Yuba River Levee Repair Project
(Phase 4) Initial Study

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<tr>
<td>AQMD</td>
<td>air quality management district</td>
</tr>
<tr>
<td>ARB</td>
<td>Air Resources Board</td>
</tr>
<tr>
<td>Alquist-Priolo Act</td>
<td>Alquist-Priolo Earthquake Fault Zoning Act</td>
</tr>
<tr>
<td>BMPs</td>
<td>best management practices</td>
</tr>
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<td>ARB</td>
<td>California Air Resources Board</td>
</tr>
<tr>
<td>CCAA</td>
<td>California Clean Air Act of 1988</td>
</tr>
<tr>
<td>CCR</td>
<td>California Code of Regulations</td>
</tr>
<tr>
<td>DFG</td>
<td>California Department of Fish and Game</td>
</tr>
<tr>
<td>DWR</td>
<td>California Department of Water Resources</td>
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<tr>
<td>CESA</td>
<td>California Endangered Species Act</td>
</tr>
<tr>
<td>CEQA</td>
<td>California Environmental Quality Act</td>
</tr>
<tr>
<td>CNDDDB</td>
<td>California Natural Diversity Database</td>
</tr>
<tr>
<td>PRC</td>
<td>California Public Resources Code</td>
</tr>
<tr>
<td>CRHR</td>
<td>California Register of Historical Resources</td>
</tr>
<tr>
<td>CO</td>
<td>carbon monoxide</td>
</tr>
<tr>
<td>CAA</td>
<td>Clean Air Act</td>
</tr>
<tr>
<td>CWA</td>
<td>Clean Water Act</td>
</tr>
<tr>
<td>CFR</td>
<td>Code of Federal Regulations</td>
</tr>
<tr>
<td>µg/m³</td>
<td>cubic meter</td>
</tr>
<tr>
<td>EIR</td>
<td>environmental impact report</td>
</tr>
<tr>
<td>EPA’s</td>
<td>Environmental Protection Agency’s</td>
</tr>
<tr>
<td>FRAQMD</td>
<td>Feather River Air Quality Management District</td>
</tr>
<tr>
<td>FEMA</td>
<td>Federal Emergency Management Agency</td>
</tr>
<tr>
<td>ESA</td>
<td>federal Endangered Species Act</td>
</tr>
<tr>
<td>HCP</td>
<td>Habitat Conservation Plan</td>
</tr>
<tr>
<td>IS</td>
<td>initial study</td>
</tr>
<tr>
<td>ITE</td>
<td>Institute of Traffic Engineers</td>
</tr>
<tr>
<td>LOS</td>
<td>level of service</td>
</tr>
<tr>
<td>MBTA</td>
<td>Migratory Bird Treaty Act</td>
</tr>
<tr>
<td>mph</td>
<td>miles per hour</td>
</tr>
<tr>
<td>NPDES</td>
<td>National Pollutant Discharge Elimination System</td>
</tr>
<tr>
<td>NAHC</td>
<td>Native American Heritage Commission</td>
</tr>
<tr>
<td>Abbreviation</td>
<td>Description</td>
</tr>
<tr>
<td>--------------</td>
<td>-------------</td>
</tr>
<tr>
<td>NCCP</td>
<td>Natural Communities Conservation Plan</td>
</tr>
<tr>
<td>NO₂</td>
<td>nitrogen dioxide</td>
</tr>
<tr>
<td>ONC</td>
<td>Office of Noise Control</td>
</tr>
<tr>
<td>NOₓ</td>
<td>oxides of nitrogen</td>
</tr>
<tr>
<td>O₃</td>
<td>ozone</td>
</tr>
<tr>
<td>PM₂.₅</td>
<td>particles 2.5 microns in diameter or less</td>
</tr>
<tr>
<td>PM₁₀</td>
<td>particulate matter 10 microns in diameter or less</td>
</tr>
<tr>
<td>ppm</td>
<td>parts per million</td>
</tr>
<tr>
<td>ROG</td>
<td>reactive organic gases</td>
</tr>
<tr>
<td>RD</td>
<td>Reclamation District</td>
</tr>
<tr>
<td>RWQCB</td>
<td>Regional Water Quality Control Board</td>
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<tr>
<td>SVAB</td>
<td>Sacramento Valley Air Basin</td>
</tr>
<tr>
<td>SHPO</td>
<td>State Historic Preservation Officer</td>
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<tr>
<td>CAAQS and</td>
<td>State of California and the federal government ambient air quality standards</td>
</tr>
<tr>
<td>NAAQS</td>
<td>quality standards</td>
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<tr>
<td>SR 70</td>
<td>State Route 70</td>
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<tr>
<td>SWRCB</td>
<td>State Water Resources Control Board</td>
</tr>
<tr>
<td>SWPPP</td>
<td>stormwater pollution prevention plan</td>
</tr>
<tr>
<td>SO₂</td>
<td>sulfur dioxide</td>
</tr>
<tr>
<td>TCE</td>
<td>temporary construction easement</td>
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<tr>
<td>TRLIA</td>
<td>Three Rivers Levee Improvements Authority</td>
</tr>
<tr>
<td>TAC</td>
<td>toxic air contaminant</td>
</tr>
<tr>
<td>USGS</td>
<td>U.S Geological Survey</td>
</tr>
<tr>
<td>Corps</td>
<td>U.S. Army Corps of Engineers</td>
</tr>
<tr>
<td>USFWS</td>
<td>U.S. Fish and Wildlife Service</td>
</tr>
<tr>
<td>UPRR</td>
<td>Union Pacific Railroad</td>
</tr>
<tr>
<td>USC</td>
<td>United States Code</td>
</tr>
<tr>
<td>VELB</td>
<td>valley elderberry longhorn beetle</td>
</tr>
<tr>
<td>WPRR</td>
<td>Western Pacific Railroad</td>
</tr>
<tr>
<td>YCWA</td>
<td>Yuba County Water Agency</td>
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Document and Project Purpose

The Three Rivers Levee Improvement Authority (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.

TRLIA is proposing to enhance flood protection of properties within the Reclamation District (RD) Number 784 service area by repairing the levee on segments of the south levee of the Yuba River, just upstream of its confluence with the Feather River (Figure 1-1).

This initial study (IS) discloses the environmental impacts of constructing the proposed flood control project and identifies mitigation measures. The IS has been prepared in compliance with the California Environmental Quality Act (CEQA), which applies to a discretionary activity proposed by a California public agency.

Project Location

The proposed project is located in the southern portion of Yuba County along the Yuba River south levee, upstream of its confluence with the Feather River, just south of Marysville. The project repairs would be located entirely within the boundaries of RD 784. Materials for the project would be transported from off-site sources.

Project Background

Yuba County has a flood-ravaged history since European settlement, evidenced especially over the last 20 years by two catastrophic floods and subsequent flood management efforts, summarized below.
In 1986, Yuba County suffered a flood that inundated 10,700 acres, killed one person, and damaged or destroyed more than 4,000 homes and businesses when the Yuba River levee upstream of State Route 70 (SR 70) failed.

Two major flood protection efforts resulted from the 1986 floods in the Central Valley. First, the U.S. Army Corps of Engineers (Corps) and California Department of Water Resources (DWR) initiated the Systems Evaluation Project. Second, in 1988, the Yuba County Water Agency (YCWA) initiated the Yuba Basin Project, which led to a Corps project designed to achieve a 200-year level of protection for area levees maintained and operated by RD 784. These levee projects were expected to provide a 200-year level of protection once they were completed in approximately 2000.

In 1997, Yuba County suffered another devastating flood that inundated 16,000 acres, killed three people, and damaged or destroyed more than 850 homes and businesses. More than 100,000 people were evacuated from the region, the largest evacuation in California history.

The 1997 flood resulted in YCWA initiating a Supplemental Flood Control Study. The goal of this effort was to substantially improve the flood protection provided by the Systems Evaluation Project and the Yuba Basin Project.

The Yuba Basin Project was approved by Congress in 1998, and a construction start was authorized in 2002. However, in 2003, new levee criteria from the Corps caused reevaluation of the project design, which substantially increased the cost, necessitating project reauthorization by Congress. Actions are currently under way to obtain project authorization and appropriation to initiate construction.

As part of a separate study, in May 2003, DWR informed RD 784, Yuba County, and YCWA that its draft Federal Emergency Management Agency (FEMA) Flood Mapping Study identified deficient levee sections in the flood protection system for the county. Once the DWR study was completed, it would be provided to FEMA, which would then map the area protected by these levees as a flood hazard zone (i.e., within the 100-year floodplain) unless corrective measures were implemented. In addition, a draft report being prepared by the Corps contained preliminary findings that sections of the Western PacificInterceptor Canal levee and Bear River north levee did not meet standards for the 100-year FEMA flood event, including levee height standards.

In light of these various flood studies, RD 784, YCWA, and Yuba County have initiated a fast-paced program to evaluate potential options for achieving certifiable 100-year or better flood protection for the county. To accelerate achievement of this goal in advance of DWR and Corps efforts, RD 784 and Yuba County have strengthened their partnership in the formation of TRLIA to facilitate cooperation and sharing of resources.
Figure 1-1
Location Map
Problem Definition

Geotechnical reports concluded that there are significant problems related to seepage along a segment of the project reach, the Union Pacific Railroad (UPRR) to Simpson Lane segment (Kleinfelder 2006) of the Yuba River left levee. 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 levee between the former Western Pacific Railroad (WPPR) and Simpson Lane. Also, modifications to a segment of the levee waterside slope are required to meet the Corps requirement of having a slope no steeper than 3:1 (horizontal:vertical). These improvements are part of an ongoing program of levee modifications that are necessary to retain FEMA certification for 100-year flood protection. As a result, TRLIA has decided to act to implement portions of the repairs in 2006.

Levee Stability

Levee stability in this area is compromised by seepage. Seepage is a phenomenon wherein water moves outward and downward, away from the river channel, either through the levee cross section (i.e., through-seepage) or below the levee and surrounding land surface (i.e., under-seepage) (Figure 1-2). The key problem associated with seepage is levee breach or collapse, which occurs when the earth material within or underlying the levee becomes undermined by the pressure of the seeping water. A subform of seepage is the phenomenon of soil piping, which occurs when a void in the earth material becomes exacerbated by moving water, causing the void to rapidly increase and threaten the levee integrity. Several factors contribute to seepage, including high water pressure within the watercourse (such as during periods of high river stage, which are common, based on local hydrology) and pervious earth material within or underlying the levee (which is an inherent relict condition from upstream hydraulic mining in the 19th century).

