period in 2010. During this time, a net increase in GHG emissions would result from various construction activities. Construction-related GHG emissions would be associated with engine exhaust from heavy-duty construction equipment, transport trucks hauling materials (e.g., soil and aggregate), and worker commute trips. Although any increase in GHG emissions would add to the quantity of emissions that contribute to global climate change, it is noteworthy that emissions associated with construction of the proposed project would occur over a finite period of time (i.e., four months). After full project buildout, all construction emissions would cease.

The proposed project would contribute directly to emissions of GHGs from the combustion of fossil fuels from construction equipment. CO₂ accounts for 92 percent of all greenhouse gas emissions; electric utilities are the primary source of anthropogenic CO₂, followed by transportation. The California Energy Commission estimates that in 2005, gross adjusted CO₂ emissions in California were 395 million metric tons of CO₂ equivalents (**Department of Energy/Energy Information Administration (DOE/EIA) 2005**). Construction activities associated with Scenario 1 would emit 700 metric tons of CO₂ (see **Table 3.3-3**), which would be 0.0002 percent of the California state CO₂ emissions. Construction activities associated with Scenario 2 would emit 705 metric tons of CO₂ (see **Table 3.3-4**), which would be 0.0002 percent of the California state CO₂ emissions. Therefore,

under either construction scenario, the proposed project would have a negligible contribution towards statewide GHG inventories.

To establish additional context in which to consider the order of magnitude of project-generated construction GHG emissions, it may be noted that facilities (i.e., stationary, continuous sources of GHG emissions) that generate greater than 25,000 metric tons of CO₂ per year are mandated to report their GHG emissions to CARB pursuant to AB 32. In addition, CARB has released a preliminary draft staff proposal that recommends 7,000 metric tons of CO₂ per year be used as the baseline threshold for impacts. Absent any air quality regulatory agency-adopted threshold for GHG emissions, it is notable that the proposed project would generate substantially fewer emissions than 25,000 and 7,000 metric tons of CO₂ per year. This information is presented for informational purposes only, and it is not the intention of the lead agency to adopt 25,000 or 7,000 metric tons of CO₂ per year as a numeric threshold. Rather, the intention is to put project-generated GHG emissions in another statewide context in order to evaluate whether the proposed project's contribution to the global impact of climate change would be substantial.

Because construction-related emissions would be temporary and finite, and below the minimum standard for reporting requirements under AB 32, the proposed project's GHG emissions would have a negligible cumulative contribution towards statewide GHG emissions and are not determined to be a considerable contribution to the cumulative global impact. In addition, the proposed project would not conflict with the objectives of AB 32 or any other applicable plan, policy or regulation adopted for the purpose of reducing GHG emissions. In fact, the project would improve continued reliance on flood protection facilities in Yuba County if the frequency, and possibly the magnitude, of future flood events increases due to climate change. Therefore, the proposed project would meet local policies and plans for improved flood protection in the RD 784 service area due in part to climate change.

MITIGATION

None required.

3.8 HAZARDS AND HAZARDOUS MATERIALS

Environmental Issues (and Supporting Information Sources):	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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

This section provides a description of potential hazards and hazardous materials that may be encountered or created as a result of project implementation, and mitigation measures as needed to reduce any significant hazardous materials–related effects to a less-than-significant level.

ENVIRONMENTAL SETTING

PHYSICAL SETTING

The proposed project is located in the southern portion of Yuba County along the YRSL, upstream of the confluence of the Yuba River and the Feather River, east of the City of Marysville, and south of the Yuba River. The YRSL in the project area was originally built in the 1870's. Prior to that time, individual farmers typically built levees to protect orchards and crops from flooding caused by hydraulic mining upstream in the Yuba River watershed. However, historic flood events damaged the YRSL and it has since been repaired and rebuilt over time. A substantial portion of the land surrounding the proposed project area has been used for agricultural production and lacks intensive commercial/residential development. It is expected that these areas have been regularly exposed to pesticides, herbicides, and other chemicals used in typical agricultural production.

Records Review

The objective of the records review is to obtain and review records that will help identify recognized environmental conditions at or potentially affecting the proposed project area. Publicly available federal, state, and local regulatory agency records were reviewed for the proposed project. Detailed analysis of the records review is provided below under Regulatory Setting.

REGULATORY SETTING

Regulations governing the project area originate at both the federal and state level and are described in detail below. However, many regulations are implemented and enforced at the local or regional level. Most hazardous materials regulation and enforcement in Yuba County is managed by its Environmental Health Department, which manages the following programs within the County: Hazardous Materials (Business Plans), aboveground storage tanks (AST) and underground storage tanks(UST), Hazardous Waste, Universal Waste, California Accidental Release Program (CalARP), Article 80, and Uniform Fire Code.

Federal Regulations

Federal regulatory agencies include the USEPA, the Occupational Safety and Health Administration (OSHA), the Nuclear Regulatory Commission, the Department of Transportation (DOT), and the National Institute of Health. Federal laws and guidelines governing hazardous substances are listed below.

- Pollution Prevention Act (42 United States Code (U.S.C.) 13101 et seq./40 CFR)
- Clean Water Act (33 U.S.C. 1251 et seq./40 CFR)
- Oil Pollution Act (33 U.S.C. 2701-2761/30, 33, 40, 46, 49 CFR)
- Clean Air Act (42 U.S.C. 7401 et seq./40 CFR)
- Occupational Safety and Health Act (29 U.S.C. 651 et seq./29 CFR)
- Federal Insecticide, Fungicide, and Rodenticide Act (7 U.S.C. 136 et seq./40 CFR)
- Comprehensive Environmental Response Compensation and Liability Act (42 U.S.C. 9601 et seq./29, 40 CFR)
- Resource Conservation and Recovery Act (42 U.S.C. 6901 et seq./40 CFR)

- Safe Drinking Water Act (42 U.S.C. 300f et seq./40 CFR)
- Toxic Substances Control Act (15 U.S.C 2601 et seq./40 CFR)

At the federal level, the principal agency regulating the generation, transport, and disposal of hazardous substances is the USEPA, under the authority of the Resource Conservation and Recovery Act (RCRA). Under RCRA, individual states may implement their own hazardous substance management programs as long as they are consistent with, and at least as strict as, RCRA. The USEPA must approve state programs intended to implement RCRA requirements.

Hazardous Substances Worker Safety Requirements

The federal OSHA is the agency responsible for ensuring worker safety. OSHA sets federal standards for implementation of training in the work place, exposure limits, and safety procedures in the handling of hazardous substances (as well as other hazards). OSHA also establishes criteria by which each state can implement its own health and safety program.

Hazardous Materials Transportation

The DOT regulates the interstate transport of hazardous materials and wastes through implementation of the Hazardous Materials Transportation Act. This act specifies driver-training requirements, load labeling procedures, and container design and safety specifications. Transporters of hazardous wastes must also meet the requirements of additional statutes such as RCRA.

State Regulations

The California Environmental Protection Agency (Cal/EPA) and the State Office of Emergency Services establish rules governing the use of hazardous substances. The SWRCB has primary responsibility to protect water quality and supply. The Cal/EPA was created to better coordinate state environmental programs, reduce administrative duplication, and address the greatest environmental and health risks. The Cal/EPA unifies the California's environmental authority under a single Cabinet-level agency. The Secretary for Environmental Protection oversees the following agencies: Air Resources Board, Integrated Waste Management Board, Department of Pesticide Regulation, SWRCB, Department of Toxic Substances Control (DTSC), and the Office of Environmental Health Hazard Assessment. Applicable state laws include the following:

- Porter Cologne Water Quality Control Act (California Water Code Section 13000-14076/23 California Code of Regulations)
- California Accidental Release Prevention Law (California Health and Safety Code Section 25531 et seq./19 California Code of Regulations)
- California Building Code (California Health and Safety Code Section 18901 et seq./24 California Code of Regulations)
- California Fire Code (California Health and Safety Code Section 13000 et seq./19 California Code of Regulations)
- California Occupational Safety and Health Act (California Labor Code Section 6300-6718/8 California Code of Regulations)
- Hazardous Materials Handling and Emergency Response "Waters Bill" (California Health and Safety Code Section 25500 et seq./19 California Code of Regulations)

- Hazardous Waste Control Law (California Health and Safety Code Section 25100 et seq./22 California Code of Regulations)
- Carpenter-Presley-Tanner Hazardous Substance Account Act “State Superfund” (California Health and Safety Code Section 25300 et seq./California Revenue and Tax Code Section 43001 et seq.)
- Hazardous Substances Act (California Health and Safety Code Section 108100 et. seq.)
- Safe Drinking Water and Toxic Enforcement Act “Proposition 65” (California Health and Safety Code Sections 25180.7, 25189.5, 25192, 25249.5-25249.13/8, 22 California Code of Regulations)
- California Air Quality Laws (California Health and Safety Code Section 39000 et seq./17 California Code of Regulations)
- Aboveground Petroleum Storage Act (California Health and Safety Code Section 25270 et seq.)
- Pesticide Contamination Prevention Act (California Food and Agriculture Code Section 13141 et seq./3 California Code of Regulations)
- Underground Storage Tank Law “Sher Bill” (California Health and Safety Code Section 25280 et seq./23 California Code of Regulations)

Within Cal/EPA, the DTSC has primary regulatory responsibility, with delegation of enforcement to local jurisdictions that enter into agreements with the state agency, for the generation, transport, and disposal of hazardous substances under the authority of the Hazardous Waste Control Law.

Hazardous Substances Worker Safety Requirements

The State OSHA (Cal OSHA) assumes primary responsibility for developing and enforcing work place safety regulations within the state. Cal OSHA regulations concerning the use of hazardous substances include requirements for safety training, availability of safety equipment, hazardous substances exposure warnings, and emergency action and fire prevention plan preparation. Cal OSHA enforces the hazard communication program regulations, which include provisions for identifying and labeling hazardous substances, describing the hazards of chemicals, and documenting employee training programs.

Hazardous Materials Transportation

California law requires that hazardous waste (as defined in California Health and Safety Code Division 20, Chapter 6.5) be transported by a state-registered hazardous waste transporter that meets specific registration requirements. The requirements include possession of a valid Hazardous Waste Transporter Registration, proof of public liability insurance that includes coverage for environmental restoration, and compliance with California Vehicle Code registration regulations required for vehicle and driver licensing. A complete list of requirements can be found in Title 22 CCR, Chapter 13. State agencies with primary responsibility for enforcing federal and state regulations, and responding to hazardous materials transportation emergencies are the California Highway Patrol and Caltrans. Together, these agencies determine container types used and license hazardous waste haulers for hazardous waste transportation on public roads.

Database Review

Environmental Data Resources Inc. (EDR), a data-search firm, performed a search of all federal, state, local, and tribal hazardous materials databases for the proposed project site and surrounding area. A copy of the report is included in **Appendix D (EDR 2010)**. The corridor study lists the federal, state, local, and tribal government

records and databases that were searched, and the number of listings discovered within the search radius. The search radius was customized based on the project alignment, and the search distances for each database vary, but are based on the minimum distances established by the American Society for Testing and Materials (ASTM) and commonly used for environmental site assessments. An additional 100 foot buffer area was included with the standard search distances to ensure adequate distance was searched from the full width of the proposed project and staging areas. Definitions and detailed descriptions of each database searched are included in the corridor study in **Appendix D**. The results of the database and records search are summarized below:

State and Local Records

- ▶ **School Property Evaluation Program (SCH):** The SCH database contains proposed and existing public school sites that are being evaluated by DTSC (for possible hazardous materials contamination). In some cases, these properties may be listed in the CalSites database, depending on the level of threat to public health and safety or the environment they pose. The Calsites database contains potential or confirmed hazardous substance release properties. In 1996, Cal/EPA reevaluated and significantly reduced the number of sites in the Calsites database, and it is no longer updated. Calsites has been replaced by the EnviroStor database, described in further detail below. A review of the SCH list has revealed that there is one SCH site within the project search area: Linda Elementary School located at 6180 Dunning Avenue. Based on information provided in the EDR report for this SCH property and its general location and distance from the proposed project sites (approximately 0.5miles), impact to the proposed project area is not anticipated from this property.
- ▶ **Waste Management Unit Database System/Solid Waste Assessment Test (WMUDS/SWAT):** This database is used for program tracking and inventory of waste management sites. The database source is the SWRCB. A review of the WMUDS/SWAT list has revealed that there is one WMUDS/SWAT site within the project search area: a solid waste disposal facility located at 1563 Simpson Lane. Based on information provided in the EDR report for this WMUDS/SWAT property and its general location and distance from the proposed project site (approximately 0.25 miles), impact to the proposed project area is not anticipated from this property.
- ▶ **CA Facility Inventory Database (CA FID UST):** This database contains active and inactive UST locations. The source is the SWRCB. A review of the CA FID UST list has revealed that there is one CA FID UST site within the project search area: the Peach Tree Golf and Country Club located at 2043 Simpson Dantoni Road. This site is located adjacent to the western portion of the project area (Project Station 135+00 to 145+00). However, based on information provided in the EDR report for this CA FID UST property, impact to the proposed project area is not anticipated from this property.
- ▶ **Historical Underground Storage Tank Registered Database (HIST UST):** A review of the HIST UST list has revealed that there is one HIST UST site within the project search area: the Peach Tree Golf and Country Club. As described above, this site is located adjacent to the western portion of the project area. However, based on information provided in the EDR report for this HIST UST property, impact to the proposed project area is not anticipated from this property.
- ▶ **Statewide Environmental Evaluation and Planning System (SWEEPS UST):** This underground storage tank listing was maintained by a company contracted by the SWRCB in the early 1990's. The listing is no longer updated. A review of the SWEEPS UST list has revealed that there is one SWEEPS UST site within the project search area: the Peach Tree Golf and Country Club. This site is located adjacent to the western portion of the project area. However, based on information provided in the EDR report for this SWEEPS UST property, impact to the proposed project area is not anticipated from this property.
- ▶ **EnviroStor:** The DTSC's Site Mitigation and Brownfields Reuse Program's (SMBRP's) EnviroStor database identifies sites that have known contamination or sites for which there may be reasons to investigate further. The database includes the following site types: Federal Superfund sites; State Response, including Military

Facilities and State Superfund; Voluntary Cleanup; and School sites. EnviroStor provides site information, including, but not limited to: identification of formerly-contaminated properties that have been released for reuse; properties where environmental deed restrictions have been recorded to prevent inappropriate land uses; and risk characterization information that is used to assess potential impacts to public health and the environment at contaminated sites. A review of the EnviroStor list has revealed that there are two EnviroStor sites within the project search area: Triangle Engineering located at 7229 Dantoni Road and Linda Elementary School. Based on information provided in the EDR report for these EnviroStor properties and their general location and distance from the proposed project area (approximately 0.5 miles or more), impact to the proposed project area is not anticipated from these properties.

Orphan sites are those with incomplete address information and which could not be plotted. There were 82 properties identified on the Orphan Summary. Of these 82 sites, as many as nine above ASTs may be located in the vicinity of the project area. Although the exact location of these ASTs could not be determined based on the incomplete address information provided, further research of the databases listings for these sites revealed no violations or other information that would result in a potential hazard for the proposed project. Based on information provided in the report for the remaining listed properties, their general locations, and the databases on which the properties were listed, impact to the proposed project area is not expected from these properties.

DISCUSSION

a) **Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?**

Less than Significant with Mitigation Incorporated. During excavation, grading, and construction activities for the proposed project, it is anticipated that limited quantities of miscellaneous hazardous substances (such as petroleum-based products/fluids, solvents, and oils) would be employed in the project area and staging areas. As with any liquid or solid, the potential for an accidental release exists during handling and transfer from one container to another. Depending on the relative hazard of the material, if a spill were to occur of significant quantity, the accidental release could pose a hazard to both construction employees and the environment, resulting in a significant impact. Implementation of the Spill Prevention and Response Plan, Erosion and Sediment Control Plan, and SWPPP, each required to be prepared as part of the proposed project, would minimize hazards to construction employees and the environment. These plans are described in further detail under Mitigation Measures WQ-1 in Section 3.9, Hydrology and Water Quality. Therefore, with implementation of **Mitigation Measure WQ-1**, impacts related to transport, use, or disposal of hazardous materials would be reduced to a less-than-significant level.

b) **Create a significant hazard to the public or the environment through reasonably foreseeable upset and/or accident conditions involving the release of hazardous materials into the environment?**

Less than Significant with Mitigation Incorporated. As described above, the potential exists that the proposed project could create a hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment. However, implementation of the SWPPP would ensure that the risk of accidental spills and releases to the environment would be minimal. Therefore, with implementation of **Mitigation Measure WQ-1** and **Mitigation Measure HAZ-1** described below, impacts related to accidental release of hazardous materials would be reduced to a less-than-significant level.

c) **Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?**

No Impact. No schools exist within 0.25 mile of the proposed project area. Therefore, no impact would occur and no mitigation would be required.

d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code §65962.5 and, as a result, would it create a significant hazard to the public or the environment?

No Impact. The proposed project is not located on a site known to be included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and would not create a significant hazard to the public or the environment. The database search did not reveal any evidence of significant hazardous waste or petroleum contamination or threat of contamination in or near the project area; therefore, existing hazards and hazardous materials concerns related to the project are not anticipated. Therefore, no impact would occur and no mitigation would be required.

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?

No Impact. The proposed project is located approximately three miles from the Yuba County Airport, and approximately four miles from the Beale Air Force Base airstrip. No uses are proposed that could affect airport operations at these or other airports in the region. The proposed project would not result in a safety hazard for people residing or working in the project area. Therefore, no impact would occur and no mitigation would be required.

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?

No Impact. There are no known private airstrips located within the vicinity of the project area. No uses are proposed that could affect airport operations for a private airstrip, and the proposed project would not result in a safety hazard for people residing or working in the project area. Therefore, no impact would occur and no mitigation would be required.

g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

No Impact. The proposed project would not impair the implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan. Therefore, no impact would occur and no mitigation would be required.

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?

Less Than Significant with Mitigation Incorporated. The proposed project area is located within a moderate fire hazard severity zone (**Yuba County General Plan 1994**). Construction activities for the proposed project include the use of mechanized construction equipment and vehicles that contain flammable fuels. During construction, equipment and vehicles may come in contact with vegetated areas and may accidentally spark and ignite the vegetation. To minimize potential for wildland fires, TRLIA shall implement **Mitigation Measure HAZ-2** outlined below to reduce potential project impacts related to wildland fires to a less-than-significant level.

MITIGATION

Mitigation to address accidental release of hazardous materials would be the same as described in Section 3.9, Hydrology/ Water Quality. The following mitigation measures would also be implemented to reduce impacts related to hazards and hazardous materials:

Mitigation Measure HAZ-1: Ensure that All Employees Handling Hazardous Materials are Trained in the Safe Handling and Storage of Hazardous Materials. Before the commencement of project construction, TRLIA or its contractor shall:

- ▶ ensure that any employee handling hazardous materials is trained in the safe handling and storage of hazardous materials and trained to follow all applicable regulations with regard to such hazardous materials, and,
- ▶ identify staging areas where hazardous materials will be stored during construction in accordance with applicable state and federal regulations.

Mitigation Measure HAZ-2: Clear areas slated for construction using spark-producing or intense heat-producing equipment.

TRLIA, or its primary construction contractor, shall implement the following measure:

- ▶ Staging areas, welding areas, or other areas slated for construction using spark-producing or intense heat-producing equipment are to be cleared of dried vegetation or other materials that could serve as fire fuel. The contractor shall keep these areas clear of combustible materials in order to maintain a firebreak. Any construction equipment that normally includes a spark arrester shall be equipped with an arrester in good working order. This includes, but is not limited to, construction equipment and vehicles.

3.9 HYDROLOGY/ WATER QUALITY

Environmental Issues (and Supporting Information Sources):	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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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 (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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 that would result in substantial erosion of siltation on- or off-site?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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 that would result in flooding on- or off-site?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f) Otherwise substantially degrade water quality?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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 authoritative flood hazard delineation map?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
h) Place within a 100-year flood hazard area structures that would impede or redirect flood flows?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
j) Inundation by seiche, tsunami, or mudflow?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

This section provides information on water quality and hydrology conditions on the project site, and mitigation as needed to reduce potentially significant project effects on hydrology and water quality to a less-than-significant level.

ENVIRONMENTAL SETTING

LEVEE CONDITIONS

The YRSL in the project area was originally built in the 1870s. Prior to that, individual farmers typically built levees to protect orchards and crops from flooding that occurred in the 1850s caused by hydraulic mining upstream in the Yuba River watershed. However, various flood events over time damaged the YRSL and it has been repaired and rebuilt over time.

In 1986, when the water surface was approximately 8 feet below the top of the levee, the Yuba River left bank levee failed in the reach between Simpson Lane Bridge and the SR 70 bridge approximately one mile upstream of the confluence with the Feather River. After the 1986 flood, the Corps strengthened the levee both in the vicinity of the levee break and upstream of the break area.

The current YRSL in the project area is not the original levee. In 1998, the Corps constructed various improvements along the YRSL in the project area including through levee cutoff walls, a landside seepage berm, and waterside levee slope erosion repair. Subsequent study has identified additional weak areas in the YRSL, precipitating the need for further levee strengthening.

GROUNDWATER

General Conditions

The principal aquifers in the valley area of Yuba County consist of approximately 100 feet of Pleistocene sands and gravels overlain by approximately 125 feet of recent alluvial fan, floodplain, and stream channel deposits. The pre-Eocene formations in the valley area of Yuba County have relatively low permeability and are moderate water producers (**Yuba County 1994**). Natural groundwater levels can vary substantially from year to year and seasonally. Groundwater levels are generally higher in winter and spring. The valley area along the Yuba River generally serves as a groundwater recharge area.

Groundwater Conditions in the Project Area

The project area is in the southern portion of the Sacramento River hydrologic region and is located within the South Yuba Sub-basin (**DWR 2003**). In recent years, under relatively normal conditions, groundwater elevations in the South Yuba Sub-basin have ranged from about 150 feet in the northwest region of the basin to about 30 feet in the southwest corner near the confluence of the Feather and Bear Rivers (**DWR 2003**).

Groundwater generally travels through the South Yuba Sub-basin from recharge areas along the Sierra Nevada foothills and the Yuba River in the north and east to discharge areas, including the Feather River, in the southwest. No areas of significant groundwater drawdown are apparent within the South Yuba Sub-basin. Along the project alignment groundwater elevations range from 45 feet amsl in the southwest project area to 75 feet amsl in the northeast project area (**Montgomery Watson Harza [MWH] 2009**). Groundwater flow direction is generally parallel to the project alignment. Depth to groundwater in the project area is approximately 20 to 25 feet below ground surface (bgs) (**MWH 2009**).

Depending on local variations in the horizontal hydraulic continuity of the soil, groundwater levels along the existing YRSL may be similar to river surface flow elevations, with a slight hydraulic gradient downward away from sources of recharge, such as agricultural drainage. However, groundwater levels also vary seasonally with precipitation and runoff in the project area and may rise closer to the ground surface during wet years. In addition, groundwater levels are influenced locally by pumping as the groundwater is withdrawn regularly during spring and summer for irrigation, and throughout the year for general use by most of the local growers. (**Yuba County Water Agency 2003b**).

WATER QUALITY

Surface Water Quality

USGS completed an evaluation of water quality conditions of the Feather and Yuba Rivers in the project vicinity as a component of an overall analysis of conditions in the Sacramento River watershed (USGS 2000). The evaluation indicated that the Yuba River generally has excellent water quality that is very low in contaminants. However, historical gold mining activities have left a legacy of mercury contamination (because mercury was used extensively for ore extraction); consequently the Yuba River is considered a major source of mercury loading in the Sacramento River watershed. Fish caught in Englebright Reservoir, located approximately 20 miles upstream of the project area, are known to have elevated tissue mercury levels (USGS 2000).

Table 3.9-1 provides a summary of the conventional water quality constituents in the Yuba River and their established water quality objectives and shows a summary of average concentrations from monthly water samples for conventional physical and inorganic chemical constituents measured in the Yuba River at Marysville from February 1996 through April 1998 (USGS 2000). In general, the data indicate that the Yuba River is low in total dissolved solids (TDS) as indicated by measurements of electrical conductivity, total hardness, and specific cations and anions. The water has neutral pH, moderate alkalinity, and adequate dissolved oxygen levels for aquatic organisms. The water is also low in nutrients (i.e., nitrogen and phosphorus) that can cause growth of nuisance algae and aquatic vascular plants. Pesticides have been detected in the Yuba River, but they are generally of low concentrations. With the exception of the drinking-water standard for carbofuran, there are no applicable regulatory criteria established for the pesticides that have been detected. CDFG has established guidance values for aquatic-life chronic (i.e., 4-day-average) criteria applicable to the organophosphate pesticides diazinon and chlorpyrifos. The average concentration of diazinon in the Yuba River is less than the CDFG guidance level of 50 nanograms per liter (CDFG 2000).

Table 3.9-1 Summary of Conventional Water Quality Constituents in the Yuba River		
Constituent	Water Quality Objective	Yuba River at Marysville
Conventional Physical and Chemical Constituents		
Temperature	<2.5°F ^a	54.0°C
Flow (cfs)		125
Electrical Conductivity (µS/cm)		72
DO (mg/L)	7.0 ^b	11.4
DO Saturation (%)	85 ^b	105
pH (standard units)	6.5 to 8.5 ^c	7.5
Alkalinity (mg/L CaCO ₃)		28.4
Total Hardness (mg/L CaCO ₃)		31.4
Suspended Sediment (mg/L)	narrative ^d	30.0
Calcium (mg/L)		7.9
Magnesium (mg/L)		2.8
Sodium (mg/L)		2.2
Potassium (mg/L)		0.5
Chloride (mg/L)	500 ^e	1.1
Sulfate (mg/L)	500 ^e	4.2
Silica (mg/L)		12.1
NO ₂ +NO ₃ (mg/L N)	NO ₃ <10 ^f	0.08
Total Phosphorus (mg/L)		0.03
Trace Metals		
Arsenic (µg/L)	50 ^g	1.0

**Table 3.9-1
Summary of Conventional Water Quality Constituents in the Yuba River**

Constituent	Water Quality Objective	Yuba River at Marysville
Chromium (µg/L)	180 ^g	<method reporting limit
Copper (µg/L)	5.1 ^g	1.5
Mercury (µg/L)	0.050 ^h	0.0069
Nickel (µg/L)	52 ^g	1.2
Zinc (µg/L)	120 ^g	2.3
Organic Pesticides		
Molinate (ng/L)	13,000 ⁱ	<60
Simazine (ng/L)	3,400 ^j	<22
Carbofuran (ng/L)	40,000 ^e , 500 ⁱ	<31
Diazinon (ng/L)	51 ^k	<28
Carbaryl (ng/L)	700 ^j	<41
Thiobencarb (ng/L)	1,000 ^a	<38
Chlorpyrifos (ng/L)	14 ^k	<25
Methidathion (ng/L)		<38
Notes: CaCO ₃ = calcium carbonate; DO = dissolved oxygen; µg/L = micrograms per liter; µS/cm = microsiemens per centimeter; mg/L = milligrams per liter; ng/L = nanograms per liter; NO ₂ = nitrogen dioxide; NO ₃ = nitrogen trioxide		
a Regional Water Quality Control Board (RWQCB) Basin Plan water quality objective for allowable change from controllable factors	g California Toxics Rule aquatic life criteria for 4-day average dissolved concentration	
b RWQCB Basin Plan water quality objective	h California Toxics Rule human health maximum criteria total recoverable concentration	
c RWQCB Basin Plan water quality objective; <0.5 allowable change from controllable factors	i California DFG hazard assessment value	
d RWQCB Basin Plan narrative objective: water shall not contain constituent in concentrations that would cause nuisance or adversely affect beneficial uses	j U.S. EPA Integrated Risk Information System reference dose for drinking water quality	
e Secondary drinking water maximum contaminant level (MCL)	k California DFG aquatic life guidance value for 4-day average concentration	
f Primary drinking water maximum contaminant level (MCL)		
Source: USGS 2000		

Groundwater Quality

Groundwater provides most water supplies for the Marysville, Linda, and Olivehurst areas and for rural properties in the project vicinity. In general, the mineral content of the groundwater underlying south Yuba County is suitable for domestic and agricultural uses.

Existing groundwater quality data in the Yuba Basin was analyzed in the *Hydrogeologic Understanding of the Yuba Basin Characterization Report (MWH 2008)*. For the report, spatial distribution of TDS concentrations in groundwater in the Yuba Basin was mapped based on data collected from 93 wells between 2000 and 2003. Generally, TDS concentrations increased with distance from the Yuba River and with depth. Near the Yuba River, TDS and nitrate concentrations were well below the state and federal primary and secondary maximum contaminant levels (MCL) of 500 milligrams per liter (mg/L) for TDS and 45 mg/L for nitrate. The similar groundwater quality at varying depths within Yuba Basin suggests existing interconnectivity between most shallow and deeper aquifers.

The community of Linda has five wells that draw water from 300–600 feet below ground surface (**Foothill Associates 1999**). Water quality samples routinely collected from these wells indicate that all regulated inorganic and organic pollutants are below the applicable drinking-water standards. However, groundwater in the area contains relatively high levels of iron, manganese, and gases (i.e., methane and hydrogen sulfide), which occasionally cause taste and odor problems but are not a threat to human health.

DISCUSSION

a) **Violate any water quality standards or waste discharge requirements?**

Less than Significant with Mitigation Incorporated. Construction activities associated with improving the existing YRSL include constructing slurry cutoff walls, a seepage berm, and relief wells; levee crown recontouring; establishment of temporary construction staging areas and access routes; and other limited ground disturbing activities.

These construction activities would disturb existing vegetation cover and soils on the existing YRSL and in nearby areas, would expose areas of disturbed ground that could be subject to rainfall and erosion, and could cause temporary discharges of sediment and other contaminants into receiving waters or onto the ground where they can be carried into receiving waters. Petroleum products or other construction-related substances (e.g., hydraulic fluids, concrete, solvents) also could be discharged inadvertently to waterways via stormwater runoff. Accidental spills of construction-related substances such as oils and fuels could also contaminate both surface water and groundwater. The extent of potential impacts on water quality would depend on the following factors: tendency for erosion of soil types encountered, types of construction practices, extent of the disturbed area, duration of construction activities, timing of particular construction activities relative to the rainy season, proximity to receiving water bodies, and sensitivity of those water bodies to construction-related contaminants. The proposed project area is located over one mile from the Yuba River; therefore, it is not anticipated that construction activities would result in direct discharges of sediments, stormwater runoff, or other construction debris into the Yuba River.

Although erosion and generation of contaminated runoff are possible during construction of improvements to the existing YRSL, anything more than minor releases of sediment is unlikely because construction activities would occur during the dry, summer months. In addition, temporary erosion control measures would be implemented during construction activities to minimize stormwater pollution resulting from erosion and sediment migration from the construction areas, laydown/staging areas, and disposal areas. These temporary measures may include:

- ▶ minimizing the extent of construction staging areas to minimize the amount of land disturbed at any one time;
- ▶ secondary containment for storage of fuel and oil; and,
- ▶ the management of stockpiles and disturbed areas using earth berms, diversion ditches, straw wattles, straw bales, silt fences, gravel filters, mulching, revegetation, and temporary covers as appropriate.

Nevertheless, some soil erosion and sedimentation of local drainage channels or discharge of contaminated runoff to local drainage channels could occur. Therefore, construction activities could affect water quality in the project area by causing erosion and sedimentation or releasing construction materials into soil or water. Implementation of **Mitigation Measure WQ-1** described below would require the preparation of a SWPPP and implementation of standard BMPs to minimize ground and vegetation disturbance and use and store hazardous materials in designated staging areas. Therefore, implementation of **Mitigation Measure WQ-1** would reduce impacts to water quality as a result of the proposed project's construction activities to a less-than-significant level.

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 (e.g., the production rate of pre existing nearby wells would drop to a level that would not support existing land uses or planned uses for which permits have been granted)?**

Less-than-Significant Impact. The proposed project would result in improvements to the existing YRSL in the project area. As discussed below, the proposed project could result in local, temporary effects on groundwater quality and conditions associated with the installation of slurry cutoff walls.

A soil-bentonite slurry cutoff wall is proposed to be constructed through the centerline of the levee crown and through sand and gravel layers in the foundation to preclude levee through and under seepage from Project Station 136+50 to Project Station 288+00. The wall would be approximately three-feet wide and range from 55 to 80 feet deep. The purpose of a slurry cutoff wall is to dissipate the hydraulic gradient in the levee foundation and reduce seepage quantities. Installation of the slurry cutoff wall would effectively reduce the hydraulic gradient and seepage flows through the foundation soils adjacent to the cutoff wall to safe levels. To achieve maximum effectiveness, the cutoff wall must extend completely through the permeable strata and terminate some distance into an underlying, reasonably continuous, less permeable layer. The presence of a slurry cutoff wall could restrict the movement of groundwater. Potential consequences are increases or decreases in the water levels in shallower wells and/or localized near-surface groundwater levels in areas immediately east and west of the slurry cutoff wall.

Groundwater levels in the area south of the Yuba River and east of the Feather River have generally risen since completion of the South Yuba Canal and delivery of irrigation water beginning in 1982. Groundwater levels in the project area are approximately 20 to 25 feet bgs. Although a slurry cutoff wall could interfere with water moving between wells and the Yuba River during periods of well pumping when the drawdown is below the level of water in the river, any effect on total water supply would not be substantial. The proposed project would result in approximately one to five feet of additional drawdown of nearby private wells in the project area (MWH 2009). In order to minimize drawdown impacts to nearby private groundwater wells, TRLIA would consult with the current land well owners where necessary.

The nearly uniform groundwater levels in RD 784 indicate that recharge from the east is nearly in balance with groundwater pumping and any losses to the Feather and Yuba Rivers. In fact, water levels could rise on the south side of the YRSL where a slurry cutoff wall is being proposed if the pumping does not equal or exceed the recharge. Water could continue to move in either direction in the areas where a slurry cutoff wall would not be constructed. Even with supplemental subsurface data, it would be difficult to determine where, and to what extent, groundwater levels could change as a result of the presence of a slurry cutoff wall. It can be expected, however, that any changes would be gradual. If local groundwater were to rise periodically to levels at which trees, crops, or structures could be damaged, excess groundwater could be pumped out using selected wells (as under current practices) or newly installed drains. TRLIA would coordinate with landowners as needed to resolve such circumstances. The excess groundwater could be delivered to irrigated lands or discharged to drains as part of RD 784's operations and maintenance.

In addition, it is unlikely that groundwater mixing due to changes in groundwater flow paths at depths affected by construction of the slurry cutoff wall would result in significant changes in groundwater quality. Therefore, potential changes in groundwater levels or quality associated with the installation of a slurry cutoff wall are not expected to substantially affect water supply or local drainage. As a result, groundwater supplies and groundwater recharge capability would not be substantially affected in the project area. This impact would be less than significant and no mitigation is required.

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 on- or off-site erosion or siltation?

Less-than-Significant Impact. As part of the proposed project improvements, a 16 foot wide aggregate base access road would be located along the top of the levee crown, which would result in a small increase in the amount of impervious surface area in the project area. In addition, a seepage/stability berm would be constructed from Project Station 288+00 to Project Station 303+59 (approximately 1559 feet), which would also result in a

small increase in the amount of impervious surface area in the project area. Impervious surfaces can alter drainage patterns or cause incremental increases in the rate and amount of surface water runoff. However, standard BMPs would be implemented to reduce the potential for erosion and sedimentation. Because the seepage/stability berm would be constructed of local semi-permeable materials and the proposed improvements to the YRSL would result in only minor incremental changes in runoff, the proposed project is not expected to substantially alter on- or off-site erosion or siltation.

An 80-foot wide seepage berm is proposed from Project Station 288+00 to Project Station 301+00 (approximately 1,300 feet). The 80 foot wide seepage berm would be a minimum of three feet high at its toe and slope up towards the levee at a minimum slope of 2 percent. The berm, at the toe of the levee, would be approximately 5.5 feet high. Above the seepage berm, a stability berm would be built at a 5:1 slope, such that the top of the stability berm meets the landside slope of the levee at the 200-year WSE. From Project Station 301+00 to Project Station 303+59 (approximately 259 feet), the seepage berm would be widened to 150-feet, and raised to match the elevation of the existing levee crown, forming a project interface buffer with the high ground cobble mounds of the Yuba Goldfields. This thickened levee berm would tie to existing grades with 2:1 slopes. Therefore, for the majority the proposed project would retain the existing topography of the YRSL, with the exception of the seepage/stability berm. The slight change in topography in the project area as a result of construction of the seepage/stability berm would not alter the course of the Yuba River since the project is located over one mile south of the Yuba River.

The purpose of the proposed project is to correct levee deficiencies and improve flood protection on the YRSL. The project would provide a minimum 200-year level of flood protection in the project area and ensure that the project area meets the minimum requirements of Federal and State laws. Therefore, the proposed project would result in a benefit by providing increased flood protection in the project area and vicinity. Thus, this impact would be less than significant, and the proposed project would result in a beneficial effect.

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 on- or off-site flooding?

Less-than-Significant Impact. The proposed project would not alter conditions in the Yuba River channel or floodplain or the operation of the flood control system. See item c) above. The proposed project would correct levee deficiencies and improve flood protection on the YRSL by providing a minimum 200-year level of flood protection in the project area and vicinity and ensuring that the project area meets the minimum requirements of Federal and State laws. Therefore, the proposed project would result in a benefit by providing increased flood protection in the project area and vicinity. Thus, this impact would be less than significant, and the proposed project would result in a beneficial effect.

e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?

Less-than-Significant Impact. See item c) above. Because there would be only a minor incremental change in the amount of runoff from the project area as a result of the proposed improvements to the YRSL, the proposed project would not exceed the capacity of any existing or planned stormwater drainage systems. Therefore, this impact would be less than significant and no mitigation is required.

f) Otherwise substantially degrade water quality?

Less-than-Significant Impact. As discussed under item a) above, Mitigation Measure WQ-1 would involve preparation of a SWPPP and implementation of standard BMPs to protect water quality in the project area. Therefore, the proposed project is not expected to substantially degrade water quality. This impact would be less than significant and no further mitigation is required.

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?

No Impact. The proposed project would not include construction of any housing. Therefore, no impact would occur.

h) Place within a 100-year flood hazard area structures that would impede or redirect flood flows?

No Impact. The proposed project would not impede or redirect flood flows, since the project area is located over one mile south of the Yuba River. The purpose of the proposed project is to correct levee deficiencies and improve flood protection on the YRSL by providing a minimum 200-year level of flood protection in the project area and vicinity and ensuring that the project area meets the minimum requirements of Federal and State laws. Therefore, this impact would be less than significant, and the proposed project would result in a beneficial effect. See items c) and d) above for additional information.

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?

No Impact. The proposed project would improve flood protection in the project area, thereby reducing the risk of loss, injury, or death involving flooding. This impact would be beneficial. See items c) and d) above for additional information.

j) Result in inundation by seiche, tsunami, or mudflow?

No Impact. The project area is geographically removed from areas where the potential for seiche, tsunami, or mudflow exists (e.g., near a lake, the ocean, or hillsides). Therefore, no impact would occur.

MITIGATION

Mitigation Measure WQ-1: Prepare a SWPPP and comply with other applicable regulations.

Before the start of any project construction work, site grading, or excavation, TRLIA or its primary construction contractor shall prepare a SWPPP detailing measures to control soil erosion and waste discharges from construction areas and shall submit a notice of intent (NOI) to the Central Valley RWQCB for stormwater discharges associated with general construction activity. TRLIA shall require all contractors conducting construction-related work to implement the SWPPP to control soil erosion and waste discharges of other construction-related contaminants. The general contractor(s) and subcontractor(s) conducting the work shall be responsible for constructing or implementing, regularly inspecting, and maintaining the measures in good working order.

The SWPPP shall identify the grading and erosion control BMPs and specifications that are necessary to avoid and minimize water quality impacts to the extent practicable. Standard erosion control measures (e.g., management, structural, and vegetative controls) shall be implemented for all construction activities that expose soil. Grading operations shall be conducted to eliminate direct routes for conveying potentially contaminated runoff to drainage channels. Erosion control barriers such as silt fences and mulching material shall be installed, and disturbed areas shall be reseeded with grass or other plants where necessary.

The SWPPP shall contain specific measures for stabilizing soils at construction-related sites before the onset of the winter rainfall season. These standard erosion control measures shall be designed to reduce the potential for soil erosion and sedimentation of drainage channels.

The following specific BMPs are recommended for implementation:

- ▶ Conduct all work according to site-specific construction plans that identify areas for clearing, grading, and revegetation so that ground disturbance is minimized.
- ▶ Avoid riparian and wetland vegetation wherever possible and identify vegetation to be retained for habitat maintenance (i.e., as identified through preconstruction biological surveys), cover cleared areas with mulches, install silt fences near riparian areas or streams to control erosion and trap sediment, and reseed cleared areas with native vegetation.
- ▶ Stabilize disturbed soils at all construction sites and staging areas before the onset of the winter rainfall season.
- ▶ Stabilize and protect stockpiles from exposure to erosion and flooding.

The SWPPP also shall specify appropriate hazardous materials handling, storage, and spill response practices to reduce the possibility of adverse impacts from use or accidental spills or releases of contaminants. Specific measures applicable to the project include, but are not limited to, the following:

- ▶ Develop and implement strict on-site handling rules to keep construction and maintenance materials out of drainages and waterways.
- ▶ Conduct all refueling and servicing of equipment with absorbent material or drip pans underneath to contain spilled fuel. Collect any fluid drained from machinery during servicing in leakproof containers and deliver to an appropriate disposal or recycling facility.
- ▶ Maintain controlled construction staging, site entrance, concrete washout, and fueling areas at least 100 feet away from stream channels or wetlands to minimize accidental spills and runoff of contaminants in stormwater.
- ▶ Prevent raw cement; concrete or concrete washings; asphalt, paint, or other coating material; oil or other petroleum products; or any other substances that could be hazardous to aquatic life from contaminating the soil or entering watercourses.
- ▶ Maintain spill cleanup equipment in proper working condition. Clean up all spills immediately according to the spill prevention and response plan, and immediately notify CDFG and the RWQCB of any spills and cleanup procedures.

3.10 LAND USE/ PLANNING

Environmental Issues (and Supporting Information Sources):	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
X. LAND USE AND LAND USE PLANNING —Would the project:				
a) Physically divide an established community?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

This section describes existing land uses at the project site and evaluates the effects of the project related to land use and planning.

ENVIRONMENTAL SETTING

REGIONAL CONTEXT

Land use in Yuba County consists mainly of agriculture, forested land, open space/grazing lands, urban uses, and a military installation (Beale Air Force Base). Agriculture is the predominant land use in the county and the most important contributor to the local economy (**Yuba County 1996**). Pastureland for grazing is also a major agricultural land use.

Yuba County’s urban centers are in the western portion of the county. The urbanized areas are the incorporated cities of Marysville and Wheatland and the unincorporated communities of Linda and Olivehurst. Substantial development is also ongoing in the Plumas Lake Specific Plan area located between Olivehurst and the Bear River.

UYLIP PROJECT AREA

Land Use, Ownership, and Jurisdiction

The proposed project is located in the southern portion of Yuba County along the Yuba River South Levee, upstream of the confluence of the Yuba River and the Feather River, east of the City of Marysville, and south of the Yuba River. The proposed improvements would be located from approximately Simpson Lane to the Yuba Goldfields, with a total length of approximately 3.8 miles. The project improvements would be located entirely within the area of maintenance responsibilities of RD 784.

The existing YRSL is part of the federal-state SRFCP within an easement obtained by the State of California through the Sacramento–San Joaquin Drainage District. The YRSL in the project area was originally built in the 1870s. Prior to that, individual farmers typically built levees to protect orchards and crops from flooding that occurred in the 1850s caused by hydraulic mining upstream in the Yuba River watershed. However, various flood events damaged the YRSL and it has been repaired and rebuilt over time. The current YRSL is not the original

levee. In 1998, the Corps constructed various improvements along the YRSL in the project area including through levee cutoff walls, a landside seepage berm, and waterside levee slope erosion repair. The YRSL is maintained by RD 784 under the supervision of the CVFPB. Lands adjacent to the levee are in private ownership and are used for residential and/or agricultural purposes.

All lands in the project area are located within unincorporated Yuba County. Yuba County has land use planning jurisdiction over privately owned land in this area. Yuba County contains about 643 square miles of land, of which roughly 55 percent (over 228,000 acres) is agricultural land (**Yuba County 2010a**). Distribution and types of land within the County is shown in **Table 3.10-1**.

The project area is mostly rural residential and agricultural in nature. The density of residences in the project vicinity decreases moving northeast along the project alignment; homes at densities typical of suburban areas occur near the southwestern portion of the project area, and homes at densities typical of rural residential areas occur along the remainder of the project. Most of the land in the project area is currently under cultivation, with the majority of the acreage planted in orchards; some row crops are also planted.

Table 3.10-1 Yuba County Land Distribution

Land Type	Acres	Percent
Urban and Built-Up Land	13,080.65	3.18
Grazing Land	142,706.44	34.66
Prime Farmland	41,986.71	10.20
Farmland of Statewide Importance	11,017.93	2.68
Unique Farmland	32,367.10	7.89
Water	6,628.39	1.61
Other Land	163,971.23	39.82
Total	411,758.44	100.00
Land in Agriculture	228,078.17	55

Source: Yuba County 2010

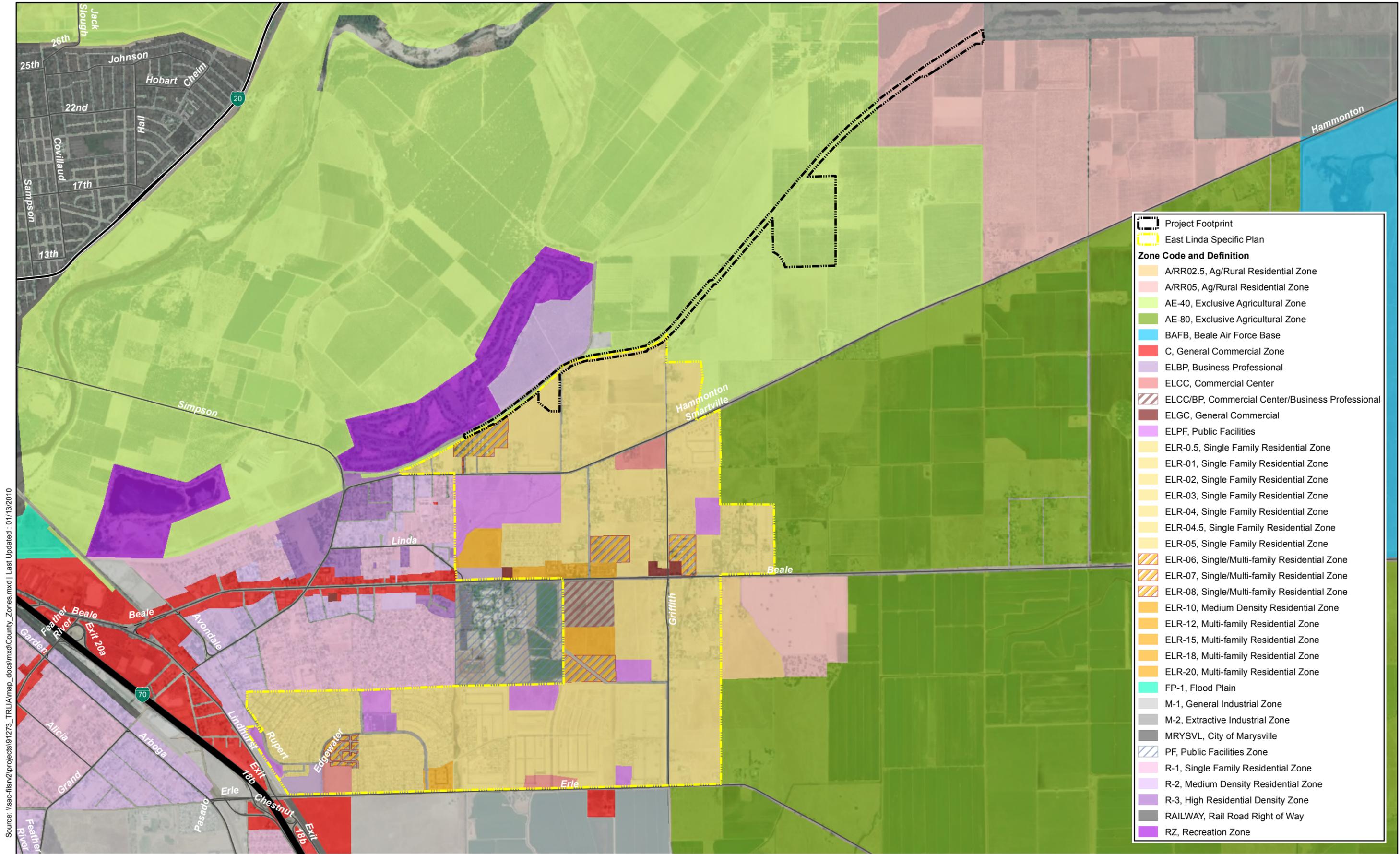
Land Use Designations and Zoning

The Yuba County General Plan and Yuba County Zoning Ordinance describe the types of land uses in the County, and the permitted activities within each land use (**Yuba County 1994, 2010b**). The project area is located within the Yuba County General Plan Area. Portions of the project area are also located within the East Linda Specific Plan Area. The land use and zoning designations for the project area are shown in **Table 3.10-2** and on **Figure 3.10-1**. The Yuba County General Plan designates the majority of the project area as Valley Agriculture, a classification which is used to identify areas on the valley floor located outside of urban areas to retain agriculture as the primary land use; protect the agricultural community from encroachment of unrelated agricultural uses that, by their nature, would be injurious to the physical and economic well-being of the agricultural community; and encourage the preservation of agricultural land, both productive and potentially productive. Approximately 60 percent of the project footprint is in active orchard production. The remaining portions of the project footprint include row/grain crop production (9%), cattle/ grazing (2%), urban (3%), and undeveloped (26%). The specific project area is a levee, which is compatible with the Valley Agricultural land use designation because it protects agricultural lands from damage and property loss attributable to flooding. The Yuba County General Plan also includes goals, policies, and objectives that guide land use decisions in Yuba County.

Table 3.10-2 Land Use Designations and Zoning in the Project Area and Vicinity

Plan Area	Location and Zoning	Land Use
Yuba County	Within the project area - Exclusive Agricultural Zone, Sub-Zone Minimum Parcel Size 40 Acres (AE-40)	Valley Agriculture
	Within the project area - Ag/Rural Residential Zone (A/RR05)	Valley Agriculture
	South of the project area - Single Family Residential Zone (R-1)	Valley Agriculture
	South of the project area - Medium Density Residential Zone (R-2)	Valley Agriculture
East Linda Specific Plan	North of the project area - Recreational Zone (RZ) (Peach Tree Golf and Country Club)	Valley Agriculture
	South of the project area - Low Density Residential (R-04)	Single Family Residential
	South of the project area - Medium Density Residential (R-08)	Single Family Residential

Source: Yuba County 1994



Source: \\sac-filsn2\projects\91273_TRLIA\map_docs\mxd\County_Zones.mxd | Last Updated: 01/13/2010

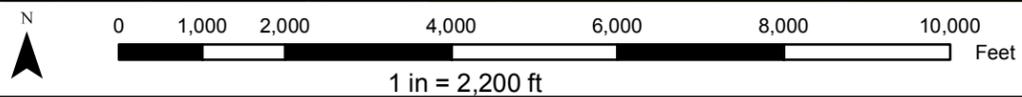


Figure 3.10-1 - Yuba County Zoning

DISCUSSION

a) **Physically divide an established community?**

No Impact. The proposed project would not result in the physical division of a community. Repairing and strengthening the existing levee would not create a new barrier between various portions of the project area, and would not result in any permanent structures that would physically divide an established community. Therefore, no impact would occur and no mitigation would be required.

b) **Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to, a general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?**

No Impact. Because the proposed project would result in the removal of land from agricultural production, implementation of the proposed project could conflict with the Yuba County General Plan and Yuba County Zoning Ordinance. However, the proposed improvements to the flood control system would benefit thousands of acres of valuable agricultural lands, including prime farmland, prime farmland – if irrigated, and other important farmland designated by the FMMP, by providing increased protection from future flood damages. Therefore, while the direct land use changes associated with the proposed project would conflict with local land use policies, in the long term the proposed project would provide greater protection for agricultural lands and soils, consistent with these policies. Impacts resulting from conversion of agricultural land are described in further detail above under Section 3.2, Agriculture and Forestry Resources. Therefore, no impact would occur and no mitigation would be required.

Agricultural operators and land owners would receive appropriate compensation for any temporary disturbance or permanent loss of agricultural or other lands associated with implementation of the proposed project. In addition, all property acquisitions and relocations conducted as part of the proposed project would be in compliance with both the Federal Uniform Relocation Act and the California Relocation Assistance Law. Therefore, this impact would be less than significant and no mitigation would be required.

The YRSL would be improved as part of the proposed project and would remain under the existing easements for operation and maintenance. As is the current practice, landowners would be assessed fees for levee operation and maintenance, which would be performed by RD 784 under the supervision of DWR. The only substantial difference between the operation and maintenance of the repaired levee segments and current practice would result from the installation of additional relief wells at the end of the project alignment, which would be maintained by RD 784.

c) **Conflict with any applicable habitat conservation plan or natural community conservation plan?**

No Impact. No habitat conservation or natural community conservation plans are in effect that would apply to the project area. Therefore, no impact would occur and no mitigation would be required.

MITIGATION

None required.

3.11 MINERAL RESOURCES

Environmental Issues (and Supporting Information Sources):	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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

ENVIRONMENTAL SETTING

Yuba County’s mineral resources vary by topography and location. Most of the minerals within the lower foothills and valley basin portion of Yuba County are related to sedimentary rock and gravel deposits, particularly within and near river basins. Important minerals of Yuba County include sand, gravel, gold, silica, granite and other stones, and clay. Sand and gravel are the most common minerals extracted. In addition, gold, silver, stone, clay, and silica are extracted in commercial quantities in Yuba County (**Yuba County 2010**).

In compliance with the California Surface Mining and Reclamation Act (SMARA), the California Division of Mines and Geology (CDMG) has established the classification system shown in **Table 3.11-1** to denote both the location and significance of key extractive resources. Under SMARA, the State Mining and Geology Board may designate certain mineral deposits as being regionally significant to satisfy future needs. Portions of the project area are zoned as mineral resource zone, MRZ-3, “areas containing mineral deposits, the significance of which cannot be evaluated from existing data.” The project site does not contain any land zoned MRZ-1 or MRZ-2, and is not shown in the Yuba County General Plan as an area of mineral resources to be protected from further development (**Yuba County 1994**).

Table 3.11-1 California Division of Mines and Geology Mineral Land Classification System

Classification By MRZ	Description
MRZ-1	Areas where adequate information indicates that no significant mineral deposits are present or where it is judged that little likelihood exists for their presence
MRZ-2	Areas where adequate information indicates that significant mineral deposits are present or where it is judged that a high likelihood for their presence exists
MRZ-3	Areas containing mineral deposits, the significance of which cannot be evaluated from existing data
MRZ-4	Areas where available data are inadequate for placement in any other mineral resource zone

Source: Kleinfelder 2009

DISCUSSION

- a) **Result in the loss of availability of a known mineral resource of value to the region and the residents of the state?**

No Impact. Portions of the project area are zoned as Mineral Resource Zone 3 (MRZ-3), defined as “areas containing mineral deposits, the significance of which cannot be evaluated from existing data.” The project area does not contain any land zoned MRZ-1 or MRZ-2, and is not shown in the Yuba County General Plan as an area of mineral resources to be protected from further development (**Yuba County 1994**). Therefore, implementation of the proposed project is not anticipated to result in a loss of mineral resources and no mitigation would be required.

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?

No Impact. As described above, the project area is not shown in the Yuba County General Plan as an area of mineral resources to be protected from further development (**Yuba County 1994**). Therefore, implementation of the proposed project is not anticipated to result in a loss of mineral resources and no mitigation would be required.

MITIGATION

None required.

3.12 NOISE

Environmental Issues (and Supporting Information Sources):	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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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 area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) For a project located in the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

This section includes a description of ambient-noise conditions, a summary of applicable regulations, and an analysis of potential short-term construction noise impacts of the proposed project. Construction activities are the only source of noise associated with the project. Mitigation measures are recommended as necessary to reduce significant noise impacts to a less-than-significant level.

The following is a brief background discussion of noise terminology.

- ▶ Sound: A vibratory disturbance created by a vibrating object, which, when transmitted by pressure waves through a medium such as air, is capable of being detected by a receiving mechanism, such as the human ear or a microphone.
- ▶ Noise: Sound that is loud, unpleasant, unexpected, or otherwise undesirable.
- ▶ Decibel (dB): A unitless measure of sound on a logarithmic scale, which indicates the squared ratio of sound pressure amplitude to reference sound pressure amplitude. The reference pressure is 20 micro-pascals.
- ▶ A-Weighted Decibel (dBA): An overall frequency-weighted sound level in decibels, which approximates the frequency response of the human ear.
- ▶ Maximum Sound Level (Lmax): The maximum sound level measured during the measurement period.

- ▶ **Minimum Sound Level (Lmin):** The minimum sound level measured during the measurement period.
- ▶ **Equivalent Sound Level (Leq):** The equivalent steady-state sound level, which in a stated period of time would contain the same acoustical energy.
- ▶ **Percentile-Exceeded Sound Level (Lxx):** The sound level exceeded “x”%of a specific time period. L10 is the sound level exceeded 10% of the time.
- ▶ **Day-Night Level (Ldn):** The energy average of the A-weighted sound levels occurring during a 24-hour period, with 10 dB added to the A-weighted sound levels occurring during the period from 10:00 p.m. to 7:00 a.m.
- ▶ **Community Noise Equivalent Level (CNEL):** The energy average of the A-weighted sound levels occurring during a 24-hour period, with 5 dB added to the A-weighted sound levels occurring during the period from 7:00 p.m. to 10:00 p.m. and 10 dB added to the A-weighted sound levels occurring during the period from 10:00 p.m. to 7:00 a.m.

Ldn and CNEL values rarely differ by more than 1 dB. As a matter of practice, Ldn and CNEL values are considered to be equivalent. In general, human sound perception is such that a change in sound level of 3 dB is just noticeable, a change of 5 dB is clearly noticeable, and a change of 10 dB is perceived as doubling or halving the sound level.

ENVIRONMENTAL SETTING

EXISTING NOISE-SENSITIVE RECEPTORS

Noise-sensitive land uses generally include those uses where exposure would result in adverse effects (e.g., sleep disturbance, annoyance), as well as uses where quiet is an essential element of their intended purpose. Residences are of primary concern because of the potential for increased and prolonged exposure of individuals to both interior and exterior noise levels. Other land uses typically considered sensitive to noise include hospitals, convalescent facilities, parks, auditoriums, amphitheatres, public meeting rooms, motels, hotels, churches, schools, libraries, and other uses where low interior noise levels are essential.

The proposed project area is located in rural Yuba County and is primarily dominated by lands under agricultural use. The western portion of the existing YRSL is located along a portion of the northern boundary of the East Linda Specific Plan. The noise-sensitive receptors in the UYLIP area include five single-family residences located near Project Stations 165+00, 175+00, 190+00, 195+00, and 215+00 and the Casa Mia Mobile Home Park located near Project Station 135+00. Some of the single-family residences are located within 50 feet of the existing levee. The nearest school, Linda Elementary School, is located over one-half mile from the project area. Therefore, the evaluation of effects of construction noise on sensitive uses focuses on the aforementioned residences and Mobile Home Park.

EXISTING NOISE ENVIRONMENT

Within the County, major sources of noise include roadway traffic on SR 70, major arterials, and other roadways; railroad noise; aircraft operations; and fixed noise sources from industrial, commercial, mining, and farming activities.

Vehicle traffic is the primary noise source in the project area. The major roadways in the project area are Hammonton-Smartville Road, Simpson Lane, and Simpson-Dantoni Road. Traffic on project area roadways includes agricultural equipment; truck traffic from food processing plants, industrial sites, and logging; recreational vehicles; and vehicle traffic associated with people traveling between Linda and Marysville.

Additional sources of noise in this area include agricultural operations, pets, and occasional train pass-bys and/or aircraft flights overhead.

In order to characterize the ambient noise conditions near the project site, short-term 10-minute noise measurements were conducted on the existing levee at locations near the five single-family homes and adjacent to the Casa Mia Mobile Home Park. One 24-hour unattended noise measurements was conducted near one residence adjacent to the existing levee just west of Dantoni Road. **Table 3.12-1** shows the existing noise levels in the project area and the 24-hour noise measurement results are presented in **Figure 3.12-1**. As seen in **Table 3.12-1**, all the 5-minute average noise levels were less than 60 dBA. This shows the area to have low rural-type noise levels. Other than animal noise, the primary noise in the area is from local and distant traffic. The dairy cows near Site 4 seem to be the most sensitive noise receptor to potential noise from the project.

**Table 3.12-1
Existing Noise Environment In Project Area**

Location	Time Period	DNL and Leq (dBA)	Noise Sources
Site 1: Center of levee at gate 75 feet west of Dantoni Road. Project Station 165	January 23/24, 2010 Saturday/Sunday 24-hour Measurement	DNLs = 54 Hourly average Leq's ranged from: 43 – 56	Unattended noise measurements do not specifically identify noise sources.
Site 1: Center of Levee at gate 75 feet west of Dantoni Road. Project Station 165	Saturday January 23, 2010 2:10 – 2:20 p.m.	5-minute average results Leq= 51, 54 L90 = 43, 44	Faint distant traffic noise (45 dBA) from south and west, rooster, Dantoni Road vehicle noise 57 – 63 dBA
Site 2: Center of levee just north of swimming pool at Casa Mia Mobile Home Park. Project Station 138	Saturday January 23, 2010 2:31 – 2:41 p.m.	5-minute average results Leq= 57, 57 L90 = 51, 52	Wind increased as seen in the background (L90). Many vehicle passbys going to golf course 56 – 62 dBA. 71 dBA from 2 ATVs racing by.
Site 3: Center of levee 1,400 feet east of Dantoni Road. Near waterside residence. Project Station 180	Saturday January 23, 2010 3:32 – 3:42 p.m.	5-minute average results Leq= 54, 52 L90 = 48, 48	Distant traffic noise from south and southeast. Some birds in orchard, barking dogs, roosters, horses, truck entering peach processing plant.
Site 4: Center of levee 1,700 feet east of Griffith Ave. (east of the dairy barns). Project Station 210	Saturday January 23, 2010 4:07 – 4:17 p.m.	5-minute average results Leq= 45, 47 L90 = 42, 43	Very quiet. Distant traffic to the south and west. ATV driving on dairy roads.

Source: Miller Environmental Consultants 2010.

REGULATORY SETTING

There are no federal or state noise regulations that apply to the proposed project.

Yuba County General Plan Noise Element

The Yuba County General Plan Noise Element establishes policies and regulation relating to generation and control of noise and identifies recommended ambient noise levels for land uses within the county. The general plan is a document required by state law that serves as the county's blue print for land use and development. The plan is a comprehensive, long-term document that provides details for the physical development of the county, sets out policies, and identifies ways to put the policies into action. The noise element of the general plan identifies recommended ambient noise levels for land uses within the county. **Table 3.12-2** shows the Yuba County Noise Element recommended allowable ambient noise level objectives.

**Site 1 - Center of Levee, 75 feet west of Dantoni Road
Saturday/Sunday January 23/24, 2010**

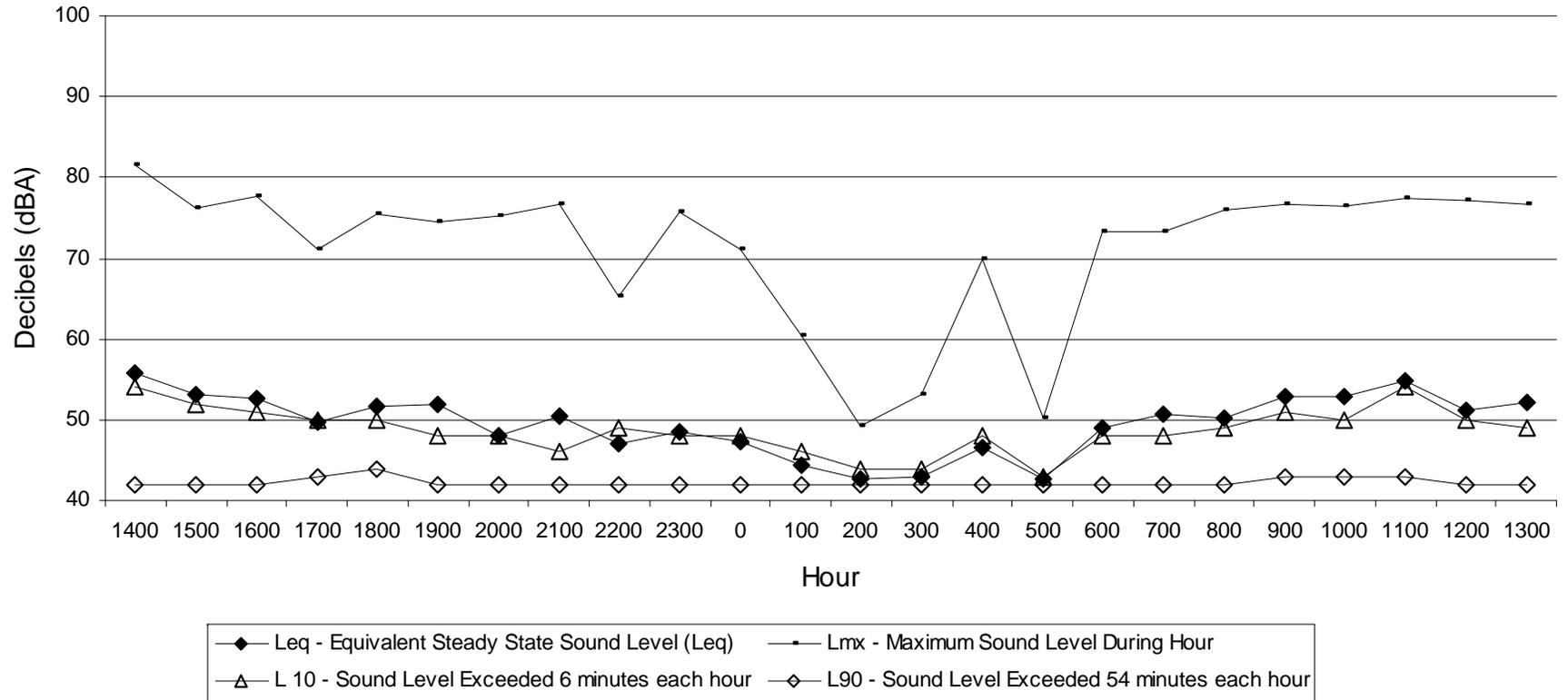


Figure 3.12-1 - 24-hour Noise Monitoring Results

Land Use	7:00 a.m. to 10:00 p.m.	10:00 p.m. to 7:00 a.m.
Low density residential	50 dB	50 dB
Multifamily residential	55 dB	50 dB
Schools	45 dB	45 dB
Retail/commercial	60 dB	55 dB
Passive recreational areas	45 dB	45 dB
Active recreational areas	70 dB	70 dB
Hospitals/mental facilities	45 dB	40 dB
Agriculture	50 dB	50 dB
Neighborhood commercial	55 dB	55 dB
Professional office	55 dB	55 dB
Light manufacturing	70 dB	65 dB
Heavy manufacturing	75 dB	70 dB

Source: Yuba County 1996.