Project Objectives

The primary project objective is to construct levee improvements necessary to provide 200-year freeboard and under-seepage flood protection along the levee reach between the former Western Pacific Railroad (WPPR) and Simpson Lane. In doing this, the project would also enable the levees to retain FEMA certification for 100-year flood protection.
Regulatory Compliance

California Environmental Quality Act Compliance

CEQA requires that state and local government agencies consider the environmental consequences of projects over which they have discretionary authority before taking action on those projects. CEQA requires that the lead agency (TRLIA) prepare an IS to determine whether an environmental impact report (EIR) is needed or a negative declaration or mitigated negative declaration may be adopted. An EIR would be required if any “potentially significant impacts” were identified that could not be mitigated to a less-than-significant level. A negative declaration may be adopted if impacts are considered “less than significant,” and a mitigated negative declaration may be adopted if the project would result in less-than-significant impacts with mitigation measures incorporated into the project.

As an IS, this document evaluates the impacts of the proposed project and incorporates mitigation measures to eliminate or reduce impacts to a less-than-significant level. On the basis of the results of the IS, TRLIA will either adopt a mitigated negative declaration for the proposed project or prepare an EIR. The State CEQA Checklist (Appendix G of the CEQA Guidelines) is the template for Chapter 3 of this document, and the impact analysis is provided under the respective questions in the checklist.

Other Permits and Approvals

In addition to CEQA compliance, the project is also being reviewed for the need to obtain permits and approvals under other federal, state, and local laws that may be applicable to the project. While these other permits and approvals are independent of the CEQA document, they are being coordinated as closely as possible. This process includes review of the permits and approvals shown in Table 1-1.

Table 1-1. Regulatory Compliance Permits and Approvals

<table>
<thead>
<tr>
<th>Authority/Agency</th>
<th>Permit/Approval</th>
<th>Trigger</th>
</tr>
</thead>
<tbody>
<tr>
<td>California Reclamation Board</td>
<td>Encroachment Permit</td>
<td>Modifications to a federal or state project levee</td>
</tr>
<tr>
<td>Central Valley Regional Water Quality Control Board</td>
<td>National Pollutant Discharge Elimination System</td>
<td>Earth disturbance greater than 1 acre</td>
</tr>
</tbody>
</table>
Water seepage

Under-seepage
High river levels lead to under-seepage through sandy and gravelly soils. An area of high water pressure beneath the clay blanket at the landside levee toe can cause water seeps and sand boils.

SILTS AND SANDS

Note: Diagram is not to scale.

Figure 1-2
How Seepage Threatens Levee Stability
Document Organization

This document is organized as follows:

- Chapter 1, “Introduction,” describes the project background, purpose, and regulatory compliance.
- Chapter 2, “Project Description,” describes the project area, construction methods that would be employed, and the project features (i.e., environmental commitments) that have been incorporated into the project to avoid or reduce potential project effects.
- Chapter 3, “Environmental Setting and Impacts,” includes the IS Checklist. Components of the study include a setting discussion, impact analysis criteria, project effects and significance, and applicable mitigation measures.
- Chapter 4, “References,” provides information on all printed references and personal communications used to prepare the IS.
- Chapter 5, “List of Preparers,” presents an inventory of all those who assisted in the preparation of this document.
Introduction

This chapter describes the elements of the proposed project. The project consists of making repairs to the Yuba River south levee, from the former WPRR location (just downstream of SR 70) to Simpson Lane, to reduce the risk of flooding within TRLIA’s planning area (Figure 2-1).

Proposed Project

To address under- and through-seepage concerns, a combination of treatments is being proposed (Figure 2-1). These treatments consist of constructing a slurry cutoff wall and a small landside seepage berm, raising the height of a segment of the levee, and adding erosion protection to a segment of the levee. For purposes of this analysis, the total treatment area has been divided into Reach A, B, C, D, and E. Construction would start July 2006 and end November 1, 2006.

From 2004 through 2006, components of the Yuba River Levee Repair Project Phases 1 and 2 were constructed. These components consisted of the construction of a slurry wall and landside seepage berm in Reaches B, C, and D.

Reach A

Reach A is the area between stations 0+00 and 4+00, crossing under SR 70 and over the Western Pacific Railroad (Figure 2-1). The treatment in Reach A consists of installing rock protection on the waterside of the levee slope. This treatment would address the need for waterside slope erosion control and bank protection.

Approximately 2,900 cubic yards of 18-inch-diameter riprap would be placed in a layer approximately 3 feet thick on the waterside of the levee to protect against erosional forces, such as wind and waves. The placement of rock would increase the levee footprint by an average of 5 feet outward from the existing waterside levee toe. The placement of riprap would require one excavator and one dump
truck. The dump truck would transport the riprap from a permitted source, within 25 miles of the project area, and would dump it within 20 feet of the levee. The excavator would then move the riprap from the stockpile to the waterside of the levee. It is anticipated that the placement of exposed riprap on Reach A would take approximately 30 days. Areas disturbed by the equipment or riprap stockpiling would be returned to preproject conditions after construction was completed. Feather River Boulevard and Garden Avenue may be used as alternate access and haul routes to Reach A.

Reach B

Reach B includes the area upstream of SR 70 between stations 4+00 and 8+00, a total distance of approximately 300 feet (Figure 2-1). The treatment on this reach consists of flattening the waterside slope in order to maintain a 3:1 slope. To complete levee slope flattening, significant excavation into the levee side slopes would be required to provide a 10-foot horizontal equipment width for fill placement. The footprint of the levee would increase by an average of 8 feet outward from the existing levee toe. Approximately 120 cubic yards of material would be imported from a permitted source and placed at the toe of the slope. To complete the flattening of the slope, approximately 10 haul trucks would make five trips per day to place material, after which a motor grader and a compactor would place and compact the material. The asphalt concrete base roadway material would be replaced above the required crown elevation. Constructing the flattened slope in Reach B is anticipated to take approximately 30 days.

Reach C

Reach C is located between stations 7+00 and 18+50 (Figure 2-1). This segment of the levee needs to be raised to accommodate freeboard standards. The levee would be raised an average of 0.4 feet by adding soil materials to the waterside and crown of the levee. The footprint of the levee would increase by an average of 3 feet outward from the existing levee toe.

Approximately 2,700 cubic yards of material would be imported from a permitted source and placed at the toe of the slope. To complete the raise and rebuild of the levee, approximately 10 haul trucks would make five trips per day to place material, after which a motor grader and two compactors would place and compact the material. The aggregate base roadway material would be placed above the required crown elevation.

Reach D

Reach D includes the area between stations 28+50 and 34+00 (Figure 2-1). Approximately 2,000 cubic yards of material would be imported from a permitted source and placed at the toe of the slope. The construction methods would be the same as those described under Reach C. It is anticipated that
### Reach Issues and Levee Treatments

<table>
<thead>
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<th>Reach</th>
<th>Issue</th>
<th>Levee Treatment</th>
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<td>A</td>
<td>Erosion</td>
<td>Levee Waterside Slope Erosion Protection</td>
</tr>
<tr>
<td>B</td>
<td>Freeboard</td>
<td>Raise Crown 0.4 feet by Full Levee Raise (Waterside)</td>
</tr>
<tr>
<td>C</td>
<td>Oversteepened Slope</td>
<td>Flatten Waterside Slope to 3:1</td>
</tr>
<tr>
<td>D</td>
<td>Freeboard</td>
<td>Raise Crown 0.4 feet by Full Levee Raise (Waterside)</td>
</tr>
<tr>
<td>E</td>
<td>Under-Seepage and Through-Seepage</td>
<td>Slurry Cutoff Wall 80 feet deep, Raise Crown 0.4 feet by Full Levee Raise (Waterside), and Corner Seepage Berm</td>
</tr>
</tbody>
</table>

- **Aerial Photo Source**: HDR 2001

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**Figure 2-1**

Project Reach Map

- **Access Road**
- **CORNER SHAPALE Farm**
- **HIGHWAY 70**
- **YUBA RIVER**

- **Reach Segment**
- **Elderberry Shrub**
- **Temporary Impact**
- **Permanent Impact**

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**Jones & Stokes**

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**H: \ GIS \ PROJECTS \ HDR \ 06198_06 \ ARCMAP \ PROJDESCRIPTION \ FIG2_1_PROJECT_REACHES.MXD  JJ  (06-01-06)
raising the height of the levee in Reach C and D would take the entire duration of the project, 120 days, to complete.

**Reach E**

Reach E includes the segment of levee extending upstream from the Union Pacific Railroad to Station 105+000, approximately 6,800 feet, to a point just beyond Simpson Lane. The treatments along this reach would include constructing a slurry cutoff wall and a 380-foot-long seepage berm and raising portions of the levee to meet freeboard requirements. Construction and design of these treatments are described below. It is anticipated that constructing the project components in Reach E would take the entire duration of the project, 3 months, to complete. Increasing the height of the levee and constructing the seepage berm would occur after the completion of the slurry cutoff wall.

**Slurry Cutoff Wall**

An 80-foot-deep by 3-footwide cutoff wall would be constructed from the UPRR to just beyond Simpson Lane (Station 35+00 to Station 105+00) (Figure 2-1). The wall would have to extend across Simpson Lane to connect to the existing wall upstream. At some locations the wall would be adjacent to an existing shallow cutoff wall. The construction of a slurry cutoff wall would use conventional slot trench methods, e.g., a trench would be excavated through the levee and subsurface materials and then be backfilled with low-permeability materials. During construction, the trench, which would be approximately 3 feet wide and extend to depths of up to 80 feet, would be kept open using a bentonite-water slurry mix. It would be necessary to excavate approximately 6 vertical feet of the existing levee from the crown to provide a working platform and reduce the risk of hydraulic fracturing from the slurry trench fluids. The soil degraded from the levee, approximately 60,000 cubic yards, would be stockpiled on the waterside slope of the levee, extending 15 feet from the toe. The excavator would move this soil to the mixing location where it would be mixed with hydrated bentonite and cement to reduce permeability and increase strength. The mixing location would be located at a staging area just north of the residential area on the waterside of the levee. The mixing location would be contained to avoid exposure of the environment outside the levee crown area to the mixing materials. The soil-cement-bentonite mixture would then be hauled to the levee crown and backfilled into the trench. This mixture would create an impermeable barrier in the levee.

During the cutoff wall trench excavation, 11,400 cubic yards of gravel would be removed from the trench by the excavator and stockpiled within the staging area. This material would not be used for the slurry wall or levee reconstruction. The gravel would be pushed to the waterside slope once the levee is reconstructed to provide erosion protection.

One crew would be able to construct approximately 50 linear feet of slurry wall (for wall depths of approximately 80 feet) in an 8-hour shift.
for the crew would include a long-stick excavator (80-foot reach), three or four dump trucks (10-cubic-yard capacity each), and two loaders at the mixing location.

Vertical clearance of about 40 feet would be needed for the excavator boom. Horizontal clearance of about 10 feet beyond the levee crest may be required for excavator swing when loading dump trucks.

Materials imported to the site would include bentonite, cement, water (if a domestic supply is not available nearby), and construction support materials. The mixing area would be restored to preproject conditions after the slurry wall is constructed. It is anticipated that slurry wall construction would take approximately 90 days to complete.