Yuba County Noise Ordinance

The Yuba County noise ordinance, part of the county’s code, is enforceable by law. The following is a brief discussion of the noise ordinance construction regulations. The project would not have long-term noise effects from operations.

Section 8.20.130 of Yuba County’s noise ordinance states that it is unlawful for any person within a residential zone, or within a radius of 500 feet, to operate any construction equipment or perform any outside construction or repair work between the hours of 10:00 p.m. and 7:00 a.m., provided that such activity occurs in such a manner that a reasonable person of normal sensitiveness residing in the area is caused discomfort or annoyance.

Vibration Standards

Standards have also been established to address the potential for groundborne vibration to cause structural damage to buildings. These standards were developed by the Committee of Hearing, Bio Acoustics, and Bio Mechanics (CHABA) at the request of the USEPA (**Federal Transit Administration 1995**). For fragile structures, CHABA recommends a maximum of 0.25 inch per second peak particle velocity (PPV) (**Federal Transit Administration 1995**).

METHODOLOGY

Potential noise and vibration impacts as a result of the proposed construction activities were evaluated to determine if they would conflict with the Yuba County Noise Ordinance Code Section 8.20.310. Typically if construction equipment would be operated or construction work would be performed within 500 feet of a residential zone during the noise-sensitive hours between 10 p.m. and 7 a.m. (Yuba County Ordinance) or if operation of the project would result in long-term noise levels that exceed Yuba County’s applicable exterior noise standards, then a project would result in a potential noise impact. In addition, a project alternative would have an impact related to vibration if construction-generated vibration levels would exceed 0.2 inch per second PPV (Caltrans’s recommended standard with respect to the prevention of structural building damage for normal residential buildings) at nearby existing noise-sensitive land uses.

DISCUSSION

- a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or in other applicable local, state, or federal standards?**

Less-than-Significant Impact. For the proposed project, which would generate altered noise conditions only during project construction activities, Policy 8.20.310 from the Yuba County Noise Ordinance (described above) is the applicable local noise standard. The policy restricts construction noise only if it would occur in or within 500 feet of a residential zone between the hours of 10 p.m. of one day and 7 a.m. of the following day. At this time, there are two construction scenarios: Scenario 1 consists of constructing the proposed project over a four month timeframe working 15 hours per day, and Scenario 2 consists of constructing the proposed project over a three month timeframe working 24 hours per day. Under Scenario 1 construction of the proposed project is expected to occur entirely within the time parameters identified in the Yuba County Noise Ordinance. Under Scenario 2 construction between 10 p.m. and 7 a.m. would be needed; therefore, TRLIA would have to receive a permit from the director of the Planning and Building Services Department as identified in the noise ordinance to initiate construction under scenario 2. Thus, implementation of the proposed project under Scenario 1 would be consistent with the Yuba County Noise Ordinance and under Scenario 2 would have to receive approval to exceed the Yuba County Noise Ordinance. Regardless, this impact would be less than significant assuming approval of the exceedance of the Yuba County Noise Ordinance under Scenario 2 would be granted.

b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?

Less than Significant with Mitigation Incorporated. Construction activities have the potential to result in varying degrees of temporary groundborne vibration, depending on the specific construction equipment used and operations involved. Vibration generated by construction equipment spreads through the ground and diminishes in magnitude with increases in distance. **Table 3.12-3** displays vibration levels for typical construction equipment.

Equipment	PPV at 25 feet (inch per second)	Approximate L_v at 25 feet
Large Bulldozer	0.089	87
Caisson Drilling	0.089	87
Trucks	0.076	86
Jackhammer	0.035	79
Small Bulldozer	0.003	58

Notes:

L_v = velocity level in decibels (i.e., VdB) referenced to 1 micro inch/second and based on the root mean square velocity amplitude;

Source: FTA 2006: Chapters 10 and 12

As discussed in Section 2.3.2 on-site construction equipment is assumed to include two hydraulic excavators, two long-stick hydraulic excavators, two utility excavators, two bulldozers, two low-ground pressure bulldozers, two graders, three self-propelled sheepsfoot or tramping-foot rollers, two water wagons, 20 highway dump trucks, one drill rig to install relief wells, a lubricating truck, a front-end loader, a truck-mounted crane, three integrated tool carriers, and numerous pickup trucks. According to the Federal Transit Administration (FTA), vibration levels associated with the use of bulldozers range from approximately 0.003 to 0.089 inch per second PPV and 58–87 in velocity level (L_v) in decibels (i.e. VdB referenced to 1 micro inch per second and based on the root mean square velocity amplitude) at 25 feet, as shown in **Table 3.12-3**. Therefore, predicted worst-case vibration levels of approximately 0.089 inch per second PPV and 87 VdB at the nearest sensitive residence (25 feet) could occur from use of large bulldozers. Because the project could have major construction equipment working almost immediately adjacent to certain residences and other buildings, vibration levels with respect to the prevention of structural damage for normal buildings would likely exceed the threshold of 0.2 in/sec PPV at the closest structures (Caltrans 2002). In addition, the proposed project would likely exceed the FTA’s maximum-acceptable vibration standard of 80 VdB (FTA 2006: Chapters 10 and 12) with respect to human annoyance for residential uses. Thus vibration and groundborne noise resulting from the proposed project could expose persons to levels exceeding the recommendations of Caltrans and FTA. Implementation of **Mitigation Measures NOISE-1** would reduce any potential impacts related to construction vibrations to a less-than-significant level.

c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?

Less-than-Significant Impact. Long-term operation of the proposed project would not include any new major stationary noise sources. Maintenance activities related to the proposed project would be the same as under existing conditions. Thus, long-term noise levels would be equal to noise levels under existing conditions. This impact would be less than significant and no mitigation is required.

d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?

Less than Significant with Mitigation Incorporated. Construction activity noise levels associated with the levee repairs would fluctuate depending on the particular type, number, and duration of uses of various pieces of construction equipment. In addition, construction-related material haul trips would raise ambient noise levels along haul routes, depending on the number of haul trips made and types of vehicles used. **Table 3.12-4** shows typical noise levels produced by various types of construction equipment that may be required for the project.

Table 3.12-4 Typical Noise Levels from Construction Equipment

Construction Equipment	Noise Level (dBA, Leq at 50 feet)
Truck	88
Air Compressor	81
Grader	85
Scraper	89
Jack Hammer	88
Dozer	85
Generator	81
Loader	85

Source: Federal Transit Administration, *Transit Noise and Vibration Impact Assessment*, 2006

Construction of the project would generate noise that may affect some existing residences. Construction activities could be as close as 25 to 50 feet from the residences near the levee improvements. Other sensitive receptors near the project vicinity would be exposed to construction noise at incrementally lower levels.

Noise from construction activities generally attenuates at a rate of 6 to 7.5 dBA per doubling of distance. Assuming an attenuation rate of 6 dBA per doubling of distance, the closest residences would experience outside noise levels of up to 97 dBA Leq during the loudest activities identified in **Table 3.12-4**. These levels would be short-term in nature.

Construction of the proposed project would also result in a short-term increase in traffic on the local area's roadway network, but this increase would not be sufficient to significantly increase traffic noise levels. It is expected that up to 175 daily trips (consisting of 75 haul and 100 employee trips) would occur during the maximum construction activity periods. Construction-related traffic would be distributed over the roadway network identified in Section 3.16, Transportation/Traffic. Noticeable increases of 3 dBA (CNEL) do not typically occur without a substantial increase (i.e., doubling) in roadway traffic volumes (**Caltrans 1998: N-96**). Because the added traffic would not double the proposed haul and access routes traffic volumes, it would not increase the overall traffic noise levels by a substantial amount. See Section 3.16, Transportation/Traffic, for additional information.

Noise levels from on-site heavy-duty construction equipment could exceed noise standards set by the County for low-density residential land uses (see discussion above and Table 3.12-2). This is considered a substantial temporary increase in ambient noise levels in the project vicinity above levels existing without the project. Therefore, this impact would be significant.

Implementation of **Mitigation Measures NOISE-2** through **NOISE-4** would reduce construction-generated noise levels by 5–25 dB at noise-sensitive receptors in the project area and vicinity. As a result, short-term construction generated noise levels would be reduced below Yuba County standards. Thus, implementation of these mitigation measures would reduce this impact to a less-than-significant level.

e, f) 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, and 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?

No Impact. The proposed project is located approximately three miles from the Yuba County Airport, and approximately four miles from the Beale Air Force Base airstrip. The project area is not within the 65-dBA CNEL noise contours (**SACOG 2003**) established by the Federal Interagency Committee on Aviation Noise for airport disturbance to humans (**Federal Interagency Committee on Noise 1992:ES-1, 2**). Because the project area is not within the noise contours determined for human disturbance and because the proposed project does not include the development of any noise-sensitive receptors, the proposed project would not expose people residing or working in the project area to excessive noise levels. Therefore, no impact would occur.

MITIGATION

Mitigation Measure NOISE-1: Voluntary pre- and post construction survey to assess potential architectural damage from construction vibrations.

- ▶ A voluntary pre- and post construction survey could be conducted in order to assess potential architectural damage from construction vibration related to the proposed project at each residence within 50 feet of major construction activities and at the swimming pool at Casa Mia Mobile Home Park, which is immediately adjacent to the levee. Potential surveys should be expanded to structures within 75 feet if the project uses pile driving.

Mitigation Measure NOISE-2: Abide by the Yuba County Noise Ordinance and Maintain and Equip Construction Equipment with Noise Control Devices. TRLIA shall ensure that the primary construction contractor implements the following mitigation measures during construction activities:

- ▶ To the extent practicable, construction activities shall be limited to the hours of 7 a.m. to 10 p.m. when operations occur within 500 feet of a residential or other noise-sensitive land use. Decisions as to whether nighttime construction is needed within 500 feet of residential or other noise-sensitive land uses shall only consider the need to complete project activities before the beginning of the flood season and the associated need to maintain human safety and the integrity of the flood control system.
- ▶ All construction equipment shall be properly maintained and equipped with noise control, such as mufflers, in accordance with manufacturers' specifications.
- ▶ To the extent feasible, the simultaneous operation of multiple construction equipment within 50 feet of residences shall be limited.

Mitigation Measure NOISE -3: Arrange Construction Equipment Operation and Travel to Minimize Disturbance to Occupied Residences. Construction equipment travel on the levee crown, the

land side of the YRSL, landside staging/laydown areas, and public roadways shall be minimized to the extent possible and arranged to minimize disturbance to occupied residences (i.e., between 7 a.m. and 10 p.m.). Under construction Scenario 2, TRLIA will work with the construction contractor and nearby residents to minimize disturbance to occupied residences. To the extent feasible, the simultaneous operation of construction equipment in these areas shall be limited. Equipment not in use shall not be left idling for more than 5 minutes (note that this is consistent with FRAQMD guidelines as described in Mitigation Measure AQ-1). As much as possible, construction equipment operations shall occur on the water side of the YRSL to maximize the use of the levee as a noise barrier.

Mitigation Measure NOISE -4: Notify Potentially Affected Receptors and Respond to Public Complaints.

- ▶ Before construction at each site near noise-sensitive receptors, TRLIA shall provide written notification to potentially affected receptors, identifying the type, duration, and frequency of construction operations. Notification materials will also identify a mechanism for residents to register complaints with TRLIA and Yuba County (the agency responsible for enforcement of the Yuba County noise ordinance) if construction noise levels are overly intrusive or construction occurs outside the permitted hours. TRLIA and/or Yuba County would then take corrective action.
- ▶ Construction activities within 200 feet of the dairy buildings shall begin with minimal activity during the first hour each day to sensitize the cows to the higher noise levels that would occur during full construction activities in immediate proximity to the cows.

3.13 POPULATION AND HOUSING

Environmental Issues (and Supporting Information Sources):	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 (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

This analysis summarizes existing population and housing conditions in Yuba County. It presents estimates of changes to those conditions that could be created with implementation of the proposed project, or changes that could trigger adverse physical effects in the region.

ENVIRONMENTAL SETTING

POPULATION

The project site is located in unincorporated Yuba County near the community of Linda. The project site is rural, with adjacent residential and rural uses. The population of Yuba County has grown moderately in recent years, from 57,700 in 1990 to 68,800 in 2001 (**SACOG 2002**) to 71,929 in 2008 (**SACOG 2008**). Population projections for the county by the Sacramento Area Council of Governments (SACOG) predict that the population will grow to approximately 139,484 residents by 2035 (**SACOG 2007**). The increase in new residents would be approximately 67,555 by 2035, or a little more than 48%. The population in Linda as of July 2007 was 16,024 (**City- Data 2007**).

HOUSING

According to information provided by SACOG, approximately 3,775 housing units were constructed in Yuba County between 2000 and 2008 (**SACOG 2008**). This is a 15% increase in the number of housing units within the county during this 7-year time period. The July 2007 estimate of housing units in Yuba County was 27,979 (**U.S. Census Bureau 2007**) and the total number of housing units in the community of Linda in 2000 was 4,492 (**U.S. Census Bureau 2000**).

DISCUSSION

- a) **Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?**

No Impact. The proposed project would not involve the construction of new homes or businesses or the extension of roads or infrastructure. Construction jobs generated by project activity would be temporary. Construction

workers would be local and would commute to the project area. Project related construction jobs would not directly or indirectly induce substantial population growth. In addition, although the project would remove one obstacle to develop in the area by improving flood protection, the area subject to protection has designated areas of planned and/or approved development. Furthermore, the proposed project would provide the benefit of a minimum 200-year level of flood protection in the project area. Implementation of the proposed project would not affect current and/or planned population growth patterns within Yuba County and would not affect the population goals as outlined in the County General Plan. Therefore, no impact would occur.

b) Displace substantial numbers of existing homes, necessitating the construction of replacement housing elsewhere?

No Impact. The proposed improvements would not displace substantial numbers of existing homes and therefore, would not necessitate the construction of replacement housing elsewhere. Therefore, no impact would occur.

c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?

No Impact. As mentioned under item b) above, the proposed improvements would not displace substantial numbers of people and therefore would not necessitate the construction of replacement housing elsewhere. Therefore, no impact would occur.

MITIGATION

None required.

3.14 PUBLIC SERVICES

Environmental Issues (and Supporting Information Sources):	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, need for new or physically altered governmental 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 following public services:				
i) Fire protection?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
ii) Police protection?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
iii) Schools?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
iv) Parks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
v) Other public facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

This section provides an overview of existing public services in the project vicinity—fire protection, police service, and school facilities. Impacts are evaluated in relation to the potential for increased demand for public services associated with the proposed project.

ENVIRONMENTAL SETTING

Other than the Peach Tree Golf and Country Club, located adjacent to the proposed project, there are no other established public facilities or recreational sites in the project area, and no parks are located near the proposed project. Recreational resources are discussed in Section 3.15

LAW ENFORCEMENT

The Yuba County Sheriff’s Department, headquartered in Marysville, provides law enforcement and police protection throughout the unincorporated areas of Yuba County. The Sheriff’s Department provides 24-hour service 365 days a year to more than 55,000 residents in unincorporated Yuba County. The California Highway Patrol (CHP) also provides services to Yuba County from its Yuba City office. The CHP participates in mutual aid response agreements with Yuba County Sheriffs Department, and provides assistance during emergencies by request.

FIRE PROTECTION

The project site is serviced by the Linda Fire Department. The Linda Fire Department currently maintains two fire stations, one in the community of Arboga and the second located on Scales Avenue across from the Peach Tree Mall. The department has a “mutual aid” agreement with other fire agencies so that companies from other jurisdictions may respond to fire alarms.

SCHOOL FACILITIES

Marysville Joint Unified School District provides educational services to the area encompassing the project site. Linda Elementary School is the closest school to the project site, located approximately 0.5 miles south of the project site at 6180 Dunning Avenue. Linda Elementary School, constructed in 1855, includes grades kindergarten through sixth grade.

DISCUSSION

a) **Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the need for new or physically altered governmental 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:**

i) **Fire protection**

ii) **Police protection**

Less than Significant Impact with Mitigation Incorporated. The proposed project would not increase demands for fire protection and sheriff's services because it would not include new structures, such as housing or businesses, or indirectly increase housing or businesses in the project vicinity. The proposed improvements to the existing YRSL would not change the type or intensity of land uses in the area; therefore, the demand for fire and sheriff's protection services under the proposed project would be the same as that currently provided on-site. However, project construction would occur over a period of approximately four months and during this period emergency access in the project area would be limited. It is imperative that access to the project area remain open for emergencies during the construction period. Potential emergencies include flood events and fire-control events during the dry season. The proposed project would improve continued reliance on flood protection facilities in Yuba County, thereby making service routes for emergency vehicles through the project area more reliable. However, during construction, the increased traffic on local roadways from trucks and other vehicles associated with the proposed levee improvements could increase emergency response times and otherwise make access to the area more difficult for emergency service providers. To maintain access to the project area during construction, TRLIA shall implement **Mitigation Measures TRAFFIC-1 and TRAFFIC-4** outlined in Section 3.16, Transportation/Traffic. Therefore, with implementation **Mitigation Measures TRAFFIC-1 and TRAFFIC-4**, the proposed project would not result in short-term or long-term impacts to emergency services or access.

iii) **Schools**

iv) **Parks**

v) **Other public facilities**

No Impact. The proposed project does not include proposals for new housing. Therefore, it would not generate students or increase demands for school services or facilities, such as parks. In addition, the proposed project would not increase demands for other public facilities because it would not include new structures, such as housing or businesses, or indirectly increase housing or businesses in the project vicinity. Lastly, the proposed project would not alter the current demand for public services and no additional services or changes to existing services would be required. Therefore, no impact would occur to schools, parks, or other public facilities.

MITIGATION

Mitigation to address the potential for construction traffic to conflict with emergency response vehicles and increase response times would be the same as described below in Section 3.16, Transportation/Traffic. No further mitigation is required.

3.15 RECREATION

Environmental Issues (and Supporting Information Sources):	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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

ENVIRONMENTAL SETTING

According to the draft *Yuba County Parks Master Plan (Yuba County 2008)*, 28 neighborhood parks and three community parks are located in Yuba County. According to the EIR for the *East Linda Specific Plan (Yuba County 1990)*, limited existing recreation opportunities are available near the project site. The *East Linda Specific Plan* calls for the construction of five parks—one communitywide park and four neighborhood parks. These park facilities would be supplemented by the recreation facilities at the school sites and along floodway/bikeway easements. The closest recreation facilities to the project area are the playgrounds and sports fields at Cedar Lane Elementary school, one-half mile east of the project site at 841 Cedar Lane.

DISCUSSION

- a) 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?**

No Impact. The proposed improvements to the existing YRSL would not involve the construction of new housing or other facilities beyond that already planned for and forecasted in the Yuba County General Plan and would therefore, not increase demand for recreational facilities. There are no developed recreational facilities in the project area or immediate vicinity. The existing YRSL itself is not utilized by residents in the area for recreational purposes. The proposed project would not permanently add, remove, or alter recreational facilities. Therefore, there would be no limitations on the use of recreation facilities or reduction in the availability of recreational opportunities in the project area as a result of the proposed project.

- b) Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?**

No Impact. As mentioned under item a) above, the proposed project does not include proposals for new housing or other facilities beyond that already planned for and forecasted in the Yuba County General Plan. Therefore, the proposed project would not generate new demand for recreation services or facilities. No impact would occur.

MITIGATION

None required.

3.16 TRANSPORTATION/ TRAFFIC

Environmental Issues (and Supporting Information Sources):	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
XVI. TRANSPORTATION AND TRAFFIC —Would the project:				
a) Conflict with an applicable plan, ordinance, or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways, and freeways, pedestrian and bicycle paths, and mass transit?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Conflict with an applicable congestion management program, including, but not limited to level of service standard and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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 risks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Result in inadequate emergency access?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f) Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

This section describes the traffic and circulation characteristics of the existing roadways in the project area and vicinity and analyzes the potential impacts of the proposed project on normal traffic circulation and transportation systems. Potential project effects on emergency vehicle access and response are discussed in Section 3.14, Public Services.

ENVIRONMENTAL SETTING

The primary roadways that would be used to access the project area are SR 70, North Beale Road, Hammonton-Smartville Road, Simpson Lane, and Simpson-Dantoni Road. Within the project area, the primary construction corridor would include the crest of the existing YRSL, existing levee toes, and roads used for access to the work area, including Dantoni Road, Griffith Avenue, and Bryden Road. The access roads would also serve as construction-related haul routes to move the borrow material around the project area. The primary roadways and associated roadways that would be utilized by construction-related traffic for the proposed project are described in further detail below.

The major roadways that would be used by construction-related traffic are shown in **Figure 3.16-1**, “Roadways in the Vicinity of the UYLIP Project Area.”

STATE ROUTE 70

SR 70 provides north-south circulation between Marysville and the Sacramento metropolitan area and is located west of the project area. In the project vicinity, SR 70 is a two- and four-lane highway that extends from north of Sacramento to Highway 395 east of the Sierra Nevada. Annual average daily traffic (AADT) volumes for SR 70 include approximately 44,000 vehicles at the Feather River Boulevard interchange (**California Department of Transportation 2009**). The general plan circulation element includes a forecast for AADT of 34,100 in year 2015 on SR 70 at the county line (**Yuba County 1996**).

NORTH BEALE ROAD

North Beale Road is a four lane arterial roadway that extends from SR 70 eastward and is the primary access road for Beale Air Force Base. At the Feather River Boulevard and SR 70 interchange, North Beale Road becomes Feather River Boulevard on the west side of SR 70. The North Beale Road serves the community of Linda and the industrial and agricultural areas of southwest Yuba County. Traffic that typically uses North Beale Road includes agricultural equipment, truck traffic from industrial sites located on North Beale Road, and traffic from residents of the East Linda Specific Plan area, student and faculty at Yuba Community College, and workers at Beale Air Force Base.

HAMMONTON SMARTVILLE ROAD

Hammonton Smartville Road extends from Lindhurst Avenue near SR 70 northeast to Smartville Road, which connects to SR 20. Hammonton Smartville Road is a two lane regional collector road that connects the communities of Linda and Smartville. Construction traffic for the proposed project would access Hammonton Smartville Road via North Beale Road.

SIMPSON LANE

Simpson Lane extends southeast from the intersection of Levee Road and Ramirez Street to approximately Hammonton-Smartville Road. Simpson Lane is a two lane regional collector road that crosses the Yuba River and connects the City of Marysville and the community of Linda. Just north of the intersection of Simpson Lane and Hammonton Smartville Road, Simpson Lane turns into Simpson Dantoni Road, which runs east-northeast to the community of Dantoni. Simpson Dantoni Road runs along the waterside toe of the YRSL for approximately 6,200 feet (1.2 miles).

ASSOCIATED ROADS

Other two lane local roads in the project area include Dantoni Road, Griffith Avenue, and Bryden Road. Generally, these roads are paved, narrow, sometimes striped, two-lane roads that terminate at private properties. These roadways would serve as construction –related haul routes to move the borrow material around the project area and to access the construction areas.

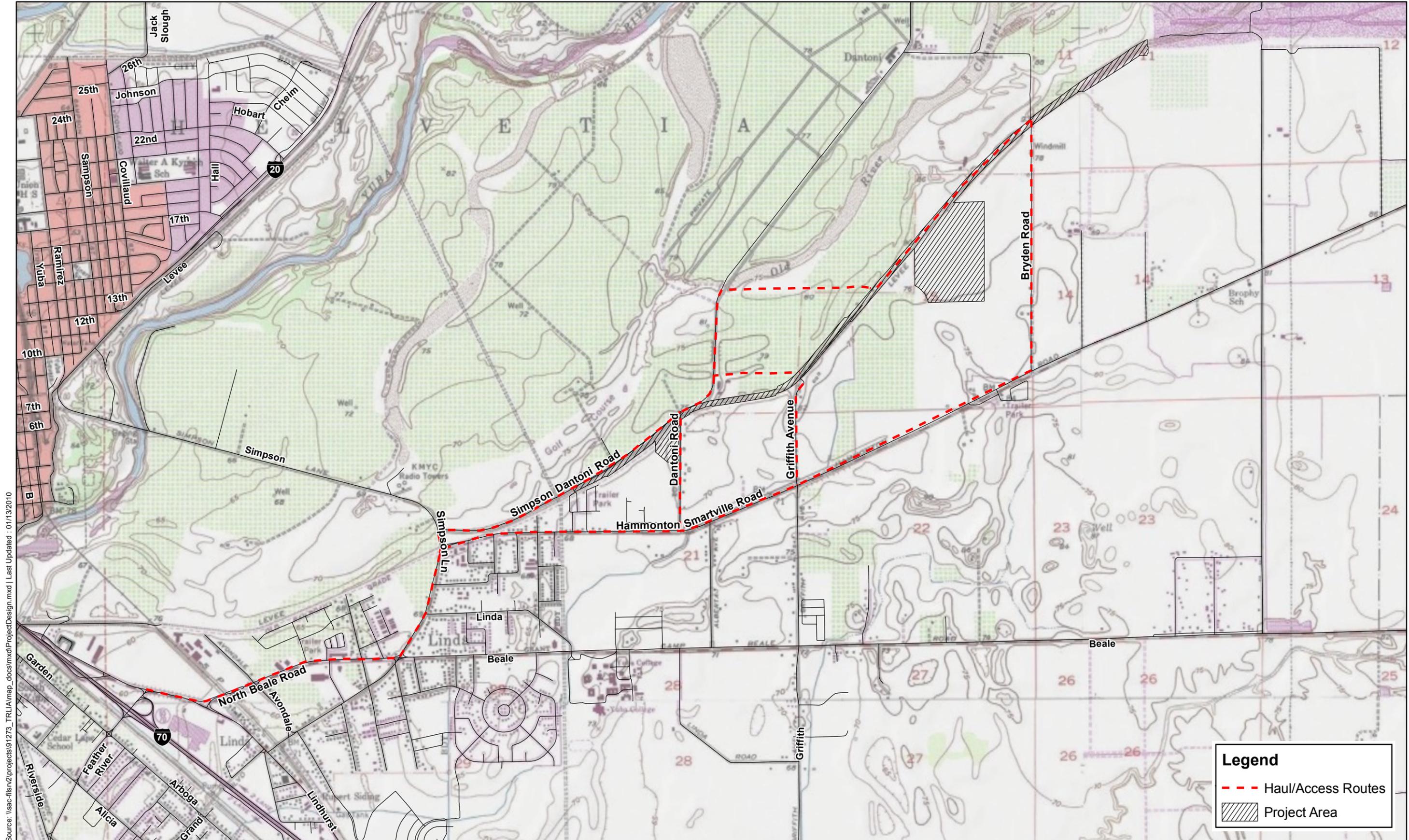
TRANSIT SERVICE

Yuba-Sutter Transit provides public transit and paratransit services to Yuba and Sutter counties. In the project vicinity, Yuba-Sutter Transit operates the Linda shuttle that provides transit service between the community of Linda and nearby commercial centers, Yuba Community College and public services. The Linda shuttle route commences/terminates at Yuba Community College and travels to commercial and residential areas of Linda west and east of SR 70. The Linda shuttle operates from Monday through Saturday. The nearest shuttle stops to the

project area are located along Hammonton Smartville Road. The Yuba-Sutter Transit also operates several routes that traverse North Beale Road.

BICYCLE AND PEDESTRIAN CIRCULATION

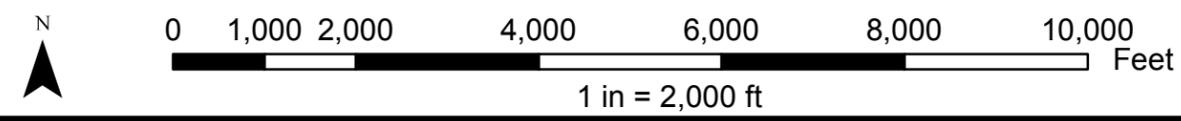
The project area is located in a rural area of Yuba County where access is primarily by private automobile and some public transit service. Sidewalks are limited to some residential streets within the East Linda Specific Plan, which is adjacent to the landside of the existing YRSL. Bicycle routes are available on Simpson Lane and portions of North Beale Road. One Class 2 (on-street) bike lane is located on Linda Avenue between Hammonton Smartville Road and North Beale Road.



Legend

- - - Haul/Access Routes
- / / / / Project Area

Figure 3.16-1 - Roadways in the Vicinity of UYLIP Project Area



DISCUSSION

- a) **Conflict with an applicable plan, ordinance, or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways, and freeways, pedestrian and bicycle paths, and mass transit?**

Less than Significant with Mitigation Incorporated. The proposed project has the potential to affect transportation and circulation during construction. However, any effect of operation of the proposed project on transportation and circulation issues would be negligible. Few, if any, additional vehicle trips would be associated with long-term maintenance under the proposed project. Construction of improvements to the existing YRSL would not affect roadway or transportation system features in the long-term. The proposed project does not include any permanent design features that would present hazards to transportation systems. Therefore, the discussion of environmental consequences in this section is limited to construction-related effects. Implementation of the proposed project would only result in a temporary increase in construction-related traffic, as the proposed project does not contain elements that would generate additional, long-term AADTs.

Construction-related traffic (i.e., construction personnel, equipment, and imported materials) would reach the project area via SR 70, North Beale Road, Hammonton-Smartville Road, Simpson Lane, Simpson-Dantoni Road, Dantoni Road, Griffith Avenue, and Bryden Road, which are paved, all-weather roads, and suitable for the anticipated construction loads. Currently these roadways are used by trucks and other heavy agricultural equipment. Dantoni Road, Griffith Avenue, and Bryden Road are used primarily by nearby residents and agricultural operations and receive little through-traffic.

Within the proposed construction areas, the main sources of construction traffic would be the installation of the slurry cutoff wall, required transport of material for the slurry cutoff wall (including borrow material), and required transport of borrow material for berm construction and levee crown restoration.

The construction labor force is estimated to average about 50 persons over the construction period. Peak staffing could be close to 100 depending on the contractor's schedule. Therefore, construction staff related traffic could reach a total of 100 trips during the peak morning and evening commute hours at times of peak construction activity. This is a conservative assumption that does not consider the likelihood that some of the construction crew would rideshare and/or work during off-peak hours. However, members of the construction crew are expected to travel to the project area from different directions, with overall traffic spread among various roadways and intersections. Therefore, commute traffic is not expected to exceed the Institute of Traffic Engineers (ITE) threshold of an increase in traffic volume of 100 vehicles in the peak direction during the peak hour at any intersection.

About 40 trailer ("low-boy") truck round trips would be required to transport the contractor's plant and equipment to the project area over a period of approximately one month. A similar number of round trips would occur as work is completed to remove the equipment from the project area. The number of truck trips and employee trips associated with mobilization is estimated to fall below the ITE thresholds of 50 trucks, 100 passenger vehicles, or an equivalent combination of vehicles per peak hour in the peak direction at an intersection.

About 1,000 highway truck trips would be needed to bring the aggregate base and rock revetment material to the project area from the quarry of origin. It is assumed that the necessary aggregate base and rock revetment material would be obtained from a commercial sand and gravel operation, most likely in the Marysville–Yuba City area. Approximately five truckloads would be needed to bring dry soil-bentonite to the project site. The soil-bentonite would probably be processed in Wyoming or South Dakota and transported to the Marysville–Yuba City area by rail. An additional 25–30 trailer truckloads would be required to bring other permanent materials to the project site, such as geotextile filter fabric, erosion control materials, piping, well casings, and ancillary equipment. In

addition, about 100 highway truckloads may be needed to carry construction debris and waste materials to a suitable landfill. Transport of an estimated 70,000 cu. yd. of borrow material between the proposed borrow site and the levee alignment would also be required. This would result in approximately 3,500 haul trips if a load of 20 cu. yd. per trip is assumed. Borrow materials would come from two adjacent parcels to the project alignment located between Project Station 232+50 to Project Station 245+00 (**Figure 2-3c**). Larger haul unit sizes would reduce the number of trips. Fill material for the slurry wall cap would be obtained from a permitted commercial source. Approximately 37,000 cu. yd. of material would be needed to construct the cap for the slurry wall. The material would be transported to the project area by haul trucks on the above identified haul routes.

It is estimated that a total of approximately 6,525 truck trips would be required to transport borrow, equipment, fuel, aggregate, clay cap materials, construction debris, and miscellaneous materials to and from the project area. These 6,525 truck trip would take place over approximately four months, resulting in an average of approximately 1,600 truck round trips per month or approximately 75 trips per work day (assuming 22 work days per month). These trips would be spread out over the work day and would also be spread geographically, as work would occur simultaneously in several locations along the project alignment. Also, truck trips would seldom occur at the same time as employee commute trips, as employees must be at the project site to operate haul trucks and receive deliveries of materials. It is unlikely that truck traffic would exceed the ITE threshold of 50 trucks per hour in the peak direction during the peak hour at any individual roadway intersection, or that commute traffic and truck haul traffic combined would exceed the equivalent threshold for a mix of passenger vehicles and trucks during a peak hour in a peak direction at a single intersection.

During the anticipated four month construction period, trucks delivering materials and removing debris, as well as commute traffic, would be entering and exiting unpaved construction areas periodically and using local roadways. As described above, truck traffic associated with levee repair and strengthening activities is expected to average 75 round trips per work day. Because similar activities would be performed during much of the construction period, the amount of daily truck traffic associated with delivery of materials or hauling of debris is not expected to vary widely, and the addition of construction-related truck traffic to traffic volumes on local roadways is not expected to noticeably alter traffic flow in most circumstances. However, trucks and workers exiting the construction area at the end of the work day are likely to move along Simpson-Dantoni Road, Simpson Lane, Hammonton-Smartville Road, North Beale Road and entrances to the construction area or the existing YRSL road. Many of these vehicles would also enter SR 70. At times, the presence of slow-moving trucks entering or exiting construction areas could pose hazards to other vehicles on North Beale Road and SR 70. In addition, trucks and other vehicles could track mud and gravel onto the local roadways, potentially posing a driving hazard.

During construction, project area roadways not designed to accommodate the movement of large trucks may be degraded or otherwise damaged. The movement of haul trucks, construction equipment, and crew vehicles could damage the roadways (e.g., potholes or minor fractures).

All construction-related vehicles (i.e., construction equipment and worker vehicles) would be parked away from any public roadways at construction staging areas. No public parking facilities would be affected by the parking of construction-related equipment and worker vehicles.

TRLIA shall implement **Mitigation Measures TRAFFIC-1 and TRAFFIC-4** to address the potential for construction traffic to disrupt the local circulation system. Therefore, although the proposed project would result in short-term traffic impacts, it would not result in long-term traffic impacts and implementation of **Mitigation Measures TRAFFIC-1 and TRAFFIC-4** would reduce any potential short-term impacts to traffic and local roadways as a result of the proposed project's construction activities to a less-than-significant level.

b) Conflict with an applicable congestion management program, including, but not limited to level of service standard and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?

Less-than-Significant Impact. As discussed above in item a), the increased traffic resulting from project construction would be short term and temporary. The construction labor force is estimated to average about 50 persons over the construction period. During maximum construction activities, the construction labor force could be close to 100, therefore, construction staff related traffic could reach a total of 100 trips during the peak morning and evening commute hours at times of peak construction activity. Furthermore, as described above, truck traffic associated with levee repair and strengthening activities is expected to average 75 round trips per work day (assuming 22 work days per month). These truck trips would be spread out over the work day and would also be spread geographically, as work would occur simultaneously in several locations along the project alignment. Also, truck trips would seldom occur at the same time as employee commute trips, as employees must be at the project site to operate haul trucks and receive deliveries of materials. Thus, it is unlikely that truck traffic would exceed the ITE threshold of 50 trucks per hour in the peak direction during the peak hour at any individual roadway intersection, or that commute traffic and truck haul traffic combined would exceed the equivalent threshold for a mix of passenger vehicles and trucks during a peak hour in a peak direction at a single intersection. Therefore, it is not anticipated that the proposed project would add sufficient trips to local roadways to degrade levels of service below acceptable standards. Therefore, this impact would be less than significant.

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 risks?

No Impact. The proposed project would not change air traffic patterns or increase air traffic levels. Therefore, no impact would occur.

d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

Less-than-Significant Impact. The proposed project would not result in alterations to existing public roadways. Therefore, the safety of the public transportation network would not be affected. Project operation would not result in any change in land uses, and therefore would not alter the compatibility of uses served by the public roadway network. During construction of the proposed project, farm equipment and other local traffic within the project area may be diverted to other roadways in the vicinity that do not normally experience slower moving vehicles. However, this impact would be temporary and therefore is considered less than significant and no mitigation is required.

e) Result in inadequate emergency access?

Less than Significant with Mitigation Incorporated. Construction of the proposed project could result in increased emergency times due to temporary traffic delays attributable to slow-moving construction and haul vehicles entering and departing the project area; loading and unloading of trucks and equipment; and other activities with the potential to result in inadequate emergency access. Effects of the proposed project on emergency access are addressed in Section 3.14, Public Services. As part of County authorizations, plans to ensure the continuation of emergency response services during construction activities would be incorporated into construction traffic planning. TRLIA shall implement **Mitigation Measures TRAFFIC-1 and TRAFFIC-4**, to addresses the potential for construction traffic to conflict with emergency response vehicles and increase response times. Therefore, the proposed project would not result in short-term or long-term impacts to emergency access and implementation of **Mitigation Measures TRAFFIC-1 and TRAFFIC-4** would reduce any potential impacts to emergency services or access as a result of the proposed project's construction activities to a less-than-significant level.

f) Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?

Less-than-Significant Impact. As mentioned above, Yuba-Sutter Transit operates the Linda shuttle that provides transit service between the community of Linda and nearby commercial centers, Yuba Community

College and other public services in the project vicinity. The proposed project would not affect public transportation methods or routes, nor would it conflict with any local plans or policies regarding public transportation. Furthermore, the proposed project would be constructed during the summer months when attendance at Yuba Community College is significantly less than it is through the rest of the year. Therefore, the proposed project would not have a significant impact on traffic related to the Community College. This impact would be less than significant and no mitigation is required.

MITIGATION

To reduce hazards to vehicles on local roadways, TRLIA shall ensure that its primary construction contractor implements the following measures:

Mitigation Measure TRAFFIC-1: Develop and implement a traffic safety plan in coordination with the County and Caltrans. The construction contractor shall develop a plan for traffic safety assurance for the county roadways in the project vicinity. The contractor shall submit the plan to the County Public Works Department for review before the initiation of construction-related activity that could adversely affect traffic on county roadways. A similar plan shall be prepared for SR 70 and submitted to Caltrans for review before initiation of construction-related activity that could adversely affect traffic on the highway. If both the County and Caltrans will accept the same traffic safety plan, then only one plan need be prepared. The plan(s) may call for the following elements, based on the requirements of each agency:

- ▶ posting warnings about the potential presence of slow-moving vehicles;
- ▶ using traffic control personnel when appropriate;
- ▶ scheduling truck trips outside of peak morning and evening traffic periods to the extent feasible;
- ▶ placing and maintaining barriers and installing traffic control devices necessary for safety, as specified in Caltrans's *Manual of Traffic Controls for Construction and Maintenance Works Zones* and in accordance with County requirements; and
- ▶ maintaining routes for passage of emergency response vehicles through roadways affected by construction activities.

The contractor shall train construction personnel in appropriate safety measures as described in the plan(s), and shall implement the adopted plan(s).

Mitigation Measure TRAFFIC-2: Minimize the accumulation of mud and dirt on local roadways.

All operations shall limit or expeditiously remove the accumulation of project-generated mud or dirt from adjacent public streets at least once every 24 hours when operations are occurring. The construction contractor shall sweep the paved roadways (water sweeper with reclaimed water recommended) at the end of each day if substantial volumes of soil material have been carried onto adjacent paved, public roads from the project sites. Also see a similar requirement under Mitigation for Air Quality impacts related to the implementation of FRAQMD pollution-control measures to minimize temporary emissions of ROG, NO_x, and PM₁₀ during construction.

Mitigation Measure TRAFFIC-3: Assess damage to haul and access routes. TRLIA shall assess damage to roadways used during construction and shall repair all potholes, fractures, or other damages.

Mitigation Measure TRAFFIC-4: Maintain emergency access during construction. TRLIA shall notify and consult with emergency service providers and shall undertake measures necessary to maintain emergency access and facilitate the passage of emergency vehicles on city streets.

3.17 UTILITIES AND SERVICE SYSTEMS

Environmental Issues (and Supporting Information Sources):	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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project’s projected demand in addition to the provider’s existing commitments?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Be served by a landfill with sufficient permitted capacity to accommodate the project’s solid waste disposal needs?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Comply with federal, state, and local statutes and regulations related to solid waste?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

This section addresses several utilities and service systems, including: gas, electrical, water, sewer, cable, telephone, and drainage systems. Wastewater and drainage systems are not discussed in detail; the proposed project would not result in the production of wastewater. Drainage systems are discussed in further detail in Section 3.9 – Hydrology and Water Quality.

ENVIRONMENTAL SETTING

EXISTING UTILITIES AND SERVICE SYSTEMS

Solid Waste Disposal

Primary disposal of solid waste for Yuba County is managed by three main solid waste disposal facilities: the Ostrom Road Landfill (located in Wheatland), the Ponderosa Transfer Station (located in Brownsville), and the Yuba Sutter Disposal Area Landfill (located in Marysville).

Water Supply

The Linda County Water District provides potable water supply and distribution, including water for fire protection, and wastewater collection, treatment, and disposal. Some residences and businesses in the project area rely on wells and septic systems, generally along the northern, more rural portion of the project.

Gas and Electric

PG&E is the primary service provider for natural gas and electricity in Yuba County.

Telephone and Cable

AT&T is the primary service provider for telephone service in Yuba County. Comcast is the local cable television provider.

DISCUSSION

RELOCATION OF UTILITIES AND LEVEE PENETRATIONS

Various aboveground and buried utility lines and water supply and drainage infrastructure identified in the project area are located either near or cross the YRSL segments planned for repair and strengthening. The potential exists for discovery of additional buried gas, electrical, cable television, telephone lines, and/or water supply and drainage facilities that have not already been identified to be located near or to cross these areas. Construction activities associated with the proposed project could cause minor damage to public utility infrastructure, water supply and drainage infrastructure, or temporarily disrupt these services. However, consultation has been undertaken, and continues, with all potential service providers and appropriate agencies and individuals responsible for utility infrastructure to identify utility line and facility locations and appropriate protection measures. Consultation would continue during project construction to ensure avoidance/protection of these utilities as construction proceeds.

While temporary disruptions in service are anticipated due to the need for relocation of utilities, continuous consultation with service providers during implementation of the proposed project would minimize interference with gas, electrical, cable television, telephone, and water supply. Based on the location of known utility lines and water supply and drainage infrastructure, the utility relocations described below would be necessary for implementation of the proposed project.

PG&E power lines may need to be deenergized and/or temporarily relocated for clearance during project excavation operations for the slurry cutoff wall. In addition, there are several PG&E utility poles that are located within the project's proposed operation and maintenance corridors. Due to requirements from the CVFPB to maintain a vegetation and structure free zone in the proposed project's operation and maintenance corridors, it is anticipated that any PG&E poles located within the proposed project's operation and maintenance corridors would be relocated approximately 10 feet outside of the proposed operation and maintenance corridors. A two inch PG&E gas pipeline is also located at Project Station 137+28 to serve the Peach Tree Golf and Country Club. The gas pipeline would be removed during degradation of the levee. After installation of the slurry wall a new replacement pipeline would be installed in coordination with PG&E and to meet the CVFPB's requirements.

Other levee penetrations (i.e., pipelines, conduits, or similar structures passing through the levee) related to the Linda County Water District Wastewater Treatment Plant, the Peach Tree Golf and County Club, and the Luis Farm would be addressed during construction of the slurry cutoff walls as summarized below.

Linda County Water District

The domestic water line for the Peach Tree Golf and Country Club located at Project Station 148+55 consists of a six-inch diameter ductile iron pipeline located three feet deep through the foundation of the levee. Prior to installation of the slurry wall, the levee would be locally degraded and the pipeline removed. After slurry wall installation, a new replacement pipeline would be installed in coordination with Linda County Water District and to meet the CVFPB's requirements.

Peach Tree Golf and Country Club

The two inch sanitary sewer force main located at Project Station 125+22 installed in 2008 would be removed during degradation of the levee. After installation of the slurry wall a new replacement pipeline would be installed in coordination with the Peach Tree Golf and Country Club and to meet the CVFPB's requirements.

Luis Farm

The 24-inch corrugated metal irrigation pipe located at Project Station 195+20.56, approximately 5.5 feet deep, would also be relocated prior to installation of the slurry wall when the levee is locally degraded. After slurry wall installation a new replacement pipeline would be installed in coordination with the owners of the private farm and the CVFPB's requirements.

There are also three existing 12 inch corrugated metal drain pipes located at Project Stations 149+29, 157+32, and 163+32. These pipelines provide drainage between the project levee and an adjacent levee berm. During construction of the proposed project it is anticipated that these pipelines would be removed and replaced.

a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?

No Impact. Implementation of the proposed project would not result in exceedance of wastewater treatment requirements of the Regional Water Quality Control Board. Therefore, no impact would occur and no mitigation would be required.

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?

No Impact. The proposed project would not require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities. Therefore, no impact would occur and no mitigation would be required.

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?

No Impact. The proposed project would not require or result in the construction of new stormwater drainage facilities or expansion of existing facilities. Therefore, no impact would occur and no mitigation would be required.

d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?

No Impact. No new or expanded water supplies or entitlements would be required under or as a result of the proposed project. Therefore, no impact would occur and no mitigation would be required.

- e) **Result in a determination by the wastewater treatment provider that serves or may serve the project that it has adequate capacity to serve the project's projected demand, in addition to the provider's existing commitments?**

No Impact. Implementation of the proposed project would not result in the generation of wastewater, or require treatment of wastewater, beyond existing conditions. Therefore, no impact would occur and no mitigation would be required.

- f) **Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?**

No Impact. Construction and operation of the proposed project would not result in the long-term production of any solid wastes. It is anticipated that the proposed project would generate excess materials during construction that would require disposal. Excess excavated materials would be placed in the borrow area temporarily and then either disposed of on-site, or hauled off-site and deposited in a suitable disposal area. Construction debris and excess material requiring disposal in a landfill would be hauled off-site to a suitable facility. Therefore, no impact would occur and no mitigation would be required.

- g) **Comply with federal, state, and local statutes and regulations related to solid waste?**

No Impact. The proposed project would comply with all relevant federal, state, and local statutes and regulations related to solid waste. Therefore, no impact would occur and no mitigation would be required.

Because the UYLIP does not include new development, it would not result in demand for increased natural gas facilities, communication systems, water infrastructure, sewer lines, or solid-waste services beyond their current capacity. Therefore, the evaluation for the potential increased demand for these services is not warranted.

MITIGATION

None required.

3.18 MANDATORY FINDINGS OF SIGNIFICANCE

Environmental Issues (and Supporting Information Sources):	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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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.)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

DISCUSSION

- a) **Does the project have the potential to substantially 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 an endangered, rare, or threatened species, or eliminate important examples of the major periods of California history or prehistory?**

Less than Significant with Mitigation Incorporated. Development of the proposed project would not substantially 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 or restrict the range of rare or endangered plants or animals, or eliminate important examples of the major periods of California history or prehistory. As discussed previously in the sections provided in this IS Checklist, mitigation measures are proposed to reduce all potentially significant impacts on biological and cultural resources, as well as to other issue areas, to a less-than-significant level.

- 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.)**

Less than Significant with Mitigation Incorporated. No past, current, or probable future projects were identified in the project vicinity that, when added to project-related impacts, would result in cumulatively considerable impacts. No cumulatively considerable impacts would occur with development of the proposed

project. As discussed previously in the sections provided in this IS Checklist, mitigation measures are proposed to reduce all potentially significant impacts to a less-than-significant level. The incremental effects of the proposed project are not cumulatively considerable when viewed in connection with the effects of past, current, and probable future projects.

c) Does the project have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?

Less than Significant with Mitigation Incorporated. No project-related environmental effects were identified that would cause substantial adverse effects on human beings after mitigation is incorporated. As discussed herein, the proposed project has the potential to create temporary significant impacts related to air quality, biological resources, cultural resources, geology and soils, hazards and hazardous materials, hydrology and water quality, noise, public services, and transportation and traffic during construction. However, with implementation of required mitigation measures, these impacts would be reduced to a less-than-significant level.

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Appendix A Air Quality

This Appendix includes the following:

- Summary of total emissions by project scenario (Scenario 1 and 2) by calendar year;
 - AQCR Tier Report - Summarizes total emissions for the Sacramento Valley Intrastate AQCR Tier Reports for 2001, which was used to compare the project to regional emissions;
 - Modeling Assumptions - Describes the assumptions used to develop emissions modeling;
 - Emissions Estimates - emissions from the proposed project (Scenario 1 and 2) using the Road Construction Emissions Model, Version 6.3.2; and,
 - FRAQMD concurrence to use the Carl Moyer Program for mitigation.
-

Air Quality Emissions from Proposed Action

	NO_x (ton)	VOC (ton)	CO (ton)	SO₂ (ton)	PM₁₀ (ton)	PM_{2.5} (ton)	CO₂ (ton)
Proposed Action - Scenario 1							
Construction Emissions	5.1	0.8	7.1	-	0.4	0.2	699.7
Total Emissions	5.1	0.8	7.1	-	0.4	0.2	699.7

	NO_x (ton)	VOC (ton)	CO (ton)	SO₂ (ton)	PM₁₀ (ton)	PM_{2.5} (ton)	CO₂ (ton)
Proposed Action - Scenario 2							
Construction Emissions	5.6	0.8	7.0	-	0.4	0.2	705.2
Total Emissions	5.6	0.8	7.0	-	0.4	0.2	705.2

Note: All emission estimates were modeled using the Road Construction Model Version 9.2.4

Annual emissions reported are unmitigated.

PM₁₀ emissions are the sum of PM₁₀ Dust and PM₁₀ Exhaust.

PM_{2.5} emissions are the sum of PM_{2.5} Dust and PM_{2.5} Exhaust.

Road Construction Emissions Model estimates emissions of reactive organic gas (ROG). For purposes of this worksheet ROG = VOC.

Greenhouse Gas Emissions from Proposed Action

Proposed Action - Scenario 1	CO ₂ emissions converted to metric tons =	634.6	metric tons	
	State of California's CO ₂ emissions =	395,542,482	metric tons	(DOE/EIA 2005)
	Percent of California's CO ₂ emissions =	0.0002%	metric tons	

Proposed Action - Scenario 2	CO ₂ emissions converted to metric tons =	639.616	metric tons	
	State of California's CO ₂ emissions =	395,542,482	metric tons	(DOE/EIA 2005)
	Percent of California's CO ₂ emissions =	0.0002%	metric tons	

Source: U.S. Department of Energy (DOE)/Energy Information Administration (EIA). 2005. State Carbon Dioxide Emissions Summary for the State of California. Available online: <http://www.eia.doe.gov/oiaf/1605/state/state_emissions.html>. Accessed 21 January 2010.

Since future year budgets were not readily available, actual 2001 air emissions inventories for the counties were used as an approximation of the regional inventory. Because the Proposed Action is several orders of magnitude below significance, the conclusion would be the same, regardless of whether future year budget data set were used.

Sacramento Valley Intrastate Air Quality Control Region

Year	Point and Area Sources Combined					
	NO _x (tpy)	VOC (tpy)	CO (tpy)	SO ₂ (tpy)	PM ₁₀ (tpy)	PM _{2.5} (tpy)
2001	77,802	66,345	350,347	10,819	57,082	18,787

Source: USEPA-AirData NET Tier Report (<http://www.epa.gov/air/data/geosel.html>). Site visited on 21 January 2010.

Proposed Action - Scenario 1

Determination Significance (Significance Threshold = 10%)

	Point and Area Sources Combined					
	NO _x (tpy)	VOC (tpy)	CO (tpy)	SO ₂ (tpy)	PM ₁₀ (tpy)	PM _{2.5} (tpy)
Regional Emissions	77,802	66,345	350,347	10,819	57,082	18,787
Scenario 1 Emissions	5.100	0.800	7.100	0.000	0.400	0.200
% of SVI AQCR	0.007%	0.001%	0.002%	0.0%	0.001%	0.001%

Proposed Action - Scenario 2

Determination Significance (Significance Threshold = 10%)

	Point and Area Sources Combined					
	NO _x (tpy)	VOC (tpy)	CO (tpy)	SO ₂ (tpy)	PM ₁₀ (tpy)	PM _{2.5} (tpy)
Regional Emissions	77,802	66,345	350,347	10,819	57,082	18,787
Scenario 2 Emissions	5.600	0.800	7.000	0.000	0.400	0.200
% of SVI AQCR	0.007%	0.001%	0.002%	0.000%	0.001%	0.001%

Sacramento Valley Intrastate Air Quality Control Region

Row #	State	County	Area Source Emissions						Point Source Emissions					
			CO	NOx	PM10	PM2.5	SO2	VOC	CO	NOx	PM10	PM2.5	SO2	VOC
1	CA	Butte Co	1,635	224	301	119	4.82	23.6	51,276	9,215	8,812	3,329	2,112	9,873
2	CA	Colusa Co	350	810	238	68.8	83.4	258	22,259	3,719	6,171	2,476	969	3,512
3	CA	Glenn Co	1,260	938	577	268	56.1	560	17,963	3,366	4,233	1,767	1,285	3,731
4	CA	Sacramento Co	562	339	335	185	75.2	492	166,829	32,147	15,490	4,477	3,230	29,613
5	CA	Sutter Co	348	672	268	103	34.1	50.2	18,906	6,466	4,236	1,407	192	4,014
6	CA	Tehama Co	370	288	105	61.6	16.5	45.3	18,326	6,361	4,703	1,522	2,062	3,823
7	CA	Yolo Co	1,107	407	372	145	60.8	291	29,835	9,838	8,363	1,796	538	6,329
8	CA	Yuba Co	104	222	94.4	29.2	11.6	65	19,217	2,790	2,784	1,033	88.8	3,665
Grand Total			5,736	3,900	2,290	980	343	1,785	344,611	73,902	54,792	17,807	10,477	64,560

SOURCE: USEPA 2002

<http://www.epa.gov/air/data/geosel.html>

USEPA - AirData NET Tier Report

*Net Air pollution sources (area and point) in tons per year (2002)

Site visited on 21 January 2010.

Sacramento Valley Intrastate AQCR (40 CFR 81.163)

Road Construction Emissions Model, Version 6.3.2

Emission Estimates for -> TRLIA Scenario 1 Emission Estimates											
Project Phases (English Units)	ROG (lbs/day)	CO (lbs/day)	NOx (lbs/day)	Total PM10 (lbs/day)	Exhaust PM10 (lbs/day)	Fugitive Dust PM10 (lbs/day)	Total PM2.5 (lbs/day)	Exhaust PM2.5 (lbs/day)	Fugitive Dust PM2.5 (lbs/day)	CO2 (lbs/day)	
Grubbing/Land Clearing	10.9	72.6	79.4	12.6	3.8	8.8	5.1	3.3	1.8	10,847.6	
Grading/Excavation	17.7	165.1	115.8	14.2	5.4	8.8	6.5	4.7	1.8	15,859.6	
Drainage/Utilities/Sub-Grade	-	-	-	-	-	-	-	-	-	-	
Paving	-	-	-	-	-	-	-	-	-	-	
Maximum (pounds/day)	17.7	165.1	115.8	14.2	5.4	8.8	6.5	4.7	1.8	15,859.6	
Total (tons/construction project)	0.8	7.1	5.1	0.4	0.2	0.2	0.2	0.2	0.0	699.7	

Notes: Project Start Year -> 2010
 Project Length (months) -> 4
 Total Project Area (acres) -> 71
 Maximum Area Disturbed/Day (acres) -> 1
 Total Soil Imported/Exported (yd³/day)-> 1631

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

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

Emission Estimates for -> TRLIA Scenario 1 Emission Estimates											
Project Phases (Metric Units)	ROG (kgs/day)	CO (kgs/day)	NOx (kgs/day)	Total PM10 (kgs/day)	Exhaust PM10 (kgs/day)	Fugitive Dust PM10 (kgs/day)	Total PM2.5 (kgs/day)	Exhaust PM2.5 (kgs/day)	Fugitive Dust PM2.5 (kgs/day)	CO2 (kgs/day)	
Grubbing/Land Clearing	4.9	33.0	36.1	5.7	1.7	4.0	2.3	1.5	0.8	4,930.7	
Grading/Excavation	8.1	75.1	52.6	6.5	2.5	4.0	3.0	2.1	0.8	7,208.9	
Drainage/Utilities/Sub-Grade	-	-	-	-	-	-	-	-	-	-	
Paving	-	-	-	-	-	-	-	-	-	-	
Maximum (kilograms/day)	8.1	75.1	52.6	6.5	2.5	4.0	3.0	2.1	0.8	7,208.9	
Total (megagrams/construction project)	0.7	6.5	4.6	0.4	0.2	0.2	0.2	0.2	0.0	634.7	

Notes: Project Start Year -> 2010
 Project Length (months) -> 4
 Total Project Area (hectares) -> 29
 Maximum Area Disturbed/Day (hectares) -> 0
 Total Soil Imported/Exported (meters³/day)-> 1247

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

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

Road Construction Emissions Model, Version 6.3.2

Emission Estimates for -> TRLIA Scenario 2 Emission Estimates										
Project Phases (English Units)	ROG (lbs/day)	CO (lbs/day)	NOx (lbs/day)	Total PM10 (lbs/day)	Exhaust PM10 (lbs/day)	Fugitive Dust PM10 (lbs/day)	Total PM2.5 (lbs/day)	Exhaust PM2.5 (lbs/day)	Fugitive Dust PM2.5 (lbs/day)	CO2 (lbs/day)
Grubbing/Land Clearing	15.9	94.7	123.8	17.5	5.8	11.8	7.5	5.1	2.4	14,804.7
Grading/Excavation	24.9	217.3	170.3	19.7	7.9	11.8	9.4	6.9	2.4	21,405.7
Drainage/Utilities/Sub-Grade	-	-	-	-	-	-	-	-	-	-
Paving	-	-	-	-	-	-	-	-	-	-
Maximum (pounds/day)	24.9	217.3	170.3	19.7	7.9	11.8	9.4	6.9	2.4	21,405.7
Total (tons/construction project)	0.8	7.0	5.6	0.4	0.3	0.2	0.3	0.2	0.0	705.2
Notes: Project Start Year -> 2010										
Project Length (months) -> 3										
Total Project Area (acres) -> 71										
Maximum Area Disturbed/Day (acres) -> 1										
Total Soil Imported/Exported (yd ³ /day)-> 2175										
PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.										
Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns H and I. Total PM2.5 emissions shown in Column J are the sum of exhaust and fugitive dust emissions shown in columns K and L.										
Emission Estimates for -> TRLIA Scenario 2 Emission Estimates										
Project Phases (Metric Units)	ROG (kgs/day)	CO (kgs/day)	NOx (kgs/day)	Total PM10 (kgs/day)	Exhaust PM10 (kgs/day)	Fugitive Dust PM10 (kgs/day)	Total PM2.5 (kgs/day)	Exhaust PM2.5 (kgs/day)	Fugitive Dust PM2.5 (kgs/day)	CO2 (kgs/day)
Grubbing/Land Clearing	7.2	43.1	56.3	8.0	2.6	5.3	3.4	2.3	1.1	6,729.4
Grading/Excavation	11.3	98.8	77.4	9.0	3.6	5.3	4.3	3.2	1.1	9,729.9
Drainage/Utilities/Sub-Grade	-	-	-	-	-	-	-	-	-	-
Paving	-	-	-	-	-	-	-	-	-	-
Maximum (kilograms/day)	11.3	98.8	77.4	9.0	3.6	5.3	4.3	3.2	1.1	9,729.9
Total (megagrams/construction project)	0.7	6.4	5.1	0.4	0.2	0.2	0.2	0.2	0.0	639.6
Notes: Project Start Year -> 2010										
Project Length (months) -> 3										
Total Project Area (hectares) -> 29										
Maximum Area Disturbed/Day (hectares) -> 0										
Total Soil Imported/Exported (meters ³ /day)-> 1663										
PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.										
Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns H and I. Total PM2.5 emissions shown in Column J are the sum of exhaust and fugitive dust emissions shown in columns K and L.										



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David A. Valler, Jr.
Air Pollution Control Officer

December 21, 2009

Paul G. Brunner, P.E.
Executive Director
Three Rivers Levee Improvement Authority
1114 Yuba Street, Suite 218
Marysville, CA 95901

Re: Upper Yuba Levee Improvement Project Air Quality Mitigation

Dear Mr. Brunner,

In regards to your request for formal concurrence that the above project will be able to utilize the District's off-site mitigation program, the District would like to confirm that after preliminary review of the project and the emission calculations provided by TRLIA, staff have determined that the project is eligible for the off-site mitigation program, and that emission reductions from the program are feasible and can be achieved within a reasonable period of time.

The District offers the voluntary off-site mitigation program to offset emissions of nitrogen oxides (NOx) and reactive organic gases (ROG) through projects funded consistent with the District's Carl Moyer Program. The District has administered the Carl Moyer Program 10 out of 11 years the Program has operated in California. The Carl Moyer Program achieves significant emission reductions by funding cleaner than required diesel repower, retrofit, and replacement projects. The emission reductions cannot be required by any Federal, State, or local regulation, nor be used for Emission Reduction Credits. The California Air Resources Board (CARB) provides the majority of the funding for the Program, and provides oversight of the District's administration of the Program.

The pollutants NOx and ROG are ozone precursors and impact the region's ability to meet National and California Ambient Air Quality Standards for ozone. While these pollutants are of regional concern, the Carl Moyer Program is implemented within the Feather River AQMD and the emission reductions from the off-site mitigation program shall be achieved locally.

To reduce NOx emissions from the Upper Yuba Levee Improvement Project, currently estimated at 5 tons, at the current Carl Moyer Guidelines cost-effectiveness limit of \$16,000/ton, the estimated amount of off-site mitigation would be \$80,000. This funding could be used to repower approximately 4 uncontrolled diesel agricultural irrigation pump engines with tier III

diesel engines or electric motors. The NOx reductions would be achieved over the project life of the grant, between 1 to 3 years.

To implement the mitigation measure, TRLIA should prepare and submit an updated air quality analysis using specific information from the contractor(s) selected to perform the work, including estimated hours of operation, type of equipment, engine make, model, & year, and any emission control devices used. The results of the updated air quality analysis shall be compared to the District's Thresholds of Significance for NOx, ROG, and particulate matter. Any exceedences of the Threshold shall be mitigated by contributing the appropriate amount of funding to the off-site mitigation program, which shall augment the current District's Carl Moyer Program. The off-site mitigation funds should be remitted to the District prior to beginning work. The administration of the grant funds, including solicitation of projects, inspections, and auditing, shall be performed by District staff in accordance with the 2008 Carl Moyer Program Guidelines, or the most recent version of the Guidelines at the time payment is received. The Guidelines are periodically updated by the CARB and available online at: <http://www.arb.ca.gov/msprog/moyer/moyer.htm>.

The District staff person responsible for the administration of the Carl Moyer Program is Ms. Sondra Andersson, Air Quality Planner. If you have any questions regarding the off-site mitigation program, or the Carl Moyer Program, please contact her at (530) 634-7659 ext 210.

The District appreciates the efforts of TRLIA to reduce the impact of levee construction projects on air quality and looks forward to assisting TRLIA with mitigation measures and strategies to reduce impacts to a less than significant level.

Regards,



David A. Valler, Jr.
Air Pollution Control Officer
Feather River Air Quality Management District

Appendix B Biological Resources

This Appendix includes the following:

- The Environmental and Regulatory Setting for the Proposed Project;
- USFWS, CNDDDB, and CNPS Lists of Regionally-Occurring Special-Status Species;
- Table of Listed and Proposed Species and Critical Habitat Potentially Occurring or Known to Occur in the Project Area; and,
- List of Plant and Animal Species Observed

A Biological Assessment and a Delineation of Waters of the U.S. Including Wetlands were both prepared for the proposed project and are bound separately.

ENVIRONMENTAL SETTING

HABITAT TYPES

Habitat types, also referred to as vegetation or plant communities, are assemblages of plant and animal species that usually coexist in the same area. Naturally-occurring habitat types are classified based upon their dominant flora and fauna and the life form (e.g., grass/forb, shrub, tree) of the dominant species. Habitats characterized by a high level of anthropogenic disturbance are often classified by the dominant land use of the habitat.

Habitat types in the ESL are characterized in this section and shown on **Figures 3.4-1A through H in the checklist**. The descriptions of habitat types and species presence are based on observations made during field surveys. Terrestrial plant communities/habitat types within the ESL include riparian, coyote brush scrub, cattle pen, golf course, urban/developed, orchard, agricultural fields, and ruderal. Aquatic communities/habitat types within the ESL include vernal pool, pond, dairy waste lagoons, seasonal wetland, and agricultural/roadside ditches. **Table B-1** summarizes the acreages of habitat types in the ESL and within the project impact area, which is defined as all areas that could potentially be permanently or temporarily impacted by construction activities. The dominant plant and animal species in each of these habitat types is described briefly below in decreasing order of abundance within the ESL.

Terrestrial Habitat Types

Orchard

Orchards are the most abundant habitat type within the ESL in terms of percent cover. Orchards make up approximately 219.47 acres within the ESL. Orchards occur on both the waterside and landside of the levee throughout the ESL and within the proposed borrow site. Orchards within the ESL consist primarily of walnut orchards, along with peach and plum orchards. Orchards are also a primary component of the land cover within the region. Orchards are typically used by a variety of bird species, as well as common small mammal and reptile species, for foraging habitat and temporary refugia. In general, wildlife species do not remain in the orchard habitat for an extended period of time (e.g., such as for nesting or hibernacula) due to human disturbances related to orchard maintenance and crop harvesting activities. A variety of birds species were observed in the orchard habitats including western scrub jay (*Aphelocoma californica*), American goldfinch (*Carduelis tristis*), house finch (*Carpodacus mexicanus*), and European starling (*Sturnus vulgaris*). Other animal species observed in the orchard habitat include California ground squirrel (*Spermophilus beecheyi*), and western fence lizard (*Sceloporus occidentalis*).

Habitat Type	Acreage Within the ESL	Acreage within the Project Impact Area*
Terrestrial Habitats		
Orchard	220.13	80.8395
Agricultural (Row Crop/Grain Crop/Pasture)	82.67	12.0121
Urban/Developed	64.03	3.1106
Ruderal	61.77	34.6145
Cattle Pen	26.89	2.6658
Golf Course	19.09	0.00
Riparian (Non-Wetland)	2.79	0.35
Coyote Brush Scrub	0.23	0.00
Aquatic Habitats		
Roadside/Agricultural ditches	2.29	0.19
Dairy Waste Lagoon	1.48	0.00
Vernal Pool	1.19	0.00

Seasonal Wetland	0.38	0.00
Pond	0.03	0.00
Total	482.97	133.78

Note:*Includes all areas that are anticipated to be permanently or temporarily impacted by construction of the proposed project including borrow and staging areas and temporary construction easements.