**Levee Raise**

The height of the levee between stations 36 +00 and 77+00 would be raised to meet freeboard standards (Figure 2-1). The levee would be raised an average of 0.5 feet by adding soil materials to the waterside and crown of the levee. The footprint of the levee would increase by an average of 2.5 feet outward from the existing levee toe. This raise would be completed once the slurry cutoff wall has been constructed.

An additional 6,000 cubic yards of material would be imported from a permitted source and placed within the staging area. To complete the raise and rebuild of the levee, 10 haul trucks would make approximately five trips per day to place material, after which a motor grader and two compactors would place and compact the material. The levee raise and the replacement of the material degraded during slurry wall construction would occur simultaneously and would be completed in approximately 120 days.

**Seepage Berm**

A corner seepage berm would be constructed to alleviate under-seepage along Reach E (Figure 2-1). The seepage berm would be approximately 380 feet long (extending away from the levee landside toe) and would be in the shape of a triangle located between the UPRR tracks and a spur line of the main tracks. The berm would extend approximately 300 feet from the split of the spur line and the main line.

The seepage berm would require approximately 7,237 cubic yards of material, 724 haul truck trips (10 cubic yards per trip), one motor grader, and a water truck.

Construction of the berm at this site would take approximately 15 days. Construction would consist of stripping the existing ground surface and placing a 3- to 7-foot layer of sand. The seepage berm would extend approximately 10 feet vertically up the side slope of the railroad spur line. Temporary disturbance may occur up to 20 feet from the seepage berm footprint during construction.
addition, a 10-foot-wide permanent easement would be purchased adjacent to the toe of the berm to allow access to the berm and levee for maintenance.

Overhead power lines and the cement batch plant are located on the landside of reach near the UPRR. Two of the power poles are within the corner seepage berm footprint. It is assumed that the poles would be relocated off the seepage berm.

**Staging Areas**

Staging areas and a temporary construction easement would be located on the waterside of the levee of all the reaches (Figure 2-1). For Reaches A–D, a temporary construction easement (TCE) would occur 20 feet beyond the waterside toe of the levee from stations 0+00 to 32+00. The TCEs within and adjacent to Reach E would occur 80 feet beyond the waterside toe of the levee from stations 40+00 to 108+00 and along the unpaved orchard roads. Two additional staging areas, having an area of 100 square feet, would be located adjacent to the TCEs within the former orchard area. Equipment and soil would be stored during the construction time period of July 1, 2006, to November 1, 2006.

**Construction Schedule**

Construction would start mid July, 2006, and end November 1, 2006. Table 2-1 shows the proposed timing and duration of the construction schedule.

**Table 2-1. Proposed Construction Schedule**

<table>
<thead>
<tr>
<th>Reach</th>
<th>Anticipated Timing</th>
<th>Duration</th>
<th>Construction Equipment</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>September 1–September 30</td>
<td>30 days</td>
<td>one excavator and one dump truck</td>
</tr>
<tr>
<td>B</td>
<td>August 1–August 30</td>
<td>30 days</td>
<td>one motor grader and one compactor</td>
</tr>
<tr>
<td>C and D</td>
<td>July 15–November 1</td>
<td>110 days</td>
<td>one motor grader and two compactors</td>
</tr>
<tr>
<td>E</td>
<td>Slurry wall and levee raise</td>
<td>110 days</td>
<td>One long-stick excavator (80-foot reach), three or four dump trucks (10-cubic-yard capacity each), and two loaders at the mixing location</td>
</tr>
<tr>
<td>Seepage berm</td>
<td>September 1–September 30</td>
<td>30 days</td>
<td></td>
</tr>
</tbody>
</table>
Environmental Commitments

To reduce or eliminate construction-related impacts and enhance the environmental quality of the project area, TRLIA will implement the following environmental commitments. These measures will be implemented at a site-specific level, as appropriate, and will be separate from CEQA-triggered mitigation described in Chapter 3. The identified measures include:

- conducting preconstruction surveys to determine the presence of nesting or roosting raptors (specifically, Swainson’s hawk and white-tailed kite);
- installing construction fencing to exclude construction access to sensitive areas;
- preparing and implementing a stormwater pollution prevention plan (SWPPP) before construction activities that cause ground disturbance;
- implementing noise-reduction construction practices; and
- stopping construction if any paleontological resources or human remains are discovered.

Raptors

Raptors that may nest or roost in the area are expected to have migrated before the start of construction. However, in the event nesting or roosting raptors are identified, TRLIA will coordinate with the California Department of Fish and Game (DFG) to identify measures to ensure raptors are not adversely affected. These measures may include implementation of suitable buffers and phasing of construction.

Stormwater Pollution Prevention Plan

TRLIA will obtain coverage under the U.S. Environmental Protection Agency’s (EPA’s) National Pollutant Discharge Elimination System (NPDES) general construction activity stormwater permit. The Central Valley Regional Water Quality Control Board (RWQCB) administers the NPDES stormwater permit program in Yuba County. Obtaining coverage under the NPDES general construction activity permit generally requires that the project applicant prepare a SWPPP that describes the best management practices (BMPs) that will be implemented to control accelerated erosion, sedimentation, and pollutants during and after project construction. The specific BMPs that will be incorporated into the erosion and sediment control plan and SWPPP will be determined during the final design phase of the selected alternative and will be prepared by the construction contractor in accordance with the RWQCB field manual. More detail regarding the contents of the SWPPP is provided in Chapter 3 in the Geology and Soils section.
Noise Reduction Program

The construction contractor will employ noise-reducing construction practices. Measures that can be used to limit noise may include, but are not limited to:

- locating equipment as far as practical from noise-sensitive uses,
- using sound control devices such as mufflers on equipment,
- using equipment that is quieter than standard equipment,
- using noise-reducing enclosures around noise-generating equipment,
- using the most noise-generating equipment within periods of lower reception sensitivity, 7 a.m. to 10 p.m. when feasible, and
- the construction contractor will employ noise-reducing construction practices with an objective of ensuring noise from construction does not exceed 55db from 7 a.m. to 10 p.m. and 50db from 10 p.m. to 7 a.m.

The construction contractor will prepare a detailed noise control plan based on the construction methods proposed. This plan will identify specific measurements that will be taken to ensure compliance with the noise limits specified above. The noise control plan will be reviewed and approved by TRLIA before any noise-generating construction activity begins.

TRLIA will notify residences within 500 feet of the construction areas of the construction schedule in writing, prior to construction. TRLIA will designate a noise disturbance coordinator who will be responsible for responding to complaints regarding construction noise. The coordinator will determine the cause of the complaint and ensure that reasonable measures are implemented to correct the problem. A contact telephone number for the noise disturbance coordinator will be conspicuously posted on construction site fences and will be included in the written notification of the construction schedule sent to nearby residents in the identified range.

Resident Coordination Program

TRLIA will notify residences within 500 feet of the construction areas of the construction schedule in writing before construction. TRLIA will also designate a construction coordinator who will be responsible for responding to complaints regarding construction activities, such as noise. The coordinator will determine the cause of the complaint and ensure that reasonable measures are implemented to correct the problem. A contact telephone number for the noise-disturbance coordinator will be conspicuously posted on construction site fences and included in the written notification of the construction schedule sent to nearby residents in the identified range.
Traffic Control Plan

TRLIA, in coordination with Yuba County and other relevant city and county public works departments, will develop and implement a traffic control plan for the proposed project. A traffic control plan describes the methods of traffic control to be used during construction. All on-street construction traffic would be required to comply with the local jurisdiction’s standard construction specifications. The plan will reduce the effects of construction on the roadway system in the project area throughout the construction period. Construction contractors will follow the standard construction specifications of affected jurisdictions and obtain the appropriate encroachment permits, if required. The conditions of the encroachment permit will be incorporated into the construction contract and will be enforced by the agency that issues the encroachment permit.

The traffic control plan should include, but not limited to, the following actions:

- posting of signs at Simpson Lane north and south of the site to warn drivers and pedestrians of work. All signs posted in the area will conform with County guidelines and Caltrans guidelines (if applicable);
- coordinate with the County on any lane or road closures, if needed to construct improvements;
- hauling trucks should run during non-peak hours as much as possible;
- alternate routes to the North Beale road off-ramp should be developed. Feather River Boulevard off-ramps is an alternative route that should be considered. If the North Beale off-ramp must be use without an alternative route, then manual traffic control will be necessary. An office will need to be assigned to direct traffic at the end of the ramp to allow the trucks to go through and to prevent stacking on the ramp and SR 70 mainline;
- Caltrans should be included in the coordination of truck routes;
- provide alternative routes (detours), as necessary, to route local traffic around roadway construction;
- provide notification of any road closures to residents within 500 feet of construction;
- maintain safe pedestrian and bicyclist access in or around the construction areas at all times;
- Secure construction areas as required by the applicable jurisdiction to prevent pedestrians and bicyclists from entering the work site, and all stationary equipment will be located as far away as possible from areas where bicyclists and pedestrians are present.
- repair or restore the road right-of-way to its original condition upon completion of the work for which an encroachment permit was issued; and
- consult with emergency service providers and develop an emergency access plan for emergency vehicles access in and adjacent to the construction zone.
Cultural Resources

If paleontological resources are inadvertently discovered during ground-disturbing activities, the construction contractor will stop work in that area and within 100 feet of the find until a qualified paleontologist can assess the significance of the find and develop appropriate treatment measures. Significant fossils will be properly recovered and curated at an appropriate museum. In the event that fossils are encountered with regularity during construction, the applicant will retain a qualified paleontologist to conduct a paleontological resource sensitivity evaluation and mitigation plan that will more formally outline construction monitoring, recovery, and curation procedures. The plan will be implemented through the excavation phase of the project, as required.

If buried cultural resources, such as chipped or ground stone, historic debris, building foundations, or human bone, are inadvertently discovered during ground-disturbing activities, the construction contractor and lead contractor compliance inspector will verify that work is halted until a qualified archaeologist can assess the significance of the find and, if necessary, develop appropriate treatment measures in consultation with the State Historic Preservation Officer (SHPO), TRLIA, and other appropriate agencies.

If human remains of Native American origin are discovered during ground-disturbing activities, it is necessary for TRLIA to comply with state laws relating to the disposition of Native American burials, which fall within the jurisdiction of the Native American Heritage Commission (NAHC) (California Public Resources Code [PRC] 5097). If human remains are discovered or recognized in any location other than a dedicated cemetery, TRLIA will not allow further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent human remains until:

- the Yuba County Coroner has been informed and has determined that no investigation of the cause of death is required; and
- if the remains are of Native American origin,
  - the descendants of the deceased Native Americans have made a recommendation to the landowner or the person responsible for the excavation work for means of treating or disposing of, with appropriate dignity, the human remains and any associated grave goods as provided in PRC 5097.98, or
  - the NAHC was unable to identify a descendant or the descendant failed to make a recommendation within 24 hours after being notified by the NAHC.
Chapter 3

Environmental Setting and Impacts

Introduction

This chapter provides an overview of the existing physical environment and regulatory requirements for each resource that may be affected by the project. The environmental setting is followed by an evaluation of the environmental impacts for each resource. The chapter is organized by resource topic and corresponds to the Environmental Checklist Form of the State CEQA Guidelines. A complete environmental checklist is included in Appendix A.