Agricultural fields

Agricultural fields, including fallow fields, comprise approximately 82.67 acres within the ESL. Agricultural fields occur on both the waterside and landside of the levee throughout the ESL and are also a major component of the land cover in the vicinity of the ESL. Agricultural fields in the ESL and vicinity are being used to produce grain crops, primarily corn and hay. Agricultural fields provide habitat for a variety of bird species, as well as common mammal and reptile species, for short periods of time for foraging or temporary cover. With the exception of the fallow fields, animals do not remain in these habitats for extended periods of time due to regular human disturbance. Animal uses of the agricultural fields vary by season with changes in crop size and type. Optimal foraging times for raptors occurs during periods when the crops are low growing and sparse as well as during harvest times and when fields are fallow. During periods when crops are mature and crop cover is dense, raptor foraging is much less suitable and the fields are used more heavily by songbirds and other small insectivorous bird species for foraging and cover. Small mammals and reptiles utilize mature fields, as well as fallow fields, for cover and foraging. Bird species observed utilizing the agricultural fields included red-tailed hawk (*Buteo jamaicensis*), killdeer (*Charadrius vociferous*), and mourning dove (*Zenaida macroura*). Numerous vole (*Microtus* spp.) burrows were observed in the fallow fields.

Urban/developed

Urban/developed areas comprise approximately 64.03 acres within the ESL. Urban/developed areas occur throughout the ESL and include a mobile home community, residential houses, a gravel plant, a dairy, and paved roads. Concrete and structures cover most of these areas. Vegetation, where it occurs within these areas, is characterized primarily by turf grass and horticultural trees and shrubs. Urban/developed areas do not provide significant habitat value for wildlife.

Ruderal

Ruderal areas comprise approximately 61.11 acres within the ESL. Ruderal areas also occur throughout the ESL and include the levee crown and waterside and landside slopes, disturbed areas adjacent to the levee, and areas within the Yuba Goldfields that have been disturbed from past mining activities. Vegetation within the ruderal areas ranges from bare (such as on the levee crown) to dense patches of non-native vegetation such as yellow star thistle (*Centaurea solstitialis*), which dominates ruderal areas within the Yuba Goldfields. Vegetated portions of the ruderal habitats provide foraging habitat and cover for bird species as well as for small mammals and reptiles. Bird species observed foraging in ruderal habitats include red-tailed hawk, northern harrier (*Circus cyaneus*), and American kestrel (*Falco sparverius*). Western fence lizards were abundant in the ruderal habitats.

Cattle Pen

A cattle pen, totaling approximately 26.89 acres in size, occurs south of the levee in the central portion of the ESL. The cattle pen area contains sandy silt soil and is largely bare of vegetation except for some large elderberry trees (*Sambucus mexicana*) and some small elderberry saplings that are heavily grazed. Several dozen cows were present in the cattle pen during biological surveys. The cattle pen provides little habitat value for wildlife; however, the elderberry trees provide nesting habitat for birds. An American kestrel was observed sitting on a nest in one of the elderberry trees within the cattle pen. Ground squirrels and burrows were also observed in the cattle pen. No other animal species were regularly encountered in this habitat.

Golf Course

A segment of golf course, totaling approximately 19.09 acres in size, extends into the western end of the ESL, on the waterside of the levee. Vegetation within the golf course consists of turf grass and horticultural trees and shrubs. A few small water features occur within the golf course, however none of these water features occur within the ESL. The golf course provides limited habitat for wildlife.

Riparian

Riparian habitat makes up approximately 2.79 acres of the ESL. Riparian habitat primarily occurs in the Yuba Goldfields and in a small patch to the west of the Yuba Goldfields. The dominant tree species in the riparian habitats are valley oak (*Quercus lobata*), Fremont cottonwood (*Populus fremontii*), and willow (*Salix* spp.), with an understory of coyote brush (*Baccharis pilularis*), poison oak (*Toxicodendron diversilobum*), and blue elderberry (*Sambucus mexicana*). Mixed upland grasses and forbs also occur within the understory in open areas with sufficient light penetration. Hydrophytic trees and shrubs occurring in this habitat (e.g., valley oak, Fremont cottonwood, willow, and blue elderberry) are presumably sustained by the ability to grow roots downward to a sufficient depth to reach groundwater rather than by the presence of surface water or a water table at or near the surface during a significant portion of the growing season, which is typical of seasonal wetland habitats. This is evidenced by a lack of hydrophytic grasses and forbs in the riparian habitat.

The riparian habitats provide relatively high habitat value for wildlife and contained the highest diversity of bird species occurring within the ESL. In addition to bird species observed in the adjacent orchard and agricultural habitat, Nuttall's woodpecker (*Picoides nuttallii*), northern flicker (*Colaptes auratus*), and western kingbird (*Tyrannus verticalis*) were observed utilizing the riparian habitat.

Coyote Brush Scrub

Coyote brush scrub comprises approximately 0.23 acres in the ESL. This habitat type occurs in the Yuba Goldfields adjacent to the riparian habitat. Coyote brush scrub occurs at a slightly higher elevation than the riparian habitat in more xeric areas. This habitat type consists entirely of upland plant species and is shrub dominated. The dominant plant species in this habitat is coyote brush, with scattered poison oak shrubs also occurring. An understory of upland grasses and forbs occurs in less dense areas within the coyote brush scrub with sufficient light penetration. Coyote brush scrub also provides relatively high habitat value for wildlife. The majority of the species within the riparian habitat also utilize the coyote brush scrub.

Aquatic Habitat Types

Dairy Waste Lagoons

Three adjoining dairy waste lagoons, totaling approximately 1.48 acres in size, occur within the ESL adjacent to an operational dairy that occurs on the land side of the levee. The waste lagoons were constructed to hold waste water created during cleaning of the cattle pens to eliminate waste from the pens. The banks of the waste lagoons appear to be earthen and are vegetated with a variety of hydrophytic grasses and forbs; no emergent vegetation is present in the lagoons. The waste lagoons contained water during all site visits. The waste lagoons are expected to provide limited habitat value for wildlife due to poor water quality conditions.

Vernal Pool

One relatively large (1.19-acre) northern hardpan vernal pool occurs within the ESL adjacent to the land side toe of the levee just east of Dantoni Road. The vernal pool occurs within the boundaries of a rural residential property next to a horse paddock and is subject to grazing by horses and periodic disking/mowing by the property owner. Plant species observed in the vernal pool included yellow carpet (*Blennosperma nanum* var. *nanum*), coyote thistle (*Eryngium* sp.), goldfields (*Lasthenia* sp.), popcorn flower (*Plagiobothrys* sp.), bractless hedge-

hyssop (*Gratiola ebracteata*), little quaking grass (*Briza minor*), silver hairgrass (*Aira caryophyllea*), and hyssop loosestrife (*Lythrum hyssopifolia*). The vernal pool provides potential habitat for a high diversity of aquatic invertebrates including the federally-threatened vernal pool fairy shrimp (*Branchinecta lynchi*) and vernal pool tadpole shrimp (*Lepidurus packardii*).

Vernal pools are a unique type of wetland that form in a Mediterranean climate, have a restrictive subsurface layer, and have a pattern of shallow depressions in a level landscape. Vernal pools support a distinct flora and fauna. In contrast to the surrounding grasslands which are dominated by non-native annual grasses, vernal pools are typically dominated by native plant species and also provide habitat for several species of native aquatic invertebrates that are only found in vernal pool habitats. Vernal pools also provide breeding habitat for amphibians such as the Pacific chorus frog (*Psuedacris regilla*) and foraging habitat for waterfowl such as mallards (*Anas platyrhynchos*) and shorebirds such as killdeer (*Charadrius vociferus*). Northern hardpan vernal pools are formed on alluvial terraces and distributed between Fresno County and Shasta County. They are characterized by hardpan soils with mounds between local depressions and support a low, herbaceous plant community (Holland 1986).

Seasonal Wetland

One seasonal wetland, totaling approximately 0.38 acres in size, occurs in the southwest corner of the parcel proposed for a borrow site. The seasonal wetland has formed as a result of anthropogenic disturbances in the recent past. The area in which the seasonal wetland now occurs has been used as a borrow area to provide soil to other portions of the property. As the depression formed from this borrow activity, water began to seep into the depression from an adjacent agricultural ditch.

Vegetation within the wetland consists of a sapling/shrub layer composed of young Fremont cottonwoods and willows as well as a variety of herbaceous hydrophytes including sedge (*Cyperus* spp.), rush (*Juncus* sp.), Dallis grass (*Paspalum dilatatum*), and Bermuda grass (*Cynodon dactylon*). The seasonal wetland supported a variety of aquatic invertebrates such as water fleas (Cladocerans) and copepods. The seasonal wetland does not provide habitat for federally-listed vernal pool branchiopods because it contains water throughout the summer months.

Pond

A small man-made pond approximately 0.03 acre in size occurs within the yard of a sand and gravel business on the waterside of the levee near Dantoni Road. The pond has an earthen bed and banks. A narrow band of hydrophytic vegetation occurs around the perimeter of the pond and consists of sapling Fremont cottonwoods and willows as well as a variety of grasses and forbs. The vegetation around the perimeter of the pond appears to be mowed annually or biannually to limit growth of woody vegetation. The bottom of the pond is largely unvegetated, evidence that it experiences a sporadic inundation regime. The pond was dry at the time the delineation fieldwork was conducted. The pond is expected to provide limited habitat value for wildlife.

Drainage Ditches

Two types of drainage ditches occur within the ESL: roadside ditches and agricultural ditches. All of the ditches in the ESL are small man-made features. These ditches do not provide significant habitat value for wildlife because they only contain water for brief periods during storm events and during transfer of irrigation water.

Two roadside ditches are located within the ESL. One roadside ditch (RD 1) is located on the landside toe of the levee at Simpson Lane. This approximately 0.03 acre ditch is 566 feet in length and collects stormwater runoff from the levee and the adjacent roadway and drains westward toward Simpson Lane. This feature is an average of approximately two feet wide and contains upland, ruderal vegetation. This feature was dry at the time of the surveys. A second roadside ditch (RD 2) totaling approximately 0.19 acre is located on the waterside toe of the levee west of Dantoni Road. This ditch is approximately 2,743 feet in length and collects stormwater runoff from the levee and the adjacent roadway and drains eastward toward a sand and gravel business at the intersection of

the levee and Dantoni Road. This feature is an average of approximately three feet wide and contains primarily upland, ruderal vegetation. This feature was also dry at the time of the surveys.

Three agricultural ditches occur within the ESL. Agricultural ditch 1 totaling approximately 0.05 acre is located along the northern edge of an agricultural field adjacent to the landside toe of the levee approximately 2,000 feet east of Simpson Lane. This ditch is approximately 454 feet in length, is an average of approximately four feet wide, and contains primarily upland, ruderal vegetation. This feature was dry at the time of the surveys. Agricultural ditch 2, totaling approximately 0.01 acre is located along the eastern edge of an agricultural field adjacent to the landside toe of the levee west of Dantoni Road. This ditch is approximately 181 feet in length. Agricultural ditch 2 occurs along the eastern boundary of the agricultural parcel and drains along Dantoni Road; no evidence of the ditch occurred beyond the property boundary. This feature is an average of approximately two feet wide and contains primarily upland, ruderal vegetation. This feature was dry at the time of the surveys. Agricultural ditch 3, totaling approximately 0.02 acre is located along the southern and western edge of the seasonal wetland in the property proposed for use as a borrow site. This ditch is approximately 434 feet in length. Agricultural ditch 3 occurs along the boundary of the wetland and provides water to the adjacent orchard. This feature is an average of approximately two feet wide and contains upland, ruderal vegetation mixed with patches of hydrophytic vegetation.

WILDLIFE MOVEMENT CORRIDORS

Wildlife movement corridors link areas of suitable wildlife habitat that are otherwise separated by rugged terrain, changes in vegetation, or areas of human disturbance or urban development. Topography and other natural factors, in combination with urbanization, can fragment or separate large open-space areas. The fragmentation of natural habitat creates isolated “islands” of habitat that may not provide sufficient area to accommodate sustainable populations and can adversely impact genetic and species diversity. Movement corridors mitigate the effects of this fragmentation by allowing animals to move between remaining habitats, which in turn allows depleted populations to be replenished and promotes genetic exchange between separate populations.

The levee and adjacent agricultural fields provide a movement corridor of marginal quality for areas between the Yuba Goldfields and other portions of the Yuba River. Wildlife is expected to use these areas to travel during the night in order to avoid contact with humans in the adjacent populated areas. Construction of the proposed project would temporarily interfere with wildlife movement during the daytime hours, but wildlife would be free to move through the project area at night. Once construction is complete, the wildlife movement in the area is expected to return to pre-project conditions. Implementation of the proposed project would not remove, degrade or otherwise interfere substantially with the structure or function of this marginal wildlife movement corridor.

SENSITIVE BIOLOGICAL RESOURCES

Sensitive biological resources addressed below are those that are afforded special protection through federal, state, and/or local laws and ordinances due to a variety of factors (discussed in the regulatory setting section above). Plant and animal species are typically considered “sensitive” if they are determined to be rare or have a limited geographic range by USFWS, NMFS, CDFG or other local agencies. Vegetation communities (habitats) are generally considered “sensitive” if: (a) they are considered rare within the region by various agencies including USFWS, CDFG, and other local agencies; (b) if they are known to support sensitive animal or plant species; and/or (c) they are known to serve as important wildlife corridors. Sensitive habitats are typically depleted throughout their known ranges, or are highly localized and/or fragmented.

SPECIAL-STATUS SPECIES

Methodology

Studies conducted by HDR for the purpose of evaluating potential impacts of the proposed project on special-status species and/or their habitats included background research to determine the special-status species and their

habitats potentially occurring in the ESL and focused biological surveys. Focused biological surveys that were conducted included a reconnaissance survey to characterize habitat types present in the ESL and compile an inventory of plant and animal species observed, wildlife surveys, USFWS protocol elderberry shrub stem counts and exit hole surveys, USFWS protocol surveys for federally-listed vernal pool branchiopods, and a wetland delineation for the purpose of mapping the potential waters of the U.S. in the ESL. Background research consisted of a literature review of the following resources:

- U.S. Geological Survey (USGS) maps of the “Yuba City, California” 7.5 minute topographic quadrangle (quad) and eight surrounding quads: Browns Valley, Loma Rica, Honcut, Gridley, Sutter, Gilsizer Slough, Olivehurst, and Wheatland.
- Color aerial photography of the ESL and vicinity;
- Custom Soil Resource Report for Yuba County (**Natural Resources Conservation Service [NRCS] 2009**);
- CDFG Natural Diversity Database (**CNDDDB 2009**) reported occurrences of special-status species within the “Yuba City, California” quad and eight surrounding quads;
- USFWS list of threatened and endangered species with the potential to occur in or be affected by projects in the “Yuba City, California” quad and eight surrounding quads;
- CNPS list of rare and endangered potentially occurring in the “Yuba City, California” quad and eight surrounding quads; and

Pertinent published and unpublished literature.

During the focused biological surveys, HDR biologists walked transects and drove the levee through the entire ESL spaced closely enough together to obtain 100 percent visual coverage of the habitats present. Plant and animal species encountered during the survey were identified to the taxonomic level necessary to determine whether or not they were special-status species. A list of plant and animal species encountered in the ESL is included below. Botanical surveys could not be conducted within the typical bloom season of plant species in the region; therefore botanical surveys were not floristic in nature. Only plant species identifiable during the surveys could be recorded. Potential waters of the U.S. were determined according to methods outlined in the Corps of Engineers Wetland Delineation Manual (**Corps 1987**) and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (**Corps 2008**).

All biological field assessments, including the wetland delineation and branchiopod surveys, were conducted by qualified biologists/wetland specialists with experience in the region. **Table B-2** summarizes the survey dates, personnel, number of person-hours spent surveying, and the type of survey(s) conducted to date.

Habitat types present in the ESL were compared to the habitat requirements of the regionally occurring special-status species and used to determine which of these species had the potential to occur in the ESL. The lists of regionally-occurring special-status species obtained from USFWS, CNDDDB, and the CNPS are included below. Also listed below is a discussion of each species specific habitat requirements and a discussion of presence/absence of suitable habitat for these species within the ESL. Sensitive species and habitats that do not have the potential to occur in the ESL and/or be impacted by the proposed project are not discussed further.

A Biological Assessment was prepared to evaluate the potential impacts of the proposed project on federally-listed special-status species; including Valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*), Vernal pool fairy shrimp (*Branchinecta lynchi*), and vernal pool tadpole shrimp (*Lepidurus packardii*) (**HDR 2009a**). A *Delineation of Waters of the U.S. Including Wetlands for the Upper Yuba Levee Improvement Project* was also prepared for the proposed project. The results of the Biological Assessment and Delineation Report are summarized within this document.

Table B-2 Summary of Biological Surveys			
Survey Date	Personnel	Person-hours	Survey Type
August 27, 2009	Stephen Stringer, M.S., LaTisha Burnaugh, M.S.	16	Biological reconnaissance survey, wildlife survey, elderberry stem count.
August 28, 2009	Mr. Stringer, Ms. Burnaugh	16	Biological reconnaissance survey, wildlife survey, elderberry stem count.
September 9, 2009	Mr. Stringer, Ms. Burnaugh	16	Wildlife survey, elderberry stem count, wetland delineation
September 25, 2009	Ms. Burnaugh, Mark Ashenfelter	16	Wetland delineation
October 3, 2009	Ms. Burnaugh, Christopher Rogers (EcoAnalysts, Inc.)	8	USFWS protocol dry season branchiopod survey
October 5, 2009	Mr. Stringer, Ms. Burnaugh, and Sean Marquis	24	Elderberry shrub exit hole survey
November 5, 2009	Ms. Burnaugh, and Mr. Marquis	10	Wildlife survey, wetland delineation
October 20, November 24, and December, 17, 2009	Mr. Stringer and/or Ms. Burnaugh	10	USFWS protocol wet season branchiopods surveys (ongoing)

Special-Status Plant Species

Sensitive plant species that were determined to have the potential to occur in the ESL based on habitats present are listed in **Table B-3**.

Dwarf Downingia (*Downingia pusilla*; CNPS List 2.2)

Endemic to vernal pools, the dwarf downingia is an obligate wetland plant. This species occurs from 1 to 445 meters in elevation. The blooming period for this species is March to May, when vernal pools are drying out. The species can grow up to six inches in height and is slightly succulent with small white to blue flowers. The small corolla and untwisted ovary distinguish the species from other Downingia species. Dwarf downingia is currently known to occur in Fresno, Merced, Napa, Placer, Sacramento, San Joaquin, Solano, Sonoma, Stanislaus, Tehama, and Yuba counties (**CNPS 2009**).

There are two CNDDDB records for dwarf downingia within five miles of the ESL. The closest occurrence is approximately two miles east of the eastern end of the ESL within Beale Air Force Base and is from 1999. Another occurrence is recorded approximately four miles northeast of the east end of the ESL, approximately 2.5 miles southwest of Browns Valley. This record is from 1965 and the exact location is unknown. The vernal pool within the ESL provides potential habitat for dwarf downingia. Botanical surveys have not been conducted within the vernal pool during the blooming season of this species and dwarf downingia could potentially occur within the vernal pool.

**Table B-3
Special-Status Plant Species with Potential to Occur in the ESL**

Species	Listing Status USFWS/ State/Other	Habitat	Distribution	Flowering Period	Potential for Occurrence in the ESL
<i>Downingia pusilla</i> Dwarf downingia	--/--/CNPS List 2.2	Habitat consists of valley and foothill grassland (mesic) and vernal pools at elevations between 1 and 445 meters.	Known populations from Fresno, Merced, Mariposa, Napa, Placer, Sacramento, San Joaquin, Solano, Sonoma, Stanislaus, Tehama, and Yuba counties.	March to May	The vernal pool within the ESL may provide suitable habitat for this species.
<i>Juncus leiospermus</i> var. <i>ahartii</i> Ahart's dwarf rush	--/--/ CNPS List 1B.1	Habitat consists of valley and foothill grassland (mesic) at elevations between 30 and 229 meters.	Known populations from Butte, Calaveras, Placer, Sacramento, Tehama, and Yuba counties.	March to May	The vernal pool within the ESL may provide suitable habitat for this species.
<i>Juncus leiospermus</i> var. <i>leiospermus</i> Red Bluff dwarf rush	--/--/ CNPS List 1B.1	Habitat consists of chaparral, cismontane woodland, meadows and seeps, valley and foothill grassland, and vernal pools/vernally mesic areas from an elevation of 35 to 1,020 meters.	Known populations from Butte, Placer, Shasta, and Tehama counties.	March to May	The vernal pool within the ESL may provide suitable habitat for this species.
<i>Legenere limosa</i> legenere	--/--/ CNPS List 1B.1	Habitat consists of vernal pools at elevations between 1 and 880 meters.	Known occurrences in Lake, Napa, Placer, Sacramento, Shasta, San Mateo, Solano, Sonoma, Stanislaus, and Tehama counties.	April to June	The vernal pool within the ESL may provide suitable habitat for this species.
<i>Navarretia leucocephala</i> ssp. <i>bakeri</i> Baker's navarretia	--/--/ CNPS List 1B.1	Habitat consists of vernal pools, meadows and seeps, montane coniferous forest, grassland, and cismontane woodland at elevations between 5 and 1,740 meters.	Known occurrences in Western Sacramento Valley and northern Coast Range, including Colusa, Glenn, Lake, Mendocino, Marin, Napa, Solano, Sonoma, Sutter, Tehama, and Yolo counties.	April to July	The vernal pool within the ESL may provide suitable habitat for this species.
<i>Paronychia ahartii</i> Ahart's paronychia	--/--/ CNPS List 1B.1	Habitat consists of well-drained rocky outcrops, vernal pool edges, and volcanic uplands, up to about 500 meters.	Known occurrences in Shasta, Tehama and Butte Counties.	March to June	The vernal pool within the ESL may provide suitable habitat for this species.
<i>Trichocoronis wrightii</i> var. <i>wrightii</i> Wright's trichocoronis	--/--/ CNPS List 2.1	Habitat consists of meadows, seeps, marshes, swamps, riparian forest, and vernal pools with alkaline soils at elevations between 5 and 435 meters.	Known occurrences within California in Colusa, Merced, Riverside, San Joaquin, and Sutter counties.	May to September	The vernal pool within the ESL may provide suitable habitat for this species.

Status: CNPS: 1B = Rare, threatened, or endangered in California and elsewhere; 1B.1 = Seriously endangered in California (over 80% of occurrences threatened/high degree and immediacy of threat); 2 = Rare, threatened, or endangered in California but more common elsewhere; 2.1 = Seriously endangered in California (over 80% of occurrences threatened/high degree and immediacy of threat); 2.2 = Fairly endangered in California (20-80% occurrences threatened)

Ahart's dwarf rush (*Juncus leiospermus* var. *ahartii*; CNPS List 1B.1)

Ahart's dwarf rush is found along margins of vernal pools and in mesic habitats of valley and foothill grasslands between 30 and 229 meters in elevation. The bloom season for this species is between March and May. Ahart's rush is relatively short, not growing taller than 12cm, and is pale to reddish brown in color. Ahart's dwarf rush is currently found in Butte, Calaveras, Placer, Sacramento, Tehama, and Yuba counties (CNPS 2009).

There are no CNDDDB records for Ahart's dwarf rush within five miles of the ESL. However the vernal pool within the ESL provides potential habitat for this species. Botanical surveys have not been conducted within the vernal pool during the blooming season of this species and Ahart's dwarf rush could potentially occur within the vernal pool.

Red Bluff dwarf rush (*Juncus leiospermus* var. *leiospermus*; CNPS List 1B.1)

Red Bluff dwarf rush is found in chaparral, cismontane woodland, meadows and seeps, valley and foothill grassland, and vernal pools/vernally mesic areas from an elevation of 35 to 1,020 meters. The bloom season for this species is between March and May. Red Bluff dwarf rush is relatively short, not growing taller than 12cm, and is pale to reddish brown in color. This species is currently found in Butte, Placer, Shasta, and Tehama counties (CNPS 2009).

There are no CNDDDB records for Red Bluff dwarf rush within five miles of the ESL. However the vernal pool within the ESL provides potential habitat for this species. Botanical surveys have not been conducted within the vernal pool during the blooming season of this species and Red Bluff dwarf rush could potentially occur within the vernal pool.

Legenere (*Legenere limosa*; CNPS List 1B.1)

Legenere is an annual herb from the Campanulaceae family. This species is found in association with vernal pools and other wet depressions in grassland communities from 1 to 880 meters in elevation. Morphology of the flowers are white two-lipped corollas subtended by five triangular sepals. The bloom season of this species is from April to June. Legenere is currently found in Alameda, Lake, Napa, Placer, Sacramento, Santa Clara, Shasta, San Joaquin, San Mateo, Solano, Sonoma, Stanislaus, Tehama, and Yuba counties (CNPS 2009).

There are three CNDDDB records for legenere within five miles of the ESL. All of these records are from 1996. The closest reported occurrence is approximately two miles southeast of the east end of the ESL, approximately two miles south-southwest of the junction of Marysville-Smartville Road and Hammonton Road. A second occurrence is reported approximately three miles southeast of the east end of the ESL, approximately 0.15 miles north of Camp Beale Road. Another occurrence is recorded approximately 3.5 miles southeast of the east end of the ESL and is approximately 1.6 miles east of the Reeds Creek crossing with Beale Camp Road. The vernal pool within the ESL provides suitable habitat for this species. Botanical surveys have not been conducted within the vernal pool during the blooming season of this species and legenere could potentially occur within the vernal pool.

Baker's navarretia (*Navarretia leucocephala* ssp. *bakeri*; CNPS List 1B.1)

The Baker's navarretia is an annual and a member of the Polemoniaceae family. The plant inhabits vernal pools, meadows and seeps, montane coniferous forest, and cismontane woodland. A California endemic it occurs in the northern California Coast Range and the western Sacramento Valley, up to about 1700m (CNPS 2009). Baker's navarretia has been reported in Colusa, Glenn, Lake, Mendocino, Marin Napa, Solano, Sutter, Tehama, and Yolo counties. It blooms from April to July (CNPS 2009).

There are no CNDDDB records for Baker's navarretia within five miles of the ESL. However the vernal pool within the ESL provides potential habitat for this species. Botanical surveys have not been conducted within the vernal pool during the blooming season of this species and Baker's navarretia could potentially occur within the vernal pool.

Ahart's paronychia (*Paronychia ahartii*; CNPS List 1B.1)

The Ahart's paronychia is an annual and a member of the Caryophyllaceae family. The plant inhabits vernal pools, valley and foothill grassland, and cismontane woodland. A California endemic it occurs in the northern Sacramento Valley, up to about 500m (CNPS 2009). Ahart's paronychia has been reported in Butte, Shasta, and Tehama counties. It blooms from March to June (CNPS 2009).

There are no CNDDDB records for Ahart's paronychia within five miles of the ESL. However the vernal pool within the ESL provides potential habitat for this species. Botanical surveys have not been conducted within the vernal pool during the blooming season of this species and Ahart's paronychia could potentially occur within the vernal pool.

Wright's trichocoronis (*Trichocoronis wrightii* var. *wrightii*; CNPS List 2.1)

Wright's trichocoronis inhabits meadows, seeps, marshes, swamps, riparian forest, and vernal pools with alkaline soils. This species is known to occur in Colusa, Merced, Riverside, San Joaquin, and Sutter counties at elevations up to 435 meters. Wright's trichocoronis blooms from May to September (CNPS 2009).

There are no CNDDDB records for Wright's trichocoronis within five miles of the ESL. While unlikely due to lack of alkaline soils, the vernal pool within the ESL provides potential habitat for this species. Botanical surveys have not been conducted within the vernal pool during the blooming season of this species and Wright's trichocoronis could potentially occur within the vernal pool.

Special-Status Wildlife Species

Sensitive wildlife species that were determined to have the potential to occur in the ESL based on habitats present are listed in **Table B-4**.

Vernal Pool Fairy Shrimp (VPFS; *Branchinecta lynchi*) and Vernal Pool Tadpole Shrimp (VPTS; *Lepidurus packardii*)

The vernal pool fairy shrimp (VPFS) has only been a recognized species since 1990 and there is little information on the historical range of the species. However, this species is currently known to occur in a wide range of vernal pool habitats in the southern and Central Valley areas of California, and in two vernal pool habitats within the "Agate Desert" area of Jackson County, Oregon (USFWS 2009). VPFS is found from the vicinity of Red Bluff in Shasta County southward through much of the Central Valley. The southernmost known populations of VPFS occur in the Santa Rosa Plateau in Riverside County (Eriksen and Belk 1999). The VPFS occupies a variety of different vernal pool habitats, from small, clear, sandstone rock pools to large, turbid, alkaline, grassland valley floor pools. Although the species has been collected from large vernal pools, including one exceeding 25 acres, it tends to occur in smaller pools. It is most frequently found in pools measuring less than 0.05 acre. These are most commonly in grass or mud bottomed swales, or basalt flow depression pools in unplowed grasslands (USFWS 2009).

**Table B-4
Special-Status Wildlife Species with Potential to Occur in the Project Vicinity**

Species	Listing Status USFWS/State/ Other	Habitat	Potential for Occurrence on the Project Site
<i>Branchinecta lynchi</i> Vernal pool fairy shrimp	FT/--/--	The vernal pool fairy shrimp occupies a variety of different vernal pool habitats, from small, clear, sandstone rock pools to large, turbid, alkaline, grassland valley floor pools. Although the species has been collected from large vernal pools, including one exceeding 25 acres, it tends to occur in smaller pools. It is most frequently found in pools measuring less than 0.05 acre. These are most commonly in grass or mud bottomed swales, or basalt flow depression pools in unplowed grasslands. Vernal pool fairy shrimp is currently known to occur in a wide range of vernal pool habitats in the southern and Central Valley areas of California (USFWS 2005).	Potential habitat for this species occurs in the 1.19 acre vernal pool within the ESL.
<i>Desmocerus californicus dimorphus</i> Valley elderberry longhorn beetle	FT/--/--	Valley elderberry longhorn beetle is endemic to the riparian habitats in the Sacramento and San Joaquin Valleys where it resides on elderberry (<i>Sambucus</i> spp.) plants. The beetle's current distribution is patchy throughout the remaining riparian forests of the Central Valley from Redding to Bakersfield (USFWS 1984).	Potential habitat for this species occurs within the elderberry shrubs located within the ESL.
<i>Lepidurus packardii</i> Vernal pool tadpole shrimp	FE/--/--	This animal inhabits vernal pools containing clear to highly turbid water, ranging in size from 54 square feet in the former Mather Air Force Base area of Sacramento County, to the 89-acre Olcott Lake at Jepson Prairie. The vernal pool tadpole shrimp is currently distributed across the Central Valley of California and in the San Francisco Bay area (USFWS 2005).	Potential habitat for this species occurs in the 1.19 acre vernal pool within the ESL.
<i>Athene cunicularia</i> Burrowing owl	--/SSC/--	The burrowing owl is a yearlong resident of open, dry grassland and desert habitats, as well as in grass, forb and open shrub stages of pinyon-juniper and ponderosa pine habitats. Formerly common within the described habitats throughout the state except the northwest coastal forests and high mountains (CDFG 2008).	Marginal habitat for this species is present along the edge of the levee and along the perimeter of agricultural fields and cattle pens within the ESL.
<i>Buteo swainsoni</i> Swainson's hawk	--/ST/--	In California, Swainson's hawk breeds in the Central Valley, Klamath Basin, Northeastern Plateau, Lassen County, and Mojave Desert. Very limited breeding reported from Lanfair Valley, Owens Valley, Fish Lake Valley, Antelope Valley, and in eastern San Luis Obispo County. Breeds in stands with few trees in juniper-sage flats, riparian areas, and in oak savannah. Requires adjacent suitable foraging areas such as grasslands, alfalfa, or grain fields supporting rodent populations (CDFG 2006).	Trees within the Yuba Goldfields provide suitable nesting habitat for this species and nearby fallow fields provide suitable foraging habitat.

**Table B-4
Special-Status Wildlife Species with Potential to Occur in the Project Vicinity**

Species	Listing Status USFWS/State/ Other	Habitat	Potential for Occurrence on the Project Site
<i>Circus cyaneus</i> Northern harrier	--/SSC/--	The Northern harrier is a permanent resident of the northeastern plateau and coastal areas and a less common resident of the Central Valley. Coastal scrub, Great Basin grassland, marsh and swamp (coastal and fresh water), riparian scrubs, valley and foothill grassland, and wetlands provide habitat for this species. This species nests on the ground, usually in tall, dense clumps of vegetation, either alone or in loose colonies. Northern harrier occurs from annual grassland up to lodgepole pine and alpine meadow habitats, as high as 3,000 meters (CDFG 2008).	While suitable nesting habitat is not present within the site, the site provides suitable foraging habitat. A pair of northern harriers was observed foraging over the site during field surveys.
<i>Elanus leucurus</i> White-tailed kite	--/--/CFP	Permanent resident of coastal and valley lowlands. Nests in dense oak, willow or other tree stands near open foraging areas. Hunts in herbaceous lowlands with variable tree growth (NatureServe 2009).	Trees within the Yuba Goldfields provide suitable nesting habitat for this species and nearby fallow fields provide suitable foraging habitat.

Status: Federal Endangered (FE); Federal Threatened (FT); State Threatened (ST); Fully Protected (CFP); State Species of Special Concern (SSC).

Vernal pool tadpole shrimp (VPTS) also occur in a wide range of vernal pool habitats across the Central Valley of California, from Shasta County to northwestern Tulare County. Isolated occurrences have also been reported in Alameda and Contra Costa Counties. VPTS distribution is highly fragmented (USFWS 2007a). This animal inhabits vernal pools containing clear to highly turbid water, ranging in size. VPTS have been found in pools up to 89 acres in size.

VPFS and VPTS eggs either are dropped to the pool bottom or remain with the mother until the mother dies and sinks. When the pool dries out, so do the eggs. They remain in the dry pool bed until rains and other environmental stimuli hatch them (USFWS 2009). Resting fairy shrimp eggs are commonly referred to as cysts. They are capable of withstanding heat, cold and prolonged desiccation. When the pools refill, some, but not all, of the cysts may hatch. The cyst bank in the soil may contain cysts from several years of breeding.

There is one recorded occurrence of VPFS on the USGS Browns Valley quad. This occurrence is reported to occur on Beale Air Force Base property between Marysville-Smartville Road and Camp Beale Road, approximately two miles southeast from the ESL. This occurrence was recorded in 1992 and updated in 1997. This population is presumed extant. Given the proximity of known occurrences of VPFS, populations of VPFS could occur in suitable habitats in the project vicinity.

Critical habitat for VPFS was originally designated on August 6, 2003 (Federal Register 68:46683). The designation was revised on August 11, 2005 (Federal Register 70:46923) and species by unit designations were published on February 10, 2006 (Federal Register [FR] 71:7117). The ESL is not located within designated critical habitat for VPFS. The closest critical habitat unit to the ESL is Unit 11, which is located approximately 3.5 miles southeast of the ESL in Linda, California.

There are four records of VPTS within five miles of the ESL, on the USGS Yuba City and Browns Valley quads. One occurrence is reported to occur on Beale Air Force Base property between Marysville-Smartville Road and Camp Beale Road, approximately two miles southeast from the project site. This occurrence was recorded in 1992 and updated in 1997. Another occurrence is recorded in the Western Aggregates gravel mine off of

Hammonton Road, approximately 2 miles east of the project site. This occurrence was recorded in 1995 and updated in 2005. Two other occurrences are recorded on Beale Air Force Base, west of the runway. These occurrences were reported in 1991 and updated in 1995. All of these occurrences are presumed extant. Given the proximity of known occurrences of VPTS, populations of VPTS could occur in suitable habitats in the project vicinity.

Critical habitat for VPTS was originally designated on August 6, 2003 (Federal Register 68:46683). The designation was revised on August 11, 2005 (Federal Register 70:46923) and species by unit designations were published on February 10, 2006 (Federal Register FR 71:7117). The ESL is not located within designated critical habitat for VPTS. The closest critical habitat unit to the ESL is Unit 7 (corresponds with VPFS Critical Habitat Unit 11), which is located approximately 3.5 miles southeast of the project site in Linda.

One vernal pool within the ESL that is approximately 1.19 acres in size provides potential habitat for VPFS and VPTS. No other suitable habitats for these species were identified within the ESL. The vernal pool occurs within a horse pasture behind a residence adjacent to the landside levee toe. Currently the vernal pool is subjected to grazing and human disturbances within the pasture.

Determining presence/absence of VPFS and VPTS within suitable habitats requires completion of protocol surveys according to the *Interim Survey Guidelines to Permittees for Recovery Permits under Section 10(a)(1)(A) of the Endangered Species Act for the Listed Vernal Pool Branchiopods (USFWS 1996)*. HDR is in process of conducting USFWS protocol presence/absence surveys for VPFS and VPTS via completion of one dry season survey followed by a consecutive wet season survey. A dry season survey was conducted in October 2009. No VPFS or VPTS eggs were found in the vernal pool. Wet season surveys are in process at the time of preparation of this Draft IS/MND. The first wet season survey was conducted on February 4, 2010. Because the vernal pool provides potential habitat for VPFS and VPTS and protocol presence/absence surveys have not been completed at the time of document preparation, presence of these two federally-listed branchiopods is currently assumed in the vernal pool. If no federally-listed branchiopods are found upon completion of USFWS protocol presence/absence surveys, a Report of Findings will be submitted to USFWS requesting concurrence that these species can be assumed to be absent from the project site.

Valley Elderberry Longhorn Beetle (VELB; *Desmocerus californicus dimorphus*)

VELB is one of two subspecies of *Desmocerus californicus*. The other subspecies, the California elderberry longhorn beetle (*Desmocerus californicus californicus*), is found primarily in coastal areas from Mendocino County to San Diego County and in the southern Sierra Nevada range. VELB is limited to portions of the Central Valley, below 900 meters in elevation, along Putah Creek in Solano and Yolo Counties, and along the Lower American River in Sacramento County (USFWS 1999). The range of the VELB extends throughout California's Central Valley and associated foothills from about the 3,000-foot elevation contour on the east and the watershed of the Central Valley on the west. All or portions of 31 counties are included: Alameda, Amador, Butte, Calaveras, Colusa, Contra Costa, El Dorado, Fresno, Glenn, Kern, Kings, Lake, Madera, Mariposa, Merced, Napa, Nevada, Placer, Sacramento, San Benito, San Joaquin, San Luis Obispo, Shasta, Solano, Stanislaus, Sutter, Tehama, Tulare, Tuolumne, Yolo, and Yuba.

The VELB is a federal-listed threatened species and as such is protected by the Federal Endangered Species Act. In February 2007, USFWS prepared a five-year review for this species, which recommends delisting of VELB. A delisting proposal has not yet been released for this species.

The VELB is dependent on its host plant, elderberry (*Sambucus* sp.), which is a common component of riparian corridors and adjacent upland areas in the Central Valley. There are four stages of this species life: egg, larva, pupa, and adult. Females deposit eggs on or adjacent to the host elderberry. Egg production varies and females have been observed to lay between 16 and 180 eggs (USFWS 2007b). Eggs hatch within a few days of being deposited and larvae emerge. The larvae bore into the wood of the host plant and create a long feeding gallery in the pith of the elderberry stem. The larvae feed on the pith of the plant for one to two years. When a larva is

ready to pupate, it chews an exit hole to the outside of the stem and then plugs it with frass. The larva then backs back into the feeding gallery and constructs a pupal chamber from wood and frass. The larvae metamorphose between December and April. The pupal stage lasts about a month. The adult remains in the chamber for several weeks after metamorphosis, and then emerges from the chamber through the exit hole. Most records for adults occur from late-April to mid-May (USFWS 2007b). Adults feed on elderberry leaves and mate within the elderberry canopy.

Studies conducted in the American River basin demonstrate that VELB occurs most frequently and is most abundant in significant riparian zones that are well developed. Within significant riparian zones, VELB primarily occurs within the riparian corridor but can occur infrequently in non-riparian scrub habitats adjacent to the riparian corridor. Along the American River, the beetle tends to occupy woodlands dominated by exotic trees (black locust) and black walnut, and in mixed riparian forests. The beetle less commonly occupied annual grasslands and live oak woodlands. The study also showed that the beetle preferentially occupies elderberry shrubs in wooded areas with a relatively dense canopy cover over elderberry shrubs located in open and sparsely wooded areas. Of the occupied shrubs found in wooded areas, about 50 percent were under a canopy cover of 25-50 percent while 25 percent were under canopies with 50-75 percent cover and 25 percent were under canopies with 75-100 percent cover. The study also demonstrated that the VELB appears to be capable of limited dispersal and prefers to remain within contiguous patches of high quality riparian habitat. Clusters of local aggregations of VELB along the American River Parkway were approximately 600 to 800 meters in diameter (Talley 2005 in Talley et al. 2006).

VELB exit holes are usually found on stems or branches of 1 inch in diameter or greater (Barr 1991, Collinge et al. 2001, in Talley et al. 2006) and are found infrequently in smaller stems (1.3-2 cm) (Halstead and Oldham 1990, Talley 2005, in Talley et al. 2006). In the northern portion of the VELB's range, exit holes are most frequently observed in stems and branches 5 to 10 cm in diameter (Barr 1991, Collinge et al. 2001, in Talley et al. 2006). In studies conducted in the American River Basin, VELB exit holes occurred most frequently in stem or branch diameter classes of 2 to 7 cm (47%) and 7 to 12 cm (36%) (Talley et al. In press, in Talley et al. 2006). Elderberry stems and branches 12 to 20 cm in diameter and greater than 20 cm in diameter hosted fewer holes (13 and 4 percent, respectively), which may be due to less availability than smaller branches (Talley et al. In press, in Talley et al. 2006) or to the drying and loss of pith, which is common in older stems (Haack and Slansky 1987, in Talley et al. 2006). No VELB exit holes were detected in any elderberry stems greater than or equal to 20 cm in diameter (N=9) in non-riparian habitat (Talley et al. In press, in Talley et al. 2006).

The project site is located within the current range of VELB (Barr 1991) and several reported occurrences of the beetle occur in the vicinity. Several occurrences of VELB are reported in CNDDDB from approximately two miles northeast of the project site in 1998 (and updated in 2002). These records were recorded along a transmission line in mesic/riparian habitat and consisted of multiple observations of exit holes. The project site is not located within critical habitat for VELB. Because the project site is within the range of the beetle and there are reported occurrences in the vicinity of the project site, VELB has the potential to occupy elderberry shrubs in suitable habitats in the project site and vicinity.

As required by the Conservation Guidelines for the Valley Elderberry Longhorn Beetle (USFWS 1999), surveys were conducted within the project site to determine presence/absence of the VELB and/or its host plant, *Sambucus* spp. All elderberry shrubs with one or more stems measuring one inch or greater in diameter at ground level that occur within the project site were documented. All elderberry stems one inch or greater in diameter at ground level were tallied by diameter size class and thoroughly searched for beetle exit holes (external evidence of beetle presence). The locations of elderberry shrubs within the project site containing at least one stem measuring one inch in diameter or greater at ground level are shown on the habitat map (Figures 3.4-1A through H).

Ninety elderberry shrubs with at least one stem \geq one inch in diameter at ground level were observed within the ESL, most containing multiple stems. No exit holes were observed on the elderberry shrubs within the ESL during surveys. Shrubs 22 through 90 were recorded by HDR biologists in August/September 2009 and shrubs 1

through 21 were recorded by the Gulf South Research Corporation in February 2009 (**GSRC 2009**). It is important to note that dozens more elderberry shrubs (occurring either as individual shrubs or rhizomatous stem sprouts from larger shrubs) with stems \leq one inch in diameter at ground level were also observed within the ESL. Elderberry shrubs in the ESL are weedy in nature and are a prevalent component of the vegetation in the ruderal habitat along the levee toe as well as in adjacent agricultural parcels. The elderberry shrubs within the ESL are being both spread and actively managed by adjacent landowners and by levee vegetation management practices.

The majority of the elderberry shrubs that occur within the ESL do not occur in riparian habitat and likely represent marginal to poor quality habitat for the VELB. Elderberry shrubs occurring in ruderal habitats and in the cattle pen are continually grazed. Goat grazing is used periodically to maintain the vegetation on the levee and areas adjacent to the toe. The elderberry shrubs along the levee toe are palatable to goats and are grazed heavily. During grazing events, the goats remove all of the leaves within reach and graze the new shoots back to the ground level. The elderberry shrubs within the agricultural fields and cattle pens are also managed using herbicides and other mechanical methods.

Riparian habitat in the ESL and vicinity is associated with dredge ponds in the Yuba Goldfields and one isolated patch of riparian habitat growing in a ditch that receives irrigation water from an adjacent walnut orchard. The riparian habitat associated with the Yuba Goldfields is comprised of narrow bands of riparian trees typical of riparian habitats in the Great Valley floristic province such as Fremont cottonwood, Valley oak, and several species of willow (*Salix* spp.). Elderberry shrubs numbered 23, 24 and 27-41 occur in this riparian habitat associated with the Yuba Goldfields. The isolated patch of riparian habitat adjacent to the walnut orchard is dominated by shrubby willow species. Elderberry shrubs numbered 19-21 occur in this isolated riparian habitat.

The remainder of the elderberry shrubs in the ESL occur in ruderal habitat along the waterside and landside of the levee (shrub #'s 1-18 and 66-81), in a seasonal wetland (shrub # 90), on the border of an agricultural field (shrub # 88), and in a cattle pen on a dairy farm adjacent to the landside of the levee (shrub #'s 43-65 and 82-83). These elderberry shrubs likely represent marginal to poor habitat for the VELB.

Western Burrowing Owl (*Athene cunicularia*)

Burrowing owls are often found in open, dry grasslands, agricultural and range lands, and desert habitats. They can also inhabit grass, forb, and shrub stages of pinyon and ponderosa pine habitats. Burrowing owls occur at elevations ranging from 200 feet below mean sea level to over 9,000 feet. In California, the highest elevation where burrowing owls are known to occur is 5,300 feet above mean sea level in Lassen County. In addition to natural habitats, burrowing owls can be found in urban habitats such as at the margins of airports and golf courses and in vacant urban lots.

Burrowing owls nest in burrows in the ground, often in old ground squirrel burrows or badger dens. They are also known to use artificial burrows such as abandoned pipes or culverts. The nesting season for burrowing owls can begin as early as February 1 and continues through August 31. The owl commonly perches on fence posts or on top of mounds outside its burrow. Burrowing owls forage in adjacent grasslands and other suitable habitats primarily for insects and small mammals, and less often for reptiles, amphibians, and other small birds (**CDFG 2008**).

There is one CNDDDB record for burrowing owl within five miles of the project site. This record is approximately 3.5 miles northeast of the eastern end of the project site, in Hammonton, in the vicinity of the Yuba Goldfields and Southwest of McCartie Hill. This occurrence was recorded in 1906 and is recorded as an estimated location.

Suitable foraging habitat for burrowing owl occurs in the ruderal and agricultural areas in and adjacent to the project site. A few mammal holes in the levee and in cattle pens adjacent to the levee could serve as unlikely, but potential burrowing habitat for this species. No evidence of burrowing owls or their burrows were observed during field surveys. While unlikely due to human and animal disturbance and mowing and spraying practices, the few mammal holes within the ESL could potentially become occupied by burrowing owl prior to the

commencement of construction. In addition, project grading may attract ground squirrels and subsequently burrowing owls.

Swainson's hawk (*Buteo swainsoni*)

Swainson's hawk is an uncommon breeding resident and migrant in the Central Valley, Klamath Basin, Northeastern Plateau, Lassen County, and the Mojave Desert. There has been very limited Swainson's hawk breeding reported from Lanfair Valley, Owens Valley, Fish Lake Valley, Antelope Valley, and in eastern San Luis Obispo County. Swainson's hawk breeds in stands with few trees in juniper-sage flats, riparian areas, and in oak savannah in the Central Valley and forages in adjacent grasslands or suitable grain or alfalfa fields, or livestock pastures. Swainson's hawks breed in California and overwinter in Mexico and South America. Swainson's hawks usually arrive in the Central Valley between March 1 and April 1, and migrate south between September and October. Swainson's hawks usually nest in trees adjacent to suitable foraging habitat. Swainson's hawks nest usually occur in trees near the edges of riparian stands, in lone trees or groves of trees in agricultural fields, and in mature roadside trees. Valley oak, Fremont cottonwood, walnut, and large willow with an average height of about 58 feet, and ranging from 41 to 82 feet, are the most commonly used nest trees in the Central Valley. Suitable foraging areas for Swainson's hawk include native grasslands or lightly grazed pastures, alfalfa and other hay crops, and certain grain and row croplands. Unsuitable foraging habitat includes crops such as vineyards, orchards, certain row crops, rice, corn and cotton crops. Swainson's hawks primarily feed on voles; however, they will feed on a variety of prey including small mammals, birds, and insects.

There are two records of nesting Swainson's hawk within five miles of the ESL. The closest record is approximately one mile southeast of the eastern end of the ESL, on the west side of Brophy Road, approximately 0.3 miles south of Hammonton-Smartville Road. This record is of two adults and one fledgling in 2003. Another occurrence is recorded approximately four miles northwest of the western end of the ESL, on the west side of the Feather River, approximately 0.3 miles north of the end of Laurellen Road. This occurrence is of a nest in 2004.

Suitable nesting habitat for Swainson's hawk occurs in the Yuba Goldfields, immediately adjacent to the east end of the ESL and suitable foraging habitat occurs within the fallow fields in and adjacent to the ESL. No Swainson's hawks or potential Swainson's hawk nests were observed in the ESL or immediate vicinity during any of the biological surveys; however Swainson's hawks could potentially establish nests in the trees adjacent to the east end of the ESL prior to the commencement of construction and fields in and adjacent to the site may be used for foraging.

Northern Harrier (*Circus cyaneus*)

Northern harriers occur year-round in the Central Valley, along the coast, in the Sierra Nevada, and in northeastern California. It winters throughout California in suitable habitat. In general, occurs in meadows, grasslands, open rangelands, desert sinks, fresh and saltwater emergent wetlands, and very occasionally in wooded areas. Suitable foraging habitat consists of open areas, such as grassland or agricultural fields, where it can fly close to the ground. This species eats small mammals (such as voles), birds, frogs, small reptiles, crustaceans, insects, and rarely fish. The northern harrier roosts on the ground in tall grasses or emergent wetland species such as cattails. Nesting habitat is generally in marshes or emergent wetlands or along rivers or lakes. However, this species is known to nest in grasslands, grain fields, or on sagebrush flats. Nests are built on the ground using a mound of sticks, and nesting season occurs from April to September.

No occurrences of nesting northern harriers are reported within CNDDDB within five miles of the ESL; however a pair of northern harriers was observed foraging over the ESL during field surveys. Due to frequent disturbance during agricultural practices, the seasonal wetland and agricultural fields within the ESL do not provide good nesting habitat for northern harrier. They may nest in the adjacent Yuba Goldfields, along the Yuba River. Agricultural fields and fallow fields within the ESL are suitable foraging habitat for this species.

White-tailed kite (*Elanus leucurus*)

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

One occurrence of nesting white-tailed kites has been reported within five miles of the ESL. This record is approximately 3.5 miles south of the western end of the project site, approximately 0.2 miles west of Olivehurst Ave. and 0.5 miles north of McGowan Rd. This occurrence is from 2003 and is of an active nest in a black locust tree (*Robinia psuedoacacia*).

Suitable nesting habitat for white-tailed kite occurs in the Yuba Goldfields, immediately adjacent to the east end of the project site and suitable foraging habitat occurs within the fallow fields in and adjacent to the ESL. No white-tailed kites or potential white-tailed kite nests were observed in the ESL or immediate vicinity during any of the biological surveys; however white-tailed kites could potentially establish nests in the trees adjacent to the east end of the ESL prior to the commencement of construction and fields in and adjacent to the site may be used for foraging.

Raptors and Migratory Birds

Several raptor and migratory bird species have a low potential to utilize trees in and adjacent to the ESL for nesting, including fully protected species such as Cooper's hawk (*Accipiter cooperii*) and white tailed kite. Red-tailed hawks (*Buteo jamaicensis*), kestrel (*Falco sparverius*), and northern harrier were observed foraging over the ESL. A small stick nest with one adult kestrel sitting on it was observed in a large elderberry shrub within the ESL. Trees within the Yuba Goldfields, adjacent to the project site also provide nesting habitat for raptors and migratory birds.

SENSITIVE HABITATS

Sensitive habitats are those that are of special concern to federal resource agencies, those that are afforded specific consideration through Section 404 of the CWA, and those that are afforded concern under CNDDDB. Wetlands and Waters of the U.S. are considered sensitive habitats. Great Valley Mixed Riparian Forest also occurs adjacent to the ESL, within the Yuba Goldfields, but does not occur within the ESL. Great Valley Mixed Riparian Forest is considered a sensitive habitat by CNDDDB.

Waters of the U.S., Including Wetlands, and Waters of the State

A Delineation of Waters of the U.S. was prepared in order to identify whether potential waters of the U.S., including wetlands, occur within the ESL (**HDR 2009b**). No potentially jurisdictional wetlands or other waters of the U.S. were identified in the project site. Features believed to not be jurisdictional waters of the U.S. identified in the ESL include one vernal pool, one pond, one seasonal wetland, three dairy waste lagoons, two roadside ditches, and three agricultural ditches. These features occupy a total of 3.56 acres. Although the vernal pool and seasonal wetland do not meet the criteria for waters of the U.S. subject to Corps jurisdiction under Section 404 of the CWA, they are potential waters of the State subject to RWQCB jurisdiction under Section 401 of the CWA. The dairy waste lagoons and the roadside and agricultural ditches in the ESL are not believed to be waters of the U.S. or waters of the State. All mapped aquatic features in the ESL are described in Section 3.4.2 and shown on the habitat map (**Figures 3.4-1A through H**).

REGULATORY SETTING

Federal Endangered Species Act

The U.S. Fish and Wildlife Service (USFWS) and NMFS enforce the provisions stipulated within the Federal Endangered Species Act of 1973 (hereafter, “FESA,” 16 USC Section 1531 et seq.). Threatened and endangered species on the federal list (50 CFR Section 17.11, and 17.12) are protected from take, defined as direct or indirect harm, unless a Section 10 permit is granted to an entity other than a federal agency or a Biological Opinion with incidental take provisions is rendered to a federal lead agency via a Section 7 consultation. Pursuant to the requirements of FESA, an agency reviewing a proposed project within its jurisdiction must determine whether any federally listed species may be present in the study area and determine whether the proposed project will have a potentially significant impact upon such species. Under FESA, habitat loss is considered to be an impact to a species. In addition, the agency is required to determine whether the project is likely to jeopardize the continued existence of any species that is proposed for listing under FESA or to result in the destruction or adverse modification of critical habitat proposed to be designated for such species (16 USC 1536[3], [4]). Therefore, project related impacts to these species or their habitats would be considered significant and would require mitigation. Other federal agencies (i.e., U.S. Forest Service, Bureau of Land Management) designate species of concern (species that have the potential to become listed), which are evaluated during environmental review although they are not otherwise protected under FESA. Project related impacts to such species would also be considered a significant impact and may require mitigation.

Executive Order 11990: Protection of Wetlands

This order establishes a national policy to avoid adverse impacts on wetlands whenever there is a practicable alternative. Specifically it directs federal agencies to refrain from assisting in or giving financial support to projects that encroach on publicly or privately owned wetlands. It further requires that federal agencies support a policy to minimize the destruction, loss, or degradation of wetlands. A project that encroaches on wetlands may not be undertaken unless the agency has determined that (1) there are no practicable alternatives to construction, (2) the project includes all practicable measures to minimize harm to wetlands affected, and (3) the impact will be minor. On federally funded projects, impacts on wetlands must be identified in the environmental document. Alternatives that avoid wetlands must be considered. If wetland impacts cannot be avoided, then all practicable measures to minimize harm must be included. This must be documented in a specific Wetlands Only Practicable Alternative Finding in the final environmental document. An additional requirement is to provide early public involvement in projects affecting wetlands.

Executive Order 13186: Migratory Bird Act

Under the Migratory Bird Treaty Act of 1918 (16 USC Subsection 703-712), migratory bird species and their nests and eggs are protected from injury or death; these species are listed on the federal list (50 CFR Section 10.13). Project related disturbances must be reduced or eliminated during the nesting cycle.

Bald and Golden Eagle Protection Act

When first enacted in 1940, the Bald and Golden Eagle Protection Act prohibited the take, transport, or sale of bald eagles, their eggs or any part of an eagle except where expressly allowed by the Secretary of the Interior. The Bald and Golden Eagle Protection Act was amended in 1962 to extend the prohibitions to the golden eagle as well.

Executive Order 13112: Invasive Species Prevention Act

On Feb 3, 1999, Executive Order 13112 was signed establishing the National Invasive Species Council. Executive Order 13112 required that each federal agency whose actions may affect the status of invasive species shall, to the extent practicable and permitted by law, (1) identify such actions; (2) subject to the availability of

appropriations, and within administration budgetary limits, use relevant programs and authorities to: (i) prevent the introduction of invasive species; (ii) detect and respond rapidly to and control populations of such species in a cost-effective and environmentally sound manner; (iii) monitor invasive species populations accurately and reliably; (iv) provide for restoration of native species and habitat conditions in ecosystems that have been invaded; (v) conduct research on invasive species and develop technologies to prevent introduction and provide for environmentally sound control of invasive species; and (vi) promote public education on invasive species and the means to address them; and (3) not authorize, fund, or carry out actions that it believes are likely to cause or promote the introduction or spread of invasive species in the U.S. or elsewhere unless, pursuant to guidelines that it has prescribed, the agency has determined and made public its determination that the benefits of such actions clearly outweigh the potential harm caused by invasive species; and that all feasible and prudent measures to minimize risk of harm will be taken in conjunction with the actions. In addition, it requires that federal agencies shall pursue the duties set forth in this section in consultation with the Invasive Species Council, consistent with the Invasive Species Management Plan and in cooperation with stakeholders, as appropriate, and, as approved by the Department of State, when federal agencies are working with international organizations and foreign nations.

Magnuson-Stevens Fishery Conservation and Management Act

The Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) establishes a management system for national marine and estuarine fishery resources. This legislation requires that all federal agencies consult with NMFS regarding all actions or proposed actions permitted, funded, or undertaken that may adversely affect “essential fish habitat (EFH).” EFH is defined as “waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity.” The Magnuson-Stevens Act states that migratory routes to and from anadromous fish spawning grounds are considered EFH. The phrase “adversely affect” refers to the creation of any impact that reduces the quality or quantity of EFH. Federal activities that occur outside of EFH, but which may have an impact on EFH must be considered in the consultation process. The Magnuson-Stevens Act applies to Pacific salmon, groundfish, and several pelagic species found in the Pacific.

California Endangered Species Act/California Environmental Quality Act

The California Endangered Species Act (CESA) of 1970 (CDFG Code Section 2050 et seq., and CCR Title 14, Subsection 670.2, 670.51) prohibits the take (interpreted to mean the direct killing of a species) of species listed under CESA (14 CCR Subsection 670.2, 670.5). Under CESA, state agencies are required to consult with the CDFG when preparing CEQA documents. Consultation ensures that proposed projects or actions do not have a negative effect on state-listed species. During consultation, CDFG determines whether take would occur and identifies “reasonable and prudent alternatives” for the project and conservation of special-status species. CDFG can authorize take of a state-listed species if an incidental take permit is issued by the Secretary of the Interior or Commerce in compliance with FESA, or if the director of CDFG issues a permit under Section 2080 in those cases where it is demonstrated that the impacts are minimized and mitigated. A CESA permit must be obtained if a project will result in the take of listed species, either during construction or over the life of the project. Under CESA, CDFG is responsible for maintaining a list of threatened and endangered species designated under state law (CDFG Code 2070). CDFG also maintains lists of species of special concern, which serve as “watch lists.” Pursuant to the requirements of CESA, a state or local agency reviewing a proposed project within its jurisdiction must determine whether any state-listed species may be present in the project area and determine whether the proposed project will have a potentially significant impact upon such species. Project related impacts to species on the CESA list would be considered significant and would require mitigation. Impacts to species of concern would be considered significant under certain circumstances.

The CEQA of 1970 (Subsections 21000-21178) requires that CDFG be consulted during the CEQA review process regarding impacts of proposed projects on rare or endangered species. These “special-status” species are defined under CEQA Guidelines subsection 15380(b) and (d) as those listed under FESA and CESA, and species that are not currently protected by statute or regulation, but would be considered rare, threatened, or endangered under these criteria, or by the scientific community. Therefore, species that are considered rare or endangered are addressed in this study regardless of whether they are afforded protection through any other statute or regulation.

The California Native Plant Society (CNPS) inventories the native flora of California and ranks species according to rarity (CNPS 2009); plants on Lists 1A, 1B, and 2 are considered special-status species under CEQA.

Although threatened and endangered species are protected by specific federal and state statutes, CEQA Guidelines Section 15380(d) provides that a species not listed on the federal or state list of protected species may be considered rare or endangered if it can be shown to meet certain specified criteria. These criteria have been modeled after the definition in FESA and the section of the California Fish and Game Code dealing with rare or endangered plants and animals. Section 15380(d) allows a public agency to undertake a review to determine if a significant effect on species that have not yet been listed by either the USFWS or CDFG (i.e., candidate species) would occur. Thus CEQA provides an agency with the ability to protect a species from the potential impacts of a project until the respective government agency has an opportunity to designate the species as protected, if warranted.

California Native Plant Protection Act

The California Native Plant Protection Act of 1977 (CDFG Code Section 1900-1913) requires all state agencies to use their authority to carry out programs to conserve endangered and otherwise rare species of native plants. Provisions of the act prohibit the taking of listed plants from the wild and require the project proponent to notify CDFG at least 10 days in advance of any change in land use, which allows CDFG to salvage listed plants that would otherwise be destroyed.

Nesting Birds

California Fish and Game Code Subsections 3503, 3503.5, and 3800 prohibit the possession, incidental take, or needless destruction of birds, their nests, and eggs. California Fish and Game Code Section 3511 lists birds that are “fully protected”: those that may not be taken or possessed except under specific permit.

WETLANDS AND OTHER WATERS OF THE U.S.

Any person, firm, or agency planning to alter or work in “waters of the U.S.,” including the discharge of dredged or fill material, must first obtain authorization from the Corps under Section 404 of the Clean Water Act (CWA; 33 USC 1344). Permits, licenses, variances, or similar authorization may also be required by other federal, state, and local statutes. Section 10 of the Rivers and Harbors Act of 1899 prohibits the obstruction or alteration of navigable waters of the U.S. without a permit from the Corps (33 USC 403). The CDFG requires notification prior to commencement, and possibly a Streambed Alteration Agreement pursuant to California Fish and Game Code Subsection 1601-1603, 5650F, if a proposed project will result in the alteration or degradation of a stream, river, or lake in California. The Regional Water Quality Control Board may require State Water Quality Certification (CWA Section 401 permit) before other permits are issued.

Waters of the U.S. are defined as: all waters used in interstate or foreign commerce; all interstate waters including interstate wetlands; all other waters such as intrastate lakes, rivers, streams (including intermittent and ephemeral streams), mudflats, sand flats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes or natural ponds, where the use, degradation, or destruction of which could affect interstate commerce; impoundments of these waters; tributaries of these waters; or wetlands adjacent to these waters (33 CFR Part 328). With non-tidal waters, in the absence of adjacent wetlands, the extent of Corps jurisdiction extends to the ordinary high water mark (OHWM) – the line on the shore established by fluctuations of water and indicated by a clear, natural line impressed on the bank, shelving, changes in soil character, destruction of terrestrial vegetation, or the presence of litter and debris. Wetlands are defined as:

...those areas that are inundated or saturated by surface or ground water at a frequency and duration to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.

In accordance with the recently issued U.S. Army Corps of Engineers Jurisdictional Determination Form Instructional Guidebook (2007 Guidance) issued jointly by the Corps and the USEPA, “navigable waters” or “waters of the United States” subject to jurisdiction under the CWA include (1) traditional navigable waters (TNW), (2), wetlands adjacent to TNWs, (3) non-navigable tributaries of TNWs that are relatively permanent where the tributaries typically flow year around or have continuous flow at least seasonally (e.g., typically three months), and (4) wetlands that abut such tributaries. A “significant nexus” determination will be made for non-navigable tributaries that are not relatively permanent and their adjacent wetlands. Such features that are determined to have a “significant nexus” to a TNW will also be subject to CWA jurisdiction. A significant nexus requires that there be “more than an insubstantial or speculative effect on the chemical, physical, and/or biological integrity of a TNW” (**Corps/USEPA 2007**). The 2007 Guidance also states the following features will generally not be subject to CWA jurisdiction; swales or erosional features (e.g., gullies, small washes characterized by low volume, infrequent or short duration flow) and ditches (including roadside ditches) excavated wholly in and draining only uplands and that do not carry a relatively permanent flow of water.

Federal and State regulations pertaining to Waters of the U.S., including wetlands, are discussed below.

Clean Water Act (33 U.S.C. 1251-1376)

The Clean Water Act (CWA) provides guidance for the restoration and maintenance of the chemical, physical, and biological integrity of the nation's waters.

- **Section 401** requires that an applicant for a federal license or permit that allows activities resulting in a discharge to waters of the U.S., must obtain a state certification that the discharge complies with other provisions of CWA. The Regional Water Quality Control Boards (RWQCB) administer the certification program in California. The RWQCB also regulates waters of the State, which may not be considered waters of the U.S.
- **Section 402** establishes a permitting system for the discharge of any pollutant (except dredge or fill material) into waters of the United States.
- **Section 404** establishes a permit program administered by the Corps regulating the discharge of dredged or fill material into waters of the United States (including wetlands). Implementing regulations by the Corps are found at 33 CFR Parts 320-330. Guidelines for implementation are referred to as the Section 404 (b)(1) Guidelines and were developed by the USEPA in conjunction with the Corps (40 CFR Parts 230). The Guidelines allow the discharge of dredged or fill material into the aquatic system only if there is no practicable alternative that would have less adverse impacts.

Section 10 of the Rivers and Harbors Act (33 U.S.C. 401 et seq.)

Section 10 of the Rivers and Harbors Act is administered by the Corps. This section requires permits in navigable waters of the U.S. for all structures such as riprap and activities such as dredging. Navigable waters are defined as those subject to the ebb and flow of the tide and susceptible to use in their natural condition or by reasonable improvements as means to transport interstate or foreign commerce. The Corps grants or denies permits based on the effects on navigation. Most activities covered under this act are also covered under Section 404 of CWA.

Fish and Wildlife Coordination Act (16 U.S.C. 661-666)

This act applies to any federal project where the waters of any stream or other body of water are impounded, diverted, deepened, or otherwise modified. Project proponents are required to consult with USFWS and the appropriate state wildlife agency. These agencies prepare reports and recommendations that document project effects on wildlife and identify measures that may be adopted to prevent loss or damage to wildlife resources. The term "wildlife" includes both animals and plants. Provisions of the Act are implemented through the NEPA process and Section 404 permit process.

National Wild and Scenic Rivers Act (16 U.S.C. 1271-1287)

This act is administered by a variety of State and Federal agencies. Designated river segments flowing through federally managed lands are administered by the land managing agency (e.g., U.S. Forest Service, Bureau of Land Management, and the National Park Service). River segments flowing through private lands are administered by the Resources Agency in conjunction with local government agencies. The National Wild and Scenic Rivers Act prohibits federal agencies from activities that would adversely affect the values for which the river was designated.

Section 1600 of the Fish and Game Code

Under this section of the Fish and Game Code, State agencies are required to notify CDFG prior to any project that would divert, obstruct or change the natural flow, bed, channel, or bank of any river, stream, or lake. Preliminary notification and project review generally occur during the environmental process. When an existing fish or wildlife resource may be substantially adversely affected, CDFG is required to propose reasonable project changes to protect the resource. These modifications are formalized in a Streambed Alteration Agreement that becomes part of the plans, specifications and bid documents for the project.

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

Document Number: 090811104138

Database Last Updated: January 29, 2009

Quad Lists

Listed Species

Invertebrates

Branchinecta conservatio

Conservancy fairy shrimp (E)

Branchinecta lynchi

Critical habitat, vernal pool fairy shrimp (X)

vernal pool fairy shrimp (T)

Desmocerus californicus dimorphus

valley elderberry longhorn beetle (T)

Lepidurus packardii

Critical habitat, vernal pool tadpole shrimp (X)

vernal pool tadpole shrimp (E)

Fish

Acipenser medirostris

green sturgeon (T) (NMFS)

Hypomesus transpacificus

delta smelt (T)

Oncorhynchus mykiss

Central Valley steelhead (T) (NMFS)

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

Oncorhynchus tshawytscha

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

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

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

Amphibians

Ambystoma californiense

California tiger salamander, central population (T)

Rana aurora draytonii

California red-legged frog (T)

Reptiles

Thamnophis gigas

giant garter snake (T)

Candidate Species

Birds

Coccyzus americanus occidentalis

Western yellow-billed cuckoo (C)

Quads Containing Listed, Proposed or Candidate Species:

BROWNS VALLEY (543B)

WHEATLAND (543C)

YUBA CITY (544A)

SUTTER (544B)

GILSIZER SLOUGH (544C)

OLIVEHURST (544D)

LOMA RICA (559C)

GRIDLEY (560C)

HONCUT (560D)

County Lists

No county species lists requested.

Key:(E) *Endangered* - Listed as being in danger of extinction.(T) *Threatened* - Listed as likely to become endangered within the foreseeable future.(P) *Proposed* - Officially proposed in the Federal Register for listing as endangered or threatened.(NMFS) Species under the Jurisdiction of the [National Oceanic & Atmospheric Administration Fisheries Service](#). Consult with them directly about these species.*Critical Habitat* - Area essential to the conservation of a species.(PX) *Proposed Critical Habitat* - The species is already listed. Critical habitat is being proposed for it.(C) *Candidate* - Candidate to become a proposed species.

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

(X) *Critical Habitat* designated for this species

Important Information About Your Species List

How We Make Species Lists

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

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

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

Plants

Any plants on your list are ones that have actually been observed in the area covered by the list. Plants may exist in an area without ever having been detected there. You can find out

what's in the surrounding quads through the California Native Plant Society's online [Inventory of Rare and Endangered Plants](#).

Surveying

Some of the species on your list may not be affected by your project. A trained biologist and/or botanist, familiar with the habitat requirements of the species on your list, should determine whether they or habitats suitable for them may be affected by your project. We recommend that your surveys include any proposed and candidate species on your list. See our [Protocol](#) and [Recovery Permits](#) pages.

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

Your Responsibilities Under the Endangered Species Act

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

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

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

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

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

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

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

Critical Habitat

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

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

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

Candidate Species

We recommend that you address impacts to candidate species. We put plants and animals on our candidate list when we have enough scientific information to eventually propose them for listing as threatened or endangered. By considering these species early in your planning process you may be able to avoid the problems that could develop if one of these candidates was listed before the end of your project.

Species of Concern

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

Wetlands

If your project will impact wetlands, riparian habitat, or other jurisdictional waters as defined by section 404 of the Clean Water Act and/or section 10 of the Rivers and Harbors Act, you will need to obtain a permit from the U.S. Army Corps of Engineers. Impacts to wetland habitats require site specific mitigation and monitoring. For questions regarding wetlands, please contact Mark Littlefield of this office at (916) 414-6580.

Updates

Our database is constantly updated as species are proposed, listed and delisted. If you address proposed and candidate species in your planning, this should not be a problem. However, we recommend that you get an updated list every 90 days. That would be November 09, 2009.

California Department of Fish and Game
Natural Diversity Database

Selected Elements by Scientific Name

Special status species within the 'Yuba City, California' 7.5 minute USGS topographic quadrangle and eight surrounding quads: Browns Valley, Loma Rica, Honcut, Gridley, Sutter, Gilsizer Slough, Olivehurst, and Wheatland.

Scientific Name/Common Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
1 Actinemys marmorata western pond turtle	ARAAD02030			G3G4	S3	SC
2 Actinemys marmorata marmorata northwestern pond turtle	ARAAD02031			G3G4T3	S3	SC
3 Agelaius tricolor tricolored blackbird	ABPBXB0020			G2G3	S2	SC
4 Athene cunicularia burrowing owl	ABNSB10010			G4	S2	SC
5 Branchinecta lynchi vernal pool fairy shrimp	ICBRA03030	Threatened		G3	S2S3	
6 Branta hutchinsii leucopareia cackling (=Aleutian Canada) goose	ABNJB05035	Delisted		G5T4	S2	
7 Buteo swainsoni Swainson's hawk	ABNKC19070		Threatened	G5	S2	
8 Circus cyaneus northern harrier	ABNKC11010			G5	S3	SC
9 Coastal and Valley Freshwater Marsh	CTT52410CA			G3	S2.1	
10 Coccozyus americanus occidentalis western yellow-billed cuckoo	ABNRB02022	Candidate	Endangered	G5T3Q	S1	
11 Desmocerus californicus dimorphus valley elderberry longhorn beetle	IICOL48011	Threatened		G3T2	S2	
12 Downingia pusilla dwarf downingia	PDCAM060C0			G3	S3.1	2.2
13 Elanus leucurus white-tailed kite	ABNKC06010			G5	S3	
14 Great Valley Cottonwood Riparian Forest	CTT61410CA			G2	S2.1	
15 Great Valley Mixed Riparian Forest	CTT61420CA			G2	S2.2	
16 Great Valley Valley Oak Riparian Forest	CTT61430CA			G1	S1.1	
17 Grus canadensis tabida greater sandhill crane	ABNMK01014		Threatened	G5T4	S2	
18 Hibiscus lasiocarpus woolly rose-mallow	PDMAL0H0Q0			G4	S2.2	2.2
19 Juncus leiospermus var. ahartii Ahart's dwarf rush	PMJUN011L1			G2T1	S1.2	1B.2
20 Lasionycteris noctivagans silver-haired bat	AMACC02010			G5	S3S4	
21 Legenere limosa legenere	PDCAM0C010			G2	S2.2	1B.1
22 Lepidurus packardi vernal pool tadpole shrimp	ICBRA10010	Endangered		G3	S2S3	
23 Linderiella occidentalis California linderiella	ICBRA06010			G3	S2S3	
24 Monardella douglasii ssp. venosa veiny monardella	PDLAM18082			G5T1	S1.1	1B.1

California Department of Fish and Game

Natural Diversity Database

Selected Elements by Scientific Name

Special status species within the 'Yuba City, California' 7.5 minute USGS topographic quadrangle and eight surrounding quads: Browns Valley, Loma Rica, Honcut, Gridley, Sutter, Gilsizer Slough, Olivehurst, and Wheatland.

Scientific Name/Common Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
25 Navarretia leucocephala ssp. bakeri Baker's navarretia	PDPLM0C0E1			G4T2	S2.1	1B.1
26 Northern Hardpan Vernal Pool	CTT44110CA			G3	S3.1	
27 Paronychia ahartii Ahart's paronychia	PDCAR0L0V0			G3	S3	1B.1
28 Pseudobahia bahiifolia Hartweg's golden sunburst	PDAST7P010	Endangered	Endangered	G2	S2.1	1B.1
29 Riparia riparia bank swallow	ABPAU08010		Threatened	G5	S2S3	
30 Sagittaria sanfordii Sanford's arrowhead	PMALI040Q0			G3	S3.2	1B.2
31 Thamnophis gigas giant garter snake	ARADB36150	Threatened	Threatened	G2G3	S2S3	

CNPS Inventory of Rare and Endangered Plants

Status: Plant Press Manager window with 11 items - Tue, Aug. 11, 2009 09:35 c

Reformat list as:

ECOLOGICAL REPORT

scientific	family	life form	blooming	communities	elevation	CNPS
<u>Astragalus tener</u> var. <u>ferrisiae</u>	Fabaceae	annual herb	Apr-May	<ul style="list-style-type: none"> •Meadows and seeps (Medws) (vernally mesic) •Valley and foothill grassland (VFGrs)(subalkaline flats) 	2 - 75 meters	List 1B.1
<u>Downingia pusilla</u>	Campanulaceae	annual herb	Mar-May	<ul style="list-style-type: none"> •Valley and foothill grassland (VFGrs)(mesic) •Vernal pools (VnPIs) 	1 - 445 meters	List 2.2
<u>Hibiscus lasiocarpus</u>	Malvaceae	perennial rhizomatous herb emergent	Jun-Sep	<ul style="list-style-type: none"> •Marshes and swamps (MshSw) (freshwater) 	0 - 120 meters	List 2.2
<u>Juncus leiospermus</u> var. <u>ahartii</u>	Juncaceae	annual herb	Mar-May	<ul style="list-style-type: none"> •Valley and foothill grassland (VFGrs)(mesic) 	30 - 229 meters	List 1B.2
<u>Juncus leiospermus</u> var. <u>leiospermus</u>	Juncaceae	annual herb	Mar-May	<ul style="list-style-type: none"> •Chaparral (Chprl) •Cismontane woodland (CmWld) •Meadows and seeps (Medws) •Valley and foothill grassland (VFGrs) •Vernal pools (VnPIs)/vernally mesic 	35 - 1020 meters	List 1B.1
<u>Legenere limosa</u>	Campanulaceae	annual herb	Apr-Jun	<ul style="list-style-type: none"> •Vernal pools (VnPIs) 	1 - 880 meters	List 1B.1
<u>Monardella douglasii</u> ssp. <u>venosa</u>	Lamiaceae	annual herb	May-Jul	<ul style="list-style-type: none"> •Cismontane woodland (CmWld) •Valley and foothill grassland (VFGrs)/heavy clay 	60 - 410 meters	List 1B.1
<u>Paronychia ahartii</u>	Caryophyllaceae	annual herb	Mar-Jun	<ul style="list-style-type: none"> •Cismontane woodland (CmWld) •Valley and foothill grassland (VFGrs) •Vernal pools (VnPIs) 	30 - 510 meters	List 1B.1

<u>Pseudobahia bahiifolia</u>	Asteraceae	annual shrub	Mar-Apr	<ul style="list-style-type: none"> •Cismontane woodland (CmWld) •Valley and foothill grassland (VFGrs)/clay, often acidic 	15 - 150 meters	List 1B.1
<u>Sagittaria sanfordii</u>	Alismataceae	perennial rhizomatous herb emergent	May-Oct	<ul style="list-style-type: none"> •Marshes and swamps (MshSw) (assorted shallow freshwater) 	0 - 650 meters	List 1B.2
<u>Trichocoronis wrightii</u> var. <u>wrightii</u>	Asteraceae	annual herb	May-Sep	<ul style="list-style-type: none"> •Meadows and seeps (Medws) •Marshes and swamps (MshSw) •Riparian forest (RpFrs) •Vernal pools (VnPIs)/alkaline 	5 - 435 meters	List 2.1

Listed and Proposed Species and Critical Habitat Potentially Occurring or Known to Occur in the Project Area

Scientific Name/ Common Name	Federal/State/ CNPS or Other Status	General Habitat Description	Habitat Present/ Absent	Rationale
Invertebrates				
<p><i>Branchinecta conservatio</i> Conservancy fairy shrimp</p>	<p>FE/--/--</p>	<p>Conservancy fairy shrimp inhabit rather large, cool-water vernal pools with moderately turbid water. It is likely the Conservancy fairy shrimp once occupied suitable vernal pool habitats throughout a large portion of the Central Valley and southern coastal regions of California. It may still exist in unsurveyed pools within this region. The species is currently known from several disjunct populations: the Vina Plains in Tehama County, south of Chico in Butte County, the Jepson Prairie Preserve and surrounding area in Solano County, Sacramento National Wildlife Refuge in Glenn County, Mapes Ranch west of Modesto, San Luis National Wildlife Refuge and the Haystack Mountain/Yosemite Lake area in Merced County, and two locations on the Los Padres National Forest in Ventura County (USFWS 2005).</p>	<p>A</p>	<p>Although the vernal pool in the ESL is large (1.19 acre), it is not typical of habitats occupied by this species. It does not have the clay substrate that infiltrates the water column and causes turbidity typical of pools occupied by this species. It is also very shallow and is not expected to pond water for a sufficient duration for conservancy fairy shrimp to complete its life cycle, which takes an average of approximately 8 to 9 weeks (Eriksen and Belk 1999).</p>
<p><i>Branchinecta lynchi</i> Vernal pool fairy shrimp</p>	<p>FT; CH/--/--</p>	<p>The vernal pool fairy shrimp occupies a variety of different vernal pool habitats, from small, clear, sandstone rock pools to large, turbid, alkaline, grassland valley floor pools. Although the species has been collected from large vernal pools, including one exceeding 25 acres, it tends to occur in smaller pools. It is most frequently found in pools measuring less than 0.05 acre. These are most commonly in grass</p>	<p>HP</p>	<p>Potential habitat for this species occurs in the shallow 1.19 acre vernal pool habitat within the ESL.</p>

Scientific Name/ Common Name	Federal/State/ CNPS or Other Status	General Habitat Description	Habitat Present/ Absent	Rationale
		or mud bottomed swales, or basalt flow depression pools in unplowed grasslands. Vernal pool fairy shrimp is currently known to occur in a wide range of vernal pool habitats in the southern and Central Valley areas of California (USFWS 2005).		
<i>Desmocerus californicus dimorphus</i> Valley elderberry longhorn beetle	FT/--/--	Valley elderberry longhorn beetle is endemic to the riparian habitats in the Sacramento and San Joaquin Valleys where it resides on elderberry (<i>Sambucus</i> spp.) plants. The beetle's current distribution is patchy throughout the remaining riparian forests of the Central Valley from Redding to Bakersfield (USFWS 1984).	HP	Habitat for this species occurs within the elderberry shrubs located within the ESL.
<i>Lepidurus packardii</i> Vernal pool tadpole shrimp	FE; CH/--/--	This animal inhabits vernal pools containing clear to highly turbid water, ranging in size from 54 square feet in the former Mather Air Force Base area of Sacramento County, to the 89-acre Olcott Lake at Jepson Prairie. The vernal pool tadpole shrimp is currently distributed across the Central Valley of California and in the San Francisco Bay area (USFWS 2005).	HP	Potential habitat for this species occurs in the shallow 1.19 acre vernal pool habitat within the ESL.
Fish				
<i>Acipenser medirostris</i> Green sturgeon	FT/CSC/--	Green sturgeon is a long-lived, slow-growing fish and the most marine-oriented of the sturgeon species. Green sturgeon is believed to spend the majority of their lives in nearshore oceanic waters, bays, and estuaries. Early life-history stages reside in fresh water, with adults returning to freshwater to spawn. Today green	A	The ESL does not include water bodies suitable to support this species, nor do the water bodies within the site have a direct hydrologic connection with habitat for this species.

Scientific Name/ Common Name	Federal/State/ CNPS or Other Status	General Habitat Description	Habitat Present/ Absent	Rationale
		sturgeon are believed to spawn primarily in the Rogue River, Klamath River Basin, and the Sacramento River. Spawning appears to rarely occur in the Umpqua River, South Fork Trinity River, and Eel River (NOAA Fisheries 2007).		
<i>Hypomesus transpacificus</i> Delta smelt	FT/ST/--	Delta smelt are tolerant of a wide salinity range. They have been collected from estuarine waters up to 14 ppt (parts per thousand) salinity. For a large part of their one-year life span, delta smelt live along the freshwater edge of the mixing zone (saltwater-freshwater interface), where the salinity is approximately 2 ppt. Shortly before spawning, adults migrate upstream from the brackish-water habitat associated with the mixing zone and disperse into river channels and tidally-influenced backwater sloughs. They spawn in shallow, fresh or slightly brackish water upstream of the mixing zone. Most spawning happens in tidally-influenced backwater sloughs and channel edgewater. Although spawning has not been observed in the wild, the eggs are thought to attach to substrates such as cattails, tules, tree roots and submerged branches. Delta smelt are found only from the Suisun Bay upstream through the Delta in Contra Costa, Sacramento, San Joaquin, Solano and Yolo counties (USFWS 1995).	A	The ESL does not include water bodies suitable to support this species, nor do the water bodies within the site have a direct hydrologic connection with habitat for this species.
<i>Oncorhynchus mykiss</i> Central Valley Steelhead	FT; CH/--/--	Steelhead spawn in rivers and streams with cool, clear, water and suitable substrate. The	A	The ESL does not include water bodies suitable to support this

Scientific Name/ Common Name	Federal/State/ CNPS or Other Status	General Habitat Description	Habitat Present/ Absent	Rationale
		Central Valley Steelhead distinct population segment includes all naturally spawned anadromous <i>O. mykiss</i> (steelhead) populations below natural and manmade impassable barriers in the Sacramento and San Joaquin Rivers and their tributaries, excluding steelhead from San Francisco and San Pablo Bays and their tributaries, as well as two artificial propagation programs: the Coleman NFH, and Feather River Hatchery steelhead hatchery programs (NOAA Fisheries 2006).		species, nor do the water bodies within the site have a direct hydrologic connection with habitat for this species.
<i>Oncorhynchus tshawytscha</i> Winter-run Chinook salmon	FE/--/--	Chinook salmon spawn in rivers and streams with cool, clear, water and suitable substrate. The Sacramento winter-run Chinook ESU includes all naturally spawned populations of winter-run Chinook salmon in the Sacramento River and its tributaries in California (59 FR 440; January 1, 1994), as well as two artificial propagation programs: Winter-run Chinook from the Livingston Stone National Fish Hatchery (NFH), and winter run Chinook in a captive broodstock program maintained at Livingston Stone NFH and the University of California Bodega Marine Laboratory (NOAA Fisheries 2005).	A	The ESL does not include water bodies suitable to support this species, nor do the water bodies within the site have a direct hydrologic connection with habitat for this species.
<i>Oncorhynchus tshawytscha</i> Central Valley spring-run Chinook salmon	FT; CH/--/--	Chinook salmon spawn in rivers and streams with cool, clear, water and suitable substrate. The Central Valley spring-run Chinook ESU includes all naturally spawned populations of	A	The ESL does not include water bodies suitable to support this species, nor do the water bodies within the site have a direct

Scientific Name/ Common Name	Federal/State/ CNPS or Other Status	General Habitat Description	Habitat Present/ Absent	Rationale
		spring-run Chinook salmon in the Sacramento River and its tributaries in California, including the Feather River (64 FR 50394; September 16, 1999). One artificial propagation program is considered part of the ESU: The Feather River Hatchery spring run Chinook program (NOAA Fisheries 2005).		hydrologic connection with habitat for this species.
Amphibians				
<i>Ambystoma californiense</i> California tiger salamander	FT/SSC/--	California tiger salamanders are generally restricted to vernal pools and seasonal ponds, including many constructed stockpools, in grassland and oak savannah plant communities from sea level to about 1,500 feet in central California. In the Coastal region, populations are scattered from Sonoma County in the northern San Francisco Bay Area to Santa Barbara County, and in the Central Valley and Sierra Nevada foothills from Yolo to Kern counties (USFWS 2009a).	A	There are no reported occurrences of this species within 5 miles of the ESL. The vernal pool may provide marginal breeding habitat for this species, but there is no suitable upland habitat surrounding the vernal pool to provide aestivation sites for this species. In addition, the environment surrounding the vernal pool is highly disturbed and successful migration by a salamander to and/or from the pool would be highly unlikely.
<i>Rana aurora draytonii</i> California red-legged frog	FT/SSC/--	The California red-legged frog occupies a fairly distinct habitat, combining both specific aquatic and riparian components. The adults require dense, shrubby or emergent riparian vegetation closely associated with deep (greater than 2 1/3-foot deep) still or slow moving water. The largest densities of California red-legged frogs are associated with deep-water pools with dense	A	There is no suitable habitat in the ESL. This species is considered extirpated from the Valley floor. The pond feature within the ESL is shallow, disturbed, lacks adequate riparian vegetation, and is isolated from other water sources.

Scientific Name/ Common Name	Federal/State/ CNPS or Other Status	General Habitat Description	Habitat Present/ Absent	Rationale
		stands of overhanging willows (<i>Salix</i> spp.) and an intermixed fringe of cattails (<i>Typha latifolia</i>). Well-vegetated terrestrial areas within the riparian corridor may provide important sheltering habitat during winter. California red-legged frogs aestivate (enter a dormant state during summer or dry weather) in small mammal burrows and moist leaf litter. They have been found up to 100 feet from water in adjacent dense riparian vegetation. Studies have indicated that this species can not inhabit water bodies that exceed 70° F, especially if there are no cool, deep portions (USFWS 2002).		
Reptiles				
<i>Thamnophis gigas</i> Giant garter snake	FT/ST/--	Primarily found in marshes and sloughs. May be found in slow-moving creeks but are absent from large rivers. They are generally aquatic but often bask on emergent vegetation such as cattails and tulles (USFWS 2009b).	A	Suitable habitat for this species is not present within the ESL. Agricultural ditches on site do not contain sufficient water to support this species.
Birds				
<i>Branta hutchinsii leucopareia</i> Cackling (Aleutian Canada) goose	FD/--/--	Winters in the Sacramento and northern San Joaquin Valleys. Roosts on ponds or open ground. Often found in marshes, grassland, or agricultural fields (NatureServe 2009).	A	While foraging habitat for this species may occur in harvested corn crops within the ESL, no suitable nesting habitat occurs within the site.
<i>Coccyzus americanus occidentalis</i> Western yellow-billed cuckoo	FC/SE/--	Summer migrant along the Colorado River, Sacramento and Owens valleys, Kern River, and other scattered locations throughout lowland California. Frequents valley foothill and desert riparian habitats. Densely foliaged,	A	Habitat for this species in the ESL is extremely poor. Riparian areas within the ESL occur in narrow strips and the tree canopy is insufficiently dense to provide

Scientific Name/ Common Name	Federal/State/ CNPS or Other Status	General Habitat Description	Habitat Present/ Absent	Rationale
		deciduous trees and shrubs, especially willows, are required for roosting sites (USFWS 2009c).		cover that this species prefers for roosting. The ESL is also subjected to a high level of disturbance. For these reasons, western yellow-billed cuckoo is not expected to occur in the ESL.
Mammals				
Plants				
<i>Pseudobahia bahiifolia</i> Hartweg's golden sunburst	FE/SE/1B.1	Found in heavy clay soils of cismontane woodlands, and valley and foothill grasslands at elevations between 15 and 150 meters. Known occurrences in El Dorado, Fresno, Madera, Merced, Stanislaus, Tuolumne, and Yuba counties. Blooms March to April (CNPS 2009).	A	Suitable habitat for this species is not present within the ESL. The only reported occurrence of this species in the region is a historic record (type locality of the species) from 1848 where this species was found approximately 1.5 miles west of the ESL near the north bank of the Yuba River. This species is believed to be extirpated from the region and is not expected to occur in the ESL.

Absent [A] - no habitat present and no further work needed. Habitat Present [HP] -habitat is, or may be present. The species may be present. Present [P] - the species is present. Critical Habitat [CH] - project footprint is located within a designated critical habitat unit, but does not necessarily mean that appropriate habitat is present. Status: Federal Endangered (FE); Federal Threatened (FT); Federal Proposed (FP, FPE, FPT); Federal Candidate (FC), Federal Species of Concern (FSC); State Endangered (SE); State Threatened (ST); Fully Protected (FP); State Rare (SR); State Species of Special Concern (SSC).

California Native Plant Society (CNPS)

- 1A = Presumed extinct or extirpated in California.
- 1B = Rare, threatened, or endangered in California and elsewhere.
- 2 = Rare, threatened, or endangered in California but more common elsewhere.
- 3 = Review list. Plants about which more information is needed to assign to other lists or reject.

Plant Species Observed - TRLIA

Family	Scientific Name	Common Name
DICOTS		
Adoxaceae		
	<i>Sambucus mexicana</i>	Elderberry
Apiaceae		
	<i>Eryngium vaseyi</i>	Coyote thistle
Apocynaceae		
	<i>Nerium oleander</i>	Oleander
Amaranthaceae		
	<i>Amaranthus</i> sp.	Pigweed
Anacardiaceae		
	<i>Toxicodendron diversilobum</i>	Poison oak
Asteraceae		
	<i>Ambrosia psilostachya</i>	Western ragweed
	<i>Artemisia douglasiana</i>	Douglas' sagewort
	<i>Baccharis pilularis</i>	Coyote bush
	<i>Blennosperma nanum</i> var. <i>nanum</i>	Yellow carpet
	<i>Centaurea solstitialis</i>	Yellow star thistle
	<i>Conyza canadensis</i>	Horseweed
	<i>Hemizonia fitchii</i>	Fitch's tarweed
	<i>Heterotheca grandiflora</i>	Telegraph weed
	<i>Lactuca serriola</i>	Prickly lettuce
	<i>Lasthenia</i> sp.	Goldfields
	<i>Sonchus asper</i>	Prickly sow thistle
	<i>Xanthium strumarium</i>	Cocklebur
Boraginaceae		
	<i>Plagiobothrys</i> sp.	Popcorn flower
Brassicaceae		
	<i>Brassica nigra</i>	Black mustard
	<i>Raphanus sativus</i>	Wild Radish
Chenopodiaceae		
	<i>Chenopodium album</i>	Lamb's quarters
	<i>Salsola tragus</i>	Russian thistle
Convolvulaceae		
	<i>Convolvulus arvensis</i>	Field bindweed
	<i>Cuscuta</i> sp.	Dodder
Cupressaceae		
	<i>Cedrus atlantica</i>	Atlas cedar
Equisetaceae		
	<i>Equisetum arvense</i>	Common horsetail
Euphorbiaceae		
	<i>Chamaesyce maculata</i>	Large spurge
	<i>Eremocarpus setigerus</i>	Dove weed

Fabaceae		
	<i>Lotus purshianus</i>	Spanish lotus
	<i>Medicago sativa</i>	Alfalfa
	<i>Vicia villosa</i>	Vetch
Fagaceae		
	<i>Quercus lobata</i>	Valley oak
Geraniaceae		
	<i>Erodium botrys</i>	Filaree
Hypericaceae		
	<i>Hypericum perforatum</i>	Klamathweed
Juglandaceae		
	<i>Juglans californica</i>	California walnut
Lamiaceae		
	<i>Trichostema lanceolatum</i>	Vinegar weed
Lythraceae		
	<i>Lythrum hyssopifolia</i>	Hyssop loosestrife
Moraceae		
	<i>Ficus carica</i>	Common fig
Onagraceae		
	<i>Epilobium sp.</i>	Chickweed
Papaveraceae		
	<i>Eschscholzia californica</i>	California poppy
Plantaginaceae		
	<i>Gratiola ebracteata</i>	Bractless hedge-hyssop
	<i>Kickxia sp.</i>	Fluellin
	<i>Plantago lanceolata</i>	English plantain
Polygonaceae		
	<i>Polygonum arenastrum</i>	Common knotweed
	<i>Rumex crispus</i>	Curly dock
Rhamnaceae		
	<i>Rhamnus californica</i>	California coffeeberry
Rosaceae		
	<i>Rosa californica</i>	California wild rose
	<i>Rubus discolor</i>	Himalaya blackberry
	<i>Rubus ursinus</i>	California blackberry
Salicaceae		
	<i>Populus fremontii ssp. fremontii</i>	Fremont's cottonwood
	<i>Salix lasiolepis</i>	Arroyo willow
Scrophulariaceae		
	<i>Verbascum blattaria</i>	Moth mullein
	<i>Verbascum Thapsus</i>	Common mullein
Simaroubaceae		
	<i>Ailanthus altissima</i>	Tree of Heaven

Solanaceae		
	<i>Nicotiana</i> sp.	Tobacco
	<i>Solanum</i> sp.	Nightshade
Verbenaceae		
	<i>Phyla nodiflora</i>	Lippia
	<i>Verbena</i> sp.	Verbena
Zygophyllaceae		
	<i>Tribulus terrestris</i>	Puncture vine
MONOCOTS		
Cyperaceae		
	<i>Cyperus</i> sp.	Nutsedge
Poaceae		
	<i>Aira caryophyllea</i>	Silver hairgrass
	<i>Avena fatua</i>	Wild oats
	<i>Briza minor</i>	Little quaking grass
	<i>Bromus diandrus</i>	Rip-gut brome
	<i>Bromus hordeaceus</i>	Soft chess
	<i>Cynodon dactylon</i>	Bermuda grass
	<i>Digitaria sanguinalis</i>	Crab grass
	<i>Hordeum marinum</i> ssp. <i>gussoneanum</i>	Mediterranean barley
	<i>Lolium multiflorum</i>	Italian ryegrass
	<i>Polypogon monspeliensis</i>	Rabbit's foot grass
	<i>Sorghum halepense</i>	Johnsongrass

ANIMAL SPECIES OBSERVED- TRLIA	
Scientific Name	Common Name
MAMMALS	
<i>Procyon lotor</i>	Raccoon
<i>Spermophilus beecheyi</i>	California ground squirrel
BIRDS	
<i>Apehelocoma californica</i>	Western scrub jay
<i>Buteo jamaicensis</i>	Red-tailed hawk
<i>Carduelis tristis</i>	American goldfinch
<i>Carpodacus mexicanus</i>	House finch
<i>Cathartes aura</i>	Turkey vulture
<i>Charadrius vociferus</i>	Killdeer
<i>Circus cyaneus</i>	Northern harrier
<i>Colaptes auratus</i>	Northern flicker
<i>Falco sparverius</i>	American kestrel
<i>Picoides nuttallii</i>	Nuttall's woodpecker
<i>Sturnus vulgaris</i>	European starling
<i>Tyrannus verticalis</i>	Western kingbird
<i>Zenaida macroura</i>	Mourning dove
REPTILES	
<i>Sceloporus occidentalis</i>	Western fence lizard

Appendix C Cultural Resources

This Appendix includes the following:

- The Environmental and Regulatory Setting for the Proposed Project.

ENVIRONMENTAL SETTING

REGIONAL SETTING

Prehistoric Context

With the exception of the Lake Tahoe area, most early archaeological work in the Central Sierra Nevada was conducted at the lower to middle elevations along the major rivers draining the western Sierran slope, including the North, Middle, and South Forks of the Yuba River, the Bear River, and the North and Middle Forks of the American River. Early research efforts focused on the development of local cultural chronology in the Lake Tahoe vicinity.

Beginning more than 50 years ago, Robert Heizer and Albert Elsasser (1953) defined two sequential archaeological cultures, termed the Martis and Kings Beach complexes, from investigations in the Lake Tahoe area. Reflecting a generalized hunting and gathering economy, Martis traits include: dominant use of basalt over other lithic materials; manos and metates for grinding plant foods; bowl mortars and cylindrical pestles, presumably for pounding acorns; tool weights (such as for spear throwers) and large, crudely shaped dart points, and; varied forms of scrapers and other flake tools. Comparisons with dated assemblages in the Central Valley and Great Basin suggested an age of 2,000 to 4,000 years old (Heizer and Elsasser 1953; Moratto 1984; Hull 2007).

In contrast, the Kings Beach Complex postdates Anno Domini (AD) 1000 and may have extended into historic times, reflecting the ethnographic culture of the Washoe Indians. Kings Beach components feature “...*flaked obsidian and silicate implements, small projectile points, the bow and arrow, occasional scrapers, bedrock mortars, and a subsistence emphasis on fishing, piñon nut gathering, and some hunting*” (Moratto 1984: 295).

Prior to the Martis and Kings Beach complexes, Middle Holocene occupation in the project area, derived from archaeological investigations of the 1960s and 1970s, is represented by the Tahoe Reach and Spooner phases. Components dating between 5000 and 3000 Before Christ (BC) are relatively rare, and little is known about prehistoric lifeways during this interval. Flat slab millingstones, loaf shaped manos, and large foliate and corner notched projectiles are common elements of these assemblages.

Numerous components dating between 3000 BC and AD 500 (Early and Late Martis phases) indicate that expanding populations used a diverse subsistence base at middle and lower elevations, with a possible emphasis on hunting at higher elevations (Hull 2007). A period of climatic change and environmental stress between AD 500 and 1250 may have prompted significant population movements along the western slope; population decline, technological changes, and shifting land use patterns reflected in the Kings Beach Phase may signal the movement of different ethnic groups.

The Spooner/Martis/Kings Beach complexes of the Lake Tahoe vicinity, extensively studied with a rich dataset, served as the comparative reference for archaeological investigations in the 1960s at Lake Oroville (to the northwest), Auburn (to the south), and to a lesser extent at Bullards Bar. These investigations contributed greatly to the information on prehistory of the West Slope of the Sierras (Moratto 1984:297-302).

Cultural materials analyzed during archaeological investigations prompted by reservoir inundation at Lake Oroville led to the development of a chronology for the region. The occupations represented in the sites' artifact assemblages indicated prehistoric people occupied the region sporadically (and furthermore perhaps seasonally) from BC 1000 to AD 0, as illustrated by the Mesilla Complex, namely atlatl and dart projectiles and bowl mortars and millingstones (Moratto 1984:299).

Subsequent, more sedentary life of the Bidwell complex to around AD 800 was visible in the villages from the period (Moratto 1984:300) and then followed by the Sweetwater complex (AD 800 to 1500) with smaller,

lightweight projectile forms indicative of bow hunting and changes in burial practices and ornamental forms (Moratto 1984:299).

The Oroville complex (AD 1500 to historic Maidu) are represented by continuation of the bedrock milling practices of before, but with greater variety of ornamental materials and house structures, along with the introduction of burial cairns (Moratto 1984:300). To the south at Auburn, the 1960s excavation at the stratified Spring Garden Ravine Site provided comparable reference points to the Oroville and Tahoe complexes and was, based on ethnographic data, assumed to be the focus of ancestral Nisenan (also Southern Maidu) culture (Moratto 1984:301). In addition, Humphreys' (1967, 1969) comparative analysis of materials from three archaeological sites at Bullards Bar drew close comparisons from both the Mesilla to Sweetwater and Martis to Kings Beach complexes (Moratto 1984:300). The cultural influences, visible in the stratified materials at these and other sites, from the Sacramento Valley (as well as the Lake Tahoe area) were evident in the Oroville, Auburn, and (by association with these) the Bullards Bar complex as well (Moratto 1984:300-302).

Significant research conducted after 1980 has attempted to place the project area within a broader regional and transregional context. Studies such as Kowta's (1988) examination of Plumas and Butte county prehistory, the *Framework for Archaeological Research and Management for the North-central Sierra Nevada* (Jackson et al. 1994), and Moratto and Hull's (1999) *Archaeological Synthesis and Research Design, Yosemite National Park* have synthesized large bodies of data, expanded our understanding of prehistoric land use and settlement systems, and identified "...broad research themes that structure the discussion of significant archaeological interpretations since 1980" (Hull 2007:183).

Ethnographic Context

The project area is generally considered the homeland of the Nisenan, also referred to as the Southern Maidu, the southernmost branch of the Maidu-Konkow group occupying the Yuba, Bear, and American River drainages and the lower drainages of the Feather River. Nisenan is a sub-group of the Californian Penutian linguistic family. Languages classified as Penutian were spoken by half of California's native population in 1750. Intra-familial connections between its subgroups have not been proven, making this classification vague (Moratto 1984:538-539).

Kroeber (1925) recognized three Nisenan dialects: two northern dialects - Northern Hill Nisenan and the Valley Nisenan and Southern Hill Nisenan. Kroeber suggests that the distinctions between languages should be associated with the changes in terrain, affecting differences in custom and language. Dialectic idioms noted by Kroeber and attributed to changes in landscape and population distributions are codified in Shipley's (1978) identification of seven Southern Nisenan dialects, classified as: Valley Nisenan, Oregon House, Auburn, Clipper Gap, Nevada City, Colfax, and Placerville.

At the time of contact, Nisenan territory comprised major portions of El Dorado, Amador, Placer, and Nevada counties (Beale 1933). Wilson and Towne (1978) recognized three centralized political divisions within the Valley Nisenan,

...each densely populated with several large villages...One was centered at the mouth of the American River extending east a few miles north and south on the Sacramento River. Pusune (pusu-ne) was an important village. Another center was at the mouth of the Bear River including the valley drainage of the near and a stretch of the Feather River. One major village was Hok. A third area was at the mouth of the Yuba River and reached the northern Nisenan boundary.

Hill Nisenan, between the Consumnes River and the South Fork of the American River near Placerville, formed another tribelet with strong affiliations with groups living the lower drainages of the American. And in ridges that lay along the South Fork of the American river.

People occupying the ridges between the Bear River and the Middle Fork of the American River, including the ridges between the American River and at the Bear, formed another tribelet area. The territory of the Upper drainages of the Bear and the Yuba rivers also is identified as forming another tribelet (LittleJohn 1928:10-15)

The Northern Hill Nisenan prehistorically occupied a majority of the project area. At higher elevations, people occupied ridges, knolls, or terraced areas near water; to the west, occupation centered on elevated landforms along the streams and marshlands of the valley floor (**Kroeber 1925; Wilson and Towne 1978**). Main villages were occupied only for short periods of time during the year. Family groups commonly lived away from the main villages during gathering seasons. Other sites included seasonal camps, quarries, ceremonial grounds, trading sites, fishing stations, cemeteries, river crossings, and battlegrounds (**Wilson and Towne 1978**).

The Nisenan were year-round hunters and gatherers with access to varied biotic zones distributed across the western slope of the Sierra Nevada (**Hull 2007:180**). The Nisenan used many tools including stone knives, arrow and spear points, scrapers, pestles, and mortars. Weirs, nets, harpoons, traps, and gorgehooks were used for fishing from tule boats and log canoes. Materials for most tools and ornaments were obtained locally. However, a network of trails crossed Nisenan territory allowing for access and trade with other areas. The same trade networks moved north and south along the west face of the Sierra and along the crest of the range, allowing access to non-local goods to supplement local resources.

Historic Context

The history of Yuba County begins with Pioneer John Sutter. Much of the Sacramento Valley was granted to Sutter in 1841 by Mexican Governor Alvarado. From 1842 to 1844, the Swiss immigrant built Sutter's Fort or "New Helvetia", a settlement colony located within the city limits of present day Sacramento. Sutter literally had a financial stake in every sector of the young economy, including merchant businesses, agriculture, ferrying, blacksmithing, carpentry, and trapping (**San Francisco Museum 2003**).

To maintain his colony and finance other businesses Sutter tapped his outlying holdings, either by leasing or selling them to other individuals or developing them himself. Sutter also established "Hock Farm" just west across the Feather River close to the site of present day Yuba City. The name likely refers to the nearby Nisenan village of Hock (**Fletcher and Crawford 2000**). In 1842 Sutter leased property that would later become Marysville to cattle rancher Theodore Cordua (**Fletcher and Crawford 2000**). In 1848 Cordua was the first to discover gold in the local area at Cordua Bar on the southern shore of the Yuba River near what was to become the town of Timbuctoo (**Gudde 1975:82**).

In 1848 California was officially made a U.S. territory after the end of the Mexican-American War. In January of the same year gold was discovered at Sutter's mill near Coloma. The great California gold rush not only accelerated the pace of economic development, but precipitated a turnover in the regions economic development as adventurers and ranchers gave way to entrepreneurs and commercial gold miners. In the early days of the gold rush much of the wealth generated flowed through Marysville due to its favorable location. Gold seekers arriving by river boat would prefer to dock at Marysville because it was on the same side of the Feather River as the goldfields (**Fletcher and Crawford 2000**).

Linda was originally laid out in 1850 by John Rose at the furthest navigable point on the Yuba River. The town at that site lasted only two years before moving to its present location. The original town site is now buried under tailings from hydraulic mining. After nearby Marysville was established in 1851, miners did not take long to venture up the Yuba River in search of gold (**Yuba County Historical Commission 1976**). The towns of Smartville and Timbuctoo were founded and prospered due to mining activities.

Toward the end of the 1850s the search for gold became a commercial affair with individual miners with pick and gold pans being replaced by hydraulic mining. High-pressure water nozzles were capable of washing away entire hillside to recover placer gold. The environmental impact of hydraulic mining was considerable. Gravel and silt

washed down and raised the riverbeds of the Feather and Yuba Rivers. Mining debris could be found as far away as the tidal waters of San Francisco Bay and in other rivers of the Central Valley (**Baumgart 2002**). The clogged and rising riverbeds resulted in a series of devastating floods which damaged farms and destroyed crops. Residents in the Marysville area had to flee to high ground at Sutter Buttes during these severe floods. Mining interests and farms invariably came into conflict over this issue. Farmers seeking relief attempted to secure an injunction against hydraulic mining, but in the 1850s-1870s period agricultural was still a nascent industry dwarfed by mining interests. Finally, in 1883, Judge Lorenzo Sawyer handed down his decision enjoining further hydraulic mining. This resulted in the decline of mining towns. Farmers attempted to mitigate the persistent periodic flooding problem through the construction of levees.

When the gold rush subsided farmers soon realized the agricultural potential of the fertile lands along the rivers. Farms began to prosper within a few years after the initial gold rush. By the 1860s and 1870s agriculturists developed notable varieties of crops including Proper Wheat, which could be shipped long distances without decay, and the world-renowned Thompson Seedless grape, named for farmer William Thompson (**Fletcher and Crawford 2000**).

Through the late 19th and early 20th century the Marysville/Linda region was primarily agricultural, and then a military element was introduced into the community. Camp Beale opened in 1942 as the training ground of the 13th Armored and the 81st and 96th Infantry divisions (**California State Military Department 2003**). The post was named for 19th century pioneer Edward Fitzgerald Beale, founder of the Army Camel Corps. The camp was transferred from the army to the air force in 1948 and has since been known as Beale Air Force Base. During World War II Camp Beale had 60,000 personnel and housed a prisoner of war (POW) camp for German POWs. It served as the main camp for a series of satellite POW camps around northern California. The base also played a role in the cold war. In 1964 it was designated as the home of the exotic supersonic reconnaissance aircraft, Lockheed's SR-71 Blackbird. Between 1959 and 1965 the base also supported three Titan I missile sites (**California State Military Museum 2010**).

LOCAL SETTING

Methodology

A record and literature search and pedestrian survey were completed to aid in the identification of cultural resources within the study area and APE. The record and literature search was performed at the California Historical Resources Information System (CHRIS), North Central Information Center (NCIC), California State University, Sacramento. The record search was conducted by Mr. Richard Norwood, senior archaeologist representing HDR|DTA on August 26, 2009. The record search was completed for the levee and a buffer zone quarter mile wide. The combined APE and buffer zone are designated as the study area. Research was performed by identifying and reviewing reports relevant to the study area, site record forms, historic period maps, and National Register of Historic Places and California Register of Historic Resources listings, and other publications (**State of California Department of Parks and Recreation 1976, 2009**).

In accordance with revised implementing regulations of the NHPA, Title 36 CFR Part 800.4(a) (4), HDR|DTA contacted the Native American Heritage Commission (NAHC) on November 25, 2009 to request a review of its Sacred Lands File and to obtain a list of individuals or tribes that the NAHC believes should be contacted regarding information or concerns related to the project. The NAHC responded on December 3, 2009 with negative results for its search of the Sacred Lands File.

A pedestrian archaeological survey was also completed within the APE. The purpose of archaeological survey was to verify locations of previously recorded cultural resources, assess their current conditions, and examine all accessible lands not previously surveyed or which were surveyed to less than adequate standards to identify previously unrecorded archaeological sites that may be present in the APE. The archaeological surveys were completed on August 28-28 and November 27-28, 2009 by a two-person team of archaeologists including qualified, professional archaeologists who meet the Secretary of the Interior's standards for professional

archaeologists. An area 500 feet on the south side of the existing levee and 100 feet wide on the north side was walked. An area extending 300 feet out from the east end of the levee was also walked in an area known as the Goldfields. The survey included proposed borrow areas adjacent to the south side of the levee. The entire APE was walked.

Crew members walked parallel transects spaced no more than 15 meters apart. Visibility was excellent in most locations due to bare surfaces and/or scant vegetation. A large portion of the survey area encompassed active agricultural fields with plowed soil. Other areas had dry vegetation with some soil surface visibility. Where vegetation prevented visibility or access by crew members occasionally scraped the surface with a trowel to view exposed soil. In several cases it was necessary to delay survey until November crops (corn) were harvested to allow for soil surface visibility. All artifacts encountered during the field survey were left in place; no artifacts were collected.

Newly discovered cultural resources, loci or features were fully documented. Previously recorded cultural resources were verified and re-recorded only when their existing site records or other documentation did not meet current standards for recording, or if the condition and/or integrity of the property had changed since the previous recordings. All cultural resources recorded during the survey were documented following the recordation procedures outlined in *Instructions for Recording Historical Resources (Office of Historic Preservation (OHP) 1995)*, which adopts State of California, Department of Parks and Recreation (DPR) forms DPR 523 A-L. This included preparation of scaled site sketch maps and photographic documentation of each site using digital photography. The locations of all archaeological sites and isolates were plotted onto the appropriate USGS 7.5-minute topographic maps both by hand and with a global positioning system (GPS) receiver using the Universal Transverse Mercator (UTM) coordinate system.

Record Search Results

A list of reports relating to the study area and APE is presented below. Review of all researched reports indicated that the Area of Potential Effects (APE) has been previously surveyed, in part, for cultural resources at the reconnaissance level.

2497	Storm, D. J.	n.d.	Cultural resources statement. Report #2497
7913	Kraft, Jarith	2002	Historic Resource Evaluation Report, Archaeological Assessment of Selected Levees Located in Yuba County, California
7922	Bouey, P. D.	1990	Sacramento River Flood Control System Evaluation, Marysville-Yuba City Area, Cultural Resources Survey
8370	Williams, Scott A. et al.	2002	Positive Archaeological Survey Report, Marysville-Oroville Freeway Project, Yuba and Butte Counties, California
8371	Williams, Scott A. and A. Hope	2002	Historic Properties Survey Report for the Marysville to Oroville Freeway Project, Yuba and Butte Counties, California
8855	Earth Touch	2007	New Tower ("NT") Submission Packet, Beal & Linda, SC-1515429
9423	Grant, J. S.	2008	Cultural Resources Baseline Literature Review for the Urban Levee Project

One previously recorded prehistoric period cultural resource was identified within the study area. The site is the levee itself, which was previously recorded by Kraft (2002) as P-58-1620 (CA-YUB-1442H, “the Linda Levee”). The site record for this site is fairly recent and adequate.

In 1990 Far Western Anthropological Research Group, Inc. conducted a survey of various levees. Two-person crews examined the surface of the levee by moving up and down the levee faces. No archaeological sites were identified, but the levee itself was not evaluated at this time for archaeological significance (Bouey 1990).

Kraft (2002) prepared an evaluation for selected levees located in Yuba County, including the Linda Levee. After extensive historic research, Kraft concluded that the Linda Levee, and others examined during their study, do not qualify as significant resources under National Historic Preservation Act (NHPA) Section 106 criteria. Their argument rests largely on the basis of integrity. The Linda Levee is an evolving structure having been continually rebuilt and altered over its period of existence. Kraft states that the Linda Levee does not appear to have any historical significance outside the general context of flood control in Yuba County.

The Linda Levee was later evaluated by Jones and Stokes in 2004, for the portion of the levee west of Simpson Lane and the segment reviewed here. The levee was found to be “not eligible”.

Survey Results

As a result of the record search and survey, one cultural resource was identified within the APE. The site is the levee itself which was previously recorded by Kraft (2002) as P-58-1620 (CA-YUB-1442H, Linda Levee). Four specific locations (locus) were identified, of which location (loci) 1 is the levee itself. These loci are described below.

Locus 1, earthen levee: The need for the levee arose due to flooding caused by deposition of silt washed down the Yuba River from hydraulic gold mining operations located to the east and upstream. The levee is a large earthen berm made up of gravel, sand, silt and clay. Its sides are mostly covered in native and non-native grasses. The levee is between 10 and 15 feet high. The crown is between 10 and 15 feet wide and has a graveled surface. The base of the levee is between 85 to 130 feet wide. A levee was originally built in this general area in 1877; however, the original structure has been compromised and largely removed by flood damage and subsequent episodes of repair and reconstruction. Repair and reconstruction occurred in 1884, 1890, 1892, 1896, 1907 and 1986 (Kraft 2002, Gilreath et al. 1990).

There are very few features directly associated with the levee. Access to the levee crown is controlled by recent-period locked steel pipe gates at Simpson Lane and Dantoni Road. There is a barbed wire fence along portions of levee adjacent to more densely populated areas.

Locus 2, railroad tracks: There was once a railroad spur embedded in the levee. Although the railroad has been removed, a short segment of rails and ties were left in place and are exposed at the levee’s intersection with Dantoni Road. According to Kraft (2002) this railroad spur was used to transport fruit.

Locus 3, refuse scatter: It is apparent that the levee is made up of a variety of soils deposited at different times. One area on the southern side of the levee contains a mixed array of household refuse with artifacts dating between the 1920s-1960s period. These materials include bottle glass, ceramics, can fragments and other items. Less than 100 items were noted. The deposit has a light density concentration and is eroding out of the levee from just below the crown to the base of the levee.

Locus 4, refuse scatter: An additional scatter of refuse was noted at the northern margin of the west end of the levee. The scatter contains primarily red brick fragments, and pieces of concrete. A piece of plain white ceramic and an aqua colored insulator fragment were also noted at this location. This brick-laden rubbly soil may have been brought from elsewhere.

As part of the survey, tax records for lands with standing structures within the study area were checked. It was noted that a number of standing structures over 50 years of age are near the levee and within the study area. They are not situated within the APE. These structures include:

- ▶ Residence built in 1941 (assessors parcel number (APN) 018-200-005)
- ▶ Residence built in 1945 (APN 018-210-014)
- ▶ Mobile home park established in 1946 (APN 021-500-001)
- ▶ Residence built in 1924 (APN 018-220-048)
- ▶ Residence built in 1944 (APN 021-041-010)
- ▶ Residence built in 1940 (APN 021-041-006)
- ▶ Commercial building built in 1940 (APN 021-041-003)

It is apparent that the Linda Levee has been evaluated previously. It is not considered significant or eligible for listing in the National Register of Historic Places. The levee is considered to be an evolving resource lacking integrity. No finds were made that alter that evaluation. Locus 3 and 4 are highly disturbed refuse deposits that were probably imported with soil from elsewhere during efforts to repair the levee. They do not add significance to the levee.

The segment of railroad represents only a small portion of a railroad spur. Except for that portion of track adjacent to Dantoni Road, very little remains of the railroad bed. The railroad bed has been removed and the levee repaired and substantially altered over time. Due to lack of integrity, the railroad spur is not considered significant and it is not eligible for listing in the National Register of Historic Places.

Paleontological Resource Assessment Criteria

The potential paleontological importance of the project area can be assessed by identifying the paleontological importance of exposed rock units within the area. Because the areal distribution of a rock unit can be delineated on a topographic map, this method is conducive to delineating parts of the site that are of higher and lower sensitivity for paleontological resources and to delineating parts of the project area that may, therefore, require mitigation in the form of monitoring during construction.

A paleontologically important rock unit is one that: (1) has a high potential paleontological productivity rating; and, (2) is known to have produced unique, scientifically important fossils. The potential paleontological productivity rating of a rock unit exposed at a project site refers to the abundance/densities of fossil specimens and/or previously recorded fossil sites in exposures of the unit in and near the site. Exposures of a specific rock unit at a project site are most likely to yield fossil remains representing particular species in quantities or densities similar to those previously recorded from the unit in and near the site.

A variety of factors are considered in determining whether an individual vertebrate fossil specimen may be considered unique or significant, including whether the fossil is:

- ▶ identifiable;
 - ▶ complete;
 - ▶ well preserved;
 - ▶ age diagnostic;
-

- ▶ useful in paleoenvironmental reconstruction;
- ▶ a type specimen;
- ▶ a member of a rare species;
- ▶ a species that is part of a diverse assemblage; or
- ▶ a skeletal element different from, or a specimen more complete than, those now available for its species.

The value or importance of different fossil groups varies, depending on the age and depositional environment of the rock unit that contains the fossils, their rarity, the extent to which they have already been identified and documented, and the ability to recover similar materials under more controlled conditions such as part of a research project.

In order to establish the paleontological importance of each rock unit within the project area, the potential paleontological productivity of each rock unit was assessed, based on the number of fossil remains previously documented within the rock unit, and the potential for rock units within the project area to contain unique paleontological resources was considered.

Paleontological Resources Record Search Results

Results of a search of publicly available paleontological records at the University of California Berkeley, Museum of Paleontology (UCMP) indicated no fossil remains within the project area (**UCMP 2010**). Although fossil sites in Yuba County were not documented, nearby sites in Sutter County have yielded vertebrate fossils recovered from Pleistocene age sediments, including the Riverbank Formation (**Corps 2007**). Fossil remains were also documented at numerous other locations in the vicinity and region, suggesting that there is a potential for uncovering additional similar fossil remains in appropriate rock/soil types during construction-related earthmoving activities within the project area.

Appendix D EDR, inc Corridor Study

This Appendix includes the following:

- The Executive Summary from the EDR, inc. Corridor Study;
- The map findings from the EDR, inc. Corridor Study; and,
- The EDR DataMap from the EDR, inc. Corridor Study

Upper Yuba River Levee
Marysville, CA 95901

Inquiry Number: 02671884.1r
January 11, 2010

EDR DataMap™ Corridor Study

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

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EXECUTIVE SUMMARY

TARGET PROPERTY INFORMATION

ADDRESS

MARYSVILLE, CA 95901
MARYSVILLE, CA 95901

DATABASES WITH NO MAPPED SITES

No mapped sites were found in EDR's search of available ("reasonably ascertainable ") government records within the requested search area for the following databases:

FEDERAL RECORDS

NPL	National Priority List
Proposed NPL	Proposed National Priority List Sites
Delisted NPL	National Priority List Deletions
NPL LIENS	Federal Superfund Liens
CERCLIS	Comprehensive Environmental Response, Compensation, and Liability Information System
CERC-NFRAP	CERCLIS No Further Remedial Action Planned
LIENS 2	CERCLA Lien Information
CORRACTS	Corrective Action Report
RCRA-TSDF	RCRA - Transporters, Storage and Disposal
RCRA-LQG	RCRA - Large Quantity Generators
RCRA-SQG	RCRA - Small Quantity Generators
RCRA-CESQG	RCRA - Conditionally Exempt Small Quantity Generator
RCRA-NonGen	RCRA - Non Generators
US ENG CONTROLS	Engineering Controls Sites List
US INST CONTROL	Sites with Institutional Controls
ERNS	Emergency Response Notification System
HMIRS	Hazardous Materials Information Reporting System
DOT OPS	Incident and Accident Data
US CDL	Clandestine Drug Labs
US BROWNFIELDS	A Listing of Brownfields Sites
DOD	Department of Defense Sites
FUDS	Formerly Used Defense Sites
LUCIS	Land Use Control Information System
CONSENT	Superfund (CERCLA) Consent Decrees
ROD	Records Of Decision
UMTRA	Uranium Mill Tailings Sites
ODI	Open Dump Inventory
DEBRIS REGION 9	Torres Martinez Reservation Illegal Dump Site Locations
MINES	Mines Master Index File
TRIS	Toxic Chemical Release Inventory System
TSCA	Toxic Substances Control Act
FTTS	FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
HIST FTTS	FIFRA/TSCA Tracking System Administrative Case Listing
SSTS	Section 7 Tracking Systems

EXECUTIVE SUMMARY

ICIS.....	Integrated Compliance Information System
PADS.....	PCB Activity Database System
MLTS.....	Material Licensing Tracking System
RADINFO.....	Radiation Information Database
FINDS.....	Facility Index System/Facility Registry System
RAATS.....	RCRA Administrative Action Tracking System
FEDERAL FACILITY.....	Federal Facility Site Information listing
COAL ASH EPA.....	Coal Combustion Residues Surface Impoundments List
FEMA UST.....	Underground Storage Tank Listing
COAL ASH DOE.....	Steam-Electric Plan Operation Data
PCB TRANSFORMER.....	PCB Transformer Registration Database
US HIST CDL.....	National Clandestine Laboratory Register
SCRD DRYCLEANERS.....	State Coalition for Remediation of Drycleaners Listing

STATE AND LOCAL RECORDS

HIST Cal-Sites.....	Historical Calsites Database
CA BOND EXP. PLAN.....	Bond Expenditure Plan
Toxic Pits.....	Toxic Pits Cleanup Act Sites
SWF/LF.....	Solid Waste Information System
NPDES.....	NPDES Permits Listing
CA WDS.....	Waste Discharge System
Cortese.....	"Cortese" Hazardous Waste & Substances Sites List
HIST CORTESE.....	Hazardous Waste & Substance Site List
SWRCY.....	Recycler Database
LUST.....	Geotracker's Leaking Underground Fuel Tank Report
SLIC.....	Statewide SLIC Cases
UST.....	Active UST Facilities
LIENS.....	Environmental Liens Listing
CHMIRS.....	California Hazardous Material Incident Report System
LDS.....	Land Disposal Sites Listing
MCS.....	Military Cleanup Sites Listing
AST.....	Aboveground Petroleum Storage Tank Facilities
Notify 65.....	Proposition 65 Records
DEED.....	Deed Restriction Listing
VCP.....	Voluntary Cleanup Program Properties
DRYCLEANERS.....	Cleaner Facilities
WIP.....	Well Investigation Program Case List
CDL.....	Clandestine Drug Labs
RESPONSE.....	State Response Sites
HAZNET.....	Facility and Manifest Data
EMI.....	Emissions Inventory Data
HAULERS.....	Registered Waste Tire Haulers Listing
PROC.....	Certified Processors Database
MWMP.....	Medical Waste Management Program Listing
HWP.....	EnviroStor Permitted Facilities Listing
HWT.....	Registered Hazardous Waste Transporter Database

TRIBAL RECORDS

INDIAN RESERV.....	Indian Reservations
INDIAN ODI.....	Report on the Status of Open Dumps on Indian Lands
INDIAN LUST.....	Leaking Underground Storage Tanks on Indian Land
INDIAN UST.....	Underground Storage Tanks on Indian Land
INDIAN VCP.....	Voluntary Cleanup Priority Listing

EXECUTIVE SUMMARY

EDR PROPRIETARY RECORDS

Manufactured Gas Plants..... EDR Proprietary Manufactured Gas Plants

SURROUNDING SITES: SEARCH RESULTS

Surrounding sites were identified.

Page numbers and map identification numbers refer to the EDR Radius Map report where detailed data on individual sites can be reviewed.

Sites listed in ***bold italics*** are in multiple databases.

Unmappable (orphan) sites are not considered in the foregoing analysis.

STATE AND LOCAL RECORDS

SCH: This category contains proposed and existing school sites that are being evaluated by DTSC for possible hazardous materials contamination. In some cases, these properties may be listed in the CalSites category. depending on the level of threat to public health and safety or the. environment they pose.

A review of the SCH list, as provided by EDR, and dated 11/09/2009 has revealed that there is 1 SCH site within the searched area.

<u>Site</u>	<u>Address</u>	<u>Map ID</u>	<u>Page</u>
<i>LINDA ELEMENTARY SCHOOL</i>	<i>6180 DUNNING AVENUE</i>	<i>4</i>	<i>7</i>

WMUDS/SWAT: The Waste Management Unit Database System is used for program tracking and inventory of waste management units. The source is the State Water Resources Control Board.

A review of the WMUDS/SWAT list, as provided by EDR, and dated 04/01/2000 has revealed that there is 1 WMUDS/SWAT site within the searched area.

<u>Site</u>	<u>Address</u>	<u>Map ID</u>	<u>Page</u>
CLASS III SWDS	1563 SIMPSON LN	3	6

CA FID UST: The Facility Inventory Database contains active and inactive underground storage tank locations. The source is the State Water Resource Control Board.

A review of the CA FID UST list, as provided by EDR, and dated 10/31/1994 has revealed that there is 1 CA FID UST site within the searched area.

<u>Site</u>	<u>Address</u>	<u>Map ID</u>	<u>Page</u>
<i>PEACH TREE GOLF AND COUNTRY CL</i>	<i>2043 SIMPSON DANTONI RD</i>	<i>2</i>	<i>5</i>

EXECUTIVE SUMMARY

HIST UST: Historical UST Registered Database.

A review of the HIST UST list, as provided by EDR, and dated 10/15/1990 has revealed that there is 1 HIST UST site within the searched area.

<u>Site</u>	<u>Address</u>	<u>Map ID</u>	<u>Page</u>
PEACH TREE GOLF AND COUNTRY CL	2043 SIMPSON DANTONI RD	2	4

SWEEPS UST: Statewide Environmental Evaluation and Planning System. This underground storage tank listing was updated and maintained by a company contacted by the SWRCB in the early 1990's. The listing is no longer updated or maintained. The local agency is the contact for more information on a site on the SWEEPS list.

A review of the SWEEPS UST list, as provided by EDR, and dated 06/01/1994 has revealed that there is 1 SWEEPS UST site within the searched area.

<u>Site</u>	<u>Address</u>	<u>Map ID</u>	<u>Page</u>
<i>PEACH TREE GOLF AND COUNTRY CL</i>	<i>2043 SIMPSON DANTONI RD</i>	<i>2</i>	<i>5</i>

ENVIROSTOR: The Department of Toxic Substances Control's (DTSC's) Site Mitigation and Brownfields Reuse Program's (SMBRP's) EnviroStor database identifies sites that have known contamination or sites for which there may be reasons to investigate further. The database includes the following site types: Federal Superfund sites (National Priorities List (NPL)); State Response, including Military Facilities and State Superfund; Voluntary Cleanup; and School sites. EnviroStor provides similar information to the information that was available in CalSites, and provides additional site information, including, but not limited to, identification of formerly-contaminated properties that have been released for reuse, properties where environmental deed restrictions have been recorded to prevent inappropriate land uses, and risk characterization information that is used to assess potential impacts to public health and the environment at contaminated sites.

A review of the ENVIROSTOR list, as provided by EDR, and dated 11/09/2009 has revealed that there are 2 ENVIROSTOR sites within the searched area.

<u>Site</u>	<u>Address</u>	<u>Map ID</u>	<u>Page</u>
TRIANGLE ENGINEERING Status: Refer: Other Agency	7229 DANTONI ROAD	1	3
<i>LINDA ELEMENTARY SCHOOL</i> Status: Active	<i>6180 DUNNING AVENUE</i>	<i>4</i>	<i>7</i>

EXECUTIVE SUMMARY

Please refer to the end of the findings report for unmapped orphan sites due to poor or inadequate address information.