Implementing the mitigation measures specified in the impact analysis would either avoid adverse impacts completely or reduce the impacts to a less-than-significant level. Some impacts have been avoided by incorporating environmental commitments into the project description. TRLIA would adopt a mitigation and monitoring program at the time it adopts the mitigated negative declaration. The purpose of the plan is to ensure that the mitigation measures adopted as part of project approval would be implemented when the project is constructed. The Mitigation Monitoring Plan checklist is included in this document as Appendix B.

The following terminology is used to describe the level of significance of impacts:

- A finding of no impact is appropriate if the analysis concludes that the project would not affect the particular topic area in any way.
- An impact is considered less than significant if the analysis concludes that it would cause no substantial adverse change to the environment and requires no mitigation.
- An impact is considered less than significant with mitigation incorporated if the analysis concludes that it would cause no substantial adverse change to the environment with the inclusion of mitigation measures that have been agreed to by the applicant.
- An impact is considered potentially significant if the analysis concludes that it could have a substantial adverse effect on the environment, and mitigation is not possible.
Aesthetics

<table>
<thead>
<tr>
<th></th>
<th>Potentially Significant Impact</th>
<th>Less-than-Significant with Mitigation Incorporated</th>
<th>Less-than-Significant Impact</th>
<th>No Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>I. AESTHETICS. Would the project:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Have a substantial adverse effect on a scenic vista?</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>b. Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings along a scenic highway?</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>c. Substantially degrade the existing visual character or quality of the site and its surroundings?</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>d. Create a new source of substantial light or glare that would adversely affect daytime or nighttime views in the area?</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>

Introduction and Methods

The term *aesthetics* typically refers to the perceived visual character of an area, such as a scenic view, open space, or architectural façade. The aesthetic value of an area is a measure of its visual character and visual quality combined with *viewer response* (Federal Highway Administration 1983). This combination may be affected by the components of a project (e.g., buildings constructed at a height that obstructs views, hillsides cut and graded, open space changed to an urban setting), as well as changing elements, such as light, weather, and the length and frequency of viewer exposure to the setting. Aesthetic impacts are changes in viewer response as a result of project construction and operation.

Visual Character

Visual character is the appearance of the physical form of the landscape, which is composed of natural and human-made elements (e.g., topography, water, vegetation, structures, roads, infrastructure, and utilities), and the relationships of those elements in terms of form, line, color, and texture.
Visual Quality

Visual quality is evaluated based on the relative degree of vividness, intactness, and unity as modified by its visual sensitivity.

- **Vividness** is the visual power or memorability of landscape components as they combine in striking or distinctive visual patterns.
- **Intactness** is the visual integrity of the natural and human-built landscape and its freedom from encroaching elements; this factor can be present in well-kept urban and rural landscapes, as well as natural settings.
- **Unity** is the visual coherence and compositional harmony of the landscape considered as a whole; it frequently attests to the careful design of individual components in the artificial landscape (Federal Highway Administration 1983).

High-quality views are highly vivid and relatively intact and exhibit a high degree of visual unity. Low-quality views lack vividness, are not visually intact, and possess a low degree of visual unity.

Viewer Response

Viewer response is the psychological reaction of a person to visible changes in the viewshed. A viewshed is defined as all of the surface area visible from a particular location (e.g., an overlook) or sequence of locations (e.g., roadway or trail) (Federal Highway Administration 1983). The measure of the quality of a view must be tempered with the overall sensitivity of the viewer and viewer response. Viewer sensitivity is dependent on the number and types of viewers and the frequency (e.g., daily or seasonally) and duration of views (i.e., how long a scene is viewed). Visual sensitivity is also modified by viewer activity, awareness, and visual expectations in relation to the number of viewers and the viewing duration.

Aesthetic Assessment Process

The concepts presented above are combined in a visual impact assessment process that involves identification of the following:

- visual character and quality of the project area,
- relevant policies and concerns for protection of visual resources,
- general visibility of the project area and site using descriptions and photographs, and
- viewer response and potential impacts.
Setting

The project area is rural/rural residential and has little topographic variation. The project has been divided into Reaches A through E, which are described separately below.

Reach A

Reach A consists of the area downstream of SR 70. This area consists mainly of ruderal grasses, exposed dirt, areas covered with concrete associated with the SR 70 overpass, and railroad fill and ballast.

Reach B

Reach B consists of the area upstream of SR 70 between stations 4+00 and 8+00, a distance of approximately 300 feet. A mobile home park is located on the landside of the levee. Trees and a chain link fence separate the toe of the levee from the homes. On the waterside, the western end consists of a beach area that is used for recreational purposes, especially for use by off-road vehicles such as dirt bikes and quads. This beach area is generally barren but does contain some trees and bushes. In addition, the area directly adjacent to the levee is vegetated with native riparian species (Photograph 2-2). The waterside toe of the levee is approximately 100 feet from the low-flow channel of the Yuba River.

Reach C

Reach C is located between stations 7+00 and 18+50. The mobile home park on the landside of the levee in Reach B extends into the western end of Reach C. The seepage berm built in 2006 is located on the eastern end of the landside of Reach C. Shad Pad Road is also located on the landside and crosses the levee crown. An off-road vehicle park and fields recently taken out of orchard production are located on the waterside of the levee. Grasses and mature vegetation grow along this levee reach.

Reach D

Reach D is located between stations 28+50 and 34+00, starting just upstream of the 1986 levee break and extending to the UPRR. The seepage berm built in 2005 and undeveloped land supporting ruderal grasses occur on the landside of Reach D. Agricultural lands recently taken out of production lie on the waterside of Reach D.

Reach E

Reach E is approximately 6,800 feet long. It extends from the UPRR to a point just beyond Simpson Lane (Station 105+00). A cement batch plant and undeveloped land covered predominantly with grasses lie on the landside of the
levee. An abandoned railroad spur is located on a berm on the landside of the levee adjacent to the cement batch plant. The undeveloped land supports grasses and some dispersed mature vegetation. Farther upstream, starting at Station 53+00, a residential subdivision is located on the waterside of the stream. The residential area abuts the levee. The land on the waterside along the entire reach of the project consists of agricultural land taken out of production within the last 2 years.

Impacts and Mitigation Measures

a. Would the proposed project have a substantial adverse effect on a scenic vista, or

c. Would the project substantially degrade the existing visual character or quality of the site and its surroundings?

Impact VIS-1: Construction-Related Impacts on Views

The presence of construction equipment on the levee crown and on the landside and waterside of the levee would temporarily degrade the existing views at the project site. Construction equipment would be present up to 120 days. People at the beach area; along the river; traveling along adjacent roads, including SR 70; and residents and guests at nearby residential structures would be able to see construction workers and equipment. No equipment would be located at the project site between phases or upon completion of project construction. Therefore, this impact would be less than significant, and no mitigation is required.

Impact VIS-2: Impacts on Scenic Vistas from Levee Crown and River

Upon completion of construction, the seepage berm would be the only aboveground physical change to the viewshed. The seepage berm would not be seen from the waterside of the levee or from great distances on the landside. Because of the existing low aesthetic quality of these areas and the minor changes in aesthetics associated with the proposed project’s permanent aboveground features, this impact is less than significant. No mitigation is required.

b. Would the proposed project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings along a scenic highway?

The proposed project is not located near, nor is it visible from, a scenic highway. Therefore, there would be no impact on scenic resources (California Department of Transportation 1996).
d.  Would the proposed project create a new source of substantial light or glare that would adversely affect daytime or nighttime views in the area?

The proposed project would not create any sources of light or glare. There would be no impact on daytime or nighttime views.
## Agricultural Resources

<table>
<thead>
<tr>
<th>Potentially Significant Impact</th>
<th>Less-than-Significant with Mitigation Incorporated</th>
<th>Less-than-Significant Impact</th>
<th>No Impact</th>
</tr>
</thead>
</table>

**II. AGRICULTURAL RESOURCES.** In determining whether impacts on 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. Would the project:

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?

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

c. Involve other changes in the existing environment that, due to their location or nature, could result in conversion of Farmland to non-agricultural use?

Agricultural land recently taken out of production is located on the waterside of the levee, and abandoned orchards occur on the eastern end of Reach E. Increasing the height of the levee and installing a seepage berm and slurry cutoff wall would not encroach on these agricultural lands. The project would have no impact on agricultural resources.
Air Quality

III. AIR QUALITY. When 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?

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

c. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is a nonattainment area for an applicable federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors)?

d. Expose sensitive receptors to substantial pollutant concentrations?

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

Physical Setting

Regional Climate and Atmospheric Conditions

The proposed project is located in Yuba County, which is in the Sacramento Valley Air Basin (SVAB). The SVAB comprises Sacramento, Shasta, Tehama, Butte, Glenn, Colusa, Sutter, Yuba, Yolo, and parts of Solano and Placer Counties. The SVAB is bounded on the west by the Coast Ranges and on the north and east by the Cascade Range and Sierra Nevada. The San Joaquin Valley Air Basin is to the south. The proposed project is within the jurisdiction of the Feather River Air Quality Management District (FRAQMD), part of the SVAB.

Summer conditions are typically characterized by high temperatures and low humidity, with prevailing winds from the south. Summer temperatures average approximately 90°F during the day and 50°F at night.
Winter conditions are characterized by occasional rainstorms interspersed with stagnant and sometimes foggy weather. Winter daytime temperatures average in the low 50s (°F), and nighttime temperatures average in the upper 30s (°F). During winter, north winds become more frequent, but winds from the south predominate. Rainfall occurs mainly from late October to early May, averaging 17.2 inches per year, but varies significantly each year.

In addition to prevailing wind patterns that control the rate of dispersion of local pollutant emissions, Yuba and Sutter Counties experience two types of inversions that affect air quality. The first type of inversion contributes to photochemical smog problems by confining pollution to a shallow layer near the ground. This occurs in the summer when sinking air forms a “lid” over the region. The second type of inversion occurs when the air near the ground cools while the air aloft remains warm. These inversions occur during winter nights and can cause localized air pollution “hot spots” near emission sources because of poor dispersion (Feather River Air Quality Management District 1998).

**Air Pollutants and Ambient Air Quality Standards**

Both the State of California and the federal government have established ambient air quality standards (California ambient air quality standards [CAAQS] and national ambient air quality standards [NAAQS], respectively) for several different pollutants. For some pollutants, separate standards have been set for different periods of the year. Most standards have been set to protect public health, although some standards have been based on other values, such as protection of crops, protection of materials, and avoidance of nuisance conditions. The pollutants of greatest concern in the project area are carbon monoxide (CO), ozone (O₃), and inhalable particulate matter of a specified size. A summary of state and federal ambient air quality standards is shown in Table 3-1.