MAP FINDINGS SUMMARY

<u>Database</u>	<u>Total Plotted</u>
<u>FEDERAL RECORDS</u>	
NPL	0
Proposed NPL	0
Delisted NPL	0
NPL LIENS	0
CERCLIS	0
CERC-NFRAP	0
LIENS 2	0
CORRACTS	0
RCRA-TSDF	0
RCRA-LQG	0
RCRA-SQG	0
RCRA-CESQG	0
RCRA-NonGen	0
US ENG CONTROLS	0
US INST CONTROL	0
ERNS	0
HMIRS	0
DOT OPS	0
US CDL	0
US BROWNFIELDS	0
DOD	0
FUDS	0
LUCIS	0
CONSENT	0
ROD	0
UMTRA	0
ODI	0
DEBRIS REGION 9	0
MINES	0
TRIS	0
TSCA	0
FTTS	0
HIST FTTS	0
SSTS	0
ICIS	0
PADS	0
MLTS	0
RADINFO	0
FINDS	0
RAATS	0
FEDERAL FACILITY	0
COAL ASH EPA	0
FEMA UST	0
COAL ASH DOE	0
PCB TRANSFORMER	0
US HIST CDL	0
SCRD DRYCLEANERS	0
<u>STATE AND LOCAL RECORDS</u>	
HIST Cal-Sites	0

MAP FINDINGS SUMMARY

<u>Database</u>	<u>Total Plotted</u>
CA BOND EXP. PLAN	0
SCH	1
Toxic Pits	0
SWF/LF	0
NPDES	0
CA WDS	0
WMUDS/SWAT	1
Cortese	0
HIST CORTESE	0
SWRCY	0
LUST	0
CA FID UST	1
SLIC	0
UST	0
HIST UST	1
LIENS	0
SWEEPS UST	1
CHMIRS	0
LDS	0
MCS	0
AST	0
Notify 65	0
DEED	0
VCP	0
DRYCLEANERS	0
WIP	0
CDL	0
RESPONSE	0
HAZNET	0
EMI	0
ENVIROSTOR	2
HAULERS	0
PROC	0
MWMP	0
HWP	0
HWT	0
 <u>TRIBAL RECORDS</u>	
INDIAN RESERV	0
INDIAN ODI	0
INDIAN LUST	0
INDIAN UST	0
INDIAN VCP	0
 <u>EDR PROPRIETARY RECORDS</u>	
Manufactured Gas Plants	0

NOTES:

Sites may be listed in more than one database

MAP FINDINGS

Map ID
 Direction
 Distance
 Distance (ft.)Site

EDR ID Number
 EPA ID Number

Database(s)

**1 TRIANGLE ENGINEERING
 7229 DANTONI ROAD
 MARYSVILLE, CA 95901**

**ENVIROSTOR 1000152530
 N/A**

ENVIROSTOR:

Site Type: Evaluation
 Site Type Detailed: Evaluation
 Acres: 1
 NPL: NO
 Regulatory Agencies: NONE SPECIFIED
 Lead Agency: NONE SPECIFIED
 Program Manager: Not reported
 Supervisor: Referred - Not Assigned
 Division Branch: Sacramento
 Facility ID: 58890001
 Site Code: Not reported
 Assembly: 03
 Senate: 04
 Special Program: * CERC2
 Status: Refer: Other Agency
 Status Date: 1996-03-05 00:00:00
 Restricted Use: NO
 Site Mgmt. Req.: NONE SPECIFIED
 Funding: Not reported
 Latitude: 39.1799047526198
 Longitude: -121.496819992692
 APN: NONE SPECIFIED
 Past Use: NONE SPECIFIED
 Potential COC: 10097, 10196, 10198, 30160, 30357
 Confirmed COC: NONE SPECIFIED
 Potential Description: NONE SPECIFIED
 Alias Name: TRIANGLE ENGINEERING
 Alias Type: Alternate Name
 Alias Name: 58890001
 Alias Type: Envirostor ID Number
 Alias Name: TRINCO ENGINEERING
 Alias Type: Alternate Name
 Alias Name: YUBA GOLDFIELD INC - GOLD DREDGING OPER
 Alias Type: Alternate Name
 Alias Name: TRINCO INC. (OWNED BY NOBLE PLANT JR.)
 Alias Type: Alternate Name
 Alias Name: DREDGER TAILINGS - GOLD MINING
 Alias Type: Alternate Name
 Alias Name: YUBA GOLDFIELD INC
 Alias Type: Alternate Name
 Alias Name: CAD982358830
 Alias Type: CERCLIS ID

Completed Info:

Completed Area Name: PROJECT WIDE
 Completed Sub Area Name: Not reported
 Completed Document Type: Preliminary Assessment Report
 Completed Date: 1988-02-09 00:00:00

 Completed Area Name: PROJECT WIDE
 Completed Sub Area Name: Not reported
 Completed Document Type: Site Screening
 Completed Date: 1987-02-02 00:00:00

 Completed Area Name: PROJECT WIDE

MAP FINDINGS

Map ID
 Direction
 Distance
 Distance (ft.)Site

EDR ID Number

Database(s) EPA ID Number

TRIANGLE ENGINEERING (Continued)

1000152530

Completed Sub Area Name: Not reported
 Completed Document Type: * Discovery
 Completed Date: 1983-07-13 00:00:00

Future Area Name: Not reported
 Future Sub Area Name: Not reported
 Future Document Type: Not reported
 Future Due Date: Not reported
 Schedule Area Name: Not reported
 Schedule Sub Area Name: Not reported
 Schedule Document Type: Not reported
 Schedule Due Date: Not reported
 Schedule Revised Date: Not reported

2

**PEACH TREE GOLF AND COUNTRY CL
 2043 SIMPSON DANTONI RD
 MARYSVILLE, CA 95901**

**HIST UST U001616193
 N/A**

HIST UST:

Region: STATE
 Facility ID: 00000047901
 Facility Type: Other
 Other Type: PRIVATE COUNTRY CLUB
 Total Tanks: 0002
 Contact Name: JERRY RICE
 Telephone: 9167431897
 Owner Name: PEACH TREE GOLF AND COUNTRY CL
 Owner Address: 2043 SIMPSON DANTONI ROAD
 Owner City,St,Zip: MARYSVILLE, CA 95901

Tank Num: 001
 Container Num: 2
 Year Installed: 1959
 Tank Capacity: 00000000
 Tank Used for: PRODUCT
 Type of Fuel: Not reported
 Tank Construction: Not reported
 Leak Detection: None

Tank Num: 002
 Container Num: 2
 Year Installed: 1959
 Tank Capacity: 00001000
 Tank Used for: PRODUCT
 Type of Fuel: REGULAR
 Tank Construction: Not reported
 Leak Detection: None

MAP FINDINGS

Map ID			EDR ID Number
Direction			
Distance			
Distance (ft.)	Site	Database(s)	EPA ID Number

2	PEACH TREE GOLF AND COUNTRY CL 2043 SIMPSON DANTONI RD MARYSVILLE, CA 95901	CA FID UST SWEEPS UST	S101628672 N/A
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CA FID UST:

Facility ID:	58000448
Regulated By:	UTNKI
Regulated ID:	00047901
Cortese Code:	Not reported
SIC Code:	Not reported
Facility Phone:	9167431897
Mail To:	Not reported
Mailing Address:	P O BOX
Mailing Address 2:	Not reported
Mailing City, St, Zip:	MARYSVILLE 95901
Contact:	Not reported
Contact Phone:	Not reported
DUNs Number:	Not reported
NPDES Number:	Not reported
EPA ID:	Not reported
Comments:	Not reported
Status:	Inactive

SWEEPS UST:

Status:	Not reported
Comp Number:	47901
Number:	Not reported
Board Of Equalization:	Not reported
Ref Date:	Not reported
Act Date:	Not reported
Created Date:	Not reported
Tank Status:	Not reported
Owner Tank Id:	Not reported
Swrcb Tank Id:	58-000-047901-000001
Actv Date:	Not reported
Capacity:	1
Tank Use:	UNKNOWN
Stg:	PRODUCT
Content:	Not reported
Number Of Tanks:	2

Status:	Not reported
Comp Number:	47901
Number:	Not reported
Board Of Equalization:	Not reported
Ref Date:	Not reported
Act Date:	Not reported
Created Date:	Not reported
Tank Status:	Not reported
Owner Tank Id:	Not reported
Swrcb Tank Id:	58-000-047901-000002
Actv Date:	Not reported
Capacity:	1000
Tank Use:	M.V. FUEL
Stg:	PRODUCT
Content:	LEADED
Number Of Tanks:	Not reported

MAP FINDINGS

Map ID
 Direction
 Distance
 Distance (ft.)Site

EDR ID Number
 EPA ID Number

Database(s)

3

CLASS III SWDS
1563 SIMPSON LN
MARYSVILLE CA, CA 95901

WMUDS/SWAT S104310570
N/A

WMUDS/SWAT:

Edit Date: Not reported
 Complexity: Not reported
 Primary Waste: Solid Wastes
 Primary Waste Type: Inert/Influent or Solid Wastes that do not contain soluble pollutants or organic wastes and have little adverse impact on water quality. Such wastes could cause turbidity and siltation. Uncontaminated soils, rubble and concrete are examples of this category.
 Secondary Waste: Not reported
 Secondary Waste Type: Not reported
 Base Meridian: MD
 NPID: Not reported
 Tonnage: 30
 Regional Board ID: Not reported
 Municipal Solid Waste: False
 Superorder: False
 Open To Public: False
 Waste List: False
 Agency Type: Private
 Agency Name: QUINCO CORP. SIMPSON LANE
 Agency Department: Not reported
 Agency Address: PO BOX 1552
 Agency City,St,Zip: MARYSVILLE CA 95901
 Agency Contact: MIKE NOLAND
 Agency Telephone: Not reported
 Land Owner Name: QUINCO CORP. MIKE NOLAND
 Land Owner Address: 1563 SIMPSON LANE
 Land Owner City,St,Zip: MARYSVILLE, CA 95901
 Land Owner Contact: Not reported
 Land Owner Phone: 9167425469
 Region: 5S
 Facility Type: Solid Waste Site-Class III - Landfills for non hazardous solid wastes.
 Facility Description: Not reported
 Facility Telephone: Not reported
 SWAT Facility Name: QUINCO CORP. DISPOSAL SITE
 Primary SIC: 4953
 Secondary SIC: Not reported
 Comments: Not reported
 Last Facility Editors: Not reported
 Waste Discharge System: True
 Solid Waste Assessment Test Program: True
 Toxic Pits Cleanup Act Program: False
 Resource Conservation Recovery Act: False
 Department of Defence: False
 Solid Waste Assessment Test Program: QUINCO CORP - MIKE NOLAND
 Threat to Water Quality: Not reported
 Sub Chapter 15: True
 Regional Board Project Officer: RDB
 Number of WMUDS at Facility: 1
 Section Range: 15N04E17
 RCRA Facility: No
 Waste Discharge Requirements: Historical - Any regulated facility for which the Regional Board has rescinded all WDRs or consciously allowed an NPDES permit to expire.
 Self-Monitoring Rept. Frequency: No Reporting Requirements
 Waste Discharge System ID: 5A580304001

MAP FINDINGS

Map ID		EDR ID Number
Direction		
Distance		
Distance (ft.)Site	Database(s)	EPA ID Number

CLASS III SWDS (Continued)

S104310570

Solid Waste Information ID: 58-AA-0004

4

**LINDA ELEMENTARY SCHOOL
6180 DUNNING AVENUE
MARYSVILLE, CA 95901**

**SCH S109422394
ENVIROSTOR N/A**

SCH:

Facility ID:	60001038
Site Type:	School Cleanup
Site Type Detail:	School
Site Mgmt. Req.:	Not reported
Acres:	5.5
National Priorities List:	NO
Cleanup Oversight Agencies:	SMBRP
Lead Agency:	SMBRP
Lead Agency Description:	DTSC - Site Mitigation And Brownfield Reuse Program
Project Manager:	MARY GASPARI
Supervisor:	Mark Malinowski
Division Branch:	Sacramento
Site Code:	104664
Assembly:	03
Senate:	04
Special Program Status:	Not reported
Status:	Active
Status Date:	2009-01-08 00:00:00
Restricted Use:	NO
Funding:	School District
Latitude:	39.1324333333334
Longitude:	-121.545225333333
APN:	Not reported
Past Use:	Not reported
Potential COC:	Not reported
Confirmed COC:	Not reported
Potential Description:	Not reported
Alias Name:	021-032-006
Alias Type:	APN
Alias Name:	60001038
Alias Type:	Envirostor ID Number
Alias Name:	021-071-001
Alias Type:	APN
Alias Name:	104664
Alias Type:	Project Code (Site Code)

Completed Info:

Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Preliminary Endangerment Assessment Workplan
Completed Date:	2009-04-23 00:00:00
Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Preliminary Endangerment Assessment Workplan
Completed Date:	2009-06-12 00:00:00
Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	4.14 Request

MAP FINDINGS

Map ID
 Direction
 Distance
 Distance (ft.)Site

EDR ID Number

Database(s) EPA ID Number

LINDA ELEMENTARY SCHOOL (Continued)

S109422394

Completed Date: 2009-07-22 00:00:00

Completed Area Name: PROJECT WIDE
 Completed Sub Area Name: Not reported
 Completed Document Type: Other Report
 Completed Date: 2009-01-23 00:00:00

Completed Area Name: PROJECT WIDE
 Completed Sub Area Name: Not reported
 Completed Document Type: Other Report
 Completed Date: 2009-01-23 00:00:00

Completed Area Name: PROJECT WIDE
 Completed Sub Area Name: Not reported
 Completed Document Type: Environmental Oversight Agreement
 Completed Date: 2009-02-23 00:00:00

Completed Area Name: PROJECT WIDE
 Completed Sub Area Name: Not reported
 Completed Document Type: Correspondence
 Completed Date: 2009-05-22 00:00:00

Completed Area Name: PROJECT WIDE
 Completed Sub Area Name: Not reported
 Completed Document Type: Voluntary Cleanup Agreement
 Completed Date: 2009-09-16 00:00:00

Future Area Name: PROJECT WIDE
 Future Sub Area Name: Not reported
 Future Document Type: Removal Action Workplan
 Future Due Date: 2010
 Schedule Area Name: PROJECT WIDE
 Schedule Sub Area Name: Not reported
 Schedule Document Type: Preliminary Endangerment Assessment Report
 Schedule Due Date: 2010-01-08 00:00:00
 Schedule Revised Date: Not reported

ENVIROSTOR:

Site Type: School Cleanup
 Site Type Detailed: School
 Acres: 5.5
 NPL: NO
 Regulatory Agencies: SMBRP
 Lead Agency: SMBRP
 Program Manager: MARY GASPARI
 Supervisor: Mark Malinowski
 Division Branch: Sacramento
 Facility ID: 60001038
 Site Code: 104664
 Assembly: 03
 Senate: 04
 Special Program: Not reported
 Status: Active
 Status Date: 2009-01-08 00:00:00
 Restricted Use: NO
 Site Mgmt. Req.: NONE SPECIFIED
 Funding: School District

MAP FINDINGS

Map ID
 Direction
 Distance
 Distance (ft.)Site

EDR ID Number
 EPA ID Number

Database(s)

LINDA ELEMENTARY SCHOOL (Continued)

S109422394

Latitude: 39.1324333333334
 Longitude: -121.545225333333
 APN: 021-032-006, 021-071-001
 Past Use: SCHOOL - ELEMENTARY, TRANSFORMER REPAIR
 Potential COC: 31001, 30004, 30006, 30007, 30008, 30010, 30013, 30018, 30207
 Confirmed COC: 30004,30207-NO,31001,30018-NO,30013-NO,30006-NO,30007-NO,30008-NO,30010-NO
 Potential Description: SOIL, UE
 Alias Name: 021-032-006
 Alias Type: APN
 Alias Name: 60001038
 Alias Type: Envirostor ID Number
 Alias Name: 021-071-001
 Alias Type: APN
 Alias Name: 104664
 Alias Type: Project Code (Site Code)

Completed Info:

Completed Area Name: PROJECT WIDE
 Completed Sub Area Name: Not reported
 Completed Document Type: Preliminary Endangerment Assessment Workplan
 Completed Date: 2009-04-23 00:00:00

Completed Area Name: PROJECT WIDE
 Completed Sub Area Name: Not reported
 Completed Document Type: Preliminary Endangerment Assessment Workplan
 Completed Date: 2009-06-12 00:00:00

Completed Area Name: PROJECT WIDE
 Completed Sub Area Name: Not reported
 Completed Document Type: 4.14 Request
 Completed Date: 2009-07-22 00:00:00

Completed Area Name: PROJECT WIDE
 Completed Sub Area Name: Not reported
 Completed Document Type: Other Report
 Completed Date: 2009-01-23 00:00:00

Completed Area Name: PROJECT WIDE
 Completed Sub Area Name: Not reported
 Completed Document Type: Other Report
 Completed Date: 2009-01-23 00:00:00

Completed Area Name: PROJECT WIDE
 Completed Sub Area Name: Not reported
 Completed Document Type: Environmental Oversight Agreement
 Completed Date: 2009-02-23 00:00:00

Completed Area Name: PROJECT WIDE
 Completed Sub Area Name: Not reported
 Completed Document Type: Correspondence
 Completed Date: 2009-05-22 00:00:00

Completed Area Name: PROJECT WIDE
 Completed Sub Area Name: Not reported
 Completed Document Type: Voluntary Cleanup Agreement
 Completed Date: 2009-09-16 00:00:00

MAP FINDINGS

Map ID
Direction
Distance
Distance (ft.)Site

EDR ID Number

Database(s) EPA ID Number

LINDA ELEMENTARY SCHOOL (Continued)

S109422394

Future Area Name: PROJECT WIDE
Future Sub Area Name: Not reported
Future Document Type: Removal Action Workplan
Future Due Date: 2010
Schedule Area Name: PROJECT WIDE
Schedule Sub Area Name: Not reported
Schedule Document Type: Preliminary Endangerment Assessment Report
Schedule Due Date: 2010-01-08 00:00:00
Schedule Revised Date: Not reported

EDR DataMap® Corridor Study

Upper Yuba River Levee

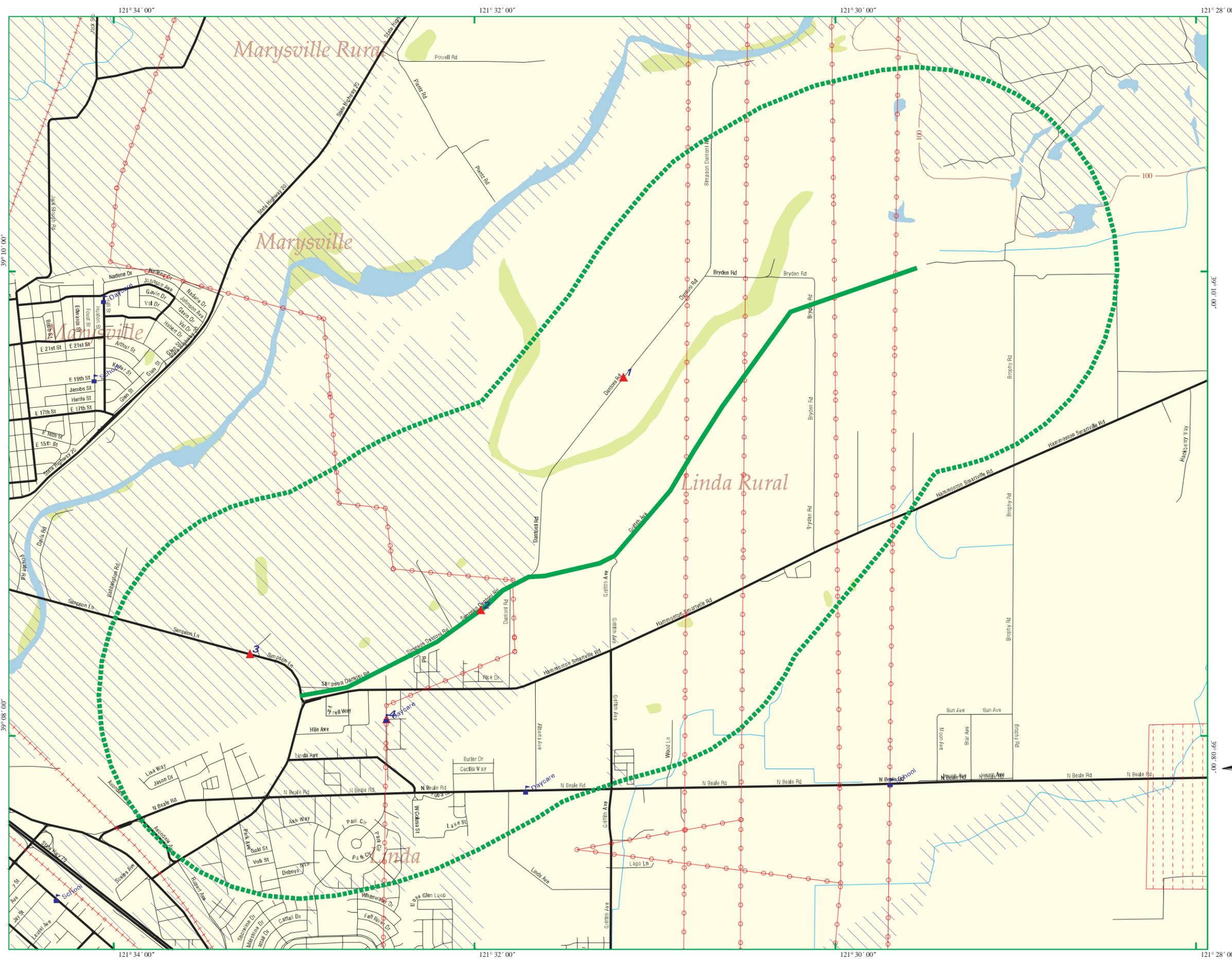
-  Listed Sites
-  Earthquake Epicenters (Richter 5 or greater)
-  Search Boundary
-  Roads
-  Major Roads
-  Waterways
-  Railroads
-  Contour Lines
-  Pipelines
-  Powerlines
-  Fault Lines
-  Water
-  Superfund Sites
-  Federal DOD Sites
-  Indian Reservations BIA
-  100-Yr Flood Zones
-  National Wetland Inventory



Marysville, CA



Scale in Miles



MITIGATION MONITORING AND REPORTING PROGRAM

**UPPER YUBA LEVEE IMPROVEMENT PROJECT
(SIMPSON LANE TO THE GOLDFIELDS)**

YUBA COUNTY, CALIFORNIA

State Clearinghouse # 2010022039

Three Rivers Levee Improvement Authority

April 2010

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MITIGATION MONITORING AND REPORTING PROGRAM

1.0 INTRODUCTION

Section 21081.6(a)(1) of the California Environmental Quality Act (CEQA) of the Public Resources Code, requires public agencies, as part of the certification of a Mitigated Negative Declaration (MND), to prepare and approve a reporting or monitoring program. This program should be structured to ensure that changes to the project that the lead agency has adopted to mitigate or avoid significant environmental impacts are carried out during project implementation.

The Mitigation Monitoring and Reporting Program (MMRP) is intended to be used by TRLIA staff, responsible and participating agencies, and mitigation monitoring personnel during implementation of the project. The intent of the MMRP is to ensure the effective implementation and enforcement of adopted mitigation measures. The MMRP consists of a compliance checklist that identifies the adopted mitigation measures, the timing of implementation of the measures, the monitoring frequency of the measures, the entity responsible for their implementation and monitoring, and the performance criteria used to evaluate implementation of the mitigation measures. The mitigation measures presented in the following table are incorporated into the proposed project.

Mitigation Monitoring and Reporting Program for the Upper Yuba Levee Improvement Project

Mitigation Measure	Initiation of Mitigation	Monitoring Frequency	Responsibility for Verification of Compliance	Performance Criteria	Date Compliance Completed
3.3 Air Quality					
<p>Mitigation Measure AQ-1: Implement FRAQMD-Recommended Emissions Reduction Measures.</p> <p>FRAQMD’s Indirect Source Review Guidelines provide mitigation measures for reducing short-term air quality impacts. As recommended by FRAQMD, TRLIA shall ensure that the following mitigation measures (summarized from FRAQMD guidance) are implemented during all project construction activities to the extent practicable. In addition, construction of the proposed project is required to comply with all applicable FRAQMD rules and regulations, in particular Rule 3.0 (Visible Emissions), Rule 3.16 (Fugitive Dust Emissions), and Rule 3.15 (Architectural Coatings).</p> <ul style="list-style-type: none"> • Implement a Fugitive Dust Control Plan that includes the following measures: • All grading operations on a project should be suspended when winds carry dust beyond the property line despite implementation of all feasible dust control measures. Consideration should be given to suspending all project grading when winds exceed 20 mph to minimize the risk of dust being carried beyond the property line. • Construction sites shall be watered as directed by the [Yuba County] Department of Public Works or FRAQMD and as necessary to prevent fugitive dust violations. • An operational water truck should be on-site at all times. Apply water to control dust as needed to prevent visible emissions violations and offsite dust impacts. 	<p>Before beginning any construction or ground-disturbing activities, and throughout construction period</p>	<p>Throughout construction period</p>	<p>Lead agency and primary construction contractor</p>	<p>FRAQMD measures are implemented such that pollutant emissions are minimized</p>	

Mitigation Monitoring and Reporting Program for the Upper Yuba Levee Improvement Project

Mitigation Measure	Initiation of Mitigation	Monitoring Frequency	Responsibility for Verification of Compliance	Performance Criteria	Date Compliance Completed
<ul style="list-style-type: none"> • On-site dirt piles or other stockpiled particulate matter should be covered, wind breaks installed, and water and/or soil stabilizers employed to reduce windblown dust emissions. Incorporate the use of approved nontoxic soil stabilizers according to manufacturer’s specifications to all inactive construction areas. • All transfer processes involving a free fall of soil or other particulate matter shall be operated in such a manner as to minimize the free fall distance and fugitive dust emissions. • Apply approved chemical soil stabilizers according to the manufacturers’ specifications, to all inactive construction areas (previously graded areas that remain inactive for 96 hours) including unpaved roads and employee/equipment parking areas. • To prevent track-out, wheel washers should be installed where project vehicles and/or equipment exit onto paved streets from unpaved roads. Vehicles and/or equipment shall be washed prior to each trip. Alternatively, a gravel bed may be installed as appropriate at vehicle/equipment site exit points to effectively remove soil buildup on tires and tracks to prevent/diminish track-out. • Paved streets shall be swept frequently (water sweeper with reclaimed water recommended; wet broom) if soil material has been carried onto adjacent paved, public thoroughfares from the project site. • Provide temporary traffic control as needed during all phases of construction to improve traffic flow, as deemed appropriate by the Department of Public Works and/or the California Department of 					

Mitigation Monitoring and Reporting Program for the Upper Yuba Levee Improvement Project

Mitigation Measure	Initiation of Mitigation	Monitoring Frequency	Responsibility for Verification of Compliance	Performance Criteria	Date Compliance Completed
<p>Transportation (Caltrans) and to reduce vehicle dust emissions.</p> <ul style="list-style-type: none"> • Reduce traffic speeds on all unpaved surfaces to 15 mph or less and reduce unnecessary vehicle traffic by restricting access. Provide appropriate training, on-site enforcement, and signage. • Reestablish ground cover on the construction site as soon as possible and prior to final occupancy, through seeding and watering. No open burning of vegetative waste (natural plant growth wastes) or other materials (trash, demolition debris et al.) may be conducted at the project site. Materials also may not be hauled off-site for disposal by open burning. Vegetative wastes should be chipped or delivered to waste to energy facilities (permitted biomass facilities), mulched, composted, or used for firewood. • Cover all trucks hauling dirt, sand, soil or other loose material, or maintain at least 2 feet of freeboard (minimum vertical distance between the top of the load and the top of the trailer) in accordance with the requirements of California Vehicle Code Section 23114. This provision would be enforced by local law enforcement agencies. • Construction equipment exhaust emissions shall not exceed FRAQMD Regulation III, Rule 3.0 (“Visible Emissions”) limitations (40% opacity or Ringelmann 2.0). Operators of vehicles and equipment found to exceed opacity limits shall take action to repair the equipment within 72 hours or remove the equipment from service. Failure to comply may result in a Notice of Violation. • The primary contractor shall be responsible to 					

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<p>ensure that all construction equipment is properly tuned and maintained prior to and for the duration of onsite operation.</p> <ul style="list-style-type: none"> • Limit vehicle and equipment idling times to 10 minutes—saves fuel and reduces emissions. • Use existing power sources (e.g., power poles) or clean fuel generators rather than temporary power generators. • Develop and implement a traffic plan to minimize traffic flow interference from construction activities. The plan may include advance public notice of routing, use of public transportation, and satellite parking areas with a shuttle service. Schedule operations affecting traffic for off-peak hours. Minimize obstruction of through-traffic lanes. Provide a flag person to guide traffic properly and ensure safety at construction sites. • Portable engines and portable engine-driven equipment units used at the project work site, with the exception of on-road and off-road motor vehicles, may require CARB Portable Equipment Registration with the state or a local district permit. The owner/operator shall be responsible for arranging appropriate consultations with CARB or the FRAQMD to determine registration and permitting requirements prior to equipment operation at the site. • The proponent shall assemble a comprehensive inventory list (i.e., make, model, engine year, horsepower, and emission rates) of all heavy-duty off-road (portable and mobile) equipment (50 horsepower and greater) that will be used an aggregate of 40 or more hours for the construction 					

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<p>project and apply the following mitigation measure:</p> <ul style="list-style-type: none"> The project shall provide a plan for approval by FRAQMD demonstrating that the heavy-duty (equal to or greater than 50 horsepower) off-road equipment to be used in the construction project, including owned, leased and subcontractor vehicles, will achieve a projectwide fleet average 20 percent NOX reduction and 45 percent particulate reduction compared to the most recent CARB fleet average at time of construction. 					
3.4 Biological Resources					
<p>Mitigation Measure BIO-1. Implement Avoidance and Minimization Measures to Avoid Impacts on Vernal Pool Species.</p> <p>a) USFWS fairy shrimp protocol surveys were conducted and vernal pool tadpole shrimp were detected within the vernal pool. Therefore, presence of vernal pool tadpole shrimp has been confirmed and presence of vernal pool fairy shrimp will be assumed. Concurrence that the proposed project will not adversely affect listed shrimp species will be requested from the USFWS. Furthermore, there will be no direct impacts to special status plant species and vernal pool branchiopods species, since the vernal pool will be avoided.</p> <p>b) The following avoidance and minimization measures will be implemented:</p> <ul style="list-style-type: none"> Construction activities in the vicinity of the vernal pool shall be limited to the dry season (roughly June 15 to October 15) to avoid potential indirect impacts to the vernal pool as a result of hydrologic disruption or runoff of harmful substances into the 	<p>Before beginning any construction or ground-disturbing activities</p>	<p>Throughout construction period</p>	<p>Lead agency, design engineer, and primary construction contractor</p>	<p>Surveys and monitoring are conducted in accordance with USFWS requirements</p>	

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<p>vernal pool.</p> <ul style="list-style-type: none"> • Brightly colored orange fencing shall be placed and maintained around the vernal pool habitat to prevent impacts from construction activities. Signs shall be placed on the fencing delineating the vernal pool as an environmentally sensitive area. No construction activities or personnel shall be allowed within the environmentally sensitive area. • Appropriate best management practices (BMP) such as hay bales or silt fencing shall be installed to prevent soil and other construction materials from entering the vernal pool during construction activities in adjacent areas. The BMPs shall be removed once construction activities are finished adjacent to the vernal pool to prevent possible hydrologic disruption to the vernal pool once the wet season commences. • A USFWS-approved biologist shall inspect the environmentally sensitive area fencing and BMPs to ensure that they are properly installed prior to any work occurring adjacent to the vernal pool. The biologist shall inspect the vernal pool periodically during construction-related activities in the vicinity of the vernal pool to ensure that no unnecessary take of listed species or destruction of their habitat occurs. The biologist shall have the authority to stop all activities that may result in such take or destruction until appropriate corrective measures have been completed. The biologist also shall be required to report immediately any unauthorized impacts to USFWS. • A USFWS-approved biologist shall conduct worker awareness training to ensure that all on-site 					

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<p>construction personnel receive instruction regarding the presence of listed species and the importance of avoiding impacts to these species and their habitat.</p>					
<p>Mitigation Measure BIO-2. Implement Minimization and Avoidance Measures for Elderberry Shrubs.</p> <p>a) A buffer zone of 100-feet or greater shall be established and maintained around elderberry shrubs within the project site as feasible. Complete avoidance may be assumed when a 100-foot (or wider) buffer is established and maintained around elderberry plants containing stems measuring 1.0 inch or greater in diameter at ground level.</p> <p>b) The following mitigation measures shall be implemented for construction operations in the vicinity of any elderberry shrubs that would not be removed.</p> <ul style="list-style-type: none"> • All areas to be avoided during construction activities, specifically the 100-foot buffer zone around elderberry shrubs, shall be fenced and flagged. In areas where encroachment on the 100-foot buffer has been approved by the USFWS, a minimum setback of at least 20 feet from the dripline of each elderberry shrub shall be provided in most cases. In some cases, construction activity may be required within 20 feet of a shrub. In these cases, fencing shall be placed at the greatest possible distance from the shrubs. • A worker awareness training program for construction personnel shall be conducted by a qualified biologist prior to beginning construction activities. The program shall inform all construction personnel about the life history and status of the beetle, requirements to avoid damaging the 	<p>Before beginning any construction or ground-disturbing activities</p>	<p>Throughout construction period</p>	<p>Lead agency, design engineer, and primary construction contractor</p>	<p>Construction operations are conducted in accordance with USFWS requirements</p>	

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<p>elderberry plants, and the possible penalties for not complying with these requirements. Written documentation of the training shall be submitted to USFWS within 30 days of its completion.</p> <ul style="list-style-type: none"> • Signs shall be erected every 50 feet along the edge of avoidance areas with the following information: “This area is habitat of the valley elderberry longhorn beetle, a threatened species, and must not be disturbed. This species is protected by the Endangered Species Act of 1973, as amended. Violators are subject to prosecution, fines, and imprisonment.” The signs shall be clearly readable from a distance of 20 feet, and shall be maintained for the duration of construction. • Pre-construction and post-construction surveys shall be done of the elderberry shrubs in the project area. Pre-construction surveys shall document compliance with mitigation measures. The post-construction survey shall confirm that there was no additional damage to any of the elderberry shrubs than as described in this document. • Temporary construction impacts within the buffer area (area within 100 feet of elderberry shrubs) shall be restored. If any portion of the buffer area is temporarily disturbed during construction, it shall be revegetated with native plants and erosion control shall be provided. • Buffer areas shall continue to be protected after construction from adverse effects of the project. Measures such as fencing, signs, weeding, and trash removal shall be implemented as appropriate. • No insecticides, herbicides, fertilizers, or other chemicals that might harm the beetle or its host 					

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<p>plant shall be used in the buffer areas, or within 100 feet of any elderberry plant with one or more stems measuring 1.0 inch or greater in diameter at ground level. All drainage water during and following construction shall be diverted away from the elderberry shrubs.</p> <ul style="list-style-type: none"> • A written description of how the buffer areas are to be restored, protected, and maintained after construction is completed shall be provided to USFWS. • Mowing of grass can occur between July through April to reduce fire hazard, however, no mowing should occur within five feet of elderberry shrub stems. Mowing shall be done in a manner that avoids damaging shrubs. • Dirt roadways and other areas of disturbed bare ground within 100 feet of elderberry shrubs shall be watered at least twice a day to minimize dust emissions. 					
<p>Mitigation Measure BIO-3. Compensate for Unavoidable Impacts to Elderberry Shrubs.</p> <p>a) The following compensatory mitigation measures shall apply:</p> <p>Elderberry shrubs that occur within the project footprint and need to be removed to facilitate construction activities would be transplanted and mitigated for at the prescribed ratios. Three options have been considered for elderberry mitigation. These options are described below in order of preference.</p> <ul style="list-style-type: none"> • Option 1: Anderson Road Mitigation Area Elderberry shrubs would be transplanted and new cuttings and associated native plants would be 	<p>Before beginning any construction or ground-disturbing activities</p>	<p>Throughout construction period</p>	<p>Lead agency, design engineer, and primary construction contractor</p>	<p>Transplantation and monitoring activities are conducted in accordance with USFWS requirements</p>	

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<p>planted at the Anderson Road Mitigation Area. Transplantation of the elderberry shrubs is anticipated to occur in summer of 2010 prior to construction. Based on requirements contained in the Conservation Guidelines for the Valley Elderberry Longhorn Beetle (USFWS 1999), elderberry shrubs should be transplanted during the dormant season, approximately November through the first two weeks in February, after they have lost their leaves. Increased mitigation ratios are typically applied by USFWS when elderberry shrubs can not be transplanted during the dormant period. A multiplier of 2.5 is typically applied to the ratio (new plantings to affected stems) of required elderberry mitigation plantings as well as riparian native trees/shrubs to be planted as replacement habitat. Because the elderberry shrubs are anticipated to be transplanted outside of the dormant season, a multiplier of 2.5 has been applied in order to determine the necessary mitigation acreage for elderberry shrubs. It is anticipated that the project would require approximately 18 to 25 acres of mitigation for directly affecting and/or transplanting affected shrubs and the planting of new cuttings and associated native plants. If some or all of the elderberry shrubs can be transplanted during the dormant season, the mitigation acreage would be reduced accordingly. If all of the elderberry shrubs could be transplanted during the dormant season, the project would require approximately 7 to 10 acres of mitigation for directly affecting and/or transplanting affected shrubs and the planting of new cuttings and associated native plants The exact amount of</p>					

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<p>mitigation and mitigation ratios would be determined through consultation with the USFWS. The Anderson Road Mitigation Area is a 75.84 acre mitigation area located along the banks of the Feather River, approximately six miles south of Marysville. The site is located on a high terrace (approximately 15 to 20 feet above the mean summer flow of the Feather River). The site contains a 2.2 acre seasonal wetland with a small stabilized channel that connects it to the Feather River for flood control purposes. The site is conducive for riparian forest habitat and has been used as a mitigation bank for levee projects in the Yuba City and Marysville areas, sponsored by RD 784 and the CVFPB. Use of this site for mitigation purposes would require approval by the CVFPB.</p> <ul style="list-style-type: none"> Option 2: Purchase of Mitigation Credits Two mitigation banks in the vicinity of the project have been identified that have or will have mitigation credits available to accommodate or partially accommodate the mitigation needs of the project: Wildlands, Inc. and Restoration Resources. Wildlands estimates that the proposed project would require the purchase of approximately 433 credits if the elderberry shrubs were to be transplanted outside of the dormant season as is currently anticipated, and the purchase of approximately 173 credits if the shrubs were to be transplanted during the dormant season. Wildlands anticipates that credits will be available at their River Ranch VELB Conservation Bank at the time that the project requires mitigation credits. The River Ranch is located in Yolo County, along the Sacramento River, near its confluence with the Feather River. 					

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<p>Wildlands' River Ranch location is being developed in three phases. During the first phase (2010) they anticipate the release of 138 credits. During the second phase (2011) they anticipate the release of up to 363 credits. During the third phase of development, they anticipate the release of 2,432 credits; they expect that 1,100 of these will be released in 2010 and the remainder will be released in future years. They can also receive the shrubs to be removed from the site and transplanted.</p> <p>Restoration Resources has some space available at the Silvergate Mitigation Bank (formerly a Wildlands Mitigation Bank) in Sheridan. The bank is located at the Placer County / Yuba County line, near Highway 65 at the Bear River, just south of Wheatland. The bank has been on the USFWS's sold-out list, but they still have a VELB balance of 31 credits. The Silvergate Mitigation Bank can accommodate the shrubs that would need to be transplanted. They suspect that the proposed project would use the balance of credits that they have available and would likely require additional credits from another bank.</p> <ul style="list-style-type: none"> Option 3: USFWS Species Account If Options 1 and 2 are not feasible due to unavailability of credits at the time that shrubs are removed, a USFWS Species Account for VELB would be set up. A dollar amount per credit, as determined by the USFWS, would be paid into a Species Account. This account would be managed by the Center for Natural Lands Management. When credits become available at one of the mitigation banks described above or at another approved mitigation bank in the area, funds from 					

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<p>the Species Account will be used to purchase VELB mitigation credits at the appropriate mitigation bank.</p> <ul style="list-style-type: none"> For all options, elderberry shrubs would be mitigated according to the transplantation guidelines outlined in the Conservation Guidelines for the Valley Elderberry Longhorn Beetle (USFWS 1999). These transplantation guidelines dictate the necessary timing and details of the transplanting. At the discretion of USFWS, shrubs that are unlikely to survive transplantation because of poor condition or location, or a plant that would be extremely difficult to move because of access problems, may be exempted from transplantation. In cases where transplantation is not possible, compensation ratios would be increased to offset the additional habitat loss. Each elderberry stem measuring 1.0 inch or greater in diameter at ground level that is adversely affected (i.e., transplanted or destroyed) would be replaced, in the conservation area, with elderberry seedlings or cuttings at a ratio ranging from 1:1 to 8:1 (new plantings to affected stems). The numbers of elderberry seedlings/cuttings and associated riparian native trees/shrubs to be planted as replacement habitat are determined by stem size class of affected elderberry shrubs, presence or absence of exit holes, and whether the shrub lies in a riparian or non-riparian area. Stock of either seedlings or cuttings would be obtained from local sources. Cuttings may be obtained from the plants to be transplanted if the project site is in the vicinity of the conservation area. 					

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<p>b) The following measures/procedures shall be implemented during transplantation:</p> <ul style="list-style-type: none"> • A qualified biologist (monitor) must be on-site for the duration of the transplanting of the elderberry shrubs to insure that no unauthorized take of VELB occurs. If unauthorized take occurs, construction activities in the area shall stop until corrective measures have been completed. The monitor shall immediately report any unauthorized take of the beetle or its habitat to the USFWS. • Elderberry shrubs shall be transplanted when the plants are dormant, approximately November through the first two weeks in February, after they have lost their leaves. Increased mitigation ratios shall apply to plants that can not be transplanted during the dormant period. A multiplier of 2.5 shall be applied to the ratio (new plantings to affected stems) of required elderberry mitigation plantings as well as riparian native trees/shrubs to be planted as replacement habitat. <p>c) The following transplanting procedure shall be followed:</p> <ul style="list-style-type: none"> • The plant shall be cut back 3 to 6 feet from the ground or to 50 percent of its height (whichever is taller) by removing branches and stems above this height. The trunk and all stems measuring 1.0 inch or greater in diameter at ground level shall be replanted. Any leaves remaining on the plant shall be removed. • A hole shall be excavated of adequate size to receive the transplant. • The plant shall be excavated using a Vermeer® spade, backhoe, front end loader, or other suitable equipment, taking as much of the root ball as 					

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<p>possible, and shall be replanted immediately at the conservation area. The plant shall only be moved by the root ball. The root ball shall be secured with wire and wrapped with damp burlap. The burlap shall be dampened as necessary to keep the root ball wet. Care shall be taken to ensure that the soil is not dislodged from around the roots of the transplant. Soil at the transplant site shall be moistened prior to transplant if the soil at the site does not contain adequate moisture.</p> <ul style="list-style-type: none"> • The planting area shall be at least 1,800 square feet for each elderberry transplant. The root ball shall be planted so that its top is level with the existing ground. Soil shall be compacted sufficiently so that settlement does not occur. As many as five additional elderberry plantings (cuttings or seedlings) and up to five associated native species plantings may also be planted within the 1,800 square foot area with the transplant. The transplant and each new planting shall have its own watering basin measuring at least three feet in diameter. Watering basins should have a continuous berm measuring approximately eight inches wide at the base and six inches high. <ul style="list-style-type: none"> ○ Soil shall be saturated with water. Fertilizers or other supplements shall not be used, as the effects of these compounds on the beetle are unknown. Shrubs shall be monitored and watered as necessary. The use of a drip watering system, water truck, or other apparatus may be used. • A mix of native plants associated with the elderberry shrubs at the project site or similar sites 					

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<p>shall be planted at a 1:1 ratio. Native plant stock shall be obtained from local sources.</p>					
<p>Mitigation Measure BIO-4. Preconstruction Surveys for Burrowing Owls and Passive Relocation if Necessary.</p> <p>In the year prior to construction, surveys shall be conducted by a qualified biologist to determine presence/absence of burrowing owls and/or occupied burrows in and within 500 feet of the project site according to the California Department of Fish and Game’s Staff Report on Burrowing Owls (Oct. 1995). A winter survey shall be conducted between December 1 and January 31 and a nesting survey shall be conducted between April 15 and July 15. Preconstruction surveys shall also be conducted within 30 days prior to construction to ensure that no additional burrowing owls have established territories since the initial surveys. A report shall be submitted to CDFG prior to construction reporting the results of the preconstruction surveys. If no burrowing owls are found during any of the surveys, no further mitigation shall be necessary.</p> <p>If burrowing owls are found, then the following mitigation measures shall be implemented prior to the commencement of construction:</p> <ul style="list-style-type: none"> • During the non-breeding season (September 1 through January 31) burrowing owls occupying the project site should be evicted from the project site by passive relocation as described in the California Department of Fish and Game’s Staff Report on Burrowing Owls (Oct. 1995). • During the breeding season (February 1 through August 31) occupied burrows shall not be disturbed and shall be provided with a 75 meter protective buffer unless a qualified biologist approved by 	<p>Before beginning any construction or ground-disturbing activities</p>	<p>Throughout construction period</p>	<p>Lead agency, design engineer, and primary construction contractor</p>	<p>Surveys and monitoring are conducted in accordance with CDFG requirements</p>	

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<p>CDFG verifies through non-invasive means that either: 1) the birds have not begun egg laying, or 2) juveniles from the occupied burrows are foraging independently and are capable of independent survival. Once the fledglings are capable of independent survival, the burrow can be destroyed.</p>					
<p>Mitigation Measure BIO-5. Preconstruction Surveys for Swainson’s Hawk and Establishment of Buffers if Necessary.</p> <p>In winter/spring of the year that construction is scheduled to commence, Swainson’s hawk nesting surveys shall be conducted by a qualified biologist within the ESL and accessible areas outside the ESL within 0.25 mile of proposed construction activities according to the Recommended Timing and Methodology for Swainson’s Hawk Nesting Surveys in California’s Central Valley (Swainson’s Hawk Technical Advisory Committee, May 31, 2001). A report shall be submitted to CDFG prior to construction reporting the results of the preconstruction surveys.</p> <p>If no active Swainson’s hawk nests are identified in or within 0.25 mile of proposed construction activities, then no further mitigation for nesting Swainson’s hawks is necessary. If active Swainson’s hawk nest(s) is identified within 0.25 mile of proposed construction activities, impacts to active nests shall be avoided by establishment and maintenance of buffers around the nests. The appropriate size and shape of the buffers shall be determined by a qualified biologist in conjunction with CDFG and may vary, depending on the nest location, nest stage, and construction activity. No project activity shall commence within the buffer area until the biologist confirms that the nest is no longer active. Monitoring shall be conducted to confirm project activity is</p>	<p>Before beginning any construction or ground-disturbing activities</p>	<p>Throughout construction period</p>	<p>Lead agency, design engineer, and primary construction contractor</p>	<p>Surveys and monitoring are conducted in accordance with CDFG requirements</p>	

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not resulting in detectable adverse effects to active nests. A post-construction report shall be submitted to CDFG documenting the results of Swainson’s hawk nest monitoring within 30 days of completion of construction activities.					
<p>Mitigation Measure BIO-6. Preconstruction Surveys for Northern Harrier, White-tailed Kite, and Other Raptors and Migratory Birds.</p> <p>If construction begins during the typical avian breeding season (February 15 to September 15), pre-construction surveys shall be conducted by a qualified biologist within two weeks prior to commencement of construction to determine presence/absence of raptor and migratory bird nests. Surveys shall be conducted in the ESL and in accessible areas outside of the ESL that fall within 500 feet of construction activities. A report shall be submitted to CDFG prior to construction reporting the results of the preconstruction surveys. If no nests are found during the survey, no further mitigation shall be necessary. If nests are found, then the following mitigation shall be implemented.</p> <p>Impacts to active nests shall be avoided by establishment and maintenance of buffers around the nests. The appropriate size and shape of the buffers shall be determined by a qualified biologist in conjunction with CDFG and may vary, depending on the nest location, nest stage, and construction activity. No project activity shall commence within the buffer area until the biologist confirms that the nest is no longer active. Monitoring shall be conducted to confirm project activity is not resulting in detectable adverse effects to active nests.</p>	Before beginning any construction or ground-disturbing activities	Throughout construction period	Lead agency, design engineer, and primary construction contractor	Surveys and monitoring are conducted in accordance with CDFG requirements	
<p>Mitigation Measure BIO-7. Implement Avoidance and Minimization Measures for Construction Related Impacts to Listed Species.</p>	Before beginning any construction or ground-disturbing	Throughout construction period	Lead agency, design engineer, and primary construction	Surveys and monitoring are conducted in accordance with	

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<p>a) A USFWS approved biologist shall identify boundaries of sensitive habitats and have the contractor fence the areas with orange construction fencing. Erosion control fencing shall be placed at the edges of construction where the construction activities are upslope of aquatic habitats to prevent washing of sediments into these features. All fencing shall be installed prior to any construction activities beginning and shall be maintained throughout the construction period.</p> <p>b) During construction operations, stockpiling of construction materials, portable equipment, vehicles, and supplies shall be restricted to the designated construction staging areas. To eliminate an attraction to predators, all food-related trash items, such as wrappers, cans, bottles, and food scraps, shall be disposed of in closed containers. Revegetation shall occur on all areas temporarily disturbed during construction.</p> <p>c) Fugitive dust emissions shall be minimized by adhering to the FRAQMD requirements for the control of dust emissions.</p>	activities		contractor	USFWS requirements	
3.5 Cultural Resources					
<p>Mitigation Measure CUL-1 Immediately Halt Construction Activities if Any Cultural Materials or Human Remains Are Discovered.</p> <ul style="list-style-type: none"> Prior to construction, construction personnel shall be briefed regarding what to do in the event buried cultural materials are encountered. If previously undocumented archaeological materials, such as historic building or structure remains, historic artifact deposits or scatters, or prehistoric artifacts such as stone tool flaking debitage, mortars, pestles, shell, or bone are encountered during project 	If cultural materials or human remains are discovered during ground-disturbing activities	Throughout construction period	Lead agency and primary construction contractor	<p>Finds of undocumented archaeological materials are reported and protected until evaluated by an archaeologist</p> <p>Finds of potential human remains are reported and protected until evaluated by appropriate individuals.</p>	

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<p>construction, all ground-disturbing activity shall be suspended temporarily within a 100-foot radius of the find (or an appropriate distance determined by a qualified professional archaeologist) based on the potential for disturbance of additional resource-bearing soils. A qualified professional archaeologist shall identify the materials, determine their possible significance, and formulate appropriate mitigation measures. Appropriate mitigation may include no action, avoidance of the resource, and/or potential data recovery. Ground disturbance in the zone of suspended activity shall not recommence without authorization from the archaeologist. Implementing this mitigation measure would ensure proper identification and treatment of any significant cultural resources uncovered as a result of project-related ground disturbance.</p> <ul style="list-style-type: none"> If human remains are uncovered during project construction, all ground-disturbing activities shall immediately be suspended within a 100-foot radius of the find (or an appropriate distance determined by a qualified professional archaeologist) based on the potential for disturbance of additional remains, and TRLIA or its designated representative shall be notified. TRLIA shall immediately notify the Yuba County Coroner and a qualified professional archaeologist, if one is not already on-site. The coroner shall examine the discovery within 48 hours. If the Coroner determines that the remains are those of a Native American, he or she shall contact the NAHC by phone within 24 hours. The NAHC shall contact the most likely descendant (MLD) of the remains. TRLIA or its appointed representative and the archaeologist shall consult 				<p>Remains are treated in accordance with direction received from the county coroner and from the NAHC and Native American representatives as appropriate</p> <p>Recommendations of qualified archaeologist are implemented</p>	

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<p>with the MLD regarding the removal or preservation and avoidance of the remains, and the parties shall rebury or preserve the remains as appropriate. Ground disturbance in the zone of suspended activity shall not recommence without authorization from the archaeologist.</p>					
<p>Mitigation Measure CUL-2 Immediately Halt Construction Activities if Any Paleontological Resources Are Discovered.</p> <ul style="list-style-type: none"> • Before the start of construction activities, construction personnel involved with earthmoving activities shall be informed of the possibility of encountering fossils, the appearance and types of fossils likely to be encountered during construction activities, and the proper notification procedures should fossils be encountered. Worker training may either be prepared and presented by an experienced field archaeologist at the same time as construction worker education on cultural resources, or may be prepared and presented separately by a qualified paleontologist. • If paleontological resources are encountered during earthmoving activities, the construction crew shall immediately cease work. TRLIA shall retain a qualified paleontologist to evaluate the resource and prepare a proposed mitigation plan. The proposed mitigation plan may include a field survey, construction monitoring, sampling and data recovery procedures, museum storage coordination for any specimen recovered, and a report of findings. Recommendations determined by TRLIA to be necessary and feasible shall be implemented before construction activities can resume at the site 	<p>If paleontological materials are found during ground-disturbing activities</p>	<p>Throughout construction period</p>	<p>Lead agency and primary construction contractor</p>	<p>Finds of undocumented paleontological materials are reported and protected until evaluated by a paleontologist</p> <p>Recommendations of qualified paleontologist are implemented</p>	

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where the paleontological resources were discovered.					
3.6 Geology and Soils					
Mitigation to address the potential for erosion and sedimentation would be the same as described in Section 3.9, Hydrology/ Water Quality. No further mitigation is required.	Implement Mitigation Measure WQ-1, described below.				
3.8 Hazards and Hazardous Materials					
<p>Mitigation Measure HAZ-1: Ensure that All Employees Handling Hazardous Materials are Trained in the Safe Handling and Storage of Hazardous Materials.</p> <p>Before the commencement of project construction, TRLIA or its contractor shall:</p> <ul style="list-style-type: none"> ensure that any employee handling hazardous materials is trained in the safe handling and storage of hazardous materials and trained to follow all applicable regulations with regard to such hazardous materials, and, identify staging areas where hazardous materials will be stored during construction in accordance with applicable state and federal regulations. 	Before beginning any construction or ground-disturbing activity	Throughout construction period	Lead agency, primary construction contractor, and subcontractor(s)	All construction personnel have completed training, and staging areas have been identified	
<p>Mitigation Measure HAZ-2: Clear areas slated for construction using spark-producing or intense heat-producing equipment.</p> <p>TRLIA, or its primary construction contractor, shall implement the following measure:</p>	Before beginning any construction or ground-disturbing activity	Throughout construction period	Lead agency, primary construction contractor, and subcontractor(s)	Contractor has verified that construction areas are cleared and equipment is in good working order	

Mitigation Monitoring and Reporting Program for the Upper Yuba Levee Improvement Project

Mitigation Measure	Initiation of Mitigation	Monitoring Frequency	Responsibility for Verification of Compliance	Performance Criteria	Date Compliance Completed
<ul style="list-style-type: none"> Staging areas, welding areas, or other areas slated for construction using spark-producing or intense heat producing equipment are to be cleared of dried vegetation or other materials that could serve as fire fuel. The contractor shall keep these areas clear of combustible materials in order to maintain a firebreak. Any construction equipment that normally includes a spark arrester shall be equipped with an arrester in good working order. This includes, but is not limited to, construction equipment and vehicles. 					
3.9 Hydrology and Water Quality					
<p>Mitigation Measure WQ-1: Prepare a SWPPP and comply with other applicable regulations.</p> <p>Before the start of any project construction work, site grading, or excavation, TRLIA or its primary construction contractor shall prepare a SWPPP detailing measures to control soil erosion and waste discharges from construction areas and shall submit a notice of intent (NOI) to the Central Valley RWQCB for stormwater discharges associated with general construction activity. TRLIA shall require all contractors conducting construction-related work to implement the SWPPP to control soil erosion and waste discharges of other construction-related contaminants. The general contractor(s) and subcontractor(s) conducting the work shall be responsible for constructing or implementing, regularly inspecting, and maintaining the measures in good working order.</p> <p>The SWPPP shall identify the grading and erosion control BMPs and specifications that are necessary to avoid and minimize water quality impacts to the extent practicable.</p>	<p>Before beginning any construction or ground-disturbing activity</p>	<p>Throughout construction period</p>	<p>Lead agency, primary construction contractor, and subcontractor(s)</p>	<p>SWPPP and NOI are completed and submitted to the Central Valley RWQCB.</p> <p>All identified BMPs are implemented and maintained such that contaminants are isolated from drainages to the extent practicable and feasible</p>	

Mitigation Monitoring and Reporting Program for the Upper Yuba Levee Improvement Project

Mitigation Measure	Initiation of Mitigation	Monitoring Frequency	Responsibility for Verification of Compliance	Performance Criteria	Date Compliance Completed
<p>Standard erosion control measures (e.g., management, structural, and vegetative controls) shall be implemented for all construction activities that expose soil. Grading operations shall be conducted to eliminate direct routes for conveying potentially contaminated runoff to drainage channels. Erosion control barriers such as silt fences and mulching material shall be installed, and disturbed areas shall be reseeded with grass or other plants where necessary.</p> <p>The SWPPP shall contain specific measures for stabilizing soils at construction-related sites before the onset of the winter rainfall season. These standard erosion control measures shall be designed to reduce the potential for soil erosion and sedimentation of drainage channels.</p> <p>The following specific BMPs are recommended for implementation:</p> <ul style="list-style-type: none"> • Conduct all work according to site-specific construction plans that identify areas for clearing, grading, and revegetation so that ground disturbance is minimized. • Avoid riparian and wetland vegetation wherever possible and identify vegetation to be retained for habitat maintenance (i.e., as identified through preconstruction biological surveys), cover cleared areas with mulches, install silt fences near riparian areas or streams to control erosion and trap sediment, and reseed cleared areas with native vegetation. • Stabilize disturbed soils at all construction sites and staging areas before the onset of the winter rainfall season. • Stabilize and protect stockpiles from exposure to erosion and flooding. The SWPPP also shall specify appropriate hazardous materials handling, storage, 					

Mitigation Monitoring and Reporting Program for the Upper Yuba Levee Improvement Project

Mitigation Measure	Initiation of Mitigation	Monitoring Frequency	Responsibility for Verification of Compliance	Performance Criteria	Date Compliance Completed
<p>and spill response practices to reduce the possibility of adverse impacts from use or accidental spills or releases of contaminants. Specific measures applicable to the project include, but are not limited to, the following:</p> <ul style="list-style-type: none"> ○ Develop and implement strict on-site handling rules to keep construction and maintenance materials out of drainages and waterways. ○ Conduct all refueling and servicing of equipment with absorbent material or drip pans underneath to contain spilled fuel. Collect any fluid drained from machinery during servicing in leakproof containers and deliver to an appropriate disposal or recycling facility. ○ Maintain controlled construction staging, site entrance, concrete washout, and fueling areas at least 100 feet away from stream channels or wetlands to minimize accidental spills and runoff of contaminants in stormwater. ○ Prevent raw cement; concrete or concrete washings; asphalt, paint, or other coating material; oil or other petroleum products; or any other substances that could be hazardous to aquatic life from contaminating the soil or entering watercourses. ○ Maintain spill cleanup equipment in proper working condition. Clean up all spills immediately according to the spill prevention and response plan, and 					

Mitigation Monitoring and Reporting Program for the Upper Yuba Levee Improvement Project

Mitigation Measure	Initiation of Mitigation	Monitoring Frequency	Responsibility for Verification of Compliance	Performance Criteria	Date Compliance Completed
immediately notify CDFG and the RWQCB of any spills and cleanup procedures.					
<p>Mitigation Measure WQ-2: Monitor well performance before and after cutoff wall installation and restore well performance to pre-project conditions.</p> <p>TRLIA is currently conducting a detailed evaluation to identify all private wells that may be affected by the proposed project. Information from this evaluation will be used prior to, during, and after construction to determine the appropriate course(s) of action to voluntarily mitigate for impacts to wells in the project area, even though impacts are considered less than significant. For potentially affected wells, TRLIA will monitor the well performance before and after cutoff wall installation to determine whether there have been any impacts, and will voluntarily mitigate any impacts through methods including: lowering of the well intake screen; deepening of the well; replacement of the well; or reimbursement for future increased power costs.</p>	Before initiation and following completion of construction	Throughout construction period	Lead agency and primary construction contractor	Well performance is monitored and restored to pre-project conditions	
3.12 Noise					
<p>Mitigation Measure NOISE-1: Voluntary pre- and post construction survey to assess potential architectural damage from construction vibrations.</p> <ul style="list-style-type: none"> A voluntary pre- and post construction survey could be conducted in order to assess potential architectural damage from construction vibration related to the proposed project at each residence within 50 feet of major construction activities and at the swimming pool at Casa Mia Mobile Home Park, which is immediately adjacent to the levee. 	Before initiation and following completion of construction	Throughout construction period	Lead agency and primary construction contractor	Pre- and post-construction surveys have been completed	

Mitigation Monitoring and Reporting Program for the Upper Yuba Levee Improvement Project

Mitigation Measure	Initiation of Mitigation	Monitoring Frequency	Responsibility for Verification of Compliance	Performance Criteria	Date Compliance Completed
Potential surveys should be expanded to structures within 75 feet if the project uses pile driving.					
<p>Mitigation Measure NOISE-2: Abide by the Yuba County Noise Ordinance and Maintain and Equip Construction Equipment with Noise Control Devices.</p> <p>TRLIA shall ensure that the primary construction contractor implements the following mitigation measures during construction activities:</p> <ul style="list-style-type: none"> • To the extent practicable, construction activities shall be limited to the hours of 7 a.m. to 10 p.m. when operations occur within 500 feet of a residential or other noise-sensitive land use. Decisions as to whether nighttime construction is needed within 500 feet of residential or other noise-sensitive land uses shall only consider the need to complete project activities before the beginning of the flood season and the associated need to maintain human safety and the integrity of the flood control system. • All construction equipment shall be properly maintained and equipped with noise control, such as mufflers, in accordance with manufacturers' specifications. • To the extent feasible, the simultaneous operation of multiple construction equipment within 50 feet of residences shall be limited. 	At initiation of construction	Throughout construction period	Lead agency and primary construction contractor	Construction equipment is properly maintained and equipped with all feasible noise control, such as mufflers, in accordance with manufacturers' specifications	
<p>Mitigation Measure NOISE -3: Arrange Construction Equipment Operation and Travel to Minimize Disturbance to Occupied Residences.</p> <p>Construction equipment travel on the levee crown, the land</p>	At initiation of construction	Throughout construction period	Lead agency and primary construction contractor	Noise levels at the locations of noise-sensitive receptors, including occupied dwellings, are reduced	

Mitigation Monitoring and Reporting Program for the Upper Yuba Levee Improvement Project

Mitigation Measure	Initiation of Mitigation	Monitoring Frequency	Responsibility for Verification of Compliance	Performance Criteria	Date Compliance Completed
<p>side of the YRSL, landside staging/laydown areas, and public roadways shall be minimized to the extent possible and arranged to minimize disturbance to occupied residences (i.e., between 7 a.m. and 10 p.m.). Under construction Scenario 2, TRLIA will work with the construction contractor and nearby residents to minimize disturbance to occupied residences. To the extent feasible, the simultaneous operation of construction equipment in these areas shall be limited. Equipment not in use shall not be left idling for more than 5 minutes (note that this is consistent with FRAQMD guidelines as described in Mitigation Measure AQ-1). As much as possible, construction equipment operations shall occur on the water side of the YRSL to maximize the use of the levee as a noise barrier.</p>				to the extent feasible	
<p>Mitigation Measure NOISE -4: Notify Potentially Affected Receptors and Respond to Public Complaints.</p> <ul style="list-style-type: none"> • Before construction at each site near noise-sensitive receptors, TRLIA shall provide written notification to potentially affected receptors, identifying the type, duration, and frequency of construction operations. Notification materials will also identify a mechanism for residents to register complaints with TRLIA and Yuba County (the agency responsible for enforcement of the Yuba County noise ordinance) if construction noise levels are overly intrusive or construction occurs outside the permitted hours. TRLIA and/or Yuba County would then take corrective action. • Construction activities within 200 feet of the dairy buildings shall begin with minimal activity during the first hour each day to sensitize the cows to the higher noise levels that would occur during full 	Before beginning any construction or ground-disturbing activity near noise-sensitive receptors	Whenever construction is to be implemented in the vicinity of noise sensitive receptors	Lead agency	All residents or other building occupants in areas that could be adversely affected by construction noise have been notified	

Mitigation Monitoring and Reporting Program for the Upper Yuba Levee Improvement Project

Mitigation Measure	Initiation of Mitigation	Monitoring Frequency	Responsibility for Verification of Compliance	Performance Criteria	Date Compliance Completed
construction activities in immediate proximity to the cows.					
3.14 Public Services					
Mitigation to address the potential for construction traffic to conflict with emergency response vehicles and increase response times would be the same as described below in Section 3.16, Transportation/Traffic. No further mitigation is required.	Implement Mitigation Measures TRAFFIC-1 and TRAFFIC-4, described below.				
3.16 Transportation/Traffic					
<p>Mitigation Measure TRAFFIC-1: Develop and implement a traffic safety plan in coordination with the County and Caltrans. The construction contractor shall develop a plan for traffic safety assurance for the county roadways in the project vicinity. The contractor shall submit the plan to the County Public Works Department for review before the initiation of construction-related activity that could adversely affect traffic on county roadways. A similar plan shall be prepared for SR 70 and submitted to Caltrans for review before initiation of construction-related activity that could adversely affect traffic on the highway. If both the County and Caltrans will accept the same traffic safety plan, then only one plan need be prepared. The contractor shall train construction personnel in appropriate safety measures as described in the plan(s). The plan(s) may call for the following elements, based on the requirements of each agency:</p> <ul style="list-style-type: none"> • posting warnings about the potential presence of slow-moving vehicles; • using traffic control personnel when appropriate; 	Before beginning any construction or ground-disturbing activities, and throughout construction period	Throughout construction period	Lead agency and primary construction contractor	Traffic safety plan is submitted to Yuba County and Caltrans and the elements of the plan are implemented during construction	

Mitigation Monitoring and Reporting Program for the Upper Yuba Levee Improvement Project

Mitigation Measure	Initiation of Mitigation	Monitoring Frequency	Responsibility for Verification of Compliance	Performance Criteria	Date Compliance Completed
<ul style="list-style-type: none"> • scheduling truck trips outside of peak morning and evening traffic periods to the extent feasible; • placing and maintaining barriers and installing traffic control devices necessary for safety, as specified in Caltrans’s <i>Manual of Traffic Controls for Construction and Maintenance Works Zones</i> and in accordance with County requirements; • coordinating with all emergency response providers to make sure that emergency access is maintain throughout the project area during construction; and, • maintaining routes for passage of emergency response vehicles through roadways affected by construction activities. <p>TRLIA or its primary construction contractor shall implement the adopted plan(s).</p>					
<p>Mitigation Measure TRAFFIC-2: Minimize the accumulation of mud and dirt on local roadways. All operations shall limit or expeditiously remove the accumulation of project-generated mud or dirt from adjacent public streets at least once every 24 hours when operations are occurring. The construction contractor shall sweep the paved roadways (water sweeper with reclaimed water recommended) at the end of each day if substantial volumes of soil material have been carried onto adjacent paved, public roads from the project sites. Also see a similar requirement under Mitigation for Air Quality impacts related to the implementation of FRAQMD pollution-control measures to minimize temporary emissions of ROG, NO_x, and PM₁₀ during construction.</p>	<p>Before beginning any construction or ground-disturbing activities, and throughout construction period</p>	<p>Throughout construction period</p>	<p>Lead agency and primary construction contractor</p>	<p>Roadways are kept clear of construction debris, mud, and dirt</p>	
<p>Mitigation Measure TRAFFIC-3: Assess damage to haul and access routes and repair damages. TRLIA shall assess damage to roadways used during construction and shall</p>	<p>Before beginning any construction or ground-disturbing</p>	<p>Throughout construction period</p>	<p>Lead agency and primary construction contractor</p>	<p>Roadways that are damaged during construction are</p>	

Mitigation Monitoring and Reporting Program for the Upper Yuba Levee Improvement Project

Mitigation Measure	Initiation of Mitigation	Monitoring Frequency	Responsibility for Verification of Compliance	Performance Criteria	Date Compliance Completed
repair all potholes, fractures, or other damages.	activities, and throughout construction period			repaired	
Mitigation Measure TRAFFIC-4: Maintain emergency access during construction. TRLIA shall notify and coordinate with emergency service providers and shall undertake measures necessary to maintain emergency access and facilitate the passage of emergency vehicles on project area roadways. TRLIA shall notify landowners in the project area of the construction schedule and potential road closures and detours available in the project area. Notifications may be by mail, phone calls, and/or meetings with individual landowners. TRLIA will also maintain construction updates on their website.	Before beginning any construction or ground-disturbing activities, and throughout construction period	Throughout construction period	Lead agency and primary construction contractor	Emergency response providers are coordinated with throughout construction and emergency access is maintained during construction	

FINAL INITIAL STUDY/ MITIGATED NEGATIVE DECLARATION

**UPPER YUBA LEVEE IMPROVEMENT PROJECT
(SIMPSON LANE TO THE GOLDFIELDS)**

YUBA COUNTY, CALIFORNIA

State Clearinghouse # 2010022039

Three Rivers Levee Improvement Authority

April 2010

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MITIGATED NEGATIVE DECLARATION

PROJECT: Upper Yuba Levee Improvement Project

LEAD AGENCY: Three Rivers Levee Improvement Authority

PROJECT DESCRIPTION: The Three Rivers Levee Improvement Authority (TRLIA) is proposing to implement the Upper Yuba Levee Improvement Project (UYLIP and proposed project), which is located in the southern portion of Yuba County along the Yuba River South Levee, in the community of Linda. The project area is located approximately one mile south of the Yuba River, approximately 3.5 miles upstream of the confluence of the Yuba and Feather Rivers, approximately two miles northeast of State Route 70, and approximately 1.8 miles east of the City of Marysville, California. The UYLIP proposes improvements along the Yuba River South Levee between Simpson Lane and the Yuba Goldfields (3.9 miles). The project would involve installing slurry walls, seepage berms, levee geometry corrections, and levee slope erosion protection in the project area.

The Draft Initial Study/ Mitigated Negative Declaration (Draft IS/MND) was submitted to the State Clearinghouse on February 11, 2010 for a 30 day public review period that ended on March 15, 2010. During the Public Review Period the Draft IS/MND was available for review at the TRLIA offices located at 1114 Yuba Street, Suite 218, Marysville, CA; at the Yuba County Library at 303 Second Street in Marysville; and at the Sutter County Library at 750 Forbes Avenue in Yuba City. The Draft IS/MND was also available on TRLIA's Web site, <http://www.trlia.org/>.

FINDINGS: An initial study (IS) has been prepared to assess the proposed project's potential effects on the environment and the significance of those effects. Using the results of the IS, the proposed project would not have any significant effects on the environment once mitigation measures are implemented. This conclusion is supported by the following proposed findings:

- ▶ The project would result in no impacts to aesthetics, mineral resources, population and housing, and recreation.
- ▶ The project would result in less-than-significant impacts to agricultural resources, greenhouse gas emissions, land use and planning, and utilities and service systems.
- ▶ Mitigation would be implemented to reduce potentially significant impacts to less-than-significant levels for air quality (potential impacts related to short-term construction emissions), biological resources (potential impacts on vernal pool species, elderberry shrubs, burrowing owls, swainson's hawk, tree-nesting raptors, and listed species during construction), cultural resources (potential to disturb or damage undiscovered subsurface cultural resources or human remains during construction), geology and soils (potential soil erosion during construction), hazards and hazardous materials (potential spills of hazardous substances during construction), hydrology and water quality (potential soil erosion and spills of hazardous substances during construction), noise (short-term noise impacts during construction), public services (potential conflicts with emergency response times during construction), transportation (potential conflicts with traffic in the project area and emergency response times during construction).
- ▶ Although there are no known cultural resources that might be disturbed, mitigation is included to address the potential for discovering archaeological and/or human remains during the construction phase of the project.
- ▶ The project would not substantially 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, reduce the number or restrict the range of a special-status species, or eliminate important examples of California history or prehistory.

- ▶ The project would not achieve short-term environmental goals to the disadvantage of long-term environmental goals.
- ▶ The project would not have environmental effects that are individually limited but cumulatively considerable.
- ▶ The project would not have environmental effects that would cause substantial adverse effects on human beings, either directly or indirectly.
- ▶ No substantial evidence exists that the project would have a significant negative or adverse effect on the environment.
- ▶ The project incorporates all applicable mitigation measures, as listed below and described in the IS.

The following mitigation measures will be implemented as part of the project to avoid or minimize potential environmental impacts. Implementation of these mitigation measures would reduce the potential environmental impacts of the proposed project to a less-than-significant level.

- ▶ **Mitigation Measure AQ-1: Implement FRAQMD-Recommended Emissions Reduction Measures**
- ▶ **Mitigation Measure BIO-1. Implement Avoidance and Minimization Measures to Avoid Impacts on Vernal Pool Species.**
- ▶ **Mitigation Measure BIO-2. Implement Minimization and Avoidance Measures for Elderberry Shrubs.**
- ▶ **Mitigation Measure BIO-3. Compensate for Unavoidable Impacts to Elderberry Shrubs.**
- ▶ **Mitigation Measure BIO-4. Preconstruction Surveys for Burrowing Owls and Passive Relocation if Necessary.**
- ▶ **Mitigation Measure BIO-5. Preconstruction Surveys for Swainson's Hawk and Establishment of Buffers if Necessary.**
- ▶ **Mitigation Measure BIO-6. Preconstruction Surveys for Northern Harrier, White-tailed Kite, and Other Raptors and Migratory Birds.**
- ▶ **Mitigation Measure BIO-7. Implement Avoidance and Minimization Measures for Construction Related Impacts to Listed Species.**
- ▶ **Mitigation Measure CUL-1 Immediately Halt Construction Activities if Any Cultural Materials or Human Remains Are Discovered.**
- ▶ **Mitigation Measure CUL-2 Immediately Halt Construction Activities if Any Paleontological Resources Are Discovered.**
- ▶ **Mitigation Measure HAZ-1: Ensure that All Employees Handling Hazardous Materials are Trained in the Safe Handling and Storage of Hazardous Materials.**
- ▶ **Mitigation Measure HAZ-2: Clear areas slated for construction using spark-producing or intense heat-producing equipment.**
- ▶ **Mitigation Measure WQ-1: Prepare a SWPPP and comply with other applicable regulations.**
- ▶ **Mitigation Measure WQ-2: Monitor well performance before and after cutoff wall installation and restore well performance to pre-project conditions.**

- ▶ **Mitigation Measure NOISE-1: Voluntary pre- and post construction survey to assess potential architectural damage from construction vibrations.**
- ▶ **Mitigation Measure NOISE-2: Abide by the Yuba County Noise Ordinance and Maintain and Equip Construction Equipment with Noise Control Devices.**
- ▶ **Mitigation Measure NOISE -3: Arrange Construction Equipment Operation and Travel to Minimize Disturbance to Occupied Residences.**
- ▶ **Mitigation Measure NOISE -4: Notify Potentially Affected Receptors and Respond to Public Complaints.**
- ▶ **Mitigation Measure TRAFFIC-1: Develop and implement a traffic safety plan in coordination with the County and Caltrans.**
- ▶ **Mitigation Measure TRAFFIC-2: Minimize the accumulation of mud and dirt on local roadways.**
- ▶ **Mitigation Measure TRAFFIC-3: Assess damage to haul and access routes and repair damages.**
- ▶ **Mitigation Measure TRAFFIC-4: Maintain emergency access during construction.**

A copy of the Final IS/MND follows this MND.

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ACRONYMS AND ABBREVIATIONS

bgs	below ground surface
BMP	best management practices
Caltrans	California Department of Transportation
CARB	California Air Resources Board
CDFG	California Department of Fish and Game
CEQA	California Environmental Quality Act
Corps	U.S. Army Corps of Engineers
County	Yuba County
cu. yd.	cubic yards
CVFPB	Central Valley Flood Protection Board
CWA	Clean Water Act
DWR	California Department of Water Resources
EA	Environmental Assessment
EIR	environmental impact report
ESL	environmental study limits
FEMA	Federal Emergency Management Agency
FMMP	Farmland Mapping and Monitoring Program
FRAQMD	Feather River Air Quality Management District
FRLRP	Feather River Levee Repair Project
FTA	Federal Transit Authority
GRR	General Re-evaluation Report
HDR	HDR, Inc.
IS	Initial Study
ITE	Institute of Traffic Engineers
Lv	Velocity level in decibels (i.e. VdB)
MND	mitigated negative declaration
NEPA	National Environmental Policy Act
NOI	Notice of Intent
NO _x	oxides of nitrogen
NPDES	National Pollutant Discharge Elimination System

PG&E	Pacific Gas and Electric Company
PLM	Project Levee Mile
PM ₁₀	Respirable particulate matter
PPV	peak particle velocity
RD	Reclamation District
ROG	reactive organic gases
RWQCB	Regional Water Quality Control Board
SB	Soil-Bentonite
SR	State Route
SRFCP	Sacramento River Flood Control Project
SWPPP	storm water pollution prevention plan
TRLIA	Three Rivers Levee Improvement Authority
USC	United States Code
USFWS	U.S. Fish and Wildlife Service
UYLIP	Upper Yuba Levee Improvement Project
VdB	See 'Lv'
YCWA	Yuba County Water Agency
Y-FSFCP	Yuba-Feather Supplemental Flood Control Project
YRSL	Yuba River South Levee

1.0 INTRODUCTION

1.1 PURPOSE OF THIS DOCUMENT AND OVERVIEW OF THE DRAFT IS/MND PUBLIC REVIEW PROCESS

On February 11, 2010, the Three Rivers Levee Improvement Authority (TRLIA) distributed to public agencies and the general public the Draft Initial Study/Mitigated Negative Declaration (Draft IS/MND) on the Upper Yuba Levee Improvement Project (UYLIP). The Draft IS/MND was prepared on behalf of TRLIA in accordance with the requirements of the California Environmental Quality Act (CEQA) Statutes (Public Resources Code [PRC] Sections 21000 et seq.) and the State CEQA Guidelines (Title 14, Section 15000 et seq. of the California Code of Regulations). TRLIA is the lead agency for CEQA compliance. TRLIA is a joint powers authority composed of Yuba County and Reclamation District (RD) 784 that was formed to address funding and implementation of levee repairs for the RD 784 area.

In accordance with the CEQA Statutes (PRC Section 21092) and Section 15072 of the State CEQA Guidelines, public notice of the Draft IS/MND and the beginning of the public review period was provided by TRLIA through publication of an announcement in the Marysville Appeal-Democrat in the February 13, 2010. In accordance with Section 15105(b) of the State CEQA Guidelines, TRLIA provided a 30-day public review period for the Draft IS/MND, ending on March 15, 2010.

The public notice published in the Marysville Appeal-Democrat included details on how to obtain copies of the Draft IS/MND, how to provide comments on the document, and announced the public information meeting for the Draft IS/MND, which was held on March 8, 2010 at the Yuba County Government Center, in Marysville. Additional notification methods were also used, including: mailing of approximately 25 copies of the notice of intent (NOI) to adopt a proposed mitigated negative declaration for the UYLIP to potentially affected landowners; posting of the electronic copy of the Draft IS/MND on the www.trlia.org website; mailing over 40 copies of the Draft IS/MND on compact disc (CD) with a paper copy of the NOI to various agencies and individuals; and, mailing approximately 30 paper copies of the full Draft IS/MND with a copy of the NOI to various agencies and individuals. The NOI included information on how to obtain copies of the Draft IS/MND, how to provide comments on the document as well as an announcement of the Draft IS/MND public information meeting. As a courtesy to the public, additional announcements of the public information meeting were published in the February 20 and 27 and March 6, 2010 editions of the Marysville Appeal-Democrat.

At the public meeting on the Draft IS/MND, TRLIA and members of the project team presented an overview of the project, conclusions of the Draft IS/MND, and ways to provide comments on the Draft IS/MND. Project team members were available to answer questions and provide additional information on the project. Various methods for providing comments on the Draft IS/MND either verbally or in writing, were available to participants at the meeting.

TRLIA received seven comment letters on the Draft IS/MND during the 30-day public comment period. All seven comment letters are addressed in this Final IS/MND (Final IS/MND). This Final IS/MND has been prepared to respond to the comments received by TRLIA that address significant environmental issues related to the Draft IS/MND, in accordance with the State CEQA Guidelines.

This document consists of the following chapters:

- ▶ Chapter 1, “Introduction,” describes the purpose of this Final IS/MND, provides an overview of the public review process, summarizes the project background, purpose and need, provides the anticipated project timeline, and summarizes operation and maintenance actions.

- ▶ Chapter 2, “Comments and Responses to Comments on the Draft IS/MND,” reproduces the comment letters received by TRLIA on the Draft IS/MND and provides responses to those comments.
- ▶ Chapter 3, “Corrections and Updates to the Draft IS/MND,” lists modifications to the Draft IS/MND made in response to the comments received. These modifications do not change any of the impact conclusions stated in the Draft IS/MND.
- ▶ Chapter 4, “List of Preparers,” lists the individuals who contributed to the preparation of this Final IS/MND.
- ▶ Chapter 5, “References Cited,” lists the sources cited in this Final IS/MND.

This document and the Draft IS/MND together constitute the Final IS/MND for the UYLIP. The Draft IS/MND is hereby incorporated into this document by reference.

1.2 PROJECT BACKGROUND AND NEED

TRLIA’s goal is to reduce the risk of flooding in south Yuba County by designing a Program to meet the California Department of Water Resource’s (DWR) requirements for 200-year flood protection. The TRLIA Levee Improvement Program, when completed, will reduce the risk of flooding for the urban communities of Linda, Olivehurst, Arboga and Plumas Lake. The TRLIA Levee Improvement Program area is located in southwestern Yuba County and encompasses the RD 784 service area.

Several major flood events have occurred in the RD784 area since the system was constructed; most notably in 1986 and 1997. In 1986 the Yuba River breached near the communities of Linda and Olivehurst when flows were well below design levels. The 1986 levee breach occurred at Project Levee Mile (PLM) 0.8, upstream of State Route (SR) 70 and downstream from the beginning of the UYLIP (PLM 2.2). The 1986 breach allowed flows to travel south and southwest through RD 784 flooding large portions of Linda and West Linda. Because the breach occurred later in the 1986 flood season, flood volumes through the breach were small and the lower portion of the RD 784 area escaped significant flooding. Flood waters inundated 10,700 acres, killed one person, and damaged or destroyed more than 4,000 homes and businesses. Damages, and the liability associated with this flood, cost the State of California \$450 million.

The second prominent flood event took place in 1997. In 1997 the Feather River East Levee failed near the community of Arboga at PLM 19.4, north of Country Club Road, which is located approximately eight miles southwest of the UYLIP project area. The 1997 floodwaters inundated 16,000 acres in Yuba County, killed three people, and damaged or destroyed more than 850 homes and businesses. Also during 1997, Yuba River flows infiltrated the Yuba Goldfields. The Yuba Goldfields are located along the Yuba River near Daguerre Point Dam, approximately 10 miles northeast of Marysville. The Yuba Goldfields encompass over 8,000 acres and have been the site of gold mining for nearly 100 years. The mining in this area has generated thousands of acres of an undulating cobble and rock terrain that has, in more recent years, been used to produce aggregate. Current operations in the Yuba Goldfields include gold mining by Cal Sierra Development, Incorporated and aggregate production by Western Aggregates, Incorporated. In 1997 flows from the Yuba River that went into the Goldfields, exited the Goldfields through its contact point with the upstream end of the YRSL. There is no available information indicating that flood flows from the Goldfields have ever escaped from this location before. The exiting flows were concentrated along the waterside toe of the YRSL, and eroded approximately one-third of the YRSL embankment for a distance of approximately 1,200 feet downstream of the Goldfields. The flows were diverted away from the levee toe further downstream through a historic minor tributary of the Yuba River. After the flood, the erosion damage was repaired by the National Guard, under the direction of RD 784. A mixture of cobblestones and fines was put in place to restore the eroded levee section. However, the restored levee is still subject to erosion damage from any flows that may exit the Yuba Goldfields at this location in the future.

Following the 1997 flood, the Yuba County Water Agency (YCWA) formed a flood control study team and initiated a study of measures that could provide a higher level of protection to supplement the flood protection system for Yuba County. With passage of the Water Act of 2000, the efforts of the study team focused on those measures that could be achieved within the budget provisions of this act. This ongoing effort, funded through State Water Act of 2000 grant monies, is the Yuba-Feather Supplemental Flood Control Project (Y-FSFCP).

In 1998, concurrently with studies conducted by the YCWA, the U.S. Army Corps of Engineers (Corps) completed a feasibility study that recommended a project that would reduce the flood risk in the project area. This project is referred to as the Yuba River Basin Investigation or, in short, the Yuba Basin Project. Additional improvements were planned to the existing levee system to raise the levee's Probable Non-failure Point (defined as the highest water level at which it is highly likely that the levee would not fail) and thus decrease the probability of flooding. An environmental impact statement/environmental impact report for the Yuba River Basin Investigation was completed by Corps and the California Reclamation Board (now referred to as the Central Valley Flood Protection Board or CVFPB) in 1998. Portions of the planned Yuba Basin Project work overlap with flood system improvements planned by the YCWA and others described below.

The U.S. Congress approved the Yuba Basin Project in 1999 and construction was authorized to begin in 2002. In 2003, the Corps issued new levee criteria, which lead to the reevaluation of the Yuba Basin Project's design. The Corps' new underseepage guidelines in 2003 led to the reevaluation of the project, which substantially increased the estimated cost. Because of this cost increase, the Yuba River Basin Project must be reauthorized by Congress. A General Reevaluation Report (GRR) is currently being prepared by the Corps to obtain a new project authorization.

DWR and the Corps initiated a reevaluation of the ability of the RD 784 levees to withstand the 100-year event in 2002. This study, the Lower Feather River Floodplain Mapping Study, identified deficiencies on the RD 784 levees on the Bear River, WPIC, and the lower Yuba River in May 2003. DWR informed RD 784, Yuba County, and YCWA that study results would be provided to the Federal Emergency Management Agency (FEMA). In turn, FEMA would map areas protected by the deficient levee sections as a flood hazard zone (i.e., within the 100-year floodplain) unless corrective measures were implemented. As a result, Yuba County conducted problem identification studies for the Lower Yuba and Bear River levees and the WPIC levee. Based on these studies, additional deficiencies were subsequently identified on the Lower Yuba River, Bear River, and WPIC.

As a response to the studies and Yuba County flood mapping, RD 784, and YCWA conducted various studies to determine necessary actions for RD 784 levees to meet current FEMA criteria. In April 2004, TRLIA was established as a Joint Powers Authority by Yuba County and RD 784 to facilitate cooperation and share resources to finance and construct levee improvements.

In January 2005, the Corps issued a letter that the Feather River left (east) bank levee and the Yuba River left (south) bank levee above the Southern Pacific Railroad crossing did not meet 100-year requirements.. In response to the Corps' January 2005 letter, TRLIA performed additional evaluations of the Feather and Yuba River left bank levees in 2005. These evaluations document extensive reaches of the Feather and Yuba River left bank levees that do not meet regulatory seepage and stability criteria under 1:100 annual exceedance probabilities flood event conditions.

To address the identified deficiencies, TRLIA has developed a comprehensive Levee Improvement Program for RD 784. TRLIA's Program consists of a four phase program to improve 29 miles of RD 784 levees along the Yuba River, Feather River, Bear River and the WPIC with the goal of achieving 200-year flood protection for South Yuba County. Priority was given to implementing improvements to: the Yuba River levee above SR 70 (Phase 1); improvements to the upper Bear River, WPIC, and Yuba River levees, and the Olivehurst detention basin (Phase 2); and construction of a setback levee along the lower Bear River, tying into the Feather River levee just below Clark Slough (Phase 3). The first construction work was initiated in September 2004. Phases 1, 2, 3,

and portions of Phase 4 have been completed and 10.5 miles were certified to meet FEMA requirements by the Corps on May 8, 2007.

The *Problem Identification Report, TRLIA Phase 4 Feather River and Yuba River Left Bank Levees, Reclamation District 784, Yuba County, California* (Kleinfelder 2006) evaluated the left bank of the Yuba and Feather Rivers in RD784. The Yuba River portion of that evaluation was based on hydraulic information that was provided in the Lower Feather River Floodplain Mapping Study by the Corps. The model showed that the water surface along the lower portion (confluence with the Feather River upstream to Dantoni Road) of the Yuba levee is generally backwater controlled by the combined flows of the Yuba and Feather Rivers. In the upper portion of the Yuba levee, it was understood that flows were controlled by a combination of training walls in the Goldfields and a training levee which resulted in little or no water reaching the upper reach of the left bank of the Yuba River levee. Therefore, minor improvements were required on the YRSL, which included erosion control along 2,000 feet at the upstream end of the levee (just downstream of the Goldfields).

TRLIA updated the hydraulic model in December 2008 and provided to the Corps for its review. The updated model provided for two potential mechanisms for delivering water to the upper portion of the YRSL, including failure of the Yuba River south training levee downstream of the Goldfields and flow through the Goldfields exiting adjacent to the Patrol Road levee. Results of the model show a significant increase in the stage of the 100- and 200-year water surface on the YRSL. TRLIA has not developed floodplains based on the updated model.

As a result, TRLIA began a reevaluation of this reach of levee to determine if the updated hydraulic model results identified new deficiencies. A detailed analysis of the YRSL was performed and is described in the *Geotechnical Basis of Design Report, Upper Yuba Levee Improvement Project, Yuba River South Levee Evaluation, Reclamation District 784, Yuba County, California* (Kleinfelder 2010). The Geotechnical Basis of Design Report concluded that there are significant problems related to under and through seepage along the YRSL (Kleinfelder 2010). In addition, based on review of existing levee conditions and the 200-year water surface elevation provided by MBK Engineers has identified short reaches of levee that have subsided below the design elevation and need to be corrected. This levee raising is to restore the design freeboard to the authorized height. Furthermore, portions of the YRSL have slope stability deficiencies and do not meet the Corps' minimum levee slope criteria. These improvements are part of TRLIA's Program of levee modifications that are necessary to retain FEMA certification for the 100-year flood event and to meet DWR requirements for the 200 year flood event. Therefore, the UYLIP is proposed to reduce the risk of flooding from failure of the YRSL in Yuba County.

1.3 SUMMARY DESCRIPTION OF THE PROJECT PURPOSE

TRLIA is a joint powers authority with the mission of advancing flood safety in Yuba County, California. The county is subject to seasonal flood threats from many rivers and creeks, including the Yuba River, Feather River, Bear River, and tributary drainages. Because of this flood risk, many local rivers have been confined by constructed levees. Therefore, TRLIA is proposing to enhance flood protection of properties within the RD 784 service area of Yuba County by improving a segment of the south levee of the Yuba River from approximately Simpson Lane (PLM 2.3; Project Station 102+00) to the Yuba Goldfields (PLM 6.1; Project Station 303+59). The total length of the project is approximately 3.8 miles.

The purpose of the proposed project is to correct through seepage, under seepage, and geometric levee deficiencies and improve flood protection on the Yuba River South Levee (YRSL). This action would provide a minimum 200-year level of flood protection in the project area and ensure that the project area meets the minimum requirements of Federal and State laws. The proposed improvements are intended to meet the engineering and design standards of the CVFPB and the Corps.

1.4 TIMELINE FOR PROJECT IMPLEMENTATION

The TRLIA Board of Directors is expected to make a decision on certifying the MND and approving the project at its meeting on April 20, 2010. TRLIA anticipates that negotiations with landowners for land acquisition would begin in May 2010 and would be finalized in June 2010.

Assuming that the project is approved, completion of project-level environmental compliance, detailed engineering design, equipment procurement, permitting, design review and approval, and construction of the proposed project is anticipated to take place between the end of April 2010 and November 2010.

Sufficient detailed engineering to allow the start of construction is expected to be completed in May 2010. It is assumed that federal, state, and local permitting and National Environmental Policy Act (NEPA) reviews would be completed concurrently with detailed design activities.

It is assumed that contractor selection would take place soon after the approval of final detailed design packages for the project. It is also expected that acquisition of right-of-way (i.e. temporary construction easement rights-of-way, right-of-way for the Operations and Maintenance corridors, and right-of-way for the seepage berm) would begin after certification of all CEQA documents for the project and would be completed in June 2010. Acquisition could proceed concurrent with the completion and approval of the final detailed design and contractor selection.

1.5 OPERATION AND MAINTENANCE

The YRSL that would be improved as part of the UYLIP would remain under the existing easements for operation and maintenance. As is the current practice, landowners would be assessed fees for levee operation and maintenance, which would be performed by RD 784 under the supervision of DWR. Current operation and maintenance procedures would continue after construction of the proposed improvements including per requirements from the CVFPB to maintain a vegetation free zone in the proposed project's operation and maintenance corridors. The only substantial difference between the operation and maintenance of the repaired levee segments and current practice would result from the installation of the waterside levee slope erosion protection at the end of the project alignment. The waterside levee slope erosion protection maintenance would be generally minor and would consist of removing any woody vegetation that tries to establish in the erosion protection and replacement of any rock that is washed away during rain events; removal of rock by flows is highly improbable at this location.

2.0 COMMENTS AND RESPONSES TO COMMENTS ON THE DRAFT IS/MND

TRLIA received several comment letters on the Draft Initial Study/Mitigated Negative Declaration (IS/MND) during the public comment period. The following table lists the commenters and the dates of the letters. Each letter and individual comment has been assigned a letter/number designation for cross-referencing.

A Public Information Meeting for the Draft IS/MND was held on March 8, 2010 from 6:30 to 8:30 p.m. at the Yuba County Government Center Board Chambers at 915 Eighth Street, Marysville. Approximately 30 people including the project team attended the public information meeting. A court reporter was available for the public to make oral comments on the project during the meeting. In addition, comment forms were available for the public to make written comments on the project. No members of the public submitted oral or written comments during the public information meeting.

The comment letters received on the Draft IS/MND, and the responses to the significant environmental issues raised, follow the table. Also included at the end of this chapter is a letter from the State Clearinghouse. The letter acknowledges that TRLIA has complied with the State Clearinghouse draft environmental document review requirements, and indicates that no state agencies submitted comments through the State Clearinghouse by the close of the comment period on March 15, 2010. All comment letters received are addressed in this Final IS/MND.

List of Commenters/Letters			
Designation	Commenter	Date of Letter	Comment Number
A	U.S. Army Corps of Engineers (Corps)	February 18, 2010	A-1, A-2, A-3
B	Yuba County	February 22, 2010	B-1, B-2, B-3, B-4
C	Linda Fire Protection District	March 1, 2010	C-1, C-2
D	Federal Emergency Management Agency (FEMA)	March 8, 2010	D-1, D-2
E	Central Valley Flood Protection Board (CVFPB)	March 11, 2010	E-1
F	California Department of Transportation (Caltrans)	March 15, 2010	F-1, F-2
G	Office of Thomas W. Eres	March 15, 2010	G-1, G-2, G-3, G-4



REPLY TO
ATTENTION OF

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

Comment Letter A

RECEIVED

FEB 18 2010

February 16, 2010

TRLIA

Regulatory Division (SPK-2010-00196)

Ms. Laurie Warner Herson
Three Rivers Levee Improvement Authority
1114 Yuba Street, Suite 218
Marysville, California 95901

Dear Ms. Warner Herson:

We are responding to your February 11, 2010 request for comments on the Upper Yuba Levee Improvement (Simpson Lane to The Goldfields) project. The project is located in Section 20, Township 14 North, Range 4 East, M.D.B. &M. Survey, Latitude 39.075223°, Longitude - 121.537978°, near the City of Marysville, in Yuba County, California. Your identification number is SPK-2010-00196.

Based upon your February 2010 *Draft Initial Study/Mitigated Negative Declaration, Upper Yuba Levee Improvement Project (Simpson Lane to The Goldfields)*, your project may impact waters of the United States. The Corps of Engineers' jurisdiction within the study area is under the authority of Section 404 of the Clean Water Act for the discharge of dredged or fill material into waters of the United States. Waters of the United States include, but are not limited to, rivers, perennial or intermittent streams, lakes, ponds, wetlands, vernal pools, marshes, wet meadows, and seeps. Project features that result in the discharge of dredged or fill material into waters of the United States will require Department of the Army authorization prior to starting work.

A-1

To ascertain the extent of waters on the project site, the applicant should prepare a wetland delineation, in accordance with the "Minimum Standards for Acceptance of Preliminary Wetland Delineations", under "Jurisdiction" on our website at the address below, and submit it to this office for verification. A list of consultants that prepare wetland delineations and permit application documents is also available on our website at the same location.

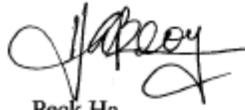
A-2

The range of alternatives considered for this project should include alternatives that avoid impacts to wetlands or other waters of the United States. Every effort should be made to avoid project features which require the discharge of dredged or fill material into waters of the United States. In the event it can be clearly demonstrated there are no practicable alternatives to filling waters of the United States, mitigation plans should be developed to compensate for the unavoidable losses resulting from project implementation.

A-3

Please refer to identification number SPK-2010-00196 in any correspondence concerning this project. If you have any questions, please contact Mr. Peck Ha by mail at our California North Branch at 1325 J Street, Room 1480, Sacramento, California 95814-2922, by email at Peck.Ha@usace.army.mil, or by telephone at 916-557-6617. For more information regarding our program, please visit our website at www.spk.usace.army.mil/regulatory.html.

Sincerely,



Peck Ha
Project Manager, California North Branch

Copy Furnished:

Mr. William Marshall, California Regional Water Quality Control Board, Central Valley Region,
Storm Water and Water Quality Certification Unit, 11020 Sun Center Drive #200, Rancho
Cordova, California 95670-6114

Responses to Comment Letter A from USACE

Response to Comment A-1:

As described in Section 3.4 of the Draft IS/MND (Biological Resources), a Delineation of Waters of the U.S. was prepared in order to identify whether potential waters of the U.S., including wetlands, occur within the environmental study limits (ESL). No potentially jurisdictional wetlands or other waters of the U.S. were identified in the project area. Features believed to not be jurisdictional waters of the U.S. identified in the ESL include one vernal pool, one pond, one seasonal wetland, three dairy waste lagoons, two roadside ditches, and three agricultural ditches. These features occupy a total of 3.56 acres. Although the vernal pool and seasonal wetland do not meet the criteria for waters of the U.S. subject to Corps jurisdiction under Section 404 of the Clean Water Act (CWA), they are potential waters of the State subject to Regional Water Quality Control Board (RWQCB) jurisdiction under Section 401 of the CWA.

Response to Comment A-2:

As described above under Response to Comment A-1, a wetland delineation was prepared for the proposed project in accordance with Corps standards, and has been submitted to the Corps for a determination on project effects to waters of the U.S. At this time, none of the features identified in the ESL are expected to be jurisdictional. In addition, all features within the project area, with the exception of portions of a roadside ditch, would be avoided.

Response to Comment A-3:

As summarized above under Responses to Comments A-1 and A-2, none of the features within the project area are expected to be jurisdictional, and all features within the project area, with the exception of portions of a roadside ditch, would be avoided.

The County of Yuba

Community Development & Services Agency

Kevin Mallen, Director

Phone - (530) 749-5430 • Fax - (530) 749-5434
915 8th Street, Suite 123
Marysville, California 95901
www.co.yuba.ca.us

February 22, 2010

Mr. Paul Brunner, Executive Director
Three Rivers Levee Improvement Authority
1114 Yuba Street, Suite 218
Marysville, CA 95901

RE: Upper Yuba Levee Improvement Project Draft IS/MND

Dear Mr. Brunner:

Yuba County Public Works Department has reviewed the draft IS/MND for the above mentioned project. Our comments are as follows:

1. How long will Dantoni Road be closed to place the slurry wall? The placement of the slurry wall would require the road to be closed during construction activities and there is no mention of this in the draft IS/MND or the proposed duration. **B-1**
2. On page 102 in the section for the Yuba County Grading Ordinance it should also reference that the disturbance of 1 acre or more requires a grading permit. This includes all properties associated with the levee project (i.e. borrow sites, levee removal, etc.) that are disturbed. Please see Chapter 11.25 of the Yuba County Ordinance Code for other grading requirements. **B-2**
3. On page 151 in the section describing Hammonton-Smartsville Road the road extends from Avondale Avenue not Lindhurst Avenue. Hammonton-Smartsville Road does not connect with Lindhurst Avenue. **B-3**
4. On page 151 in the section of Associated Roads please include Simpson-Dantoni Road as one of the other roads in the project area. **B-4**

Please contact me at (530) 749-5420 if you have any questions concerning our comments for this draft IS/MND.

Sincerely,



Van A. Boeck
Principal Engineer
Yuba County Public Works

Comment Letter B



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BUILDING
749-5440 • Fax 749-5816

CODE ENFORCEMENT
749-5455 • Fax 749-5464

ENVIRONMENTAL HEALTH - CUPA
749-5450 • Fax 749-5454

HOUSING AND COMMUNITY SERVICES
749-5460 • Fax 749-5464

PLANNING
749-5470 • Fax 749-5434

PUBLIC WORKS - SURVEYOR
749-5420 • Fax 749-5424

FINANCE AND ADMINISTRATION
749-5430 • Fax 749-5434

Responses to Comment Letter B from Yuba County

Response to Comment B-1:

As described in Section 2.0 of the Draft IS/MND (Project Description), a construction period of up to approximately four months is planned for the project, beginning in July 2010 with contractor mobilization, and ending in November 2010 with clean-up and contractor demobilization. The only closure that would result from construction of the proposed project would be located at the Dantoni Road crossing of the YRSL. The Dantoni Road crossing at the YRSL would be closed for the length of the construction period (approximately four months). Vehicles attempting to use Dantoni Road to cross the YRSL would be rerouted to Hammonton Smartville Road then to Simpson Lane and Simpson Dantoni Road to reach the waterside of the YRSL. Access to properties located on Dantoni Road and Griffith Avenue between to Hammonton Smartville and the YRSL would remain open.

TRLIA understands the importance of maintaining emergency access and reducing traffic impacts during construction. As described in Section 3.16 of the Draft IS/MND (Transportation/Traffic), the construction contractor for the proposed project shall develop a plan for traffic safety assurance for the county roadways in the project vicinity. The contractor shall submit the plan to both Yuba County and Caltrans for review before the initiation of construction-related activity that could adversely affect traffic on county roadways or state highways.

Project staff would also establish appropriate coordination with Yuba County before project construction is initiated. Communication with Yuba County will be maintained throughout the project planning and construction processes to minimize traffic impacts.

Response to Comment B-2:

The text on page 102 in Section 3.6 of the Draft IS/MND (Geology/Soils) will be revised to include reference to the Yuba County requirement for disturbances of one acre or more to result in the need for a grading permit.

Response to Comment B-3:

The text on page 151 in Section 3.16 of the Draft IS/MND (Transportation/Traffic) will be revised to accurately state that Hammonton-Smartville Road extends from Avondale Avenue, not Lindhurst Avenue.

Response to Comment B-4:

Simpson-Dantoni Road is discussed under the Simpson Lane subheading on page 151 in Section 3.16 of the Draft IS/MND (Transportation/Traffic). Just north of the intersection of Simpson Lane and Hammonton Smartville Road, Simpson Lane turns into Simpson Dantoni Road, which runs east-northeast to the community of Dantoni. Therefore, the subheading "Simpson Lane" on page 151 will be revised to state "Simpson Lane/Simpson Dantoni Road."

Linda Fire Protection District

1286 Scales Avenue ☆ Marysville, California 95901
Telephone: (530) 743-1553

Chief

Richard Webb

Directors

Jim Brannon
Robert Shinn
Glen Weldon

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MAR 03 2010

TRLIA

March 1, 2010

Paul Brunner, P.E., Executive Director
Three Rivers Levee Improvement Authority
1114 Yuba Street, Suite 218
Marysville, CA 95901,

Re: Draft Initial Study/ Mitigated Negative Declaration, Upper Yuba Levee Improvement Project (Simpson Lane to the Goldfields)

Dear Mr. Brunner:

The Linda Fire Protection District has no objection to the granting of a Mitigated Negative Declaration for this project. I have reviewed the comments pertaining to fire protection and concur with the discussion and conclusions as submitted with the mitigation incorporated.

C-1

In Section 3.14, Public Services, under the Fire Protection description, please note the proper name of the agency is the Linda Fire Protection District. The District currently maintains three (3) fire stations, located in the communities of Linda, Arboga and Plumas Lake.

C-2

If I may be of assistance, please do not hesitate to contract me at (530) 743-1553.

Sincerely,



Richard H. Webb
Chief

Responses to Comment Letter C from Linda Fire Protection District

Response to Comment C-1:

Thank you for your comments on the proposed project.

Response to Comment C-2:

The text in Section 3.14 of the Draft IS/MND (Public Services) will be revised to accurately state the proper name of the Linda Fire Protection District, and to state that the District maintains three fire stations in the communities of Linda, Arboga, and Plumas Lake.

Comment Letter D

U.S. Department of Homeland Security
FEMA Region IX
1111 Broadway, Suite 1200
Oakland, CA. 94607-4052



FEMA

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MAR 15 2010

TRLIA

March 8, 2010

Paul Brunner, P. E., Executive Director
Three Rivers Levee Improvement Authority
1114 Yuba Street, Suite 218
Marysville, California 95901

Dear Mr. Brunner:

This is in response to your request for comments on the Draft Initial Study/Mitigated Negative Declaration for the Upper Yuba Levee Improvement Project, Yuba County, California.

Please review the current effective countywide Flood Insurance Rate Maps (FIRMs) for the County of Yuba (Community Number 060427), Maps revised September 15, 1983. Please note that the County of Yuba, California is a participant in the National Flood Insurance Program (NFIP). The minimum, basic NFIP floodplain management building requirements are described in Vol. 44 Code of Federal Regulations (44 CFR), Sections 59 through 65.

D-1

A summary of these NFIP floodplain management building requirements are as follows:

- All buildings constructed within a riverine floodplain, (i.e., Flood Zones A, AO, AH, AE, and A1 through A30 as delineated on the FIRM), must be elevated so that the lowest floor is at or above the Base Flood Elevation level in accordance with the effective Flood Insurance Rate Map.
- If the area of construction is located within a Regulatory Floodway as delineated on the FIRM, any **development** must not increase base flood elevation levels. **The term development means any man-made change to improved or unimproved real estate, including but not limited to buildings, other structures, mining, dredging, filling, grading, paving, excavation or drilling operations, and storage of equipment or materials.** A hydrologic and hydraulic analysis must be performed *prior* to the start of development, and must demonstrate that the development would not cause any rise in base flood levels. No rise is permitted within regulatory floodways.

D-2

www.fema.gov

Paul Brunner, P. E.
Page 2
March 8, 2010

- Upon completion of any development that changes existing Special Flood Hazard Areas, the NFIP directs all participating communities to submit the appropriate hydrologic and hydraulic data to FEMA for a FIRM revision. In accordance with 44 CFR, Section 65.3, as soon as practicable, but not later than six months after such data becomes available, a community shall notify FEMA of the changes by submitting technical data for a flood map revision. To obtain copies of FEMA's Flood Map Revision Application Packages, please refer to the FEMA website at <http://www.fema.gov/business/nfip/forms.shtm>.

D-2
cont.

Please Note:

Many NFIP participating communities have adopted floodplain management building requirements which are more restrictive than the minimum federal standards described in 44 CFR. Please contact the local community's floodplain manager for more information on local floodplain management building requirements. The Yuba County floodplain manager can be reached by calling Michael Lee, Director, Department of Public Works, at (530) 749-5420.

If you have any questions or concerns, please do not hesitate to call Jana Critchfield of the Mitigation staff at (510) 627-7266.

Sincerely,



Gregor Blackburn, CFM, Branch Chief
Floodplain Management and Insurance Branch

cc:

Michael Lee, Director, Department of Public Works, Yuba County
Ray Lee, State of California, Department of Water Resources, North Central Region Office
Jana Critchfield, Insurance Specialist, DHS/FEMA Region IX
Alessandro Amaglio, Environmental Officer, DHS/FEMA Region IX

www.fema.gov

Responses to Comment Letter D from FEMA

Response to Comment D-1:

The current effective countywide Flood Insurance Rate Maps (FIRMs) for the County of Yuba have been reviewed for the proposed project. The proposed project is located primarily on existing levees and as such is not directly within the base 100-year floodplain and is intended to improve the current level of protection, ultimately to the goal of 200-year protection.

Response to Comment D-2:

The National Flood Insurance Program (NFIP) floodplain management building requirements have been reviewed for the proposed project. The proposed project does not include construction of any buildings or structures, would not increase base flood elevation levels, and would not change the existing Special Flood Hazard Areas.

The proposed project would not alter conditions in the Yuba River channel or floodway or the operation of the flood control system. The proposed project would correct levee deficiencies and improve flood protection on the Yuba River South Levee (YRSL) by providing a minimum 200-year level of flood protection in the project area and vicinity and ensuring that the project area meets the minimum requirements of Federal and State laws.

Comment Letter E

STATE OF CALIFORNIA – THE RESOURCES AGENCY

ARNOLD SCHWARZENEGGER, GOVERNOR

CENTRAL VALLEY FLOOD PROTECTION BOARD

3310 El Camino Ave., Rm. LL40
SACRAMENTO, CA 95821
(916) 574-0609 FAX: (916) 574-0682
PERMITS: (916) 574-0685 FAX: (916) 574-0682



March 11, 2010

Paul Brunner
Three Rivers Levee Improvement Authority
1114 Yuba Street, Suite 218
Marysville, California 95901

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MAR 17 2010

TRLIA

Dear Mr. Brunner:

SCH# 2010022039
Draft Initial Study/Mitigated Negative Declaration
Upper Yuba Levee Improvement Project
(Simpson Lane to the Goldfields)

Staff for the Central Valley Flood Protection Board has reviewed the subject document and provides the following comments:

The proposed project is located within the jurisdiction of the Central Valley Flood Protection Board (Formerly known as The Reclamation Board). The Board is required to enforce standards for the construction, maintenance and protection of adopted flood control plans that will protect public lands from floods. The jurisdiction of the Board includes the Central Valley, including all tributaries and distributaries of the Sacramento River and the San Joaquin River, and designated floodways (Title 23 California Code of Regulations (CCR), Section 2).

A Board permit is required prior to starting the work within the Board's jurisdiction for the following:

- The placement, construction, reconstruction, removal, or abandonment of any landscaping, culvert, bridge, conduit, fence, projection, fill, embankment, building, structure, obstruction, encroachment, excavation, the planting, or removal of vegetation, and any repair or maintenance that involves cutting into the levee (CCR Section 6);
- Existing structures that predate permitting or where it is necessary to establish the conditions normally imposed by permitting. The circumstances include those where responsibility for the encroachment has not been clearly established or ownership and use have been revised (CCR Section 6);
- Vegetation plantings will require the submission of detailed design drawings; identification of vegetation type; plant and tree names (i.e. common name and scientific name); total number of each type of plant and tree; planting spacing and irrigation method that will be within the project area; a complete vegetative management plan for maintenance to prevent the interference with flood control, levee maintenance,

E-1

Paul Brunner
March 11, 2010
Page 2 of 2

inspection and flood fight procedures (Title 23, California Code of Regulations CCR Section 131).

- According to p. 31, the utility poles from within the proposed project's operation and maintenance corridors are anticipated to be relocated approximately 10 feet outside of the corridor. The Board recommends relocation of these utility poles to be greater than 10 feet from the levee toes, whenever possible.

E-1
cont.

The permit application and Title 23 CCR can be found on the Central Valley Flood Protection Board's website at <http://www.cvfpb.ca.gov/>. Contact your local, federal and state agencies, as other permits may apply.

If you have any questions please contact me at (916) 574-0651 or by email jherota@water.ca.gov.

Sincerely,



James Herota
Staff Environmental Scientist
Floodway Protection Section

cc:

Governor's Office of Planning and Research
State Clearinghouse
1400 Tenth Street, Room 121
Sacramento, CA 95814

Response to Comment Letter E from CVFPB

Response to Comment E-1:

As described in the Sections 3.6 and 3.9 of the Draft IS/MND (Geology/Soils and Hydrology/Water Quality), an encroachment permit would be obtained from the Central Valley Flood Protection Board (CVFPB) prior to initiating work.

TRLIA is in the process of requesting approval from the CVFPB to complete the proposed improvements to the Federal project levee along the Yuba River South Levee (YRSL). TRLIA is assisting the CVFPB in obtaining permission from the Corps (Title 33 of the United States Code, Section 408 [33 U.S. Code [USC] 408]) allowing modification of the Federal project as proposed by TRLIA. Federal authorization consists of Chief of Engineers approval of the alteration or permanent occupation of a locally or Federally maintained Corps project consistent with the requirements of 33 USC 408. The proposed improvements to the YRSL are intended to meet the engineering and design standards of the CVFPB and the Corps.

Furthermore, TRLIA will maintain communication with the CVFPB and utility providers throughout the project planning and construction processes to minimize impacts from utility relocations.

DEPARTMENT OF TRANSPORTATION

DISTRICT 3
 703 B STREET
 P. O. BOX 911
 MARYSVILLE, CA 95901-0911
 PHONE (530) 741-4025
 FAX (530) 741-4825
 TTY (530) 741-4509



*Flex your power!
 Be energy efficient!*

Comment Letter F

March 15, 2010

032010YUB0004
 03-YUB-70/PM3.3
 Upper Yuba Levee Improvement Project IS/MND

Mr. Paul Brunner P.E.
 Executive Director,
 Three Rivers Levee Improvement Authority
 1114 Yuba Street, Suite 218,
 Marysville, CA 95901

Dear Mr. Brunner,

Thank you for the opportunity to review and provide comments on the Initial Study, Mitigated Negative Declaration (IS-MND) for the Upper Yuba Levee Improvement project. This project is located in the southern portion of Yuba County along the Yuba River South Levee, approximately one mile south of the Yuba River. Caltrans has the following comments:

Traffic/Circulation

Mitigation "Traffic-1" indicates a traffic safety plan will be created for Caltrans' review.

Truck trips should be scheduled outside of the peak morning and evening traffic periods. As this project is not adjacent to the State Highway System (SHS) our primary concern is traffic traveling to and from the project site. The project will generate a large amount of truck trips transporting material to and from the site from commercial mines (i.e. truckloads from local sand and gravel operations). Depending on the source, these trips may pass through the city of Marysville on State Routes (SR) 20 or 70, which generally function at Level of Service (LOS) E/F during the PM peak hours. In addition, Simpson Lane is heavily utilized as a commute route for both Yuba College and Beale Air Force Base traffic. It is typical for westbound queues to extend from Marysville a mile or more down Simpson lane on weekday afternoons. To avoid conflict, truck trips should be scheduled outside of the peak morning and evening traffic periods.

F-1

"Caltrans improves mobility across California"

Paul Brunner
March 15, 2010
Page 2 of 2

Please provide our office with copies of any further actions regarding this project including the traffic management plan. If you have any questions regarding these comments, please contact Sarah (Sadie) Smith, Local Development/Inter-Governmental Review Coordinator, at (530) 741-4004 or sarah_smith@dot.ca.gov.

F-2

Sincerely,



SUKHVINDER (SUE) TAKHAR, Chief
Office of Transportation Planning – North

"Caltrans improves mobility across California"

Responses to Comment Letter F from Caltrans

Response to Comment F-1:

As described in Section 3.16 of the Draft IS/MND (Transportation/Traffic), it is estimated that several daily truck trips would be required to transport borrow, equipment, fuel, aggregate, clay cap materials, construction debris, and miscellaneous materials to and from the project area throughout the construction period. These truck trips would be spread out over the work day and would also be spread geographically, as work would occur simultaneously in several locations along the project alignment. Also, truck trips would seldom occur at the same time as employee commute trips, as employees must be at the project site to operate haul trucks and receive deliveries of materials. It is unlikely that truck traffic would exceed the Institute of Traffic Engineers (ITE) threshold of 50 trucks per hour in the peak direction during the peak hour at any individual roadway intersection, or that commute traffic and truck haul traffic combined would exceed the equivalent threshold for a mix of passenger vehicles and trucks during a peak hour in a peak direction at a single intersection.

TRLIA understands the importance of maintaining emergency access and reducing traffic impacts during construction. As described in Section 3.16 of the Draft IS/MND (Transportation/Traffic), the construction contractor for the proposed project shall develop a plan for traffic safety assurance for the county roadways and state highways in the project vicinity. The contractor shall submit the plan to both Yuba County and Caltrans for review before the initiation of construction-related activity that could adversely affect traffic on county roadways or state highways.

Response to Comment F-2:

See Response to Comment F-1, above.

Comment Letter G

**OFFICE OF THOMAS W. ERES
ATTORNEY AT LAW**
4030 Winding Creek Road
Sacramento, CA 95864
Telephone 916.482.4021
Fax No. 916.488.5950

RECEIVED
MAR 15 2010
TRLIA

FAX COVER SHEET

FAX NUMBER TRANSMITTED TO: (530) 749-6990

To: Paul Brunner
Of: TRLIA
From: OFFICE OF THOMAS W. ERES
Client/Matter:
Date: March 15, 2010

(2 pages including cover sheet)

Comments:

**Attached response to the Initial Study/Mitigated Negative Declaration,
Upper Yuba Levee Improvement Project.**

Thanks,
Tom

The information contained in this facsimile message is information protected by attorney-client and/or the attorney/work product privilege. It is intended only for the use of the individual named above and the privileges are not waived by virtue of this having been sent by facsimile. If the person actually receiving this facsimile or any other reader of the facsimile is not the named recipient or the employee or agent responsible to deliver it to the named recipient, any use, dissemination, distribution, or copying of the communication is strictly prohibited. If you have received this communication in error, please immediately notify us by telephone and return the original message to us at the above address via U.S. Postal Service.

sent 3/15/10 1:09 p.m.

**GENE GINOCHIO
FRANCES HOFMAN**

Via Facsimile: (530) 749-6990

March 15, 2010

Paul Brunner, P.E.
Executive Director
Three Rivers Levee Improvement Authority
1114 Yuba Street, Suite 218
Marysville, CA 95901

RE: Initial Study/Mitigated Negative Declaration
Upper Yuba Levee Improvement Project (IS/MND)

Dear Mr. Brunner:

This letter is in response to TRLIA's request for comments on the above-referenced matter.

Our primary concern involves the adequacy of the evaluation in the section on Hydrology/Water Quality. The analysis appears to be short on actual facts and long on assumptions, computer models and opinions!

Together, we have a substantial amount of experience in our respective farming and ranching operations over many years in Yuba County. The Ginochio operations are in closer proximity to the project than the Hofman operations; however, both operations may well be adversely impacted if the groundwater levels, water quality and water supply are adversely impacted by the Project.

G-1

The IS/MND admits construction of a slurry cutoff wall could restrict movement of groundwater, with adverse consequences that could include increases or decreases in water levels that could adversely impact wells and water availability and suitability at critical times/needs of agricultural operations.

The IS/MND appears to admit its limits regarding the facts—facts that should be based upon more complete and comprehensive subsurface data. The report also makes unsubstantiated conclusions such as “. . . it is unlikely that groundwater mixing due to changes in groundwater flow paths at depths affected by construction of the slurry cutoff wall would result in significant changes in groundwater quality.”

G-2

It is also important to note that this IS/MND is out of sequence with the U.S. Army Corps of Engineers Environmental Assessment. It is inappropriate to de-couple these significant assessments for the convenience of TRLIA construction scheduling preferences. For example,

G-3

we believe a full Environmental Impact Report under CEQA is required. Five subsections of Section 3.9 (to wit. b), c), d), e), and f)), appear to generate potentially significant impacts requiring a comprehensive EIR, before concluding those impacts are less than significant (including mitigation proposals). It is quite possible the USACOE may require a full Environmental Impact Statement under NEPA for this Project! TRLIA would be undercut!

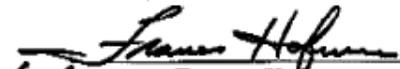
G-3
cont.

Finally, if TRLIA proceeds with the Yuba Levee Improvement Project, we demand written/documented financial assurances that, if we or any of our neighbors sustain damages to our operations as a direct or indirect result of or caused by the Project, we know precisely who will indemnify us and provide appropriate compensation.

G-4

Thank you for considering our comments.


Gene Ginochio


Frances Holman

Responses to Comment Letter G from Office of Thomas W. Eres

Response to Comment G-1:

TRLIA has initiated, and will maintain throughout the design and construction process, communication with property owners regarding construction activities that have the potential to affect groundwater levels, water quality, and water supply.

As described in Section 3.9 of the Draft IS/MND (Hydrology/Water Quality), erosion and generation of contaminated runoff are possible during construction of improvements to the existing YRSL; however, anything more than minor releases of sediment is unlikely because construction activities would occur during the dry, summer months. In addition, temporary erosion control measures would be implemented during construction activities to minimize stormwater pollution resulting from erosion and sediment migration from the construction areas, laydown/staging areas, and disposal areas.

Implementation of the mitigation measures outlined in Section 3.9 would require the preparation of a Stormwater Pollution Prevention Plan (SWPPP) and implementation of standard Best Management Practices (BMPs) to minimize ground and vegetation disturbance, and to use and store hazardous materials in designated staging areas, thereby reducing impacts on water quality.

Also as described in Section 3.9, a slurry cutoff wall is proposed to be constructed through the centerline of the levee crown and through sand and gravel layers in the foundation to inhibit levee through and under seepage. Potential consequences of the slurry cutoff wall installation are increases or decreases in the water levels in shallower wells and/or localized near-surface groundwater levels in areas immediately east and west of the slurry cutoff wall.

An Evaluation of Groundwater Impacts from the Upper Yuba River South Levee Repair Activities was prepared for the project by Montgomery Watson Harza (MWH) in December, 2009. The MWH report states that groundwater levels in the area south of the Yuba River and east of the Feather River have generally risen in recent years. Although a slurry cutoff wall could interfere with water moving between wells and the Yuba River during periods of well pumping when the drawdown is below the level of water in the river, any effect on total water supply would not be substantial. The MWH report also states that the proposed project would result in approximately one to five feet of additional drawdown of nearby private wells in the project area. In order to minimize drawdown impacts to nearby private groundwater wells, TRLIA would consult with the current land well owners where necessary as described below.

Although it is difficult to determine where, and to what extent, groundwater levels could change as a result of the presence of a slurry cutoff wall, it can be expected, that any changes would be gradual. If local groundwater were to rise periodically to levels at which trees, crops, or structures could be damaged, excess groundwater could be pumped out using selected wells (as under current practices) or newly installed drains. In order to further address an impact that is less than significant, TRLIA has held and will hold additional meetings with landowners regarding private wells. In the project area, less than significant impacts to groundwater wells could result from lowering the cone of depression of shallow wells (less than 100-foot deep) that are located within 1,000 feet of the proposed cutoff wall. Lowering of the cone of depression may result in the reduction of the well volume or an increase in power required to pump water from the well.

Through voluntary coordination with landowners and on-site investigation, TRLIA is identifying all private wells in the project area that may be affected. To date at least 20 wells have been identified. A detailed evaluation is currently underway to identify wells that could be potentially impacted. Information from this evaluation will be used prior to, during, and after construction to determine the appropriate course(s) of action to mitigate for any less than significant impacts to wells in the project area. For potentially affected wells,

TRLIA will monitor the well performance before and after cutoff wall installation to verify any impact, and will voluntarily mitigate any impacts through methods including: lowering of the well intake screen; deepening of the well; replacement of the well; or reimbursement for future increased power costs. TRLIA will coordinate with landowners as needed to resolve such circumstances. The information stated above will be added to Section 3.9 of the Draft IS/MND (Hydrology/Water Quality).

Response to Comment G-2:

As summarized above under Response to Comment G-1, research and documentation prepared for the proposed project thus far indicate that impacts to groundwater levels, water quality, and water supply would be less than significant, and implementation of mitigation measures would further reduce impacts. TRLIA has initiated, and will maintain throughout the design and construction process, communication with property owners regarding construction activities that have the potential to affect groundwater levels, water quality, and water supply.

Response to Comment G-3:

Concurrent to preparation of this Draft IS/MND by TRLIA, the Corps is preparing a Draft Environmental Assessment (EA). The Draft IS/MND has been prepared in accordance with the requirements of the California Environmental Quality Act (CEQA), and the Draft EA is being prepared in accordance with the requirements of the National Environmental Policy Act (NEPA).

As outlined in the Draft IS/MND, although the proposed project could have a significant effect on the environment, there will not be a significant effect because revisions in the project have been made by or agreed to by the project proponent, and a mitigated negative declaration has been prepared. Therefore, because the proposed project will not have a significant effect on the environment, TRLIA has determined that an Environmental Impact Report (EIR) is not required.

Regarding the potential need for a joint CEQA/NEPA document, federal agencies with a role in funding, authorizing, and/or permitting the project, including the Corps, will decide the appropriate level for the NEPA compliance documentation. As stated above, the Corps is currently preparing a Draft EA. As the federal lead agency for the 408 authorization process, the Corps has the authority to determine whether an Environmental Impact Statement (EIS) or an EA/Finding of No Significant Impact (FONSI) is needed to support the 408 authorization for the UYLIP.

Response to Comment G-4:

If the comment refers to impacts to agriculture associated with construction and/or levee maintenance, then as described in Section 3.10 of the Draft IS/MND (Land Use and Planning), agricultural operators and land owners in the project area would receive appropriate compensation for any temporary disturbance or permanent loss of agricultural or other lands associated with implementation of the proposed project. In addition, all property acquisitions and relocations conducted as part of the proposed project would be in compliance with both the Federal Uniform Relocation Act and the California Relocation Assistance Law.

Throughout the design process for the proposed project, TRLIA and its consultant representatives have communicated, both through telephone contact and in-person meetings, with the affected property owners regarding the proposed project design and the anticipated property acquisitions and compensation. TRLIA and its consultant representatives were also available at the public meeting to answer questions about the design and right-of-way process for the proposed project, and will continue such communication with property owners throughout the construction process.

The only substantial difference between the operation and maintenance of the repaired levee segments and current practice would result from the installation of the waterside levee slope erosion protection at the end of

the project alignment. The waterside levee slope erosion protection maintenance would be generally minor and would consist of removing any woody vegetation that tries to establish in the erosion protection and replacement of any rock that is washed away during rain events.

If the comment is referring to groundwater impacts, please see the responses above.

3.0 CORRECTIONS AND UPDATES TO THE DRAFT IS/MND

This chapter lists editorial text corrections to the Draft Initial Study/Mitigated Negative Declaration (Draft IS/MND). The listed changes are being made in response to comments on the Draft IS/MND. These changes do not alter any of the analysis or conclusions presented in the Draft IS/MND. Text deletions are shown with ~~strike through~~, and additions are shown with double underline.

3.1 EDITORIAL CORRECTIONS AND UPDATES

The following are editorial corrections and updates to the text since the Draft IS/MND was published. Figures that were included in the Draft IS/MND are not reprinted in this Final IS/MND unless they have been revised or added.

1.0 INTRODUCTION

The Three Rivers Levee Improvement Authority (TRLIA) has prepared this initial study/proposed mitigated negative declaration (IS/MND) in compliance with the California Environmental Quality Act (CEQA) to address the environmental consequences of the proposed Upper Yuba Levee Improvement Project (UYLIP, project, or proposed project) in Yuba County, California. TRLIA is the lead agency under CEQA. The levee is maintained by Reclamation District (RD) 784.

The Upper Yuba Levee Improvement Project is located in the southern portion of Yuba County along the Yuba River South Levee (YRSL). The project area is located upstream of the confluence of the Yuba River and the Feather River and east of the City of Marysville and approximately one mile south of the Yuba River. The proposed improvements would occur along the YRSL between Simpson Lane and the Yuba Goldfields.

Studies conducted in 2006 by the California Department of Water Resources (DWR), the Corps, RD 784, and TRLIA showed that several reaches of the levee system protecting the RD 784 area, including the YRSL and the Feather River (east) bank levee, did not satisfy geotechnical criteria for seepage at the water surface elevation for a 100-year flood event. To correct the deficiencies identified along segments of the Feather and Yuba Rivers, TRLIA and the Corps undertook the Feather River Levee Repair Project (FRLRP). The FRLRP was divided into three segments for repairs/improvements; Segments 1 and 3, which included a portion of the YRSL from PLM 0.0 to PLM 0.3 were evaluated in a previous environmental assessment by the Corps (**Corps 2007**). The design objective of the FRLRP was to achieve the 1957 design flood profile, which matches the 200-year water surface profile, and to add three feet of freeboard over the 200-year water surface profile in order to provide a 200-year level of protection for portions of the Feather and Yuba Rivers.

Phase 4 of the Yuba River Levee Repair Project consisted of making repairs to the portion of the YRSL from just downstream of State Route (SR) 70 (approximately PLM 0.3) to Simpson Lane (PLM 2.3). The primary objective of Phase 4 of the Yuba River Levee Repair Project was to construct levee improvements necessary to provide 200-year freeboard and under-seepage flood protection along the project reach and to enable the project reach to retain Federal Emergency Management Agency (FEMA) certification for 100-year flood protection. Phase 4 of the Yuba River Levee Repair Project was evaluated in a previous Initial Study by TRLIA (**TRLIA 2006**).

The proposed UYLIP would complete necessary levee improvements on the YRSL in the RD 784 service area and would provide enhanced flood protection within the Yuba River Basin. The project would involve installing slurry walls, seepage berms, levee geometry corrections, and levee slope erosion protection, ~~and relief wells~~ in the UYLIP project area.

2.1.2 PROJECT LOCATION

The proposed project is located in the southern portion of Yuba County along the YRSL, upstream of the confluence of the Yuba River and the Feather River, east of the City of Marysville, and south of the Yuba River. The project area would be located from approximately Simpson Lane (PLM 2.32; Project Station 102+00) to the Yuba Goldfields (PLM 6.1; Project Station 303+59). The total length of the project is approximately 3.89 miles. The proposed project follows the alignment of Simpson Dantoni Road for approximately ~~6,200 feet (1.23 miles)~~ and then extends northeast for the remainder length of approximately ~~13,959 feet (2.6 miles)~~ and terminates at the southwestern edge of the Yuba Goldfields. The project improvements would be located within the area of maintenance responsibilities of RD 784.

2.2 PURPOSE

TRLIA is a joint powers authority with the mission of advancing flood safety in Yuba County, California. The county is subject to seasonal flood threats from many rivers and creeks, including the Yuba River, Feather River, Bear River, and tributary drainages. Because of this flood risk, many local rivers have been confined by constructed levees. Therefore, TRLIA is proposing to enhance flood protection of properties within the RD 784 service area of Yuba County by improving a segment of the south levee of the Yuba River from approximately Simpson Lane (Project Levee Mile [PLM] 2.3; Project Station 102+00) to the Yuba Goldfields (PLM 6.1; Project Station 303+59). The total length of the project is approximately 3.8 miles. **Figure 2-1** shows the project location and vicinity.

The purpose of the proposed project is to correct through seepage, under seepage, and levee geometry deficiencies and improve flood protection on the YRSL. The proposed project would provide a minimum 200-year level of flood protection in the project area and ensure that the project area meets the minimum requirements of Federal and State laws. The proposed improvements are intended to meet the engineering and design standards of the CVFPB and the Corps.

2.2.1 BACKGROUND AND NEED FOR IMPROVED FLOOD PROTECTION

~~TRLIA's goal is to reduce the risk of flooding in south Yuba County by designing a Program to meet DWR's requirements for 200-year flood protection. The TRLIA Levee Improvement Program, when completed, will reduce the risk of flooding for the urban communities of Linda, Olivehurst, Arboga and Plumas Lake. The TRLIA Levee Improvement Program area is located in southwestern Yuba County and encompasses the RD 784 service area. Geotechnical studies concluded that there are significant problems related to under and through seepage along the YRSL (Kleinfelder 2009). In addition, based on review of existing levee conditions and the 200-year water surface elevation provided by MBK Engineers, levee improvements are required to provide adequate freeboard on portions of the YRSL. Furthermore, portions of the YRSL have slope stability deficiencies and do not meet the Corps' minimum levee slope criteria. These improvements are part of an ongoing program of levee modifications that are necessary to retain FEMA certification for 100-year or better flood protection. Therefore, the UYLIP is proposed to provide increased flood protection along the YRSL in Yuba County.~~

~~Yuba County has a long history of flooding. Historical accounts during the 1800s describe repeated occurrences of large floods on the Feather and Yuba Rivers. Attempts to protect agricultural lands from floodwaters resulted in the establishment of RD 784, which provided a way for Yuba County to build levees to provide flood protection among other services.~~

RD 784 was established in May 1908, and operates under the authority of the CVFPB and DWR. RD 784 covers approximately 29,000 acres including 37 miles of levees, more than 40 miles of internal drainage canals, and nine pumping stations. RD 784 includes approximately 30 miles of levees originally authorized as part of the SRFCP. RD 784 ~~is~~ and the TRLIA Levee Improvement Program are roughly bound to the north by the YRSL, to the south by the Bear River North Levee, to the west by the Feather River Left Bank levee and to the east by the WPIC

western levee. The TRLIA Program will protect RD 784 and surrounding areas that encompass approximately 35,000 acres with an estimated population of 40,000 people. There are approximately 11,766 residential structures, 486 commercial/industrial structures, and 74 public buildings with an estimated structure value of over \$1 billion in the TRLIA Program area. There are also 14 special needs facilities that house 294 clients and 692 people with visual, hearing, or mental impairments along with 11 schools. Highways 65 and 70, and 10 internal drainage pump stations are also located in the Program area. Other critical infrastructure in the Program area includes two waste water treatment plants, 20 sewer lift stations, seven existing potable water treatment facilities and one existing facility under construction, two police stations, four fire stations, approximately 70 acres of landscaped park land, and over 15,000 acres of prime agricultural land.

~~The levees surrounding RD 784 have historically performed poorly during flood events. Some levees were constructed by farmers and other landowners, resulting in levees that did not meet design criteria and subsequently failed during times of high water.~~ From 1920 to 1964 the Corps took control of the levee system and constructed upgrades, either through reconstruction of existing levees or construction of new setback levees. Once the levees were built to a satisfactory standard, the Corps returned control to the State, who in turn assigned the maintenance duties to RD 784. The construction of two reservoirs, Oroville and New Bullards Bar, helped alleviate the threat of high water to the RD 784 levee system. Even with these improvements, the levees still failed along the Yuba River in 1986 and the Feather River in 1997. Both breaches resulted in federal emergency assistance, expanded authorizations, and appropriations for the Corps to assist the State of California and RD 784 with additional levee strengthening.

~~Despite the construction of a system of flood control levees beginning in the early 20th century, multiple recorded floods occurred in the 1900s, and five major floods in 1950, 1955, 1964, 1986, and 1997 caused substantial property damage and loss of life. Over the past 20 years, two prominent flood events in Yuba County have led to significant efforts in evaluating the flood protection afforded by the existing levees. The first event was the flood of 1986. As a result of a levee failure on the Yuba River upstream of SR 70, flood waters inundated 10,700 acres, killed one person, and damaged or destroyed more than 4,000 homes and businesses. Following this event, the Corps and DWR started the Systems Evaluation Report. Several major flood events have occurred in this area since the system was constructed; most notably in 1986 and 1997. In 1986 the Yuba River breached near the communities of Linda and Olivehurst when flows were well below design levels. The 1986 levee breach occurred at PLM 0.8, upstream of State Route (SR) 70 and downstream from the beginning of the UYLIP (PLM 2.2). The 1986 breach allowed flows to travel south and southwest through RD 784 flooding large portions of Linda and West Linda. Because the breach occurred later in the 1986 flood season, flood volumes through the breach were small and the lower portion of the RD 784 area escaped significant flooding. Flood waters inundated 10,700 acres, killed one person, and damaged or destroyed more than 4,000 homes and businesses. Damages, and the liability associated with this flood, cost the State of California \$450 million.~~

After the floods of 1986, the Corps initiated the Sacramento River Flood Control System Evaluation (System Evaluation). This study evaluated the integrity of the Sacramento River Flood Control Project levees and was intended to restore the design level of flood protection provided by the levees. The System Evaluation was divided into five phases. Phase II included the populated Marysville/Yuba City areas. The results of the System Evaluation indicated that sections of project levees along the Feather and Yuba Rivers were susceptible to seepage problems and did not provide the level of protection originally authorized.

The second prominent flood event took place in 1997. In 1997 the Feather River East Levee failed near the community of Arboga at PLM 19.4, north of Country Club Road, which is located approximately eight miles southwest of the UYLIP project area. The 1997, when flood waters inundated 16,000 acres in Yuba County, killed three people, and damaged or destroyed more than 850 homes and businesses. During the 1997 flood, Yuba River flows infiltrated the Yuba Goldfields. The Yuba Goldfields are located along the Yuba River near Daguerre Point Dam, approximately 10 miles northeast of Marysville. The Yuba Goldfields encompass over 8,000 acres and have been the site of gold mining for nearly 100 years. The mining in this area has generated thousands of acres of an undulating cobble and rock terrain that has, in more recent years, been used to produce aggregate. Current

operations in the Yuba Goldfields include gold mining by Cal Sierra Development, Incorporated and aggregate production by Western Aggregates, Incorporated. In 1997 flows from the Yuba River that went into the Goldfields, and a portion of these flows exited the Goldfields through its contact point with the upstream end of the YRSL. There is no available information indicating that flood flows from the Goldfields have ever escaped from ~~been released at~~ this location before. The exiting flows were concentrated along the waterside toe of the YRSL, and eroded approximately one-third of the YRSL embankment for a distance of approximately 1,200 feet downstream of the Goldfields. The flows were diverted away from the levee toe further downstream through a historic minor tributary of the Yuba River. After the flood, the erosion damage was repaired by the National Guard, under the direction of RD 784. A mixture of cobblestones and fines was put in place to restore the eroded levee section. However, the restored levee is still subject to erosion damage from any flows that may exit the Yuba Goldfields at this location in the future.

Following the 1997 flood, the Yuba County Water Agency (YCWA) formed a flood control study team and initiated a study of measures that could provide a higher level of protection to supplement the flood protection system for Yuba County. With passage of the Water Act of 2000, the efforts of the study team focused on those measures that could be achieved within the budget provisions of this act. This ongoing effort, funded through Water Act of 2000 grant monies, is the Yuba-Feather Supplemental Flood Control Project (Y-FSFCP).