**Carbon Monoxide**

**Health Effects.** CO levels are a public health concern because when CO combines with hemoglobin the rate at which oxygen is transported in the bloodstream is reduced. Even low concentrations of CO can significantly affect the blood oxygen concentration because CO binds to hemoglobin 220–245 times more strongly than oxygen. Both the cardiovascular system and the central nervous system can be affected when 25%–40% of the hemoglobin in the bloodstream is bound to CO rather than oxygen. State and federal ambient air quality standards for CO have been set at levels intended to keep CO from combining with more than 15% of the body’s hemoglobin.

**State and Federal Standards.** State and federal CO standards have been set for 1-hour and 8-hour averaging times. The state 1-hour CO standard is 20 parts per million (ppm), and the federal 1-hour CO standard is 35 ppm. State and federal standards are both 9 ppm for an 8-hour averaging period. State CO standards are
values not to be exceeded; federal CO standards are established as values not to be exceeded more than once per year.

**Ozone**

**Health Effects.** Ozone is not emitted directly into the air but is formed by a photochemical reaction in the atmosphere. Ozone precursors, which include reactive organic gases (ROG) and oxides of nitrogen (NOx), react in the presence of sunlight in the atmosphere to form ozone. Because photochemical reaction rates depend on the intensity of ultraviolet light and air temperature, ozone is primarily a summer air pollution problem. Ozone is a public health concern because it is a respiratory irritant that increases susceptibility to respiratory infections. Ozone also causes substantial damage to the leaf tissues of crops and natural vegetation and damages many materials by acting as a chemical oxidizing agent.

**State and Federal Standards.** State and federal standards for ozone have been set for 1-hour averaging times; federal standards have been set for 8-hour averaging times. The state 1-hour ozone standard is 0.09 ppm, not to be exceeded at any time. The federal 1-hour ozone standard is 0.12 ppm, not to be exceeded more than three times in any 3-year period. The federal 8-hour ozone standard of 0.08 ppm is attained when the fourth-highest 8-hour concentration in a year, averaged over three years, is equal to or less than the standard.
<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Symbol</th>
<th>Average Time</th>
<th>Standard (parts per million)</th>
<th>Standard (micrograms per cubic meter)</th>
<th>Violation Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ozone</td>
<td>O₃</td>
<td>1 hour</td>
<td>California: 0.09, National: 0.12</td>
<td>California: 180, National: 235</td>
<td>If exceeded</td>
</tr>
<tr>
<td></td>
<td></td>
<td>8 hours</td>
<td>NA</td>
<td>NA</td>
<td>If exceeded on more than 3 days in 3 years</td>
</tr>
<tr>
<td></td>
<td></td>
<td>8 hours</td>
<td>9</td>
<td>10,000</td>
<td>If exceeded</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1 hour</td>
<td>20</td>
<td>23,000</td>
<td>If exceeded</td>
</tr>
<tr>
<td></td>
<td></td>
<td>8 hours</td>
<td>6</td>
<td>7,000</td>
<td>If equaled or exceeded</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Carbon monoxide</td>
<td>CO</td>
<td>8 hours</td>
<td>9.0</td>
<td>10,000</td>
<td>If exceeded</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1 hour</td>
<td>9</td>
<td>10,000</td>
<td>If exceeded</td>
</tr>
<tr>
<td></td>
<td></td>
<td>8 hours</td>
<td>9</td>
<td>23,000</td>
<td>If exceeded</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>40,000</td>
<td>If exceeded</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nitrogen dioxide</td>
<td>NO₂</td>
<td>Annual average</td>
<td>NA</td>
<td>0.053</td>
<td>NA</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1 hour</td>
<td>0.25</td>
<td>0.03</td>
<td>If exceeded</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>NA</td>
<td>100</td>
<td>If exceeded</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>NA</td>
<td>470</td>
<td>If exceeded</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>NA</td>
<td>10</td>
<td>If exceeded</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>NA</td>
<td>105</td>
<td>If exceeded</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>NA</td>
<td>365</td>
<td>If exceeded</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>NA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sulfur dioxide</td>
<td>SO₂</td>
<td>Annual average</td>
<td>NA</td>
<td>0.03</td>
<td>NA</td>
</tr>
<tr>
<td></td>
<td></td>
<td>24 hours</td>
<td>0.4</td>
<td>NA</td>
<td>If exceeded</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1 hour</td>
<td>0.25</td>
<td>0.14</td>
<td>If exceeded</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>NA</td>
<td>655</td>
<td>If exceeded</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>NA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hydrogen sulfide</td>
<td>H₂S</td>
<td>1 hour</td>
<td>0.03</td>
<td>NA</td>
<td>If equaled or exceeded</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>NA</td>
<td>42</td>
<td>If equaled or exceeded</td>
</tr>
<tr>
<td>Vinyl chloride</td>
<td>C₂H₃Cl</td>
<td>24 hours</td>
<td>0.010</td>
<td>NA</td>
<td>If equaled or exceeded</td>
</tr>
<tr>
<td>Sulfate particles</td>
<td>SO₄</td>
<td>24 hours</td>
<td>NA</td>
<td>25</td>
<td>If equaled or exceeded</td>
</tr>
<tr>
<td>Pollutant</td>
<td>Symbol</td>
<td>Average Time</td>
<td>Standard (parts per million) California</td>
<td>Standard (micrograms per cubic meter) California</td>
<td>Violation Criteria</td>
</tr>
<tr>
<td>---------------------------------</td>
<td>--------</td>
<td>--------------------</td>
<td>----------------------------------------</td>
<td>-----------------------------------------------</td>
<td>-------------------</td>
</tr>
<tr>
<td><strong>Inhalable particulate matter</strong></td>
<td>PM10</td>
<td>Annual geometric mean</td>
<td>NA</td>
<td>20</td>
<td>If exceeded</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Annual arithmetic mean</td>
<td>NA</td>
<td>NA</td>
<td>If exceeded</td>
</tr>
<tr>
<td></td>
<td></td>
<td>24 hours</td>
<td>NA</td>
<td>50</td>
<td>If exceeded</td>
</tr>
<tr>
<td><strong>PM2.5</strong></td>
<td></td>
<td>Annual geometric mean</td>
<td>NA</td>
<td>12</td>
<td>If exceeded</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Annual arithmetic mean</td>
<td>NA</td>
<td>15</td>
<td>If exceeded</td>
</tr>
<tr>
<td></td>
<td></td>
<td>24 hours</td>
<td>NA</td>
<td>65</td>
<td>If exceeded</td>
</tr>
<tr>
<td><strong>Lead particles</strong></td>
<td>Pb</td>
<td>Calendar quarter</td>
<td>NA</td>
<td>NA</td>
<td>If exceeded</td>
</tr>
<tr>
<td></td>
<td></td>
<td>30 days</td>
<td>NA</td>
<td>1.5</td>
<td>If equaled or exceeded</td>
</tr>
</tbody>
</table>

Notes:
- All standards are based on measurements at 25ºC and 1 atmosphere pressure.
- National standards shown are the primary (health effects) standards.
- NA = not applicable.
Particulate Matter

Health Effects. Health concerns associated with suspended particulate matter focus on particles small enough to reach the lungs when inhaled. Few particles larger than 10 microns in diameter reach the lungs. Suspended particulate matter 10 microns in diameter or less (PM10) can lodge in the lungs and contribute to respiratory problems. PM10 arises from sources such as road dust, diesel soot, combustion products, abrasion of tires and brakes, construction operations, and dust carried by windstorms. It is also formed in the atmosphere from reactions of nitrogen dioxide (NO₂) and sulfur dioxide (SO₂) with ammonia. Fine particles pose a serious health hazard, alone or in combination with other pollutants. The smallest particles inhaled are deposited in the lungs and can cause permanent lung damage. Fine particles can also have a damaging effect on health by interfering with the body’s mechanism for clearing the respiratory tract or acting as a carrier of absorbed toxic substances.

State and Federal Standards. Both the federal and state air quality standards for particulate matter have been revised to apply only to PM10. State and federal PM10 standards have been set for 24-hour and annual averaging times. The state 24-hour PM10 standard is 50 micrograms per cubic meter (µg/m³), and the federal 24-hour standard is 150 µg/m³. The state annual PM10 standard is 20 µg/m³ as an annual geometric mean, whereas the federal annual PM10 standard is 50 µg/m³ as an annual arithmetic mean. The California Air Resources Board (ARB) and the EPA have recently established air quality standards for particles 2.5 microns in diameter or less (PM2.5). This was done to address the health risks associated with breathing these smaller particles, which lodge deeper in the lungs and typically are not exhaled. ARB has established an annual geometric mean of 12 µg/m³, whereas EPA has established a 24-hour standard of 65 µg/m³ and an annual arithmetic mean of 15 µg/m³. Federal and state 24-hour PM10 and PM2.5 standards may not be exceeded more than 1 day per year, and annual standards are not to be exceeded.

Existing Air Quality Conditions

The pollutants of greatest concern in the project area are CO, O₃, and PM10, which is inhalable. The State of California designates the Yuba County portion of the SVAB as being in moderate nonattainment for ozone and in nonattainment for PM10. The county is designated by the state as unclassified for CO. The EPA designates the county portion of the SVAB as being an unclassified/attainment area for CO and an unclassified area for PM10. For ozone, EPA classifies the county as being a transitional area; it was previously in nonattainment, but it has now met the 1-hour federal O₃ standard. The redesignation request to attainment is pending with EPA. On April 15, 2004, the EPA designated the county as a basic nonattainment area for the federal 8-hour ozone standard. The county’s attainment status for each of these pollutants relative to NAAQS and CAAQS is shown in Table 3-2.
Table 3-2. State and Federal Attainment Designations

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>State Standards</th>
<th>Federal Standards</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ozone (O₃) 1-hour</td>
<td>Moderate nonattainment</td>
<td>Transitional</td>
</tr>
<tr>
<td>Ozone (O₃) 8-hour</td>
<td>Not applicable</td>
<td>Basic nonattainment</td>
</tr>
<tr>
<td>Inhalable particulate matter (PM10)</td>
<td>Nonattainment</td>
<td>Unclassified</td>
</tr>
<tr>
<td>Carbon monoxide (CO)</td>
<td>Unclassified</td>
<td>Unclassified/attainment</td>
</tr>
</tbody>
</table>

The existing air quality conditions in the project area can be characterized by monitoring data collected in the region. Air quality monitoring data for the years 2000 through 2002 are presented in Table 3-3. The nearest monitoring stations to the project area are the Yuba City monitoring station, which monitors for O₃ and CO, and the Gibson Road monitoring station in Yuba City, which monitors for PM10 and PM2.5. As indicated in Table 3-3, the Yuba City monitoring station has experienced occasional violations of CAAQS for O₃ during the 3-year monitoring period; the 24-hour PM10 CAAQS was violated more frequently. Each pollutant is discussed below.
### Table 3-3. Ambient Air Quality Monitoring Data from the Yuba City (733 Almond Street) Monitoring Station

<table>
<thead>
<tr>
<th>Pollutant Standards</th>
<th>2000</th>
<th>2001</th>
<th>2002</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Ozone (O₃)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maximum 1-hour concentration (parts per million [ppm])</td>
<td>0.108</td>
<td>0.104</td>
<td>0.108</td>
</tr>
<tr>
<td>Number of days standard exceeded&lt;sup&gt;a&lt;/sup&gt;</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CAAQS 1-hour (&gt;0.09 ppm)</td>
<td>3.0</td>
<td>4.0</td>
<td>3.0</td>
</tr>
<tr>
<td>NAAQS 1-hour (&gt;0.12 ppm)</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Carbon Monoxide (CO)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maximum 8-hour concentration (ppm)</td>
<td>3.6</td>
<td>3.9</td>
<td>3.5</td>
</tr>
<tr>
<td>Maximum 1-hour concentration (ppm)</td>
<td>6.1</td>
<td>17.2</td>
<td>6.4</td>
</tr>
<tr>
<td>Number of days standard exceeded&lt;sup&gt;a&lt;/sup&gt;</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CAAQS 8-hour (&gt;9.0 ppm)</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>NAAQS 8-hour (&gt;9.0 ppm)</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>CAAQS 1-hour (&gt;20 ppm)</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>NAAQS 1-hour (&gt;35 ppm)</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Particulate Matter (PM10)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maximum 24-hour concentration (micrograms per cubic meter [µg/m³])</td>
<td>70.0</td>
<td>80.0</td>
<td>74.0</td>
</tr>
<tr>
<td>Second highest 24-hour concentration (µg/m³)</td>
<td>66.0</td>
<td>67.0</td>
<td>63.0</td>
</tr>
<tr>
<td>Average geometric mean concentration (µg/m³)</td>
<td>24.0</td>
<td>26.0</td>
<td>27.0</td>
</tr>
<tr>
<td>Average arithmetic mean concentration (µg/m³)</td>
<td>28.0</td>
<td>30.0</td>
<td>32.0</td>
</tr>
<tr>
<td>Number of days standard exceeded&lt;sup&gt;a&lt;/sup&gt;</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CAAQS 24-hour (&gt;50 µg/m³)&lt;sup&gt;b&lt;/sup&gt;</td>
<td>18.0</td>
<td>48.0</td>
<td>30.0</td>
</tr>
<tr>
<td>NAAQS 24-hour (&gt;150 µg/m³)&lt;sup&gt;b&lt;/sup&gt;</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Particulate Matter (PM2.5)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maximum 24-hour concentration (µg/m³)</td>
<td>44.0</td>
<td>56.0</td>
<td>62.0</td>
</tr>
<tr>
<td>Second highest 24-hour concentration (µg/m³)</td>
<td>38.0</td>
<td>54.0</td>
<td>34.0</td>
</tr>
<tr>
<td>Average arithmetic mean concentration (µg/m³)</td>
<td>10.6</td>
<td>11.9</td>
<td>13.0</td>
</tr>
<tr>
<td>Number of days standard exceeded&lt;sup&gt;a&lt;/sup&gt;</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NAAQS 24-hour (&gt;65 µg/m³)&lt;sup&gt;c&lt;/sup&gt;</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

CAAQS = California ambient air quality standards.  
NAAQS = National ambient air quality standards.  
<sup>a</sup> The number of days above the standard is not necessarily the number of violations of the standard for the year. Calculated exceedances are based on measurements taken every 3 or 6 days, depending on the time of year and the site’s monitoring schedule.  
Sources: California Air Resources Board 2003b, U.S. Environmental Protection Agency 2003.
Regulatory Setting

Air quality management responsibilities exist at local, state, and federal levels of government. Air quality management planning programs were developed during the past decade generally in response to requirements established by the federal Clean Air Act (CAA). The enactment of the California Clean Air Act of 1988 (CCAA) produced additional changes in the structure and administration of air quality management programs in California.

Air Quality Management at the Federal Level

The CAA, passed in 1970 and last amended in 1990, forms the basis for the national air pollution control effort. EPA is responsible for implementing most aspects of CAA. Basic elements of the act include national ambient air quality standards for major air pollutants, hazardous air pollutants standards, state attainment plans, motor vehicle emissions standards, stationary-source emissions standards and permits, acid rain control measures, stratospheric ozone protection, and enforcement provisions.

CAA requires that EPA establish NAAQS and reassess, at least every 5 years, whether adopted standards are adequate to protect public health based on current scientific evidence. The NAAQS describe acceptable air quality conditions designed to protect the health and welfare of the nation’s citizens. NAAQS are shown in Table 3-3.

In November 1990, Congress enacted a series of amendments to the CAA intended to intensify air pollution control efforts across the nation. One of the primary goals of the 1990 amendments to the CAA was an overhaul of the planning provisions for those areas not currently meeting NAAQS. The CAA identifies specific emission reduction goals, requires both a demonstration of reasonable further progress and attainment, and incorporates more stringent sanctions for failure to attain the NAAQS or meet interim attainment milestones.

Air Quality Management at the State Level

The CCAA established an air quality management process that generally parallels the federal process. The CCAA process, however, focuses on attainment of the state ambient air quality standards, which for certain pollutants and averaging periods are more stringent than the comparable federal standards.

The CCAA requires that an air district prepare an air quality attainment plan if the district violates state air quality standards for CO, SO₂, NOₓ, or O₃. No locally prepared attainment plans are required for areas that violate the state PM10 standards. The CCAA requires that the CAAQS be met as expeditiously as practicable, but it does not set precise attainment deadlines. Instead, the act established increasingly stringent requirements for areas that would require more
time to achieve the standards. The air quality attainment plan requirements established by the CCAA are based on the severity of air pollution problems caused by locally generated emissions. Upwind air pollution control districts are required to establish and implement emission control programs commensurate with the extent of pollutant transport to downwind districts.

Air Quality Management in Yuba County

The project area is within the jurisdiction of FRAQMD. ARB and FRAQMD have primary responsibility for implementing NAAQS and ensuring that CAAQS are met. FRAQMD is also responsible for implementing strategies for air quality improvement and recommending mitigation measures for potential effects on air quality from new construction and development.

Significance Criteria

State CEQA Guidelines (Appendix G) state that a project would normally have a significant effect on the environment if it would:

- conflict with or obstruct implementation of the applicable air quality management 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 in nonattainment under an applicable federal or state ambient air quality standard, including releasing emissions that exceed quantitative thresholds for O₃ precursors;
- expose sensitive receptors to substantial pollutant concentrations; or
- create objectionable odors affecting a substantial number of people.

The guidelines further state that the significance criteria established by the applicable air quality management or air pollution control district may be relied on to make the determinations above. FRAQMD’s thresholds of significance for construction- and operation-related emissions are presented in Table 3-4.
Table 3-4. Feather River Air Quality Management District’s Thresholds of Significance

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Thresholds of Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Construction (pounds per day)</td>
</tr>
<tr>
<td>ROG&lt;sup&gt;a&lt;/sup&gt;</td>
<td>25</td>
</tr>
<tr>
<td>NOx&lt;sup&gt;a&lt;/sup&gt;</td>
<td>25</td>
</tr>
<tr>
<td>CO&lt;sup&gt;b&lt;/sup&gt;</td>
<td>–</td>
</tr>
<tr>
<td>PM10&lt;sup&gt;a&lt;/sup&gt;</td>
<td>80</td>
</tr>
</tbody>
</table>

<sup>a</sup> Emissions of CO are not considered an issue of concern within the FRAQMD because the region is in attainment for CO, and air quality within the FRAQMD is not negatively affected by CO.


Impacts and Mitigation Measures

Assumptions and Methodology

Construction emissions impacts have been assessed based on guidance from the FRAQMD requirements. FRAQMD assumes that unmitigated construction emissions are significant, but with appropriate mitigation, those impacts can be reduced to a less-than-significant level (Table 3-5).
### Table 3-5. Feather River Air Quality Management District Control Measures for Construction Emissions of Fugitive Dust

The following mitigation measures are required for all construction sites.

- All grading operations on a project should be suspended when winds exceed 20 miles per hour (mph) or when winds carry dust beyond the property line despite implementation of all feasible dust control measures.
- Construction sites shall be watered as directed by the public works department or air quality management district (AQMD) and as necessary to prevent fugitive dust violations.
- An operational water truck should be on-site at all times. Water shall be applied to control dust as needed to prevent visible emissions violations and off-site 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 wind-blown dust emissions. Use of approved nontoxic soil stabilizers, according to manufacturers’ specifications, shall be incorporated into all inactive construction areas.
- All transfer processes involving a freefall of soil or other particulate matter shall be operated in a manner that minimizes the freefall 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 before 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 or wet broom) if soil material has been carried from the project site onto adjacent paved public thoroughfares.
- Traffic control shall be provided as needed during all phases of construction to improve traffic flow, as deemed appropriate by the public works department and/or California Department of Transportation, and reduce vehicle dust emissions. An effective measure is to enforce vehicle traffic speeds at or below 15 mph.
- Traffic speeds shall be reduced on all unpaved surfaces to 15 mph or less, and unnecessary vehicle traffic would be reduced by restricting access. Appropriate training, on-site enforcement, and signage shall be provided.
- Groundcover shall be reestablished on the construction site as soon as possible and before final occupancy through seeding and watering.
- Open burning is a source of fugitive gas and particulate emissions and shall be prohibited at the project site. No open burning of vegetative waste (natural plant growth wastes) or other legal or illegal burn materials (trash, demolition debris, etc.) may be conducted at the project site. Vegetative wastes should be chipped or delivered to “waste to energy” facilities (permitted biomass facilities), mulched, composted, or used for firewood. It is unlawful to haul waste materials off-site for disposal by open burning.
- Construction activities shall minimize disruption to traffic flow during peak hours to the greatest extent feasible.
- A truck hauling dirt, sand, soil, or other loose material should be covered or maintain at least 2 feet of freeboard (minimum vertical distance between top of the load and top of the trailer) in accordance with the requirements of California Vehicle Code Section 23114. This provision shall be enforced by local enforcement agencies.
The following mitigation measures are recommended for all construction sites.

Reducing NOx emissions from off-road diesel-powered equipment:

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, would achieve a project-wide fleet-average 2% NOx reduction and 45% particulate reduction compared to the most recent ARB fleet average at time of construction. A Construction Mitigation Calculator (MS Excel) may be downloaded from the Sacramento Metropolitan Air Quality Management District (SMAQMD) web site to perform the fleet average evaluation at http://www.airquality.org/ceqa/index.shtml.