In 1998, concurrently with studies conducted by the YCWA, the Corps ~~conducted~~ completed a feasibility study ~~to increase the level of flood protection to Yuba County that recommended a project that would reduce the flood risk in the project area.~~ This project is referred to as the Yuba River Basin Investigation or, in short, the Yuba Basin Project. Additional improvements were planned to the existing levee system to raise the levee's Probable Non-failure Point (defined as the highest water level at which it is highly likely that the levee would not fail) and thus ~~increase the probability of level of flooding protection.~~ An environmental impact statement/environmental impact report for the Yuba River Basin Investigation was completed by Corps and the California Reclamation Board (now referred to as the CVFPB) in 1998. Portions of the planned Yuba Basin Project work overlap with flood system improvements planned by the YCWA and others described below.

The U.S. Congress approved the Yuba Basin Project in 1998~~9~~ and construction was authorized to begin in 2002. In 2003, the Corps issued new levee criteria, which lead to the reevaluation of the Yuba Basin Project's design. The Corps' new under seepage guidelines in 2003 led to the reevaluation of the project, which substantially increased the estimated cost. Because of this cost increase, the Yuba River Basin Project must be reauthorized by Congress. A General Reevaluation Report (GRR) is currently being prepared by the Corps to obtain a new project authorization ~~and to initiate construction.~~

~~A program level draft environmental impact report for YCWA's Y-FSFCP was completed in October 2003 in compliance with the CEQA (Yuba County Water Agency 2003a). It evaluated various flood control elements, including improvements to the left bank levee of the Feather River below the Yuba River. The final environmental impact report was completed and certified and approved by the YCWA Board in March 2004 (Yuba County Water Agency 2004).~~

~~In 2003, DWR's FEMA Flood Mapping Study identified deficient levee sections in the flood protection system for the county. DWR and the Corps initiated a reevaluation of the ability of the RD 784 levees to withstand the 100-year event in 2002. This study, the Lower Feather River Floodplain Mapping Study, identified deficiencies on the RD 784 levees on the Bear River, WPIC, and the lower Yuba River in May 2003. DWR informed RD 784, Yuba County, and YCWA that study results would be provided to FEMA. In turn, FEMA would map areas protected by the deficient levee sections as a flood hazard zone (i.e., within the 100-year floodplain) unless corrective measures were implemented. As a result, Yuba County conducted problem identification studies for the Lower Yuba and Bear River levees and the WPIC levee. Based on these studies, additional deficiencies were subsequently identified on the Lower Yuba River, Bear River, and WPIC.~~

As a response to the studies and Yuba County flood mapping, RD 784, and YCWA conducted various studies to determine necessary actions for RD 784 levees to meet current FEMA criteria. The group of agencies formed TRLIA in 2004 as a joint powers authority to facilitate cooperation and share resources to finance and construct levee improvements. ~~Four work phases were identified to improve 29 miles of RD 784 levees along the Yuba River, Feather River, Bear River and the WPIC with the goal of achieving 200-year flood protection for South Yuba County. Priority was given to implementing improvements to: the Yuba River levee above SR 70 (Phase 1); improvements to the upper Bear River, WPIC, and Yuba River levees, and the Olivehurst detention basin (Phase 2); and construction of a setback levee along the lower Bear River, tying into the Feather River levee just below Clark Slough (Phase 3). The first construction work was initiated in September 2004. Phases 1, 2, 3, and portions of phase 4 have been completed and 10.5 miles were certified to meet FEMA requirements by the Corps on May 8, 2007.~~

In January 2005, the Corps issued a letter that the Feather River left (east) bank levee and the Yuba River left (south) bank levee above the Southern Pacific Railroad crossing did not meet 100-year requirements.. In response to the Corps' January 2005 letter, TRLIA performed additional evaluations of the Feather and Yuba River left bank levees in 2005. These evaluations document extensive reaches of the Feather and Yuba River left bank levees that do not meet regulatory seepage and stability criteria under 1:100 annual exceedance probabilities flood event conditions.

To address the identified deficiencies, TRLIA has developed a comprehensive Levee Improvement Program for RD 784. TRLIA's Program consists of a four phase program to improve 29 miles of RD 784 levees along the Yuba River, Feather River, Bear River and the WPIC with the goal of achieving 200-year flood protection for South Yuba County. Priority was given to implementing improvements to: the Yuba River levee above SR 70 (Phase 1); improvements to the upper Bear River, WPIC, and Yuba River levees, and the Olivehurst detention basin (Phase 2); and construction of a setback levee along the lower Bear River, tying into the Feather River levee just below Clark Slough (Phase 3). The first construction work was initiated in September 2004. Phases 1, 2, 3, and portions of phase 4 have been completed and 10.5 miles were certified to meet FEMA requirements by the Corps on May 8, 2007. A detailed description of each phase of the Program is listed below.

- ▶ **Phase 1** – Strengthened the existing Yuba River left (south) levee between Highway 70 and approximate Yuba River Project Levee Mile (PLM) 0.8. This work was completed in 2004 and received certification from the Corps May 8, 2007.
- ▶ **Phase 2** - Strengthened and raised the existing upper Bear River right (north) levee from about 200 feet downstream from Highway 70 to the WPIC right (west) levee, added a seepage berm to the existing Yuba River left (south) bank levee from the Western Pacific Railroad (WPRR) to Highway 70 and from Highway 70 to the Southern Pacific Railroad (SPRR), strengthened and raised the existing WPIC levees, relocated Pump Station No. 6, and constructed the Olivehurst detention basin and ring levee. This work was completed in 2006 and received certification from the Corps May 8, 2007.
- ▶ **Phase 3** – Constructed the Bear River setback levee from the Feather River levee near Pump Station No. 2 to the west end of the Phase 2 Bear River levee work. This phase is referred to as the Bear River Setback Levee project (BRSL). Levee work was completed in 2006 and environmental restoration work is ongoing. Corps certification was received May 8, 2007.
- ▶ **Phase 4** – consists of multiple projects on the Feather River and Yuba River:
 - **Phase 4 Feather** – This work is referred to as the Phase 4 Feather River Levee Repair Project (FRLRP) and is being funded through 2007 EIP funding. The FRLRP consists of three segments as described below:

- **Segment 1:** Below Star Bend, from the Bear River setback levee (PLM 13.3) to PLM 17.1 - Embankment and foundation seepage mitigation consisting of cutoff walls, stability berms, relief wells, and monitoring wells.
 - **Segment 2:** The levee is set back from Star Bend (PLM 17.1) to about one mile north of Murphy Road (PLM 23.6) - Setback levee construction following the ASB alignment and Pump Station No. 3 relocation. This includes the portion of levee that broke in 1997.
 - **Segment 3:** From Feather River PLM 23.6 to PLM 26.1 and from Yuba River PLM 0.0 to the WPRR crossing at about PLM 0.3 - Embankment and foundation seepage mitigation consisting of cutoff walls, stability berms and monitoring wells; and levee freeboard mitigation.
- **Phase 4 Yuba** – The first portion of Phase 4 Yuba included strengthening the existing Yuba River left bank levee above the SPRR crossing to Simpson Lane and adding a seepage berm adjacent to the SPRR crossing. This work was completed in 2006 and received 100-year certification from the Corps May 8, 2007.
 - **Phase 4 Yuba (remaining work between Highway 70 and Goldfields west boundary)** – This is the remainder of Area Project 1 and includes seepage remediation, correcting deficiencies in levee geometry, and approximately 1,200 feet of erosion protection from Highway 70 upstream to the Yuba Goldfields.

The Problem Identification Report, TRLIA Phase 4 Feather River and Yuba River Left Bank Levees, Reclamation District 784, Yuba County, California (Kleinfelder 2006) evaluated the left bank of the Yuba and Feather Rivers in RD784. The Yuba River portion of that evaluation was based on hydraulic information that was provided in the Lower Feather River Floodplain Mapping Study by the Corps. The model showed that the water surface along the lower portion (confluence with the Feather River upstream to Dantoni Road) of the Yuba levee is generally backwater controlled by the combined flows of the Yuba and Feather Rivers. In the upper portion of the Yuba levee, it was understood that flows were controlled by a combination of training walls in the Goldfields and a training levee which resulted in little or no water reaching the upper reach of the left bank of the Yuba River levee. Therefore, minor improvements were required on the YRSL, which included erosion control along 2,000 feet at the upstream end of the levee (just downstream of the Goldfields).

TRLIA updated the hydraulic model in December 2008 and provided to the Corps for its review. The updated model provided for two potential mechanisms for delivering water to the upper portion of the YRSL, including failure of the Yuba River south training levee downstream of the Goldfields and flow through the Goldfields exiting adjacent to the Patrol Road levee. Results of the model show a significant increase in the stage of the 100- and 200-year water surface on the YRSL. TRLIA has not developed floodplains based on the updated model. However, **Figures 2-2a-d** depict the approximate extent of flooding and water depths that would result if there were a breach on the YRSL under the 50-, 100-, 200-, and 500-year events, respectively based on modeling completed by the Corps for the GRR. **Figure 2-2b** shows the boundaries of the East Linda Specific Plan Area and the Plumas Lake Specific Plan Area. Yuba County is in the process of updating their County wide emergency response plan. This report is anticipated to be completed in late 2010 and will include more detailed information on flooding in the project area.

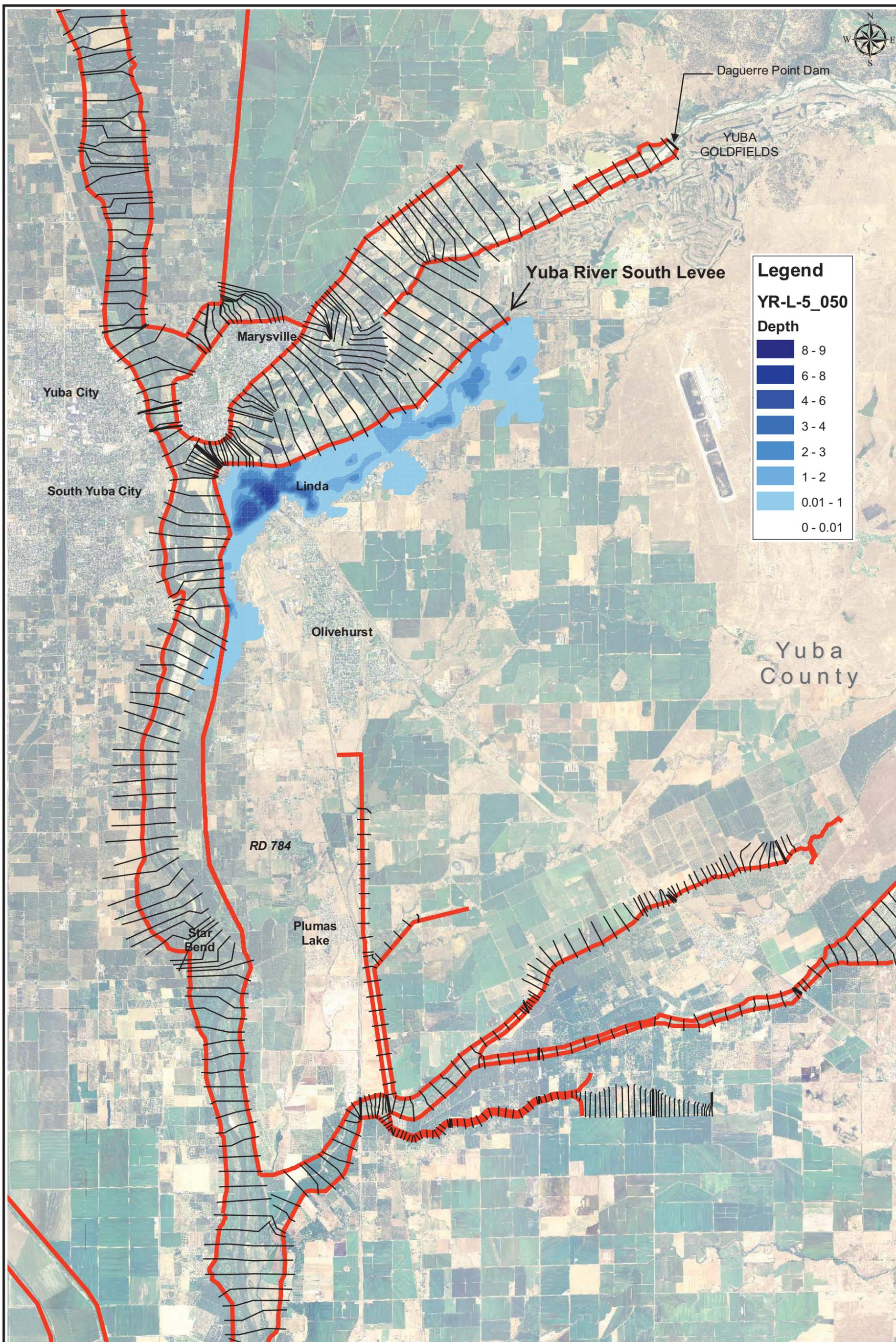


Figure 2-2a - Approximate extent of flooding and water depths during a 50 year event

Upper Yuba Levee Improvement Project

Scale: 1 inch = 2,000 feet
 Client: 5141.442
 Date: 03/22/2010
 Drawn By: NWW
 Requested By: RR

0 2,000
 Scale in Feet

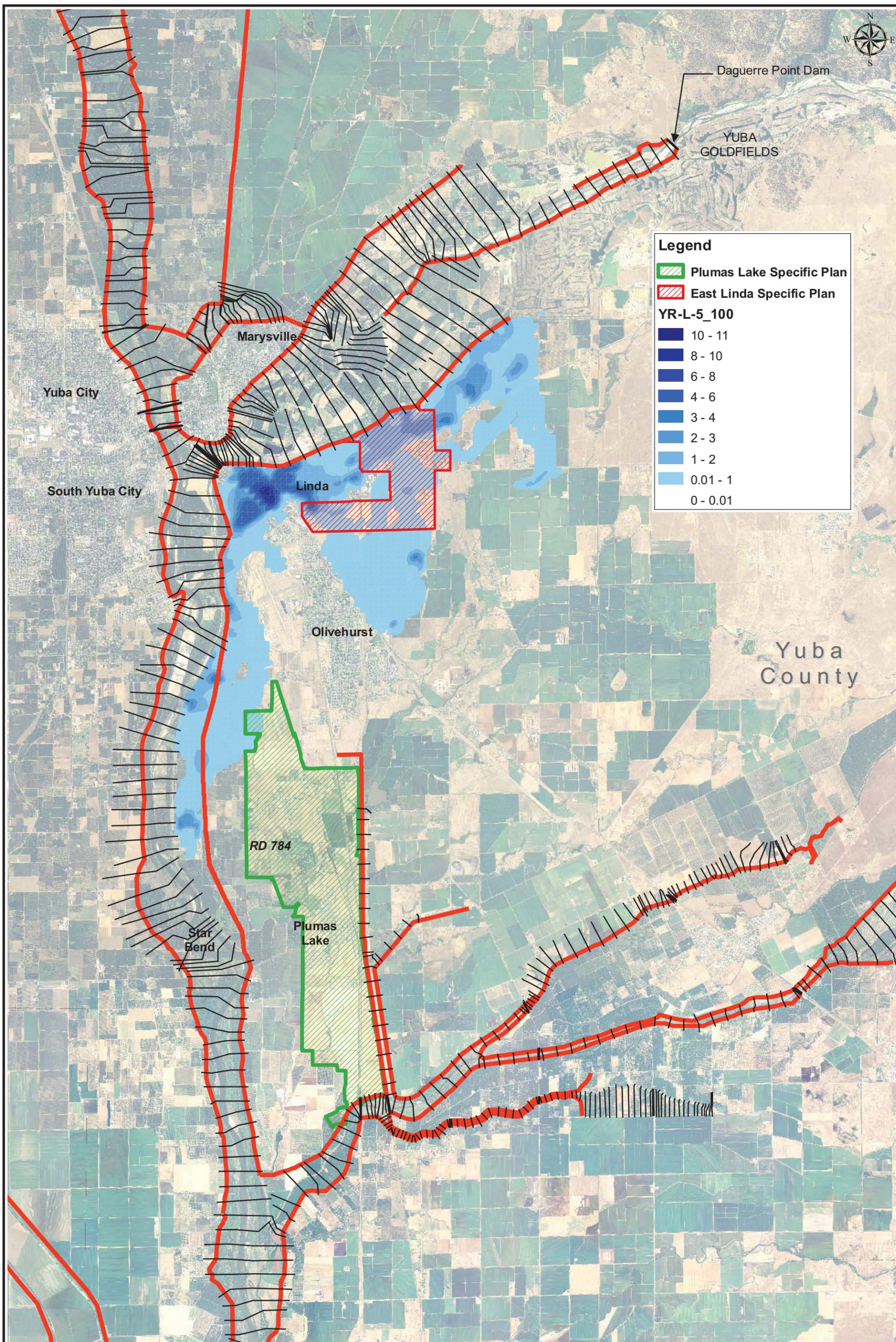


Figure 2-2b - Approximate extent of flooding and water depths during a 100 year event

Upper Yuba Levee Improvement Project

Scale: 1 inch = 8,000 feet
 Client: 5141.442
 Date: 03/22/2010
 Drawn By: NWW
 Requested By: RR

0 2,000
 Scale in Feet

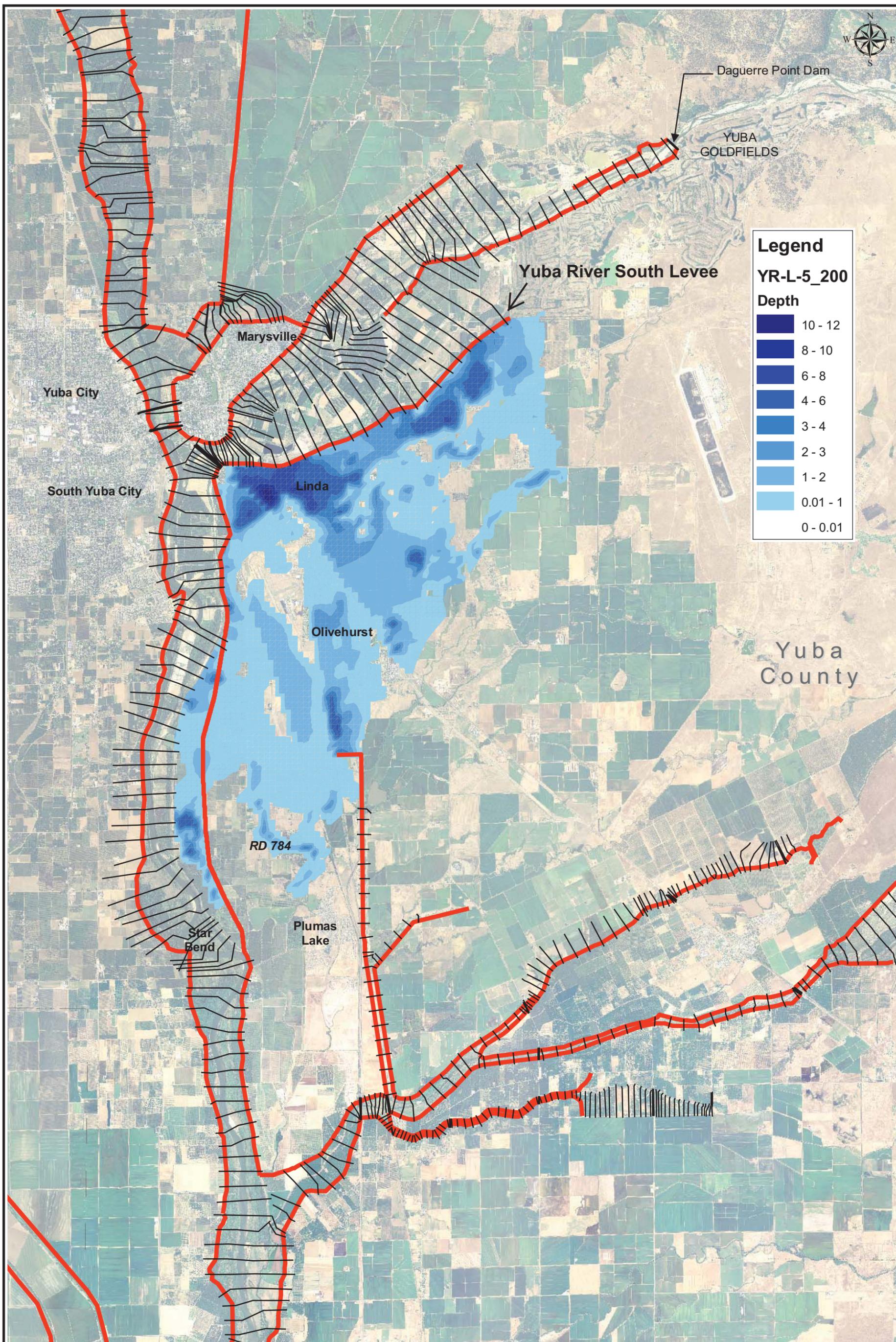


Figure 2-2c - Approximate extent of flooding and water depths during a 200 year event

Upper Yuba Levee Improvement Project

Scale: 1 inch = 2,000 feet
 Client: 5141.442
 Date: 03/22/2010
 Drawn By: NWW
 Requested By: RR

0 2,000
 Scale in Feet

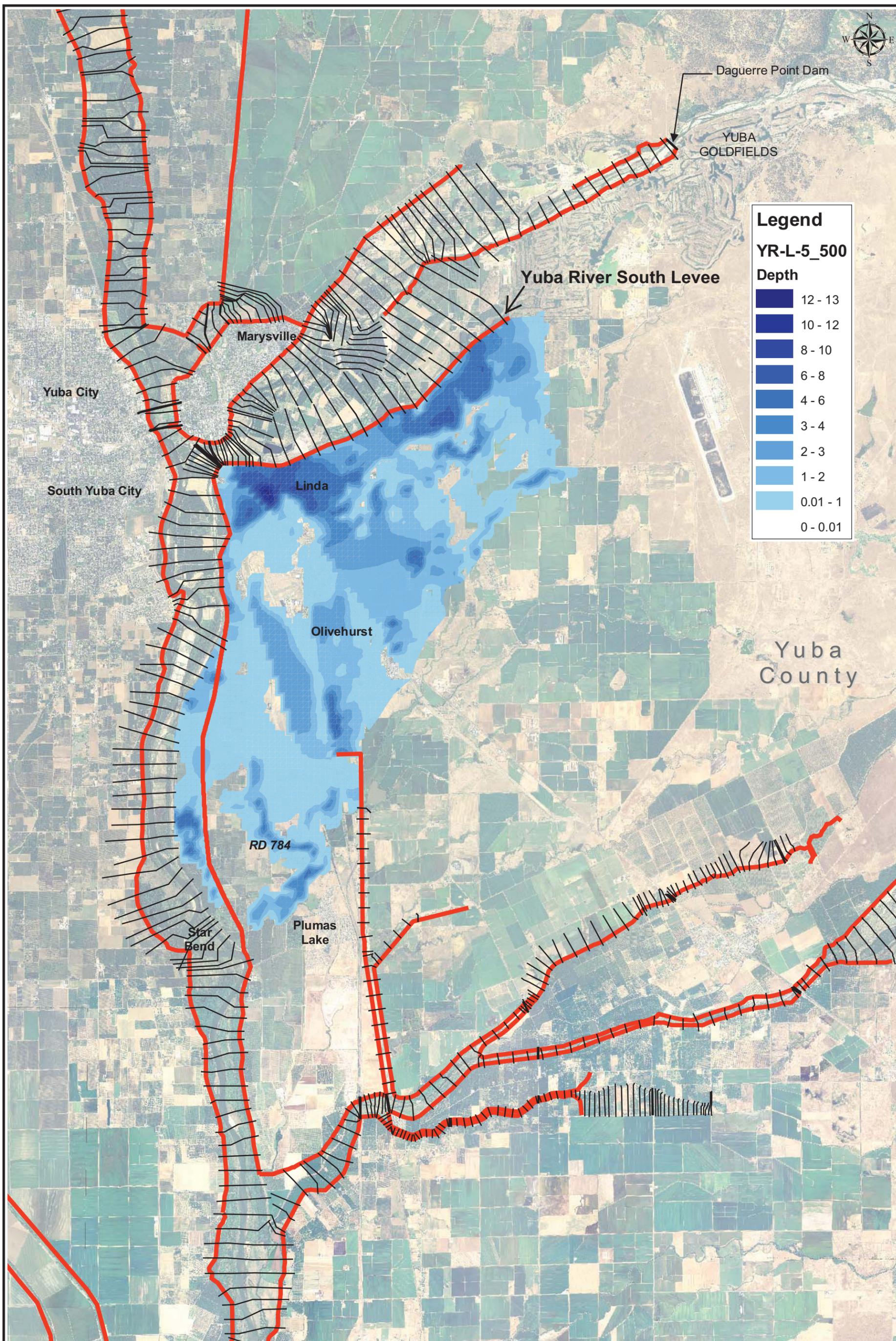


Figure 2-2d - Approximate extent of flooding and water depths during a 500 year event

Upper Yuba Levee Improvement Project

Scale: 1 inch = 2,000 feet
 Client: 5141.442
 Date: 03/22/2010
 Drawn By: NWW
 Requested By: RR

0 2,000
 Scale in Feet

As a result, TRLIA began a reevaluation of this reach of levee to determine if the updated hydraulic model results identified new deficiencies. A detailed analysis of the YRSL was performed and is described in the *Geotechnical Basis of Design Report, Upper Yuba Levee Improvement Project, Yuba River South Levee Evaluation, Reclamation District 784, Yuba County, California (Kleinfelder 2010)*. The Geotechnical Basis of Design Report concluded that there are significant problems related to under and through seepage along the YRSL (Kleinfelder 2010). In addition, based on review of existing levee conditions and the 200-year water surface elevation provided by MBK Engineers has identified short reaches of levee that have subsided below the design elevation and need to be corrected. This levee raising is to restore the design freeboard to the authorized height. Furthermore, portions of the YRSL have slope stability deficiencies and do not meet the Corps' minimum levee slope criteria. These improvements are part of TRLIA's Program of levee modifications that are necessary to retain FEMA certification for the 100-year flood event and to meet DWR requirements for the 200 year flood event. Therefore, the UYLIP is proposed to reduce the risk of flooding from failure of the YRSL in Yuba County.

~~In 2006, the YRSL between SR 70 and Simpson Lane was improved with a slurry wall and seepage berm. It was not until recent geotechnical and hydraulic studies were completed that TRLIA determined the need for additional improvements to the YRSL from Simpson Lane to the Yuba Goldfields. The proposed UYLIP, an element of the Y-FSFCP and part of Phase 4 of planned flood protection improvements, is an update to the Yuba River Levee improvements previously proposed and evaluated in the Y-FSFCP EIR. As stated previously, the UYLIP is intended to correct levee deficiencies and improve flood protection on the YRSL, from approximately Simpson Lane to the Yuba Goldfields thereby enhancing flood protection for the RD 784 area of Yuba County.~~

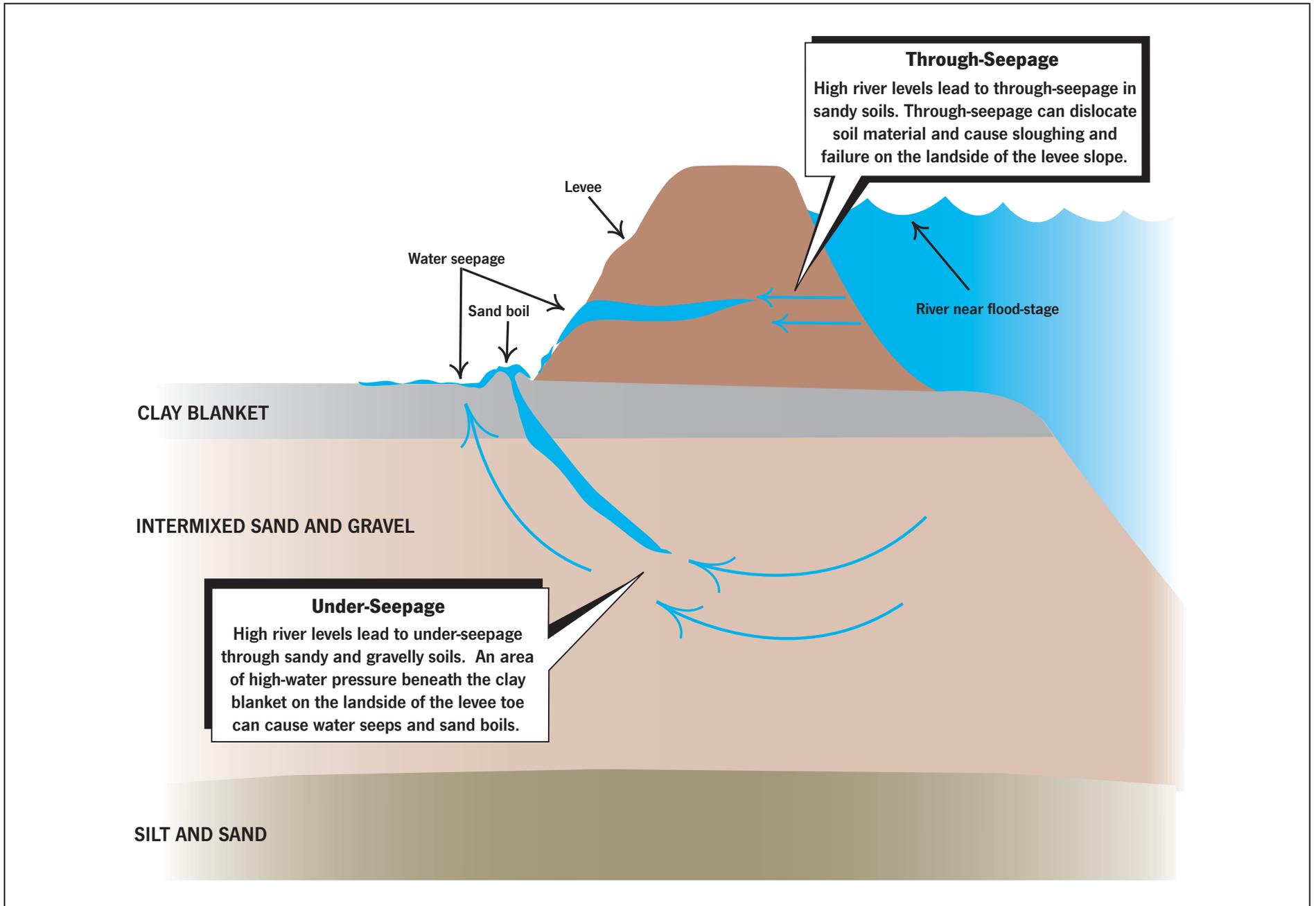
2.3 PROPOSED PROJECT

2.3.1 OVERVIEW

~~Most of the levee system in Yuba County was constructed during the 1920s using construction practices of that era. Studies by DWR, the Corps, RD 784, and TRLIA have found that several reaches of the levee system protecting the RD 784 area do not satisfy geotechnical criteria for seepage at the water surface elevation for the 100-year flood event.~~

A detailed analysis of the YRSL was performed and is described in the ~~Draft~~ *Geotechnical Basis of Design Report, Upper Yuba Levee Improvement Project, Yuba River South Levee Evaluation, Reclamation District 784, Yuba County, California (Kleinfelder 200910)*. The purpose of the analysis described in the Geotechnical Basis of Design Report was to perform a feasibility-level evaluation of subsurface geotechnical conditions and levee conditions of the YRSL in the project area in accordance with FEMA requirements. The conclusions of the Geotechnical Basis of Design Report indicate that portions of the YRSL do not currently meet FEMA geotechnical certification requirements for through-seepage or under seepage.

Through-seepage ~~is a phenomenon wherein~~ occurs when water moves outward from the river channel through the levee cross section (See **Figure 2-23**). The key problem associated with through-seepage is levee breach or collapse, which occurs when the earthen material within the levee becomes ~~undermined~~ internally eroded by the pressure of the seeping water. Soil piping can occur as the result of seepage. Soil piping is when a hole in a levee becomes exploited by moving water, causing the hole to rapidly increase and threaten the levee integrity. Several factors contribute to seepage, including high water pressure, and pervious earth material within ~~or underlying~~ the levee.



04361.04 100

*Figure adapted from the Yuba River Levee Repair Project (Phase 4) Initial Study prepared by Jones & Stokes

Figure 2-3
Through and Under Seepage Figure

Similar to through-seepage, under-seepage is where water moves outward and downward from the river channel below the levee and surrounding land surface (See **Figure 2-23**). The key problem with under-seepage is when the ~~earthen material~~ underlying soils are eroded and the levee becomes undermined by the pressure of the seeping water especially at the landside toe of the levee. Pressurization leads to piping and internal erosion of the foundation layers. As with through-seepage, soil piping may occur and threaten levee integrity. Piping undermines the levee leading to potential collapse of the levee into the undermined region. ~~The factors that contribute to under-seepage are the same as those discussed above in through-seepage.~~

The proposed project described below, and analyzed in this IS/MND, is being considered to correct seepage and levee geometry freeboard deficiencies identified by recent hydraulic and geotechnical investigations and would result in improvements to the flood protection provided by the YRSL from approximately Simpson Lane (PLM 2.32; Project Station 102+00) to the project terminus at the Yuba Goldfields (PLM 6.1; Project Station 303+59), approximately 3.89-miles. Levee improvements would consist of slurry walls, seepage berms, levee geometry corrections, and levee slope erosion protection. A description and location of the proposed improvements follows.

2.3.2 PROPOSED IMPROVEMENTS

- ▶ The proposed project would involve implementation of levee repairs and improvements along the entire 3.8 miles of the YRSL under consideration:
- ▶ A Soil-Bentonite (SB) Slurry Wall would be placed from Project Station 136+50 to Project Station 288+00 (2.9 miles). The Slurry Wall would be three feet wide and range in depth from 55 to 80 feet. The wall would be placed through the centerline of the levee crown into the underlying foundation. The bottom of the wall would tie into foundation strata of low permeability from Project Station 136+50 to Project Station 189+50 and Project Station ~~212+50~~221+00 to Project Station 288+00. However, due to deep gravel deposits that exist in ancient (Pleistocene or Holocene) river channels in one area, a portion of the wall (Project Station ~~180+00~~189+50 to Project Station ~~216~~221+00) would be installed as a hanging wall; the bottom of the wall would not tie into foundation strata of low permeability. The hanging wall would serve to block levee through seepage and increase the seepage path through the foundation and reduce levee under seepage. ~~The existing levee would be degraded to about one half of its height to provide a working platform for the slurry wall construction activities.~~ The existing levee would be degraded on average seven feet to provide a working platform with a minimum width of 50 feet for the cutoff wall construction activities. The slurry wall would be capped with clay as the levee crown is restored.
- ▶ An 80 foot wide seepage berm would be placed from Project Station 288+00 to Project Station 301+00 (0.25 miles). The seepage berm would be a minimum of three feet high at its toe and slope up towards the levee at a minimum 50:1 ~~2 percent~~ slope, and the seepage berm at the toe of the levee would be a minimum of five feet high. The berm would be constructed of local semi-permeable material. The material would be obtained from borrow areas to be established adjacent to the YRSL.
- ▶ Above the seepage berm, a stability berm would be built at a 5:1 slope, such that the top of the stability berm meets the landside slope of the levee at the 200-year water surface elevation (WSE).
- ▶ From Project Station 301+00 to Project Station 303+59 the seepage berm would be widened from 80 to 150 feet to form a buffer with the high ground cobble mounds of the Yuba Goldfields. The height of the berm would match the existing levee crown grade.
- ▶ A waterside levee slope erosion protection blanket made of riprap, aggregate base fill, and geotextile fabric would be placed from Project Station 272+00 to Project Station 303+59 (0.6 miles). The blanket would extend from the 200-year WSE, down the waterside slope to the toe of the levee (approximately 22 feet on average), and project 20 feet from the levee toe out into the natural swale that parallels the levee in this area.

The blanket would serve to armor this section of the levee that experienced erosion damage from waters that escaped from the Yuba Goldfields during the 1997 flood.

- ▶ Corps standards allow the use of 2:1 landside slopes for existing levee remediation that has not shown stability problems during past floods and has an engineering analysis that indicates levee stability using 2:1 landside slopes is acceptable. Levee geometry corrections along the YRSL would be required to bring the levee into compliance with ~~current~~ the aforementioned Corps standards for repair of existing project levees (2 to 1 landside slope, 20 foot crown width, and 3 to 1 waterside slope) and to provide three feet of freeboard above the 200-year flood elevation. The UYLIP geometry correction design was verified for stability using the levee geometry described in this section. Geometry corrections would be required for the portions of the existing YRSL that do not meet these criteria. Geometry corrections could include a combination of waterside slope corrections, crown width corrections, and landside slope corrections at the following approximate locations Project Station 106~~4~~+00 to Project Station 123~~5~~+00 and at various locations throughout Project Station 136+00 to Project Station 303+59. Limited portions of these corrected reaches would be filled in to ensure three feet of freeboard above the 200-year design water surface. In no case would the final levee elevation exceed the current authorized levee elevation of three feet above the SRFCP 1957 Design Profile.
- ▶ To the extent that existing facilities would not be impacted, the project would include a continuous 50 foot wide Operations and Maintenance corridor adjacent to the landside toe of the levee and a 15 foot wide Operations and Maintenance corridor adjacent to the waterside toe of the levee. These corridors would be acquired from the adjacent landowners. Also a 15-foot vegetation free zone would be required along the waterside and landside toes.
- ▶ A 16 foot wide aggregate base access road would be located along the centerline at the levee crown (top).

Figures 2-34a-d show the project area and the proposed improvements. **Figure 2-45** shows the typical cross-section of the proposed waterside levee erosion protection blanket, the proposed seepage berm, and the proposed slurry wall. The intended outcome of the repairs and improvements is to ensure that all portions of the YRSL meet the engineering and design standards of the CVFPB and the Corps and that the YRSL meets ~~FEMA~~ geotechnical requirements for through-seepage and under seepage at the water surface elevation for the 200-year flood event. ~~Installation of additional relief wells is also proposed in some locations near the end of the project.~~



TRIA PHASE 4 – UPPER YUBA RIVER LEVEE
 (PLM 2.2 TO 6.1 / STA. 102+00 TO 303+59)
 THREE RIVERS LEVEE IMPROVEMENT AUTHORITY

LEGEND

- | | | | | | |
|--|---|--|---|--|----------------------------|
| | LEVEE CROWN | | LEVEE SLOPE EROSION PROTECTION (RIPRAP) | | SB CUTOFF WALL ELEV VARIES |
| | O&M CORRIDOR
15' WATERSIDE, 50' LANDSIDE | | BORROW SITE OR STAGING AREA | | LIMITS OF DISTURBANCE |
| | LEVEE SLOPES | | GEOMETRY CORRECTION | | EXISTING PROPERTY LINES |
| | SEEPAGE BERM 80' | | EXISTING ELDERBERRY SHRUB LOCATIONS | | HAUL ROUTES |
| | TEMPORARY CONSTRUCTION EASEMENT (TCE) 50' | | | | PIEZOMETER |

DATE: MON, 01-05-2010

NOTES:

1. THE AERIAL PHOTOGRAPHY THAT IS REFERENCED TO THESE PLANS (OR TO THIS MAPPING) IS BASED ON HIGH-ALTITUDE AERIAL PHOTOGRAPHY INTENDED FOR PLANNING AND EXHIBIT PURPOSES ONLY. THIS PHOTOGRAPHY HAS NOT BEEN FULLY ORTHO-RECTIFIED; THEREFORE, IT IS NOT SUITABLE FOR DESIGN PURPOSES BECAUSE THE ACTUAL LOCATION OF GROUND FEATURES MAY DIFFER SOMEWHAT FROM WHAT IS SHOWN HEREON.
2. THE PROPERTY LINES SHOWN HEREON ARE DERIVED FROM DIGITAL ASSESSOR MAPPING AND ARE THEREFORE APPROXIMATE IN NATURE.



SCALE: 1" = 400'

Figure 2-4a
 Proposed Project Improvements



TRLIA PHASE 4 – UPPER YUBA RIVER LEVEE
 (PLM 2.2 TO 6.1 / STA. 102+00 TO 303+59)
 THREE RIVERS LEVEE IMPROVEMENT AUTHORITY

	LEVEE CROWN		LEVEE SLOPE EROSION PROTECTION (RIPRAP)		SB CUTOFF WALL ELEV VARIES
	O&M CORRIDOR 15' WATERSIDE, 50' LANDSIDE		BORROW SITE OR STAGING AREA		LIMITS OF DISTURBANCE
	LEVEE SLOPES		GEOMETRY CORRECTION		EXISTING PROPERTY LINES
	SEEPAGE BERM 80'		EXISTING ELDERBERRY SHRUB LOCATIONS		HAUL ROUTES
	TEMPORARY CONSTRUCTION EASEMENT (TCE) 50'				PIEZOMETER

DATE: MON, 01-05-2010

- NOTES:
1. THE AERIAL PHOTOGRAPHY THAT IS REFERENCED TO THESE PLANS (OR TO THIS MAPPING) IS BASED ON HIGH-ALTITUDE AERIAL PHOTOGRAPHY INTENDED FOR PLANNING AND EXHIBIT PURPOSES ONLY. THIS PHOTOGRAPHY HAS NOT BEEN FULLY ORTHO-RECTIFIED; THEREFORE, IT IS NOT SUITABLE FOR DESIGN PURPOSES BECAUSE THE ACTUAL LOCATION OF GROUND FEATURES MAY DIFFER SOMEWHAT FROM WHAT IS SHOWN HEREON.
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SCALE: 1" = 400'

Figure 2-4b
Proposed Project Improvements



TRIA PHASE 4 – UPPER YUBA RIVER LEVEE
 (PLM 2.2 TO 6.1 / STA. 102+00 TO 303+59)
 THREE RIVERS LEVEE IMPROVEMENT AUTHORITY

LEGEND

- | | | | | | |
|--|---|--|---|--|----------------------------|
| | LEVEE CROWN | | LEVEE SLOPE EROSION PROTECTION (RIPRAP) | | SB CUTOFF WALL ELEV VARIES |
| | O&M CORRIDOR
15' WATERSIDE, 50' LANDSIDE | | BORROW SITE OR STAGING AREA | | LIMITS OF DISTURBANCE |
| | LEVEE SLOPES | | GEOMETRY CORRECTION | | EXISTING PROPERTY LINES |
| | SEEPAGE BERM 80' | | EXISTING ELDERBERRY SHRUB LOCATIONS | | HAUL ROUTES |
| | TEMPORARY CONSTRUCTION EASEMENT (TCE) 50' | | PIEZOMETER | | |

DATE: MON, 01-05-2010

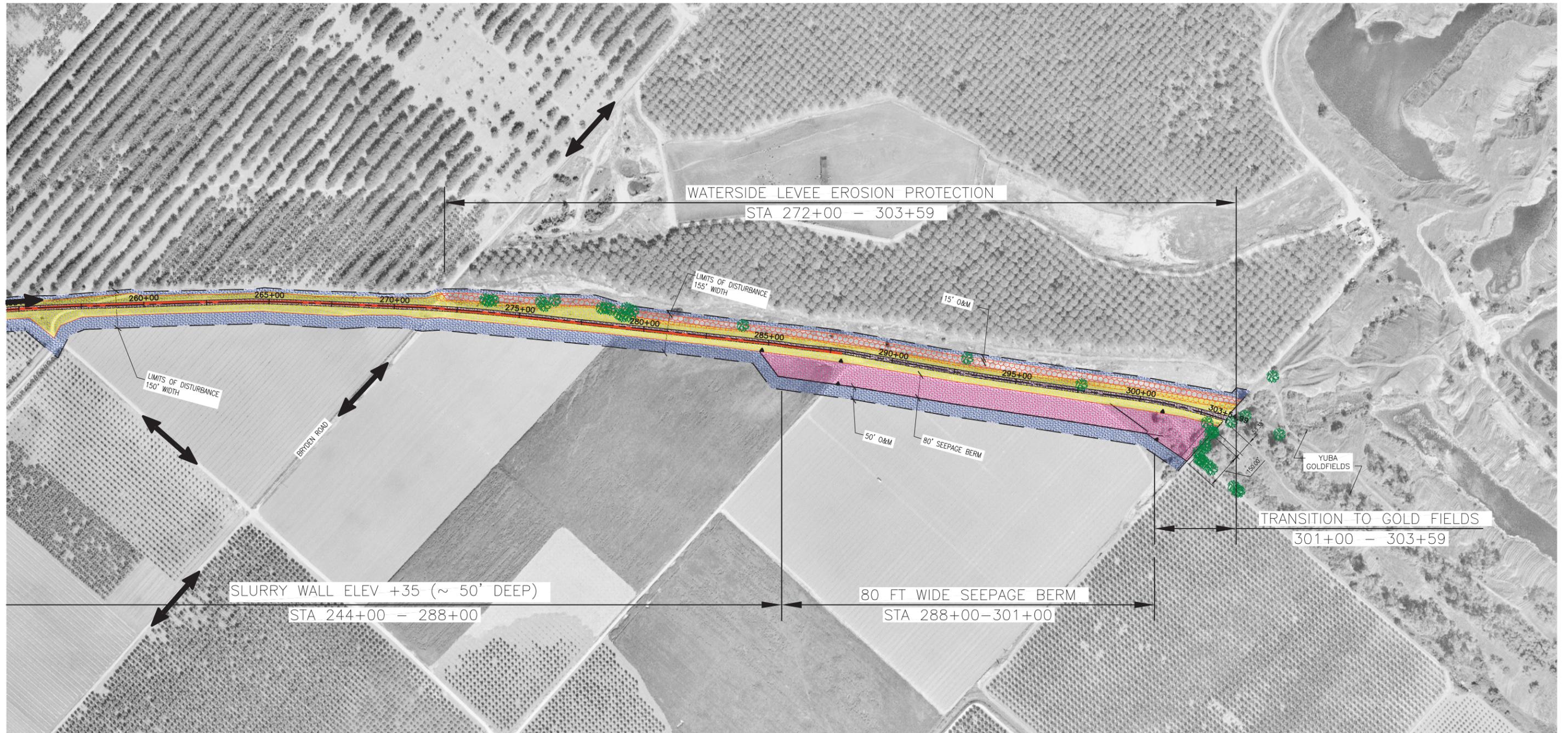
NOTES:

1. THE AERIAL PHOTOGRAPHY THAT IS REFERENCED TO THESE PLANS (OR TO THIS MAPPING) IS BASED ON HIGH-ALTITUDE AERIAL PHOTOGRAPHY INTENDED FOR PLANNING AND EXHIBIT PURPOSES ONLY. THIS PHOTOGRAPHY HAS NOT BEEN FULLY ORTHO-RECTIFIED; THEREFORE, IT IS NOT SUITABLE FOR DESIGN PURPOSES BECAUSE THE ACTUAL LOCATION OF GROUND FEATURES MAY DIFFER SOMEWHAT FROM WHAT IS SHOWN HEREON.
2. THE PROPERTY LINES SHOWN HEREON ARE DERIVED FROM DIGITAL ASSESSOR MAPPING AND ARE THEREFORE APPROXIMATE IN NATURE.



SCALE: 1" = 400'

Figure 2-4c
 Proposed Project Improvements



TRLIA PHASE 4 – UPPER YUBA RIVER LEVEL
 (PLM 2.2 TO 6.1 / STA. 102+00 TO 303+59)
 THREE RIVERS LEVEL IMPROVEMENT AUTHORITY

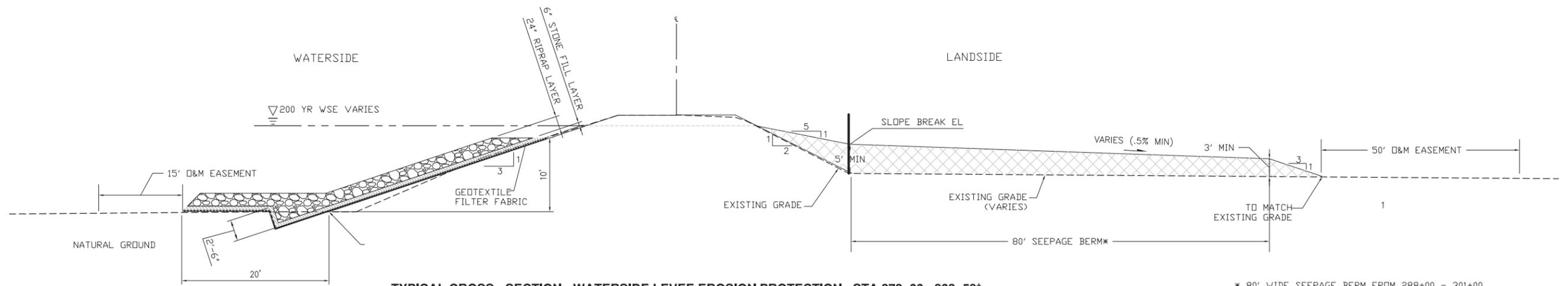
LEGEND	
	LEVEE CROWN
	O&M CORRIDOR 15' WATERSIDE, 50' LANDSIDE
	LEVEE SLOPES
	SEEPAGE BERM 80'
	TEMPORARY CONSTRUCTION EASEMENT (TCE) 50'
	LEVEE SLOPE EROSION PROTECTION (RIPRAP)
	BORROW SITE OR STAGING AREA
	GEOMETRY CORRECTION
	EXISTING ELDERBERRY SHRUB LOCATIONS
	SB CUTOFF WALL ELEV VARIES
	LIMITS OF DISTURBANCE
	EXISTING PROPERTY LINES
	HAUL ROUTES
	PIEZOMETER

DATE: MON, 01-05-2010

- NOTES:
1. THE AERIAL PHOTOGRAPHY THAT IS REFERENCED TO THESE PLANS (OR TO THIS MAPPING) IS BASED ON HIGH-ALTITUDE AERIAL PHOTOGRAPHY INTENDED FOR PLANNING AND EXHIBIT PURPOSES ONLY. THIS PHOTOGRAPHY HAS NOT BEEN FULLY ORTHO-RECTIFIED; THEREFORE, IT IS NOT SUITABLE FOR DESIGN PURPOSES BECAUSE THE ACTUAL LOCATION OF GROUND FEATURES MAY DIFFER SOMEWHAT FROM WHAT IS SHOWN HEREON.
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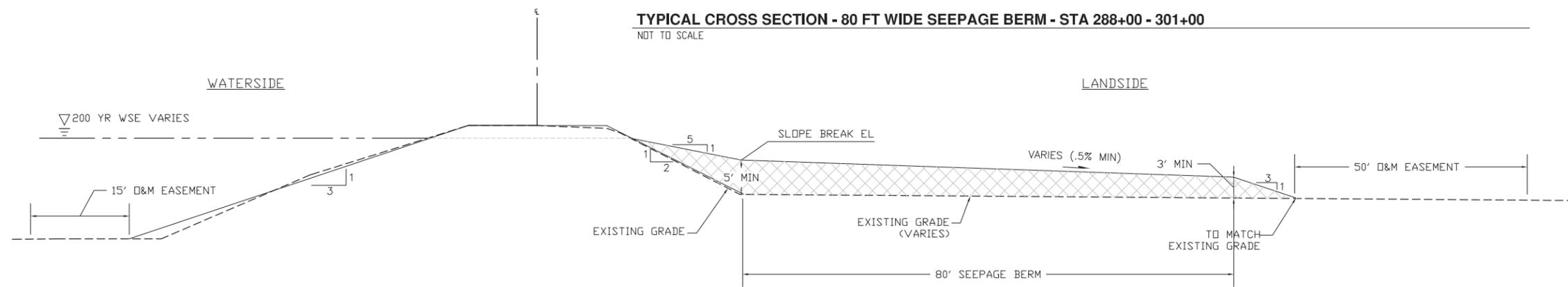


Figure 2-4d
Proposed Project Improvements

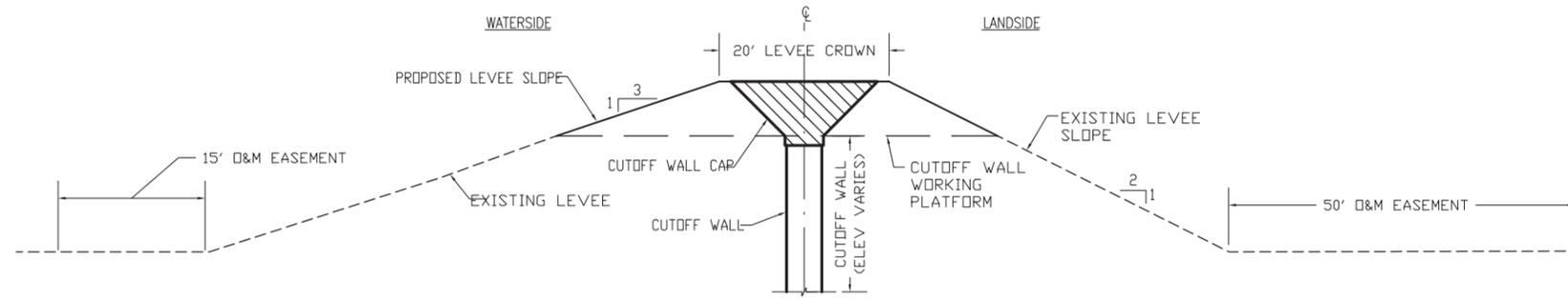


TYPICAL CROSS - SECTION - WATERSIDE LEVEE EROSION PROTECTION - STA 272+00 - 303+59*
NOT TO SCALE

* 80' WIDE SEEPAGE BERM FROM 288+00 - 301+00
* 150' WIDE SEEPAGE BERM FROM 301+00 - 303+59



TYPICAL CROSS SECTION - 80 FT WIDE SEEPAGE BERM - STA 288+00 - 301+00
NOT TO SCALE



TYPICAL CROSS - SECTION 70 FT DEEP SLURRY WALL (ELEV VARIES) - STA 135+10 -288+00
NOT TO SCALE

Figure 2-5

Typical Cross Section of the Proposed Waterside Levee Erosion Protection Blanket, the Seepage Berm, and the Slurry Wall



C:\P\working\SAC\0162528\SEEPAGE BERM SECTIONS.dwg, Layout2, 1/7/2010 9:26:41 AM, rdouglas
C:\P\working\SAC\0162528\SEEPAGE BERM SECTIONS.dwg Username: rdouglas Jan 07, 2010 - 8:53am

SLURRY CUTOFF WALLS

Because of the depths and thickness of pervious strata generally present along the YRSL, the most practical method of constructing a cutoff wall is the slurry wall method. In the slurry wall method, a cutoff trench is excavated and filled with a soil-bentonite slurry to keep the trench from collapsing during excavation; the trench is then backfilled with native soil mixed with cement-bentonite ~~(for cutoff walls constructed through the levee embankment)~~ or bentonite ~~(for cutoff walls through the waterside levee foundation)~~ only to provide a cutoff with reduced permeability. Because most of the cutoff wall will be located in the levee foundation, the soil-bentonite cutoff wall has been selected for the UYLIP.

Slurry cutoff walls are proposed along those portions of the levees where strata of permeable sands and gravels exist in the foundations. To achieve maximum effectiveness, the slurry cutoff wall must extend completely through the permeable strata and terminate some distance into an underlying, reasonably continuous layer with lower permeability. This will be the case for most of the cutoff wall extent. However from Project Station 189+50 to Project Station 221+00, the cutoff wall would be a partially penetrating cutoff wall. Between Project Station 189+50 to Project Station 221+00 there are deep gravel deposits and a lower permeability strata is not available at a reasonable depth. The partially penetrating cutoff wall would serve to block through seepage and increase the seepage path through the foundation and reduce levee under seepage. Analysis has determined that exit gradient criteria are not exceeded where the partially penetrating cutoff wall is proposed.

A soil-bentonite slurry cutoff wall is proposed to be constructed through the centerline of the levee crown and through sand and gravel layers in the foundation to preclude levee through and under seepage from Project Station 136+50 to Project Station 288+00. The wall would be approximately three-feet wide and range from 55 to 80 feet deep. The existing levee would be degraded by approximately one-half of its height in order to provide a sufficient work platform for a long arm excavator to excavate the slurry wall trench and to backfill with the soil-bentonite slurry mix. The slurry wall would be capped with a clay layer after initial set has occurred and the levee crown would be restored. A six-inch minimum aggregate base trafficking surface would be placed on the levee crown to comprise a 16 feet wide access road. After construction, erosion resistant mulch with grass seed would be sprayed over the levee slopes.

SEEPAGE AND STABILITY BERMS

Seepage berms are wide embankment structures made up of low-permeability materials that resist accumulated water pressure and safely release seeping water. A seepage berm is typically one-third the height of the levee, extending outward from the landside levee toe a sufficient distance (up to 400 feet), and laterally along the levee as needed relative to the seepage conditions. A seepage berm mainly addresses the deficiency of under-seepage from potential heaving and rupturing at the landside toe by adding weight needed to counteract uplift pressures.

A stability berm provides a weighted, filtered seepage path (i.e., via drainage blanket at the base of the berm) that allows seepage to occur but reduces the potential for boil formation and the associated erosion and loss of embankment and foundation material. Levee landside stability may become undermined as a result of through seepage. A landside stability berm is compacted earth intended to address potential instability issues resulting from through-seepage.

An 80-foot wide seepage berm is proposed that would be placed from Project Station 288+00 to Project Station 301+00 (approximately 1,300 feet). The 80 foot wide seepage berm would be a minimum of three feet high at its toe and slope up towards the levee at a minimum slope of 2percent. The berm, at the toe of the levee, would be approximately 5.5 feet high and would be constructed of local semi-permeable material obtained from borrow areas located adjacent to the project..

Above the seepage berm, a stability berm would be built at a 5:1 slope, such that the top of the stability berm meets the landside slope of the levee at the 200-year WSE. The stability berm would be constructed of local semi-permeable material obtained from borrow areas located adjacent to the project.

From Project Station 301+00 to Project Station 303+59 (approximately 259 feet), the seepage berm would be widened to 150-feet, and raised to match the elevation of the existing levee crown, forming a project interface buffer with the high ground cobble mounds of the Yuba Goldfields. This thickened levee berm would tie to existing grades with 2:1 slopes.

Construction of the seepage berm would consist of clearing, grubbing, and stripping the existing ground surface and placing a one-foot-thick layer of drain material across the ground surface. Bulldozers would then excavate and stockpile borrow material from a nearby borrow site. Front-end loaders load haul trucks with the borrow material, and the haul truck subsequently transports it to the berm site. The haul trucks dump the material and motor graders spread it evenly, placing approximately three to five feet of embankment fill material over the drain material. Sheepsfoot rollers compact the material, and water trucks distribute water over the material to ensure proper moisture for compaction. After construction, erosion resistant mulch with grass seed would be sprayed over the levee slopes.

RESTORE LEVEE CROSS SECTION

~~The Corps design criteria requires that levees providing protection to urban areas have 2:1 landside slopes, 20 foot levee crown widths, and 3:1 waterside slopes. The portions of the YRSL that do not meet these criteria would be modified to meet the current Corps standard. As stated previously, Corps standards allow the use of 2:1 landside slopes for existing levee remediation that has not shown stability problems during past floods and has an engineering analysis that indicates levee stability using 2:1 landside slopes is acceptable. Levee geometry corrections would be required to bring the YRSL into compliance with the aforementioned Corps standards for repair of existing project levees (2 to 1 landside slope, 20 foot crown width, and 3 to 1 waterside slope) and to provide three feet of freeboard above the 200-year flood elevation. Geometry corrections would be required for the portions of the existing YRSL that do not meet these criteria.~~

To analyze existing levee geometry, the most recent digital terrain model and topographic surveys were utilized to generate cross sections of the existing levee surface, at 100 foot intervals along the centerline of the levee crown, and compared to the criteria listed above to determine which areas require geometry corrections.

Based on the levee cross section data it was determined that the levee crown widths throughout most of the project area do not meet the minimum Corps levee geometry criteria stated above. The crown width narrows to less than eight feet wide in some areas and would be corrected to the Corps required 20-foot width. In addition, all areas where existing waterside levee slopes are steeper than 3:1 or landside levee slopes are steeper than 2:1, would be corrected to meet the minimum requirements for repair of existing project levees.

The levee slope and all areas to have fill placed on them would be cleared and grubbed of all vegetation and stripped to a depth of six inches. These surfaces would then be appropriately prepared (i.e., laid back, keyed, over excavated, etc.) to allow for effective placement of material and to allow for a fully integrated composite levee section when construction is complete. Material similar to that comprising the remaining portion of the levee would be placed in six inch lifts and compacted to achieve 95percent density at optimum moisture content. The replaced portion of the levee would be appropriately keyed into the existing body of the levee. Erosion resistant mulch with grass seed would be sprayed over the restored levee slope.

WATERSIDE LEVEE SLOPE EROSION PROTECTION

To protect against future potential erosion of the YRSL immediately downstream of the Yuba Goldfields, the waterside slope would be protected with rock slope protection. The proposed rock slope protection blanket would

extend from Project Station 272+00 to Project Station 303+59 (approximately 3,159 feet). The rock slope protection would be two feet ~~thick of riprap~~, with a 6-inch aggregate base fill layer and geotextile fabric, at an average of 42 feet wide, and would extend from the 200-year WSE down the waterside slope to the toe of the levee (approximately 22 feet on average), and 20 feet from the waterside toe out into the adjacent swale.

The waterside levee slope and the adjacent swale invert area that would lie beneath the riprap blanket would be cleared and grubbed and stripped of all vegetation for a minimum depth of six inches. Suitable filter fabric material would be placed on the stripped foundation. A six inch layer of stone fill would also be placed on top of the filter fabric. An additional two foot thick layer of riprap would be placed on top of the stone fill.

RELIEF WELLS

~~Relief wells are another means of providing a filtered seepage path for reduction of water pressure in the foundation soils. Relief wells are passive systems that are constructed near the levee landside toe to provide a low resistance pathway for under seepage to exit to the ground surface in a controlled and observable manner. A low resistance pathway allows under seepage to exit without creating sand boils or piping levee foundation materials. Relief wells are an option only where geotechnical analyses have identified continuous sand and gravel layers. Relief wells would be used to address the levee deficiency of under seepage and would be installed from approximately Project Station 285+00 to Project Station 300+50.~~

EROSION PROTECTION AND STORMWATER POLLUTION PREVENTION

Where soil along the waterside or landside surface of the existing YRSL is disturbed during project implementation, an approved grass cover would be placed for erosion protection. Temporary erosion/runoff control measures would be implemented during construction to minimize stormwater pollution resulting from erosion and sediment migration from the construction and staging areas. These temporary control measures may include implementing construction staging in a manner that minimizes the amount of area disturbed at any one time; providing secondary containment for small quantity storage of construction equipment fuel and oil; and the management of stockpiles and disturbed areas by means of earth berms, diversion ditches, straw wattles, straw bales, silt fences, gravel filters, mulching, revegetation, and temporary covers as appropriate. Erosion and stormwater pollution control measures would be consistent with National Pollutant Discharge Elimination System (NPDES) permit requirements and would be included in a storm water pollution prevention plan (SWPPP).

After completion of construction activities, temporary facilities would be removed and disturbed areas would be restored and reclaimed as appropriate. Site restoration activities for areas disturbed by construction activities, including laydown/staging areas, may include regrading, reseeding, use of straw wattles and bales, application of straw mulch, and other measures deemed appropriate.

BORROW SOURCES

It is estimated that a total of approximately 70,000 cubic yards (cu. yd.) of borrow material would be required for the proposed project improvements. The need for off-site borrow material would be limited where possible; for example, material excavated from the existing levee and slurry cutoff wall trenches would be used to the extent practicable. However, it is still anticipated that borrow material would be needed from off-site, but local, sources. Borrow materials would come from two adjacent parcels to the project alignment located between Project Station 232+50 to Project Station 245+00 (**See Figure 2-34c**).

Once removed, borrow material could be used in the construction of seepage berms, in the required levee geometry corrections, for reconstruction of levee embankments degraded during slurry wall construction, in the levee crown restoration or for other purposes. The two adjacent parcels to the project alignment are more than sufficient to meet the borrow material needs for the project. These parcels have been surveyed for cultural resources and mitigation regarding accidental discovery of cultural resources is presented in Section 3.5.3. In

addition, prior to excavation activities, the borrow material would be tested for contaminants to verify that it is clean enough for use as levee fill.

The borrow site would be considered as an area of excavation. The top two feet of soil (top soil) would be stripped and stockpiled to be used later. Excavators would remove material suitable for levee construction and would load trucks that would then transport the material to different locations in the project area. Returning trucks to the borrow site would dump excavated levee material that cannot be reused in the reconstructed levee. This unusable levee material would be spread and lightly compacted to help temporarily reclaim the borrow site. The borrow site may also be used for construction staging, stockpiling and storage of equipment during construction activities. As a result of excavation activities, the borrow site could be approximately four to seven feet lower than its current elevation. After all available borrow material has been removed and backfill with unusable levee material has occurred, the stockpiled stripped material (original top two feet of the borrow site) would be spread over the backfilled material and lightly compacted. The surface material of the borrow site would be similar to the existing material; however, subsurface material may be different. The borrow site would be graded so that it drains away from the YRSL but drainage may flow into the borrow site. Future use of the reclaimed borrow site could be for agricultural, such as pasture or orchard.

Fill material for the slurry wall cap would be obtained from a permitted source. Permitted sources could include approved borrow sites or commercial sources. Approximately 37,000 cu. yd. of material is needed to construct the cap for the slurry wall. The material would come from a permitted commercial source and would be transported to the project area by haul trucks on the identified access routes, described in further detail below.

Aggregate base needed to surface the access road on the levee crown, drain material required for berm construction, and similar materials would be obtained from commercial sand and gravel operations in the Marysville–Yuba City area and would be hauled to the project alignment by truck.

RELOCATION OF UTILITIES AND LEVEE PENETRATIONS

The Pacific Gas and Electric Company (PG&E) power lines may need to be deenergized or temporarily relocated for clearance during excavation operations for the slurry cutoff wall. In addition, there are several PG&E utility poles that are located within the proposed operation and maintenance corridors. Due to requirements from the CVFPB to maintain a vegetation and structure free zone in the proposed project's operation and maintenance corridors, it is anticipated that any PG&E poles located within the proposed project's operation and maintenance corridors would be relocated approximately 10 feet outside of the proposed operation and maintenance corridors. A two inch PG&E gas pipeline is also located at Project Station 137+28 to serve the Peach Tree Golf and Country Club. The gas pipeline would be removed during degradation of the levee. After installation of the slurry wall a new replacement pipeline would be installed in coordination with PG&E and to meet the CVFPB's requirements.

Other levee penetrations (i.e., pipelines, conduits, or similar structures passing through the levee) related to the Linda County Water District Wastewater Treatment Plant, the Peach Tree Golf and County Club, and the Luis Farm would be addressed during construction of the slurry cutoff walls as summarized below.

Linda County Water District – The domestic water line for the Peach Tree Golf and Country Club located at Project Station 148+55 consists of a six-inch diameter ductile iron pipeline located three feet deep through the foundation of the levee. Prior to installation of the slurry wall, the levee would be locally degraded and the pipeline removed. After slurry wall installation, a new replacement pipeline would be installed in coordination with Linda County Water District and to meet the CVFPB's requirements.