- Acceptable options for reducing emissions may include use of late-model engines, low-emission diesel products, engine retrofit technology (Carl Moyer Guidelines), after-treatment products, voluntary off-site mitigation projects, funds for air district off-site mitigation projects, and/or other options as they become available. The district should be contacted to discuss alternative measures.
- 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.
- Minimize idling time to 10 minutes, which saves fuel and reduces emissions.
- An operational water truck should be on-site at all times. Apply water to control dust as needed to prevent dust impacts off-site.
- Utilize existing power sources (e.g., power poles) or clean fuel generators rather than temporary power generators.
- Develop 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.
- No open burning of removed vegetation during infrastructure improvements. Vegetative material should be chipped or delivered to “waste to energy” facilities.
- 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 ARB Portable Equipment Registration with the state or a local district permit. The owner/operator shall be responsible for arranging appropriate consultations with the ARB or the district to determine registration and permitting requirements prior to equipment operation at the site.

Reducing emissions of NOx from off-road diesel-powered equipment:

- The project representative 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 construction, including owned, leased, and subcontractor vehicles, would achieve a project-wide fleet-average 20% NOx reduction and 45% particulate reduction compared to the most recent ARB fleet average at time of construction.
- The project representative shall submit to FRAQMD a comprehensive inventory of all off-road construction equipment equal to or greater than 50 horsepower that would be used an aggregate of 40 or more hours during any portion of construction. The inventory shall include the horsepower rating, engine production year, and projected hours of use or fuel throughput for each piece of equipment.
inventory shall be updated and submitted monthly throughout the duration of the project, except that an inventory shall not be required for any 30-day period during which no construction activity occurs. At least 48 hours before the use of subject heavy-duty off-road equipment, the project representative shall provide FRAQMD with the anticipated construction timeline, including start date and names and phone numbers of the project manager and on-site foreman.

**Controlling visible emissions from off-road diesel-powered equipment:**

- The project shall ensure that emissions from all off-road diesel-powered equipment used on the project site do not exceed 40% opacity for more than 3 minutes in any 1 hour. Any equipment found to exceed 40% opacity (or Ringelmann 2.0) shall be repaired immediately, and FRAQMD shall be notified within 48 hours of identification of noncompliant equipment. A visual survey of all in-operation equipment shall be made at least weekly, and a monthly summary of the visual survey results shall be submitted throughout the duration of the project, except that the monthly summary shall not be required for any 30-day period during which no construction activity occurs. The monthly summary shall include the quantity and type of vehicles surveyed and the dates of each survey. FRAQMD and/or other officials may conduct periodic site inspections to determine compliance. Nothing in this section shall supercede other FRAQMD or state rules or regulations.

a Acceptable options for reducing emissions may include use of late-model engines, low-emission diesel products, alternative fuels, engine retrofit technology, after-treatment products, and/or other options as they become available. FRAQMD should be contacted to discuss alternative measures.

Sources: Feather River Air Quality Management District 2004 (web site).

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*a. Would the project conflict with or obstruct implementation of applicable air quality plan, or*

*b. Would the project violate any air quality standard or contribute substantially to an existing projected air quality violation, or*

*c. Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is a nonattainment area for an applicable federal or state ambient air quality standard?*

**Impact AQ-1: Increases in Emissions Associated with Construction Activity**

Construction of the project would result in the temporary increase in emissions of ROG, CO, NOx, and PM10. Emissions would be generated by a variety of sources, including criteria pollutant emissions produced by construction equipment and fugitive dust created by wind and operation of construction equipment over exposed earth. Construction-related emissions may potentially exceed the emissions threshold. Because FRAQMD assumes that unmitigated construction activities could result in a significant increase in PM10 and construction vehicle exhaust emissions, this impact is considered significant. Implementation of Mitigation Measures AQ-1 and AQ-2 would reduce this impact to a less-than-significant level.
Mitigation Measure AQ-1: Implement Feasible Control Measures for Construction Emissions of Fugitive Dust.

TRLIA will implement all feasible control measures indicated in Table 3-5.

Mitigation Measure AQ-2: Prepare a Fugitive Dust Control Plan.

TRLIA will prepare and implement a fugitive dust control plan and submit it to FRAQMD for approval. Fugitive dust control measures will be implemented in accordance with the approved plan during construction.

Impact AQ-2: Increased Construction-Related Diesel Health Risk

Construction activities would use diesel-fueled equipment. ARB has identified diesel exhaust particulate matter as a toxic air contaminant (TAC). However, the assessment of diesel-related cancer risks is typically based on a 70-year exposure period. Because construction activities are short-term, once construction activities have ceased, the potential exposure to construction-related diesel emissions would also cease. Therefore, it is not expected that the diesel-related emissions would occur very often. Because exposure to diesel exhaust would be well below the 70-year exposure period, construction and operation of the proposed project are not anticipated to result in an elevated health risk. Consequently, the estimation of diesel risks associated with construction activities is considered to be less than significant. No mitigation is required.

Impact AQ-3: Generation of Significant Levels of Operational Emissions

As previously mentioned, the proposed project would not use any equipment or machinery after completion of construction that is expected to generate significant emissions. Consequently, the potential impact associated with such limited operation is considered less than significant. No mitigation is required.

d. Would the project create objectionable odors affecting substantial number of people, or

e. Would the project expose sensitive receptors to substantial pollutant concentrations?
Impact AQ-4: Create Objectionable Odors or Substantially Increase Pollutant Concentrations

The project is not expected to create objectionable odors that would affect a large number of people or expose sensitive receptors to substantial pollutant concentrations. Changes in air quality would occur only during the construction period and over a short period of time. Although the project is adjacent to a residential area, it is not expected to create objectionable odors because diesel exhaust would be readily dispersed. As indicated above, the project would not result in a substantial increase in pollutants when mitigation is applied. Therefore, the project would result in a less-than-significant impact on air quality associated with increasing objectionable odors and pollutant concentrations. No mitigation is required.
Biology Resources

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?

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?

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, marshes, vernal pools, coastal wetlands, etc.) through direct removal, filling, hydrological interruption, or other means?

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?

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

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?

Introduction and Methods

This section presents information on vegetation and wildlife resources in the project study area. Information on biological resources is based on the following:
field surveys for Phase 1 of the Yuba Levee Repair Project performed in May, June, and July 2004;

field surveys performed on March 21 and May 25, 2006;

review of the DFG’s California Natural Diversity Database (CNDDB) (March 20, 2006); and

a U.S. Fish and Wildlife Service (USFWS) species list for the project area (May 2006).

The CNDDB search was conducted for the Yuba City and Olivehurst 7.5-minute U.S Geological Survey (USGS) quadrangle maps (California Natural Diversity Database 2006). The USFWS species list included special-status species that occur or may occur in Yuba County.

During the field surveys, the levee and adjacent areas were surveyed by walking the project area. A Jones & Stokes biologist identified and characterized the biological resources. The project area includes all of the area in which construction or construction staging may occur.

The general objectives of the field surveys were to:

- gather descriptive information on habitat types, including plant and wildlife species associated with each habitat type;
- identify wetlands and other waters of the United States that would be subject to U.S. Army Corps of Engineers jurisdiction under Section 404 of the Clean Water Act (CWA);
- identify suitable habitat for special-status plant and wildlife species that could occur in the project study area; and
- identify special-status species present in the study area.

Physical Setting

The project study area includes the project construction and staging areas and adjacent lands. Current adjacent land uses include residential, commercial, and open space areas (Figure 3-1). The land cover types occurring in or adjacent to the project study area include ruderal herbaceous, fields recently taken out of orchard production, abandoned orchards, ornamental landscape trees, riparian scrub, developed areas, disturbed areas, and open space areas. Each of these land cover types is described briefly below.

The project construction area includes an existing levee and lands that were previously cultivated. The staging areas include disturbed lands and agricultural land recently taken out of production. Haul roads include existing farm roads.
**Sensitive Natural Communities**

Sensitive natural communities are land cover types that are especially diverse, regionally uncommon, or of special concern to local, state, and federal agencies. Removal or degradation of these communities constitutes a significant impact under CEQA. Sensitive natural communities occurring in the project study area include riparian habitat. There are no sensitive natural communities in the project construction or staging areas; however, elderberry shrubs do occur on the levee slopes adjacent to the project area.

No wetlands or other waters of the United States occur in the project area. The Yuba River is on the north side of the levee; however, there is a wide floodplain between the toe of the levee and the river. Stockpiling and staging areas would occur on the waterside of the levee; however, these areas do not occur within the ordinary high-water mark of the Yuba River or within wetlands or other waters of the United States.

**Land Cover Types**

The dominant land cover type in the project area is ruderal herbaceous vegetation. The ruderal herbaceous land cover type occurs on the waterside and landside levee slopes. This cover type is dominated by annual and perennial grasses such as ripgut brome (*Bromus diandrus*), wild oat (*Avena fatua*), Bermuda grass (*Cynadon dactylon*), and forbs, including mugwort (*Artemesia douglasiana*) and mustard (*Brassica* spp.). Ruderal herbaceous vegetation provides cover and foraging areas for resident and migratory songbirds and small mammals.

An abandoned orchard lies on the landside of the levee and east end of Reach E. The orchard trees provide cover and foraging areas for resident and migratory songbirds and small mammals.

Developed areas adjacent to the project area include residential and commercial land uses. Residential areas are located on the landside of the levee in Reaches A, B, and E. Commercial areas are located on the landside of the Reaches B through E and include a hotel, a Caltrans maintenance yard, and a concrete processing plant. An abandoned railroad spur is present in Reach E.

Disturbed areas include fields recently taken out of orchard production where trees have been removed within the last several years, areas adjacent to the Caltrans maintenance yard, and the concrete processing plant. The fields recently taken out of orchard production occur on the waterside of the levee in Reaches C, D, and E. The areas outside the Caltrans maintenance yard and concrete processing plant consist of mounds of soil and other materials that are overgrown with herbaceous vegetation.
Figure 3-1a
Location of Elderberry Shrubs
Figure 3-1b
Location of Elderberry Shrubs

- Elderberry Shrub
- 100' Buffer of Impacts
- Permanent Impact
- Temporary Impact

Aerial Photo Source: HDR 2001
Ornamental trees occur in or adjacent to the proposed construction areas along Reaches B, C, and E. Ornamental trees include eucalyptus (*Eucalyptus* spp.), incense cedar (*Calocedrus decurrens*), English walnut (*Juglans regia*), and mulberry (*Morus alba*). These trees provide potential nesting habitat for migratory birds. It is unlikely that raptors would nest in these trees because they are relatively small and close to disturbance factors.

Riparian scrub habitat occurs on the waterside of the levee between stations 35+00 and 39+00. This land cover type is outside of the project construction areas. Riparian scrub habitat consists of isolated riparian trees, dense stands of wild rose, and scattered elderberry shrubs.