Peach Tree Golf and Country Club – The two inch sanitary sewer force main located at Project Station 125+22 that was installed in 2008 would be removed during degradation of the levee. After installation of the slurry wall a new replacement pipeline would be installed in coordination with the Golf and Country Club and to meet the CVFPB's requirements.

Luis Farm – The 24-inch corrugated metal irrigation pipe located at Project Station 195+20.56 approximately 5.5 feet deep would also be relocated prior to installation of the slurry wall when the levee is locally degraded. After slurry wall installation a new replacement pipeline would be installed in coordination with the owners of the Farm and the CVFPB's requirements.

There are also three existing 12 inch corrugated metal drain pipes located at Project Stations 149+29, 157+32, and 163+32. These pipelines provide drainage between the project levee and an adjacent berm. During construction of the proposed project it is anticipated that these pipelines would be removed and replaced.

STAGING AREAS AND ACCESS

Prior to and during construction of the proposed project several staging areas would be developed to allow for efficient use and distribution of materials and equipment. Additional staging areas within the project area may be developed based on contractor needs. Personnel, equipment, and imported materials would reach the project site via SR 70, N Beale Road, Hammonton-Smartville Road, Simpson Lane, and Simpson-Dantoni Road. At the project site, the primary construction corridor would include the crest of the existing YRSL, existing levee toes, and roads used for access to the work area, including Dantoni Road, Griffith Avenue, and Bryden Road. The access roads would also serve as haul routes to move the borrow material around the project area.

OPERATION AND MAINTENANCE CORRIDORS

To provide space for operation and maintenance of the levee, for flood fighting, and for possible expansion of the levee in the future, TRLIA would acquire land to provide a 50-foot operation and maintenance corridor at the landside toe of the levee. Where this corridor conflicts with existing structural facilities, this corridor would be reduced to a minimum of ten feet. An operation and maintenance corridor of 15-feet would be acquired along the waterside levee toe. All property acquisitions and relocations conducted as part of the proposed project would be in compliance with both the Federal Uniform Relocation Act and the California Relocation Assistance Law.

DISPOSAL OF EXCESS MATERIALS

Because of the nature of the proposed project it is expected that excess materials (e.g., organic soils from stripping, soils not meeting specifications, etc.) would be generated that would require disposal. Excess excavated materials would be placed in the borrow area temporarily and then either disposed of on-site, or hauled off-site and placed in a suitable disposal area. Debris and excess material requiring disposal in a landfill would be hauled off-site to a suitable facility.

CONSTRUCTION EQUIPMENT

Contractor plant equipment would include construction office and equipment trailers; slurry batch plants, including soil-bentonite storage facilities, mixing tanks, pumps, and piping; warehousing and equipment maintenance facilities; water storage tanks; and, fuel pumps and fuel storage tanks.

Mobile equipment for the proposed levee improvements is assumed to include the following typical equipment:

- ▶ two hydraulic excavators,
- ▶ two long-stick hydraulic excavators,
- ▶ two utility excavators,
- ▶ two bulldozers,
- ▶ two low-ground pressure bulldozers,

- ▶ two graders,
- ▶ three self-propelled sheepsfoot or tramping-foot rollers,
- ▶ two water wagons,
- ▶ 20 highway dump trucks,
- ▶ ~~one drill rig to install relief wells,~~
- ▶ a lubricating truck,
- ▶ a front-end loader,
- ▶ a truck-mounted crane,
- ▶ three integrated tool carriers, and
- ▶ numerous pickup trucks.

Additional equipment would include air compressors to operate tools and other equipment; welding equipment; pumps and piping; communications and safety equipment; erosion control materials; miscellaneous equipment customary to the mechanical and electrical crafts; and vehicles used to deliver and move equipment, materials, and personnel.

CONSTRUCTION-RELATED TRAFFIC

Personnel, equipment, and imported materials would reach the project area via SR 70, North Beale Road, Hammonton-Smartville Road, Simpson Lane, Simpson-Dantoni Road, Dantoni Road, Griffith Avenue, and Bryden Road, which are paved, all-weather roads, and suitable for the anticipated loads. The construction labor force is estimated to average about 50 persons over the construction period. Peak staffing could be close to 100 depending on the contractor's schedule.

It is expected that about 40 trailer ("low-boy") truck round trips would be required to transport the contractor's plant and equipment listed above to the project area. A similar number of round trips would be needed to remove the equipment from the site as the work is completed.

Necessary aggregate base and rock revetment material would be obtained from a commercial sand and gravel operation, most likely in the Marysville–Yuba City area. The construction contractor would select the specific supplier based on suitability and pricing. About 1,000 highway truck trips would be needed to bring the aggregate base and rock revetment material to the site from the quarry of origin. Approximately five truckloads would be needed to bring dry ~~soil~~-bentonite to the site. The ~~soil~~-bentonite would probably be processed in Wyoming or South Dakota and transported to the Marysville–Yuba City area by rail. An additional 25–30 trailer truckloads would be required to bring other permanent materials to the site, such as geotextile fabric, erosion control materials, piping, well casings, and ancillary equipment. In addition, about 100 highway truckloads may be needed to carry construction debris and waste materials to a suitable landfill.

Within the construction areas, the main sources of construction traffic would be the installation of the slurry cutoff wall, required transport of material for the slurry cutoff wall (including borrow material), and required transport of borrow material for berm construction and levee crown restoration. Transport of an estimated 70,000 cu. yd. of borrow material would require approximately 3,500 haul trips if a load of 20 cu. yd. per trip is assumed. Larger haul unit sizes would reduce the number of trips and impacts on air quality. Dust control measures would be applied to roads and work areas on a systematic basis.

CONSTRUCTION SCHEDULING

A construction period of up to approximately four months is planned for the project, beginning in July 2010 with contractor mobilization, and ending in November 2010 with clean-up and contractor demobilization. The proposed project could be constructed using two different scenarios: Scenario 1 consists of constructing the proposed project over a four month timeframe working 15 hours per day, and Scenario 2 consists of constructing the proposed project over a three month timeframe working 24 hours per day. It is likely that under Scenario 2 construction would not need to occur continuously for 24 hours per day for the entire three month period and would likely include a combination of 15 hour per day activities and 24 hour per day activities. The current construction plan in order to complete construction activities by November 1 is to have two cutoff wall headings with construction crews working six days a week, up to 24 hour shifts. Schedule highlights are as follows:

- ▶ **Mobilization:** Mobilization would include setting up construction offices and the slurry batch plant and transporting heavy earthmoving equipment to the site. These activities may take approximately two weeks.
- ▶ **Slurry cutoff wall installation:** This activity would begin soon after mobilization with construction of the work pad along the levee crown. Construction would take approximately 3-~~5~~4 months depending on the amount of equipment working simultaneously.
- ▶ **Construction of seepage berms:** Seepage berms would be constructed concurrently with installation of the slurry cutoff wall.
- ▶ **Levee geometry corrections:** Levee cross sectional geometry corrections would be constructed concurrently with the installation of the slurry cutoff wall.
- ▶ **Utilities/Penetrations:** Any required temporary utility relocations or work associated with levee penetrations would be conducted concurrent with construction of the slurry cutoff wall.
- ~~▶ **Relief wells:** Relief wells would likely be installed toward the end of the construction period to reduce the likelihood of damage by construction traffic.~~
- ▶ **Demobilization:** Demobilization would include removal of equipment and materials from the project site, disposal of excess materials at appropriate facilities, and restoration of staging areas and temporary access roads to pre-project conditions. Demobilization activities would likely occur in various locations as construction proceeds along the project alignment, but would be completed in November 2010.

HYDROLOGY AND FLOOD CONTROL BENEFITS

The proposed project would not significantly alter the location or ~~configuration~~alignment of the existing YRSL and therefore would not provide any increased or decreased flood storage or conveyance capacity. Because the proposed project would not alter the hydraulic conditions in the Yuba River, the hydrology during both normal flows and flood flow conditions would not be changed. The proposed improvements to the existing YRSL would provide significant flood control benefits. The proposed improvements to the YRSL between Simpson Lane and the Yuba Goldfields would provide a levee that is more resistant to under seepage, through-seepage, and erosion, and less susceptible to catastrophic breaches.

OPERATION AND MAINTENANCE

The YRSL that would be improved as part of the UYLIP would remain under the existing easements for operation and maintenance. As is the current practice, landowners would be assessed fees for levee operation and maintenance, which would be performed by RD 784 under the supervision of DWR. ~~The only substantial difference between the operation and maintenance of the repaired levee segments and current practice would~~

~~result from the installation of additional relief wells at the end of the project alignment. Relief wells can be prone to plugging and damage from vandalism, and they require operation (water removal) and periodic maintenance (flushing, cleaning, and replacement) to remain effective over the long term. Seepage from any new wells installed as part of the project would be directed to existing drainage facilities. The wells would be maintained by RD 784, which could contract out the well maintenance or perform it with its own forces. Current operation and maintenance procedures would continue after construction of the proposed improvements including per requirements from the CVFPB to maintain a vegetation free zone in the proposed project's operation and maintenance corridors. The only substantial difference between the operation and maintenance of the repaired levee segments and current practice would result from the installation of the waterside levee slope erosion protection at the end of the project alignment. The waterside levee slope erosion protection maintenance would be generally minor and would consist of removing any woody vegetation that tries to establish in the erosion protection and replacement of any rock that is washed away during rain events; removal of rock by flows is highly improbable at this location.~~

ALTERNATIVES CONSIDERED BUT ELIMINATED FROM FURTHER DISCUSSION

Considerations in developing project alternatives included evaluating various methods to correct levee deficiencies while providing continuity of design and minimizing impacts to natural resources and land uses in the project area. TRLIA and the Corps considered alternatives that would meet the proposed project's purpose and need. These alternatives included installing soil bentonite slurry walls at depths ranging from 55-80 feet from Project Station ~~136+50~~135+10 through Project Station 215+50 (1.52 miles) and seepage berms at widths ranging from 80-250 feet from Project Station 212+050 to the end of the project (Project Station 303+59) (1.73 miles). The seepage berm from Project Station 212+50 to Project Station 303+59 would have a large footprint and would require numerous real estate acquisitions and the conversion of agricultural land. Other ~~Due to the environmental impacts that would result from construction of the~~ associated with the footprint of the seepage berm would be increased air quality emissions, greater impacts to the Valley Elderberry Longhorn Beetle, conversion of potential foraging habitat for migratory raptors, conversion of agricultural land, increased truck trips on local roadways to transport more material for construction of the berm, additional impacts to emergency response times due to higher volumes of construction trucks on local roadways, and greater impacts to private wells in the project area. Engineering analysis indicates that the seepage berm would provide 200-year protection. However because of the aforementioned environmental impacts and spatial variability of surface soils on the landside of the levee, a cutoff wall provides a more reliable level of flood protection for the project area, thus ~~from Project Station 212+00 to Project Station 303+59 and the inability to verify that a seepage berm would sufficiently correct the existing levee deficiencies and would provide improved flood protection in the project area, along with the inconsistency of the subsurface geology and material data,~~ the seepage berm alternative was dismissed from further evaluation. In addition, the seepage berm alternative would have resulted in several agricultural and rural residential relocations and impacts to adjacent land uses, which is further cause for dismissal.

3.0 ENVIRONMENTAL CHECKLIST

PROJECT INFORMATION	
1. Project Title:	Upper Yuba Levee Improvement Project
2. Lead Agency Name and Address:	Three Rivers Levee Improvement Authority 1114 Yuba Street, Suite 218 Marysville, CA 95901
3. Contact Person and Phone Number:	Paul Brunner, Executive Director, (530) 749-7841
4. Project Location:	Simpson Lane to the Yuba Goldfields, along the south levee of the Yuba River, Yuba County, California
5. Project Sponsor's Name and Address:	Three Rivers Levee Improvement Authority 1114 Yuba Street, Suite 218, Marysville, CA 95901
6. General Plan Designation:	Valley Agriculture
7. Zoning:	Exclusive Agricultural; Ag/Rural Residential
8. Description of Project: (Describe the whole action involved, including but not limited to later phases of the project, and any secondary, support, or off-site features necessary for its implementation. Attach additional sheets if necessary.)	
<p>The purpose of the proposed project is to correct levee deficiencies and improve flood protection on the Yuba River South Levee, located east of the City of Marysville and south of the Yuba River from approximately Simpson Lane to the Yuba Goldfields. The total length of the project is approximately 3.8 miles. The project would involve installing slurry walls, seepage berms, levee geometry corrections, <u>and</u> levee slope erosion protection, and relief wells in the project area. The proposed project would provide a minimum 200-year level of flood protection in the project area and ensure that the project area meets the minimum requirements of Federal and State laws.</p>	
9. Surrounding Land Uses and Setting: (Briefly describe the project's surroundings)	Undeveloped land, sand and gravel business, agriculture (orchards) and open space on the waterside. Residential neighborhoods, roads, and agricultural land on the land side of the levee.
10: Other public agencies whose approval is required: (e.g., permits, financing approval, or participation agreement)	CDFG, USACE, RWQCB, USFWS, CARB, CVFPB, FRAQMD

3.1 AESTHETICS

DISCUSSION

c) Substantially degrade the existing visual character or quality of the site and its surroundings?

Less-than-Significant Impact. The proposed project consists of improving/repairing the existing YRSL. The only new project features that would be visible to viewers in the project area would be ~~relief wells, raising/improvements in~~ the existing YRSL crown, and an additional landside seepage berm. ~~Only a small portion of the relief well structures would be visible. New relief wells would not alter the visual character of the project area.~~ The landside seepage berm would consist of engineered earthen fill placed against the existing levee

with the same soil stabilizing vegetation planted on the surface as found on the levees. The majority of the proposed project improvements, ~~which include both raising/improving the existing YRSL crown or constructing a new seepage berm,~~ would result in minor alterations to the shape of the existing YRSL and therefore, would not substantially alter the existing visual quality of the project area. Furthermore, a new or modified landside seepage berm would not alter the visual character of the project area.

Alterations to the visual character of the project area during construction (i.e., presence of construction equipment and staging areas) would be isolated, temporary, and would be observed by a relatively small number of viewers due to the agricultural and rural nature of the project area. Upon completion of construction activities all equipment would be removed from the project area. Therefore, the project would result in a less than significant impact to the existing visual character only during construction. As a result, no mitigation would be required.

3.4 BIOLOGICAL RESOURCES

DISCUSSION

- 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 Game or the U.S. Fish and Wildlife Service?**

Less than Significant Impact with Mitigation Incorporated. The proposed project would have potential impacts on the following species and/or their habitat: Vernal pool fairy shrimp (*Branchinecta lynchi*), vernal pool tadpole shrimp (*Lepidurus packardii*), special status plant species (vernal pool), valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*), western burrowing owl (*Athene cunicularia*), Swainson's hawk (*Buteo swainsoni*), northern harrier (*Circus cyaneus*), white-tailed kite (*Elanus leucurus*), and other raptors and migratory birds. The following is a description of the proposed project's effects on these species and/or their habitat.

Vernal pool fairy shrimp, vernal pool tadpole shrimp, and several special status plant species have the potential to occur within vernal pool habitat within the vicinity of the ESL. One vernal pool that is approximately 1.19 acres in size occurs within the ESL adjacent to the landside toe of the levee near Dantoni Road. Vernal pool tadpole shrimp were detected within this feature during protocol level vernal pool branchiopod surveys and presence of vernal pool fairy shrimp within this feature will be assumed. No direct or indirect impacts to the vernal pool are anticipated as a result of the proposed project. Therefore, no direct or indirect impacts are anticipated to occur to special-status plants or vernal pool branchiopods or have with the potential to occur in the vernal pool (**HDR 2009a**). Project design has been modified to avoid direct impacts to the vernal pool. The operations and maintenance easement has been reduced from the standard 50 feet in width to 15 feet in width adjacent to the vernal pool. The following potential indirect effects to the vernal pool were evaluated and are discussed in the following paragraph: potential for alteration of the size of the watershed of the vernal pool, alteration of hydrology in the form of hydrologic disruption post-construction (e.g., causing the pool to drain or fill more quickly), or impacts to water quality during construction as a result of construction activities and post-construction as a result of an increase in contaminated runoff. No indirect impacts were identified.

The size of the vernal pool's watershed is not anticipated to change as a result of the proposed project. The new levee would be similar in size to the existing levee. Construction would occur during the dry season so that temporary construction related impacts to watershed size as a result of degrading the upper 10 feet of levee do not occur. Construction is not expected to disrupt the long-term hydrology of the vernal pool. The new levee would be in the same location as the existing levee and the portion of the levee that is within the watershed of the vernal pool (the portion of the levee beginning at the levee crown and extending landward to the levee toe) would not change significantly. The slurry cutoff wall would reduce under-seepage, but under-seepage would only occur to any significant degree when water is present on the water side levee slope. Water would only be present on the water side levee slope during a major flood event; during normal conditions the river is over a mile from the

levee. Therefore, under-seepage is not expected to contribute significantly to the hydrology of the vernal pool and reduction of under seepage would not significantly reduce hydrologic input to the vernal pool except for during major food events. Construction would occur during the dry season so the vernal pool would not be inadvertently drained during excavation of the hole for the slurry wall. Construction related impacts to water quality are not anticipated because construction would occur during the dry season. Long-term impacts as a result of potential contaminated runoff from new levee materials are not anticipated to be significant because the new levee would be constructed primarily from the existing material. The only new material is anticipated to be the new slurry wall and a new clay cap, which is placed onto the top of the slurry wall. These new materials are not expected to result in significant amounts of contaminated runoff into the vernal pool. Implementation of **Mitigation Measures BIO-1** and **BIO -7** below would further reduce any potential impacts to the vernal pool to a less-than-significant level.

MITIGATION

Mitigation Measure BIO-1. Implement Avoidance and Minimization Measures to Avoid Impacts on Vernal Pool Species.

a) ~~Focused botanical surveys for special status plant species will be conducted within the vernal pool and immediately adjacent areas at least once a month (minimum of four survey events) during March through June of the year prior to the start of construction activities in the vicinity of the vernal pool habitat. The results of the surveys will be submitted to CDFG prior to the commencement of construction. USFWS fairy shrimp protocol surveys were conducted and vernal pool tadpole shrimp were detected within the vernal pool. Therefore, presence of vernal pool tadpole shrimp has been confirmed and presence of vernal pool fairy shrimp will be assumed. Concurrence that the proposed project will not adversely affect listed shrimp species will be requested from the USFWS. Furthermore, there will be no direct impacts to special status plant species and vernal pool branchiopods species, since the vernal pool will be avoided. will also be completed in the vernal pool during the 2009/2010 wet season and a Report of Findings will be submitted to the USFWS. If listed fairy shrimp species are found during the protocol surveys then concurrence will be sought from USFWS that the proposed project will not adversely affect any listed fairy shrimp species.~~

b) The following ~~mitigation~~ avoidance and minimization measures will be implemented:

- Construction activities in the vicinity of the vernal pool shall be limited to the dry season (roughly June 15 to October 15) to avoid potential indirect impacts to the vernal pool as a result of hydrologic disruption or runoff of harmful substances into the vernal pool.
- Brightly colored orange fencing shall be placed and maintained around the vernal pool habitat to prevent impacts from construction activities. Signs shall be placed on the fencing delineating the vernal pool as an environmentally sensitive area. No construction activities or personnel shall be allowed within the environmentally sensitive area.
- Appropriate best management practices (BMP) such as hay bales or silt fencing shall be installed to prevent soil and other construction materials from entering the vernal pool during construction activities in adjacent areas. The BMPs shall be removed once construction activities are finished adjacent to the vernal pool to prevent possible hydrologic disruption to the vernal pool once the wet season commences.
- A USFWS-approved biologist shall inspect the environmentally sensitive area fencing and BMPs to ensure that they are properly installed prior to any work occurring adjacent to the vernal pool. The biologist shall inspect the vernal pool periodically during construction-related activities in the vicinity of the vernal pool to ensure that no unnecessary take of listed species or destruction of their habitat occurs. The biologist shall have the authority to stop all activities that may result in such take or destruction until

appropriate corrective measures have been completed. The biologist also shall be required to report immediately any unauthorized impacts to USFWS.

- A USFWS-approved biologist shall conduct worker awareness training to ensure that all on-site construction personnel receive instruction regarding the presence of listed species and the importance of avoiding impacts to these species and their habitat.
- ~~If no federally listed branchiopods are found in the vernal pool upon completion of USFWS protocol presence/absence surveys, a Report of Findings shall be submitted to USFWS requesting concurrence that this species can be assumed to be absent from the project site and that species specific mitigation measures can be suspended.~~

No compensatory mitigation is necessary because no direct or indirect impacts to special-status plants or federally-listed vernal pool branchiopods are anticipated.

Mitigation Measure BIO-2. Implement Minimization and Avoidance Measures for Elderberry Shrubs.

- a) A buffer zone of 100-feet or greater shall be established and maintained around elderberry shrubs within the project site as feasible. Complete avoidance may be assumed when a 100-foot (or wider) buffer is established and maintained around elderberry plants containing stems measuring 1.0 inch or greater in diameter at ground level.
- b) The following mitigation measures shall be implemented for construction operations in the vicinity of any elderberry shrubs that would not be removed.
 - All areas to be avoided during construction activities, specifically the 100-foot buffer zone around elderberry shrubs, shall be fenced and flagged. In areas where encroachment on the 100-foot buffer has been approved by the USFWS, a minimum setback of at least 20 feet from the dripline of each elderberry shrub shall be provided in most cases. In some cases, construction activity may be required within 20 feet of a shrub. In these cases, fencing shall be placed at the greatest possible distance from the shrubs.
 - A worker awareness training program for construction personnel shall be conducted by a qualified biologist prior to beginning construction activities. The program shall inform all construction personnel about the life history and status of the beetle, requirements to avoid damaging the elderberry plants, and the possible penalties for not complying with these requirements. Written documentation of the training shall be submitted to USFWS within 30 days of its completion.
 - Signs shall be erected every 50 feet along the edge of avoidance areas with the following information: “This area is habitat of the valley elderberry longhorn beetle, a threatened species, and must not be disturbed. This species is protected by the Endangered Species Act of 1973, as amended. Violators are subject to prosecution, fines, and imprisonment.” The signs shall be clearly readable from a distance of 20 feet, and shall be maintained for the duration of construction.
 - Pre-construction and post-construction surveys shall be done of the elderberry shrubs in the project area. Pre-construction surveys shall document compliance with mitigation measures. The post-construction survey shall confirm that there was no additional damage to any of the elderberry shrubs than as described in this document.
 - Temporary construction impacts within the buffer area (area within 100 feet of elderberry shrubs) shall be restored. If any portion of the buffer area is temporarily disturbed during construction, it shall be revegetated with native plants and erosion control shall be provided.

- Buffer areas shall continue to be protected after construction from adverse effects of the project. Measures such as fencing, signs, weeding, and trash removal shall be implemented as appropriate.
- No insecticides, herbicides, fertilizers, or other chemicals that might harm the beetle or its host plant shall be used in the buffer areas, or within 100 feet of any elderberry plant with one or more stems measuring 1.0 inch or greater in diameter at ground level. All drainage water during and following construction shall be diverted away from the elderberry shrubs.
- A written description of how the buffer areas are to be restored, protected, and maintained after construction is completed shall be provided to USFWS.
- Mowing of grass can occur between July through April to reduce fire hazard, however, no mowing should occur within five feet of elderberry shrub stems. Mowing shall be done in a manner that avoids damaging shrubs.
- Dirt roadways and other areas of disturbed bare ground within 100 feet of elderberry shrubs shall be watered at least twice a day to minimize dust emissions.

Mitigation Measure BIO-3. Compensate for Unavoidable Impacts to Elderberry Shrubs.

a) The following compensatory mitigation measures shall apply:

Elderberry shrubs that occur within the project footprint and need to be removed to facilitate construction activities would be transplanted and mitigated for at the prescribed ratios. Three options have been considered for elderberry mitigation. These options are described below in order of preference.

- Option 1: Anderson Road Mitigation Area

Elderberry shrubs would be transplanted and new cuttings and associated native plants would be planted at the Anderson Road Mitigation Area. Transplantation of the elderberry shrubs is anticipated to occur in summer of 2010 prior to construction. Based on requirements contained in the Conservation Guidelines for the Valley Elderberry Longhorn Beetle (USFWS 1999), elderberry shrubs should be transplanted during the dormant season, approximately November through the first two weeks in February, after they have lost their leaves. Increased mitigation ratios are typically applied by USFWS when elderberry shrubs can not be transplanted during the dormant period. A multiplier of 2.5 is typically applied to the ratio (new plantings to affected stems) of required elderberry mitigation plantings as well as riparian native trees/shrubs to be planted as replacement habitat. Because the elderberry shrubs are anticipated to be transplanted outside of the dormant season, a multiplier of 2.5 has been applied in order to determine the necessary mitigation acreage for elderberry shrubs. It is anticipated that the project would require approximately 18 to 25 acres of mitigation for directly affecting and/or transplanting affected shrubs and the planting of new cuttings and associated native plants. If some or all of the elderberry shrubs can be transplanted during the dormant season, the mitigation acreage would be reduced accordingly. If all of the elderberry shrubs could be transplanted during the dormant season, the project would require approximately 7 to 10 acres of mitigation for directly affecting and/or transplanting affected shrubs and the planting of new cuttings and associated native plants. The exact amount of mitigation and mitigation ratios would be determined through consultation with the USFWS. The Anderson Road Mitigation Area is a 75.84 acre mitigation area located along the banks of the Feather River, approximately six miles south of Marysville. The site is located on a high terrace (approximately 15 to 20 feet above the mean summer flow of the Feather River). The site contains a 2.2 acre seasonal wetland with a small stabilized channel that connects it to the Feather River for flood control purposes. The site is conducive for riparian forest habitat and has been used as a mitigation bank for levee projects in the Yuba City and Marysville areas, sponsored by RD 784 and the CVFPB. Use of this site for mitigation purposes would require approval by the CVFPB.

- Option 2: Purchase of Mitigation Credits

Two mitigation banks in the vicinity of the project have been identified that have or will have mitigation credits available to accommodate or partially accommodate the mitigation needs of the project: Wildlands, Inc. and Restoration Resources. Wildlands estimates that the proposed project would require the purchase of approximately 433 credits if the elderberry shrubs were to be transplanted outside of the dormant season as is currently anticipated, and the purchase of approximately 173 credits if the shrubs were to be transplanted during the dormant season. Wildlands anticipates that credits will be available at their River Ranch VELB Conservation Bank at the time that the project requires mitigation credits. The River Ranch is located in Yolo County, along the Sacramento River, near its confluence with the Feather River. Wildlands' River Ranch location is being developed in three phases. During the first phase (2010) they anticipate the release of 138 credits. During the second phase (2011) they anticipate the release of up to 363 credits. During the third phase of development, they anticipate the release of 2,432 credits; they expect that 1,100 of these will be released in 2010 and the remainder will be released in future years. They can also receive the shrubs to be removed from the site and transplanted.

Restoration Resources has some space available at the Silvergate Mitigation Bank (formerly a Wildlands Mitigation Bank) in Sheridan. The bank is located at the Placer County / Yuba County line, near Highway 65 at the Bear River, just south of Wheatland. The bank has been on the USFWS's sold-out list, but they still have a VELB balance of 31 credits. The Silvergate Mitigation Bank can accommodate the shrubs that would need to be transplanted. They suspect that the proposed project would use the balance of credits that they have available and would likely require additional credits from another bank.

- Option 3: USFWS Species Account

If Options 1 and 2 are not feasible due to unavailability of credits at the time that shrubs are removed, a USFWS Species Account for VELB would be set up. A dollar amount per credit, as determined by the USFWS, would be paid into a Species Account. This account would be managed by the Center for Natural Lands Management. When credits become available at one of the mitigation banks described above or at another approved mitigation bank in the area, funds from the Species Account will be used to purchase VELB mitigation credits at the appropriate mitigation bank.

- For all options, elderberry shrubs that occur within the project footprint and need to be removed to facilitate construction activities would be transplanted to an appropriate location within the project area or an alternative suitable site agreed upon by USFWS would be mitigated for according to the transplantation guidelines outlined in the Conservation Guidelines for the Valley Elderberry Longhorn Beetle (USFWS 1999). These transplantation guidelines dictate the necessary timing and details of the transplanting. At the discretion of USFWS, shrubs that are unlikely to survive transplantation because of poor condition or location, or a plant that would be extremely difficult to move because of access problems, may be exempted from transplantation. In cases where transplantation is not possible, ~~minimization~~ compensation ratios would be increased to offset the additional habitat loss.
- Each elderberry stem measuring 1.0 inch or greater in diameter at ground level that is adversely affected (i.e., transplanted or destroyed) would be replaced, in the conservation area, with elderberry seedlings or cuttings at a ratio ranging from 1:1 to 8:1 (new plantings to affected stems). The numbers of elderberry seedlings/cuttings and associated riparian native trees/shrubs to be planted as replacement habitat are determined by stem size class of affected elderberry shrubs, presence or absence of exit holes, and whether the shrub lies in a riparian or non-riparian area. Stock of either seedlings or cuttings would be obtained from local sources. Cuttings may be obtained from the plants to be transplanted if the project site is in the vicinity of the conservation area.

b) The following measures/procedures shall be implemented during transplantation:

- A qualified biologist (monitor) must be on-site for the duration of the transplanting of the elderberry shrubs to insure that no unauthorized take of VELB occurs. If unauthorized take occurs, construction activities in the area shall stop until corrective measures have been completed. The monitor shall immediately report any unauthorized take of the beetle or its habitat to the USFWS.
 - Elderberry shrubs shall be transplanted when the plants are dormant, approximately November through the first two weeks in February, after they have lost their leaves. Increased mitigation ratios shall apply to plants that can not be transplanted during the dormant period. A multiplier of 2.5 shall be applied to the ratio (new plantings to affected stems) of required elderberry mitigation plantings as well as riparian native trees/shrubs to be planted as replacement habitat.
- c) The following transplanting procedure shall be followed:
- The plant shall be cut back 3 to 6 feet from the ground or to 50 percent of its height (whichever is taller) by removing branches and stems above this height. The trunk and all stems measuring 1.0 inch or greater in diameter at ground level shall be replanted. Any leaves remaining on the plant shall be removed.
 - A hole shall be excavated of adequate size to receive the transplant.
 - The plant shall be excavated using a Vermeer® spade, backhoe, front end loader, or other suitable equipment, taking as much of the root ball as possible, and shall be replanted immediately at the conservation area. The plant shall only be moved by the root ball. The root ball shall be secured with wire and wrapped with damp burlap. The burlap shall be dampened as necessary to keep the root ball wet. Care shall be taken to ensure that the soil is not dislodged from around the roots of the transplant. Soil at the transplant site shall be moistened prior to transplant if the soil at the site does not contain adequate moisture.
 - The planting area shall be at least 1,800 square feet for each elderberry transplant. The root ball shall be planted so that its top is level with the existing ground. Soil shall be compacted sufficiently so that settlement does not occur. As many as five additional elderberry plantings (cuttings or seedlings) and up to five associated native species plantings may also be planted within the 1,800 square foot area with the transplant. The transplant and each new planting shall have its own watering basin measuring at least three feet in diameter. Watering basins should have a continuous berm measuring approximately eight inches wide at the base and six inches high.
 - Soil shall be saturated with water. Fertilizers or other supplements shall not be used, as the effects of these compounds on the beetle are unknown. Shrubs shall be monitored and watered as necessary. The use of a drip watering system, water truck, or other apparatus may be used.
 - A mix of native plants associated with the elderberry shrubs at the project site or similar sites shall be planted at a 1:1 ratio. Native plant stock shall be obtained from local sources.

3.9 HYDROLOGY/ WATER QUALITY

DISCUSSION

a) Violate any water quality standards or waste discharge requirements?

Less than Significant with Mitigation Incorporated. Construction activities associated with improving the existing YRSL include constructing slurry cutoff walls, and a seepage berm, ~~and relief wells~~; levee crown recontouring; establishment of temporary construction staging areas and access routes; and other limited ground disturbing activities.

These construction activities would disturb existing vegetation cover and soils on the existing YRSL and in nearby areas, would expose areas of disturbed ground that could be subject to rainfall and erosion, and could cause temporary discharges of sediment and other contaminants into receiving waters or onto the ground where they can be carried into receiving waters. Petroleum products or other construction-related substances (e.g., hydraulic fluids, concrete, solvents) also could be discharged inadvertently to waterways via stormwater runoff. Accidental spills of construction-related substances such as oils and fuels could also contaminate both surface water and groundwater. The extent of potential impacts on water quality would depend on the following factors: tendency for erosion of soil types encountered, types of construction practices, extent of the disturbed area, duration of construction activities, timing of particular construction activities relative to the rainy season, proximity to receiving water bodies, and sensitivity of those water bodies to construction-related contaminants. The proposed project area is located over one mile from the Yuba River; therefore, it is not anticipated that construction activities would result in direct discharges of sediments, stormwater runoff, or other construction debris into the Yuba River.

Although erosion and generation of contaminated runoff are possible during construction of improvements to the existing YRSL, anything more than minor releases of sediment is unlikely because construction activities would occur during the dry, summer months. In addition, temporary erosion control measures would be implemented during construction activities to minimize stormwater pollution resulting from erosion and sediment migration from the construction areas, laydown/staging areas, and disposal areas. These temporary measures may include:

- ▶ minimizing the extent of construction staging areas to minimize the amount of land disturbed at any one time;
- ▶ secondary containment for storage of fuel and oil; and,
- ▶ the management of stockpiles and disturbed areas using earth berms, diversion ditches, straw wattles, straw bales, silt fences, gravel filters, mulching, revegetation, and temporary covers as appropriate.

Nevertheless, some soil erosion and sedimentation of local drainage channels or discharge of contaminated runoff to local drainage channels could occur. Therefore, construction activities could affect water quality in the project area by causing erosion and sedimentation or releasing construction materials into soil or water. Implementation of **Mitigation Measure WQ-1** described below would require the preparation of a SWPPP and implementation of standard BMPs to minimize ground and vegetation disturbance and use and store hazardous materials in designated staging areas. Therefore, implementation of **Mitigation Measure WQ-1** would reduce impacts to water quality as a result of the proposed project's construction activities to a less-than-significant level.

3.10 LAND USE/ PLANNING

DISCUSSION

- b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to, a general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?**

No Impact. Because the proposed project would result in the removal of land from agricultural production, implementation of the proposed project could conflict with the Yuba County General Plan and Yuba County Zoning Ordinance. However, the proposed improvements to the flood control system would benefit thousands of acres of valuable agricultural lands, including prime farmland, prime farmland – if irrigated, and other important farmland designated by the FMMP, by providing increased protection from future flood damages. Therefore, while the direct land use changes associated with the proposed project would conflict with local land use policies, in the long term the proposed project would provide greater protection for agricultural lands and soils, consistent with these policies. Impacts resulting from conversion of agricultural land are described in further detail above

under Section 3.2, Agriculture and Forestry Resources. Therefore, no impact would occur and no mitigation would be required.

Agricultural operators and land owners would receive appropriate compensation for any temporary disturbance or permanent loss of agricultural or other lands associated with implementation of the proposed project. In addition, all property acquisitions and relocations conducted as part of the proposed project would be in compliance with both the Federal Uniform Relocation Act and the California Relocation Assistance Law. Therefore, this impact would be less than significant and no mitigation would be required.

The YRSL would be improved as part of the proposed project and would remain under the existing easements for operation and maintenance. As is the current practice, landowners would be assessed fees for levee operation and maintenance, which would be performed by RD 784 under the supervision of DWR. The only substantial difference between the operation and maintenance of the repaired levee segments and current practice would result from the installation of the waterside levee slope erosion protection at the end of the project alignment, additional relief wells at the end of the project alignment, which would be maintained by RD 784. The waterside levee slope erosion protection maintenance would be generally minor and would consist of removing any woody vegetation that tries to establish in the erosion protection and replacement of any rock that is washed away during rain events; removal of rock by flows is highly improbable at this location.

3.12 NOISE

DISCUSSION

b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?

Less than Significant with Mitigation Incorporated. Construction activities have the potential to result in varying degrees of temporary groundborne vibration, depending on the specific construction equipment used and operations involved. Vibration generated by construction equipment spreads through the ground and diminishes in magnitude with increases in distance. **Table 3.12-3** displays vibration levels for typical construction equipment.

Equipment	PPV at 25 feet (inch per second)	Approximate L _v at 25 feet
Large Bulldozer	0.089	87
Caisson Drilling	0.089	87
Trucks	0.076	86
Jackhammer	0.035	79
Small Bulldozer	0.003	58

Notes:

L_v = velocity level in decibels (i.e., VdB) referenced to 1 micro inch/second and based on the root mean square velocity amplitude;

Source: FTA 2006: Chapters 10 and 12

As discussed in Section 2.3.2 on-site construction equipment is assumed to include two hydraulic excavators, two long-stick hydraulic excavators, two utility excavators, two bulldozers, two low-ground pressure bulldozers, two graders, three self-propelled sheepsfoot or tramping-foot rollers, two water wagons, 20 highway dump trucks, ~~one drill rig to install relief wells,~~ a lubricating truck, a front-end loader, a truck-mounted crane, three integrated tool carriers, and numerous pickup trucks. According to the Federal Transit Administration (FTA), vibration levels associated with the use of bulldozers range from approximately 0.003 to 0.089 inch per second PPV and 58–87 in velocity level (L_v) in decibels (i.e. VdB referenced to 1 micro inch per second and based on the root mean square velocity amplitude) at 25 feet, as shown in **Table 3.12-3**. Therefore, predicted worst-case vibration levels of approximately 0.089 inch per second PPV and 87 VdB at the nearest sensitive residence (25 feet) could occur from use of large bulldozers. Because the project could have major construction equipment working almost

immediately adjacent to certain residences and other buildings, vibration levels with respect to the prevention of structural damage for normal buildings would likely exceed the threshold of 0.2 in/sec PPV at the closest structures (Caltrans 2002). In addition, the proposed project would likely exceed the FTA's maximum-acceptable vibration standard of 80 VdB (FTA 2006: Chapters 10 and 12) with respect to human annoyance for residential uses. Thus vibration and groundborne noise resulting from the proposed project could expose persons to levels exceeding the recommendations of Caltrans and FTA. Implementation of **Mitigation Measures NOISE-1** would reduce any potential impacts related to construction vibrations to a less-than-significant level.

3.16 TRANSPORTATION/ TRAFFIC

DISCUSSION

- a) **Conflict with an applicable plan, ordinance, or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways, and freeways, pedestrian and bicycle paths, and mass transit?**

Less than Significant with Mitigation Incorporated. The proposed project has the potential to affect transportation and circulation during construction. However, any effect of operation of the proposed project on transportation and circulation issues would be negligible. Few, if any, additional vehicle trips would be associated with long-term maintenance under the proposed project. Construction of improvements to the existing YRSL would not affect roadway or transportation system features in the long-term. The proposed project does not include any permanent design features that would present hazards to transportation systems. Therefore, the discussion of environmental consequences in this section is limited to construction-related effects. Implementation of the proposed project would only result in a temporary increase in construction-related traffic, as the proposed project does not contain elements that would generate additional, long-term AADTs.

Construction-related traffic (i.e., construction personnel, equipment, and imported materials) would reach the project area via SR 70, North Beale Road, Hammonton-Smartville Road, Simpson Lane, Simpson-Dantoni Road, Dantoni Road, Griffith Avenue, and Bryden Road, which are paved, all-weather roads, and suitable for the anticipated construction loads. Currently these roadways are used by trucks and other heavy agricultural equipment. Dantoni Road, Griffith Avenue, and Bryden Road are used primarily by nearby residents and agricultural operations and receive little through-traffic.

Within the proposed construction areas, the main sources of construction traffic would be the installation of the slurry cutoff wall, required transport of material for the slurry cutoff wall (including borrow material), and required transport of borrow material for berm construction and levee crown restoration.

The construction labor force is estimated to average about 50 persons over the construction period. Peak staffing could be close to 100 depending on the contractor's schedule. Therefore, construction staff related traffic could reach a total of 100 trips during the peak morning and evening commute hours at times of peak construction activity. This is a conservative assumption that does not consider the likelihood that some of the construction crew would rideshare and/or work during off-peak hours. However, members of the construction crew are expected to travel to the project area from different directions, with overall traffic spread among various roadways and intersections. Therefore, commute traffic is not expected to exceed the Institute of Traffic Engineers (ITE) threshold of an increase in traffic volume of 100 vehicles in the peak direction during the peak hour at any intersection.

About 40 trailer ("low-boy") truck round trips would be required to transport the contractor's plant and equipment to the project area over a period of approximately one month. A similar number of round trips would occur as work is completed to remove the equipment from the project area. The number of truck trips and employee trips

associated with mobilization is estimated to fall below the ITE thresholds of 50 trucks, 100 passenger vehicles, or an equivalent combination of vehicles per peak hour in the peak direction at an intersection.

About 1,000 highway truck trips would be needed to bring the aggregate base and rock revetment material to the project area from the quarry of origin. It is assumed that the necessary aggregate base and rock revetment material would be obtained from a commercial sand and gravel operation, most likely in the Marysville–Yuba City area. Approximately five truckloads would be needed to bring dry soil-bentonite to the project site. The soil-bentonite would probably be processed in Wyoming or South Dakota and transported to the Marysville–Yuba City area by rail. An additional 25–30 trailer truckloads would be required to bring other permanent materials to the project site, such as geotextile filter fabric, erosion control materials, piping, well casings, and ancillary equipment. In addition, about 100 highway truckloads may be needed to carry construction debris and waste materials to a suitable landfill. Transport of an estimated 70,000 cu. yd. of borrow material between the proposed borrow site and the levee alignment would also be required. This would result in approximately 3,500 haul trips if a load of 20 cu. yd. per trip is assumed. Borrow materials would come from two adjacent parcels to the project alignment located between Project Station 232+50 to Project Station 245+00 (**Figure 2-34c**). Larger haul unit sizes would reduce the number of trips. Fill material for the slurry wall cap would be obtained from a permitted commercial source. Approximately 37,000 cu. yd. of material would be needed to construct the cap for the slurry wall. The material would be transported to the project area by haul trucks on the above identified haul routes.

It is estimated that a total of approximately 6,525 truck trips would be required to transport borrow, equipment, fuel, aggregate, clay cap materials, construction debris, and miscellaneous materials to and from the project area. These 6,525 truck trips would take place over approximately four months, resulting in an average of approximately 1,600 truck round trips per month or approximately 75 trips per work day (assuming 22 work days per month). These trips would be spread out over the work day and would also be spread geographically, as work would occur simultaneously in several locations along the project alignment. Also, truck trips would seldom occur at the same time as employee commute trips, as employees must be at the project site to operate haul trucks and receive deliveries of materials. It is unlikely that truck traffic would exceed the ITE threshold of 50 trucks per hour in the peak direction during the peak hour at any individual roadway intersection, or that commute traffic and truck haul traffic combined would exceed the equivalent threshold for a mix of passenger vehicles and trucks during a peak hour in a peak direction at a single intersection.

During the anticipated four month construction period, trucks delivering materials and removing debris, as well as commute traffic, would be entering and exiting unpaved construction areas periodically and using local roadways. As described above, truck traffic associated with levee repair and strengthening activities is expected to average 75 round trips per work day. Because similar activities would be performed during much of the construction period, the amount of daily truck traffic associated with delivery of materials or hauling of debris is not expected to vary widely, and the addition of construction-related truck traffic to traffic volumes on local roadways is not expected to noticeably alter traffic flow in most circumstances. However, trucks and workers exiting the construction area at the end of the work day are likely to move along Simpson-Dantoni Road, Simpson Lane, Hammonton-Smartville Road, North Beale Road and entrances to the construction area or the existing YRSL road. Many of these vehicles would also enter SR 70. At times, the presence of slow-moving trucks entering or exiting construction areas could pose hazards to other vehicles on North Beale Road and SR 70. In addition, trucks and other vehicles could track mud and gravel onto the local roadways, potentially posing a driving hazard.

During construction, project area roadways not designed to accommodate the movement of large trucks may be degraded or otherwise damaged. The movement of haul trucks, construction equipment, and crew vehicles could damage the roadways (e.g., potholes or minor fractures).

All construction-related vehicles (i.e., construction equipment and worker vehicles) would be parked away from any public roadways at construction staging areas. No public parking facilities would be affected by the parking of construction-related equipment and worker vehicles.

TRLIA shall implement **Mitigation Measures TRAFFIC-1 and TRAFFIC-4** to address the potential for construction traffic to disrupt the local circulation system. Therefore, although the proposed project would result in short-term traffic impacts, it would not result in long-term traffic impacts and implementation of **Mitigation Measures TRAFFIC-1 and TRAFFIC-4** would reduce any potential short-term impacts to traffic and local roadways as a result of the proposed project's construction activities to a less-than-significant level.

MITIGATION

To reduce hazards to vehicles on local roadways, TRLIA or its primary construction contractor shall ~~ensure that its primary construction contractor~~ implements the following measures:

Mitigation Measure TRAFFIC-1: Develop and implement a traffic safety plan in coordination with the County and Caltrans. The construction contractor shall develop a plan for traffic safety assurance for the county roadways in the project vicinity. The contractor shall submit the plan to the County Public Works Department for review before the initiation of construction-related activity that could adversely affect traffic on county roadways. A similar plan shall be prepared for SR 70 and submitted to Caltrans for review before initiation of construction-related activity that could adversely affect traffic on the highway. If both the County and Caltrans will accept the same traffic safety plan, then only one plan need be prepared. The contractor shall train construction personnel in appropriate safety measures as described in the plan(s). The plan(s) may call for the following elements, based on the requirements of each agency:

- ▶ posting warnings about the potential presence of slow-moving vehicles;
- ▶ using traffic control personnel when appropriate;
- ▶ scheduling truck trips outside of peak morning and evening traffic periods to the extent feasible;
- ▶ placing and maintaining barriers and installing traffic control devices necessary for safety, as specified in Caltrans's *Manual of Traffic Controls for Construction and Maintenance Works Zones* and in accordance with County requirements; ~~and~~
- ▶ coordinating with all emergency response providers to make sure that emergency access is maintain throughout the project area during construction; and,
- ▶ maintaining routes for passage of emergency response vehicles through roadways affected by construction activities.

TRLIA or its primary construction contractor ~~The contractor shall train construction personnel in appropriate safety measures as described in the plan(s), and~~ shall implement the adopted plan(s).

Mitigation Measure TRAFFIC-2: Minimize the accumulation of mud and dirt on local roadways.

All operations shall limit or expeditiously remove the accumulation of project-generated mud or dirt from adjacent public streets at least once every 24 hours when operations are occurring. The construction contractor shall sweep the paved roadways (water sweeper with reclaimed water recommended) at the end of each day if substantial volumes of soil material have been carried onto adjacent paved, public roads from the project sites. Also see a similar requirement under Mitigation for Air Quality impacts related to the implementation of FRAQMD pollution-control measures to minimize temporary emissions of ROG, NO_x, and PM₁₀ during construction.

Mitigation Measure TRAFFIC-3: Assess damage to haul and access routes and repair damages.

TRLIA shall assess damage to roadways used during construction and shall repair all potholes, fractures, or other damages.

Mitigation Measure TRAFFIC-4: Maintain emergency access during construction. TRLIA shall notify and ~~consult~~coordinate with emergency service providers and shall undertake measures necessary to maintain emergency access and facilitate the passage of emergency vehicles on ~~city streets~~ project area roadways. TRLIA shall notify landowners in the project area of the construction schedule and potential road closures and detours available in the project area. Notifications may be by mail, phone calls, and/or meetings with individual landowners. TRLIA will also maintain construction updates on their website.

3.2 CHANGES TO THE DRAFT IS/MND IN RESPONSE TO COMMENTS FROM YUBA COUNTY – COMMENT LETTER B

In response to comment B-2, the text on page 102 in Section 3.6 of the Draft IS/MND (Geology/Soils) has been revised as follows:

Yuba County Grading Ordinance

Proponents of projects in Yuba County that involve excavations more than two feet deep or fills more than one foot deep or disturbances of one acre or more acres must comply with the requirements of the Yuba County Grading Ordinance and require a grading permit. ~~Because the proposed project would disturb more than one acre and would result in excavations more than two feet deep, the proposed project would have to comply with the requirements of the Yuba County Grading Ordinance and Permit. Depending on the extent of the proposed cut and fill,~~ Compliance with these requirements may require the submittal of a detailed grading plan, soils engineering report, engineering geology report, and liquefaction study. In all instances, the project applicant must prepare and implement an erosion control plan that details BMPs that would be implemented to control stormwater runoff, erosion, and sedimentation until final approval of grading operations is issued by the Yuba County Department of Public Works.

In response to comment B-3, the text on page 151 in Section 3.16 of the Draft IS/MND (Transportation/Traffic) has been revised as follows:

HAMMONTON SMARTVILLE ROAD

Hammonton Smartville Road extends from ~~Lindhurst~~ Avondale Avenue near SR 70 northeast to Smartville Road, which connects to SR 20. Hammonton Smartville Road is a two lane regional collector road that connects the communities of Linda and Smartville. Construction traffic for the proposed project would access Hammonton Smartville Road via North Beale Road.

In response to comment B-4, the subheading on page 151 has been revised as follows:

SIMPSON LANE/SIMPSON DANTONI ROAD

3.3 CHANGES TO THE DRAFT IS/MND IN RESPONSE TO COMMENTS FROM LINDA FIRE PROTECTION DISTRICT – COMMENT LETTER C

In response to comment C-2, the text in Section 3.14 of the Draft IS/MND (Public Services) has been revised as follows:

FIRE PROTECTION

The project site is serviced by the Linda Fire ~~Protection District Department~~. The Linda Fire Protection District Department currently maintains ~~two~~ three fire stations in the communities of Arboga and Plumas Lake and Linda, which is one in the community of Arboga and the second located on Scales Avenue across from the Peach

Tree Mall. The ~~Linda Fire Protection District~~ department has a “mutual aid” agreement with other fire agencies so that companies from other jurisdictions may respond to fire alarms.

3.4 CHANGES TO THE DRAFT IS/MND IN RESPONSE TO COMMENTS FROM THOMAS W. ERES ON BEHALF OF GENE GINOCHIO AND FRANCES HOFMAN – COMMENT LETTER G

In response to comment G-1, the text in Section 3.9 of the Draft IS/MND (Hydrology/Water Quality) has been revised as follows:

DISCUSSION

- 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 (e.g., the production rate of pre existing nearby wells would drop to a level that would not support existing land uses or planned uses for which permits have been granted)?**

Less-than-Significant Impact. The proposed project would result in improvements to the existing YRSL in the project area. As discussed below, the proposed project could result in local, temporary effects on groundwater quality and conditions associated with the installation of slurry cutoff walls.

A soil-bentonite slurry cutoff wall is proposed to be constructed through the centerline of the levee crown and through sand and gravel layers in the foundation to preclude levee through and under seepage from Project Station 136+50 to Project Station 288+00. The wall would be approximately three-feet wide and range from 55 to 80 feet deep. The purpose of a slurry cutoff wall is to dissipate the hydraulic gradient in the levee foundation and reduce seepage quantities. Installation of the slurry cutoff wall would effectively reduce the hydraulic gradient and seepage flows through the foundation soils adjacent to the cutoff wall to safe levels. To achieve maximum effectiveness, the cutoff wall must extend completely through the permeable strata and terminate some distance into an underlying, reasonably continuous, less permeable layer. The presence of a slurry cutoff wall could restrict the movement of groundwater. Potential consequences are increases or decreases in the water levels in shallower wells and/or localized near-surface groundwater levels in areas immediately east and west of the slurry cutoff wall.

Groundwater levels in the area south of the Yuba River and east of the Feather River have generally risen since completion of the South Yuba Canal and delivery of irrigation water beginning in 1982. Groundwater levels in the project area are approximately 20 to 25 feet bgs. Although a slurry cutoff wall could interfere with water moving between wells and the Yuba River during periods of well pumping when the drawdown is below the level of water in the river, any effect on total water supply would not be substantial. The proposed project would result in approximately one to five feet of additional drawdown of nearby private wells in the project area (**MWH 2009**). In order to minimize drawdown impacts to nearby private groundwater wells, TRLIA would consult with the current land well owners where necessary.

The nearly uniform groundwater levels in RD 784 indicate that recharge from the east is nearly in balance with groundwater pumping and any losses to the Feather and Yuba Rivers. In fact, water levels could rise on the south side of the YRSL where a slurry cutoff wall is being proposed if the pumping does not equal or exceed the recharge. Water could continue to move in either direction in the areas where a slurry cutoff wall would not be constructed. Even with supplemental subsurface data, it would be difficult to determine where, and to what extent, groundwater levels could change as a result of the presence of a slurry cutoff wall. It can be expected that any changes would be gradual. If local groundwater were to rise periodically to levels at which trees, crops, or structures could be damaged, excess groundwater could be pumped out using selected wells (as under current

practices) or newly installed drains. TRLIA would coordinate with landowners as needed to resolve such circumstances. The excess groundwater could be delivered to irrigated lands or discharged to drains as part of RD 784's operations and maintenance.

In order to further address an impact that is less than significant, TRLIA has held and will hold additional meetings with landowners regarding impacts to private wells in the project area. In the project area, less than significant impacts to groundwater wells could result from lowering the cone of depression of shallow wells (less than 100-feet deep) that are located within 1,000 feet of the proposed cutoff wall. Lowering of the cone of depression may result in the reduction of the well volume or an increase in power required to pump water from the well. Through coordination with landowners and on-site investigation, TRLIA is identifying all private wells in the project area that may be affected. To date at least 20 wells have been identified. A detailed evaluation is currently underway to identify individual wells that could be potentially impacted. Information from this evaluation will be used prior to, during, and after construction to determine the appropriate course(s) of action to voluntarily mitigate for any less than significant impacts to wells in the project area. For potentially affected wells, TRLIA will monitor the well performance before and after cutoff wall installation to determine whether there have been any impacts, and will voluntarily mitigate any impacts through methods including: lowering of the well intake screen; deepening of the well; replacement of the well; or reimbursement for future increased power costs.

In addition, it is unlikely that groundwater mixing due to changes in groundwater flow paths at depths affected by construction of the slurry cutoff wall would result in significant changes in groundwater quality. Therefore, potential changes in groundwater levels or quality associated with the installation of a slurry cutoff wall are not expected to substantially affect water supply or local drainage. As a result, groundwater supplies and groundwater recharge capability would not be substantially affected in the project area. This impact would be less than significant and no mitigation is required.

In addition to the changes to the text in Section 3.9 of the Draft IS/MND stated above, mitigation has been added to Section 3.9 to further address a less than significant impact to groundwater wells in the project area.

MITIGATION

Mitigation Measure WQ-1: Prepare a SWPPP and comply with other applicable regulations.

Before the start of any project construction work, site grading, or excavation, TRLIA or its primary construction contractor shall prepare a SWPPP detailing measures to control soil erosion and waste discharges from construction areas and shall submit a notice of intent (NOI) to the Central Valley RWQCB for stormwater discharges associated with general construction activity. TRLIA shall require all contractors conducting construction-related work to implement the SWPPP to control soil erosion and waste discharges of other construction-related contaminants. The general contractor(s) and subcontractor(s) conducting the work shall be responsible for constructing or implementing, regularly inspecting, and maintaining the measures in good working order.

The SWPPP shall identify the grading and erosion control BMPs and specifications that are necessary to avoid and minimize water quality impacts to the extent practicable. Standard erosion control measures (e.g., management, structural, and vegetative controls) shall be implemented for all construction activities that expose soil. Grading operations shall be conducted to eliminate direct routes for conveying potentially contaminated runoff to drainage channels. Erosion control barriers such as silt fences and mulching material shall be installed, and disturbed areas shall be reseeded with grass or other plants where necessary.

The SWPPP shall contain specific measures for stabilizing soils at construction-related sites before the onset of the winter rainfall season. These standard erosion control measures shall be designed to reduce the potential for soil erosion and sedimentation of drainage channels.

The following specific BMPs are recommended for implementation:

- ▶ Conduct all work according to site-specific construction plans that identify areas for clearing, grading, and revegetation so that ground disturbance is minimized.
- ▶ Avoid riparian and wetland vegetation wherever possible and identify vegetation to be retained for habitat maintenance (i.e., as identified through preconstruction biological surveys), cover cleared areas with mulches, install silt fences near riparian areas or streams to control erosion and trap sediment, and reseed cleared areas with native vegetation.
- ▶ Stabilize disturbed soils at all construction sites and staging areas before the onset of the winter rainfall season.
- ▶ Stabilize and protect stockpiles from exposure to erosion and flooding.

The SWPPP also shall specify appropriate hazardous materials handling, storage, and spill response practices to reduce the possibility of adverse impacts from use or accidental spills or releases of contaminants. Specific measures applicable to the project include, but are not limited to, the following:

- ▶ Develop and implement strict on-site handling rules to keep construction and maintenance materials out of drainages and waterways.
- ▶ Conduct all refueling and servicing of equipment with absorbent material or drip pans underneath to contain spilled fuel. Collect any fluid drained from machinery during servicing in leakproof containers and deliver to an appropriate disposal or recycling facility.
- ▶ Maintain controlled construction staging, site entrance, concrete washout, and fueling areas at least 100 feet away from stream channels or wetlands to minimize accidental spills and runoff of contaminants in stormwater.
- ▶ Prevent raw cement; concrete or concrete washings; asphalt, paint, or other coating material; oil or other petroleum products; or any other substances that could be hazardous to aquatic life from contaminating the soil or entering watercourses.
- ▶ Maintain spill cleanup equipment in proper working condition. Clean up all spills immediately according to the spill prevention and response plan, and immediately notify CDFG and the RWQCB of any spills and cleanup procedures.

Mitigation Measure WQ-2: Monitor well performance before and after cutoff wall installation and restore well performance to pre-project conditions.

TRLIA is currently conducting a detailed evaluation to identify all private wells that may be affected by the proposed project. Information from this evaluation will be used prior to, during, and after construction to determine the appropriate course(s) of action to voluntarily mitigate for impacts to wells in the project area, even though impacts are considered less than significant. For potentially affected wells, TRLIA will monitor the well performance before and after cutoff wall installation to determine whether there have been any impacts, and will voluntarily mitigate any impacts through methods including: lowering of the well intake screen; deepening of the well; replacement of the well; or reimbursement for future increased power costs.

4.0 LIST OF PREPARERS

The Draft IS/MND and Final IS/MND for the Upper Yuba Levee Improvement Project were prepared by HDR inc. in cooperation with TRLIA. The following individuals contributed to this Final IS/MND:

HDR inc.

Laurie Warner Herson, Project Manager

Linda Fisher, M.S., Environmental Planner

Jeanette Winter, Environmental Planner

Stella Gardenour, Document Production

Three Rivers Levee Improvement Authority (Lead Agency)

Paul Brunner, Executive Director

Ric Reinhardt, MBK Engineers, Program Director

Larry Dacus, MBK Engineers, Engineering Manager

Scott Shapiro, Downey Brand, general counsel

Andrea Clark, Downey Brand, general counsel

5.0 REFERENCES CITED

- California Department of Transportation (Caltrans). 2002 (February 20). *Transportation Related Earthborne Vibrations*. Technical Advisory, Vibration TAV-02-01-R9601. Sacramento, CA. Available: <http://www.dot.ca.gov/hq/env/noise/pub/TRANSPORTATION_RELATED_EARTHBORNE_VIBRATIONS.pdf>. Accessed January 26, 2010.
- Federal Transit Administration. 2006 (May). *Transit Noise and Vibration Impact Assessment*. Washington, D.C.
- Kleinfelder, Inc. 2006. *Problem Identification Report, TRLIA Phase 4 Feather River and Yuba River Left Bank Levees, Reclamation District 784, Yuba County, California*. Kleinfelder, Inc., Sacramento
- .2010. *Geotechnical Basis of Design Report, Upper Yuba Levee Improvement Project, Yuba River South Levee Evaluation, Reclamation District 784, Yuba County, California, March 2010*.
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- Three Rivers Levee Improvement Authority. 2006 (July). *Initial Study for the Yuba River Levee Repair Project (Phase 4)*. State Clearinghouse #2006062037. Marysville, CA. Prepared by Jones & Stokes, Sacramento, CA.
- U.S. Army Corps of Engineers. 2007 (July). *Environmental Assessment for the Feather River Levee Repair Project, Segments 1 and 3*. Sacramento, CA. Prepared by the U.S. Army Corps of Engineers, Sacramento District.
- U.S. Fish and Wildlife Service. 1999. *Conservation guidelines for the valley elderberry longhorn beetle*. U.S. Fish and Wildlife Service, Sacramento, California.

Notice of Determination

Appendix D

To:

Office of Planning and Research
For U.S. Mail: Street Address:
P.O. Box 3044 1400 Tenth St.
Sacramento, CA 95812-3044 Sacramento, CA 95814

County Clerk
County of: Yuba
Address: 915 Eighth Street, Suite 107
Marysville, CA 95901

From:

Public Agency: Three Rivers Levee Improvement Authority
Address: 1114 Yuba Street, Suite 218
Marysville, CA 95901
Contact: Paul Brunner, Executive Director
Phone: (530) 749-5679

Lead Agency (if different from above):
Address:
Contact:
Phone:

SUBJECT: Filing of Notice of Determination in compliance with Section 21108 or 21152 of the Public Resources Code.

State Clearinghouse Number (if submitted to State Clearinghouse): 2010022039

Project Title: Upper Yuba Levee Improvement Project

Project Location (include county): Between Simpson Lane and the Yuba Goldfields, near the community of Linda in Yuba County, CA

Project Description:

The Upper Yuba Levee Improvement Project (UYLIP), is located in the southern portion of Yuba County along the Yuba River South Levee, near the community of Linda. The UYLIP proposes improvements along the Yuba River South Levee between Simpson Lane and the Yuba Goldfields (3.9 miles). The project would involve installing slurry walls, seepage berms, levee geometry corrections, and levee slope erosion protection in the project area.

This is to advise that the Three Rivers Levee Improvement Authority has approved the above described project on April 20, 2010 and has made the following determinations regarding the above described project:

- 1. The project [] will [X] will not have a significant effect on the environment.
2. [] An Environmental Impact Report was prepared for this project pursuant to the provisions of CEQA. [X] A Negative Declaration was prepared for this project pursuant to the provisions of CEQA.
3. Mitigation measures [X] were [] were not made a condition of the approval of the project.
4. A mitigation reporting or monitoring plan [X] was [] was not adopted for this project.
5. A statement of Overriding Considerations [] was [X] was not adopted for this project.
6. Findings [X] were [] were not made pursuant to the provisions of CEQA.

This is to certify that the final EIR with comments and responses and record of project approval, or the negative Declaration, is available to the General Public at: the Three Rivers Levee Improvement Authority offices at the address listed above.

Signature (Public Agency) Paul A. Brunner Title Executive Director

Date 4-20-10 Date Received for filing at OPR

RECEIVED ENDORSED FILED
APR 26 2010 APR 23 2010
STATE CLEARING HOUSE
BY SERRA A. HANSEN, County Clerk
BY SERETHA BETTENCOURT
Deputy Clerk

Authority cited: Sections 21083, Public Resources Code.
Reference Section 21000-21174, Public Resources Code

Revised 2005

2010FL-00014

THREE RIVERS LEVEE IMPROVEMENT AUTHORITY

RESOLUTION NUMBER 2010-01

**A RESOLUTION OF THE BOARD OF DIRECTORS OF
THE THREE RIVERS LEVEE IMPROVEMENT AUTHORITY
APPROVING THE UPPER YUBA RIVER LEVEE IMPROVEMENT PROJECT IS/MND,
APPROVING A MITIGATION MONITORING AND REPORTING PROGRAM, APPROVING
THE PROJECT, AND AUTHORIZING
FILING OF A NOTICE OF DETERMINATION**

WHEREAS, in 2003 the Lower Feather River Floodplain Mapping Study was completed and identified deficiencies on the Reclamation District 784 levees including the lower Yuba River; and

WHEREAS, to address the identified deficiencies, TRLIA developed a comprehensive Levee Improvement Program for RD 784. Phase 4 of the TRLIA Levee Improvement Program included the Phase 4 Yuba River Levee Repair Project which consisted of strengthening the existing Yuba River South Levee ("YRSL") above the South Pacific Railroad crossing to Simpson Lane and adding a seepage berm adjacent to the South Pacific Railroad crossing. Phase 4 of the Yuba River Levee Repair Project also consists of improving the remaining portion of the YRSL from Simpson Lane to the Yuba Goldfields; and

WHEREAS, after the hydraulic model was updated in December 2008, TRLIA and Kleinfelder reevaluated the portion of the YRSL from Simpson Lane to the Yuba Goldfields in 2010 and concluded that there are significant problems related to under- and through-seepage along the YRSL; and

WHEREAS, MBK Engineers has also identified short reaches of the YRSL that have subsided below the design elevation and need to be corrected; and

WHEREAS, TRLIA has proposed to improve a segment of the YRSL to correct through seepage, under seepage, and levee geometry deficiencies and improve flood protection on the YRSL ("Upper Yuba River Levee Improvement Project," or "Project"); and

WHEREAS, the Project includes installation of slurry walls, seepage berms, levee geometry corrections, and levee slope erosion protection along approximately 3.9 miles of the YRSL; and

WHEREAS, TRLIA arranged for the preparation of an Initial Study/Mitigated Negative Declaration (IS/MND) describing the Project and its potential environmental impacts,

WHEREAS, the IS/MND was circulated for public review from February 11, 2010 through March 15, 2010, and seven public comments were received; and

WHEREAS, TRLIA held a public information meeting about the Project on March 8, 2010 in Marysville; and

WHEREAS, a mitigation monitoring and reporting program was prepared to provide for the implementation of the mitigation measures identified in the IS/MND; and

WHEREAS, it is the professional judgment of TRLIA's environmental consultant that the potential impacts identified in the IS/MND would be mitigated to a less than significant level through implementation of the mitigation monitoring and reporting program.

NOW, THEREFORE, BE IT RESOLVED THAT THE BOARD OF DIRECTORS OF THE THREE RIVERS LEVEE IMPROVEMENT DISTRICT FINDS AS FOLLOWS:

1. TRLIA has independently reviewed and analyzed the IS/MND and has considered all of the comments received.
2. The IS/MND has been prepared in accordance with the California Environmental Quality Act, Public Resources Code Section 21000 et seq., and reflects the independent judgment and analysis of TRLIA.
3. The Project will have no impact on aesthetics, mineral resources, population and housing, and recreation.
4. The Project will have a less-than-significant impact on agricultural resources, greenhouse gas emissions, land use planning, and utilities and service systems.
5. With the inclusion of the proposed mitigation measures, the project will have a less-than-significant impact on air quality, biological resources, cultural resources, geology and soils, hazards and hazardous materials, hydrology and water quality, noise, public services, and transportation.
6. On the basis of the whole record before it, there is no substantial evidence that the Project will have a significant effect on the environment.
7. All mitigation measures identified in the IS/MND as feasible mitigation measures are adopted and incorporated into the Project, and the mitigation monitoring and reporting program is adopted.
8. The Project is approved.
9. The Executive Director of TRLIA is authorized, on behalf of TRLIA, to sign and directed to file with the Clerk of Yuba County a Notice of Determination for the project.
9. The location of the documents which constitute the record upon which TRLIA's decision is based is TRLIA's main office, located at 1114 Yuba Street, Suite 218, Marysville, CA 95901. The custodian of such documents is Paul Brunner, Executive Director of TRLIA.