### Special-Status Plant Species

Special-status plants are species that are legally protected under the California Endangered Species Act (CESA) and federal Endangered Species Act (ESA) or other regulations or are species considered sufficiently rare by the scientific community to qualify for such listing. The CNDDB and USFWS special-status plant species list for the Yuba City and Olivehurst 7.5-minute quadrangles were used to identify any potential special-status plant species in the project area. The USFWS list identified three special-status plant species that have the potential to occur in the Olivehurst and Yuba City 7.5-minute quadrangles: Ferrs’s milk-vetch (*Astragalus tener var. ferrisiae*), veiny monardella (*Monardella douglassi*), and Hartweg’s golden sunburst (*Pseudobahia bahiifolia*). However, the project site does not provide suitable habitat for any of the species.

There are no occurrences of special-status plant species listed on the CNDDB (California Natural Diversity Database 2006) in the project area of impact. Hartweg’s golden sunburst has been documented more than a mile away from the project area at the confluence of the Feather and Yuba Rivers. However, there is no suitable habitat for Hartweg’s golden sunburst in the project area. No state- or federally listed plant species were observed during the field survey.

### Special-Status Wildlife Species

Special-status wildlife species that could occur in the proposed project’s geographic area were identified using the CNDDB (2006) and USFWS lists. The USFWS list identified 49 special-status wildlife species that have the potential to occur in the Yuba City and Olivehurst 7.5-minute quadrangle. However, 46 of these species would not occur at the project site because suitable habitat is absent or the project site lacks nesting or roosting habitat. Special-status wildlife species identified as potentially occurring in the project vicinity are valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*), Swainson’s hawk (*Buteo swainsoni*), and white-tailed kite (*Elanus leucurus*).
There are no occurrences of special-status wildlife species listed on the CNDDB (California Natural Diversity Database 2006) in the project area of impact. Three species were identified by the CNDDB search as occurring within the vicinity of the project site. The three species identified by the CNDDB search as occurring more than 1 mile from the vicinity of the project site at the confluence of the Yuba and Feather Rivers are bank swallow (*Riparia riparia*), tricolored blackbird (*Agelaius tricolor*), and western yellow-billed cuckoo (*Coccyzus americanus occidentalis*). However, no suitable habitat for these species occurs at the project site.

The special-status wildlife species that are federally or state listed with a potential to occur at the site are discussed below.

**Valley Elderberry Longhorn Beetle**

The valley elderberry longhorn beetle (VELB) is federally listed as threatened. The project area is not located within critical habitat or essential habitat for VELB. Final ruling on critical habitat for the beetle was established by USFWS on August 8, 1980. Essential habitat was identified in the Valley Elderberry Longhorn Beetle Recovery Plan (U.S. Fish and Wildlife Service 1984).

A California endemic species, the valley elderberry longhorn beetle is found in scattered populations throughout its range. The species range includes most of the California Central Valley (Barr 1991). The adults feed exclusively on elderberry (*Sambucus mexicanus*) foliage and are active from early March through early June. During this time they mate, and females lay eggs on living elderberry stems. Larvae bore through the stems of the shrubs to create an opening in the stem within which they pupate. After metamorphosing into an adult, the beetle chews a circular exit hole through which it emerges (Barr 1991). Surveys to find evidence of valley elderberry longhorn beetle and measure stem diameters of elderberry shrubs were not conducted.

**Swainson’s Hawk**

Swainson’s hawk is a state-listed threatened species. The Central Valley and the far northwestern corner of California define the limits of the current Swainson’s hawk breeding range in the state. Historically, this migratory species nested in woodland habitats and foraged in native grasslands. Conversion of native grassland and woodland habitats into agricultural uses has contributed to the estimated 90% decline in the species’ statewide population (Bloom 1980). Today, Swainson’s hawks in the Central Valley forage in large, open agricultural habitats. Typical nesting habitat includes riparian forests, lone trees in open grasslands, and open oak groves. Loss and fragmentation of these nesting and foraging habitats are resulting in further losses of historic nesting territories (Estep 1989).
A pair of Swainson’s hawk was observed soaring over the Yuba Gold Fields, approximately 1 mile east of the project area, during the March 21, 2006, field survey. Swainson’s hawk could use the cottonwood on the landside of Reach C as well as the mature native and ornamental trees adjacent to the project area. Foraging habitat in the project area exists in ruderal herbaceous habitat in the field where orchard trees have been removed.

**White-Tailed Kite**

The white-tailed kite is a federal species of concern and is fully protected under the California Fish and Game Code. White-tailed kites have steadily decreased throughout much of California since the late 1970s. Declines have been especially evident in southern California (Garrett and Dunn 1981), along the south coast (Marantz 1986), and in the San Joaquin Valley (Small 1994). Local populations appear to be relatively healthy along the north and east San Francisco Bay and in the Sacramento–San Joaquin Delta.

White-tailed kites inhabit open lowland grassland, riparian woodland, marshes, and scrub areas. Some large shrubs or trees are required for nesting. They are dependent on small rodents with highly cyclical populations. Communal night roosting is common during the non-breeding season. The most important threat facing this species is loss of habitat. Although kites appear able to withstand some habitat alteration from grazing and farming, large stretches of agricultural areas devoid of natural vegetation and urbanized areas are not suitable habitat.

An adult white-tailed kite was observed during the March field survey. This individual was located near a potential nest within a tree on the landside of the levee in Reach E, just west of the residential area.

**Raptors**

The project site provides potential nesting habitat for raptor species other than those identified above. Raptor surveys were performed on March 21, 2006. One potential nest and four raptors not identified above were observed in the proposed project area. Raptors observed included a northern harrier, red-shouldered hawk, red-tailed hawk, and sharp shinned hawk. A potential raptor nest was identified on the landside of the levee in Reach E on the eastern portion of the residential area.

**Special-Status Fish Species**

Although special-status fish species are found in the Yuba River, neither these species nor their habitat would be affected by the project because no fish habitat exists in the project area.
Federal Regulations

Federal regulations that apply to biological resources present at the project site include the federal ESA and Section 404 of the CWA. These regulations are briefly described below.

Federal Endangered Species Act

The federal ESA prohibits the take of endangered or threatened wildlife species. Take is defined to include harassing, harming (includes significantly modifying or degrading habitat), pursuing, hunting, shooting, wounding, killing, trapping, capturing, or collecting wildlife species or any attempt to engage in such conduct (16 United States Code [USC] 1532, 50 Code of Federal Regulations [CFR] 17.3). Actions that result in take can result in civil or criminal penalties.

The federal ESA and EPA Section 404 guidelines prohibit the issuance of wetland permits for projects that would jeopardize the existence of a threatened or endangered wildlife or plant species. The Corps must consult with the USFWS when threatened or endangered species may be affected by a proposed project to determine whether issuance of a Section 404 Permit would jeopardize the species. In the context of the project site, the federal ESA would be triggered if the project would result in the take of a threatened or endangered species or if issuance of a Section 404 Permit or other federal agency action could adversely affect or jeopardize a threatened or endangered species.

Section 404 of the Clean Water Act

The Corps and EPA regulate the discharge of dredged and fill material into waters of the United States under Section 404 of the CWA. Corps jurisdiction over nontidal waters of the United States extends to the ordinary high-water mark, provided the jurisdiction is not extended by the presence of wetlands (33 CFR Part 328 Section 328.4). The ordinary high-water mark is defined in the federal regulations to mean

[T]hat line on the shore established by the fluctuations of water and indicated by physical characteristics such as clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas (33 CFR Part 328 Section 328.3[e]).

The Corps would typically exert jurisdiction over that portion of the project site that contains waters of the United States and adjacent or isolated wetlands. This jurisdiction equals approximately the bank-to-bank portion of a creek along its entire length up to the ordinary high-water mark and adjacent wetlands areas that would either be directly or indirectly adversely affected by a proposed project.
Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) was established in 1918 to protect migratory birds. The MBTA protects species or families of birds that live, reproduce, or migrate within or across international borders at some point during their annual life cycle. The MBTA prohibits, unless permitted by regulations, the take of migratory birds. Take includes the harassment, hunt, capture, killing, possession, purchase, or transport of migratory birds. This act also prohibits the take of any part, nest, or egg of any such bird (16 USC 703).

State Regulations

California regulations that apply to resources at the proposed project site include the CESA and Section 1601 of the California Fish and Game Code. These regulations are briefly described below.

California Endangered Species Act

CESA is similar to the federal ESA but pertains only to state-listed endangered and threatened species. CESA requires state agencies to consult with DFG when preparing documents under CEQA to ensure that the actions of the state lead agency do not jeopardize the continued existence of listed species. CESA directs agencies to consult with DFG on projects or actions that could affect listed species, directs DFG to determine whether there would be jeopardy to listed species, and allows DFG to identify “reasonable and prudent alternatives” to the project consistent with conserving the species. Agencies can approve a project that affects a listed species if the agency determines that there are “overriding considerations”; however, the agencies are prohibited from approving projects that would cause the extinction of a listed species.

Mitigating impacts on state-listed species involves avoidance, minimization, and compensation (listed in order of preference). Unavoidable impacts on state-listed species are typically addressed in a detailed mitigation plan prepared in accordance with DFG guidelines. DFG exercises authority over mitigation projects involving state-listed species, including those resulting from CEQA mitigation requirements.

CESA prohibits the take of plant and wildlife species that are state listed as endangered or threatened. DFG may authorize take if there is an approved habitat management plan or management agreement that avoids or compensates for impacts on listed species.
California Department of Fish and Game Codes

DFG has regulations to prohibit take of birds, including migratory birds and raptors. DFG Code 3503 states that it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by this code or any regulation made pursuant thereto. DFG Code 3503.5 states that it is unlawful to take, possess, or destroy any birds in the orders Falconiformes or Strigiformes (birds-of-prey) or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by this code.

Local Regulations

The Yuba County General Plan (Yuba County 1996) provides guidance for overall resource conservation in Yuba County and states several conservation goals that aim to protect significant biological resources. Specific habitats identified for special consideration for preservation and protection include the Yuba River, Yuba River watershed, wetlands, and oak riparian woodlands.

Criteria for Determining Significance

The following criteria for determining significance of impacts were taken from Appendix G of the State CEQA Guidelines. The project would result in a significant impact on biological resources if it would:

- 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 DFG or USFWS;
- 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 DFG or USFWS;
- have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the CWA (including, but not limited to, marshes, vernal pools, coastal wetlands, etc.) through direct removal, filling, hydrological interruption, or other means;
- 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;
- conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; or
- conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

Impacts and Mitigation

a. Would the proposed project adversely impact, either directly or though habitat modification, any endangered, rare, or threatened species as listed in Title 14 of the California Code of Regulations (sections 670.2 or 670.5) or in Title 50, Code of Federal Regulations (sections 17.11 or 17.12)?

Impact BIO-1: Impacts on the Valley Elderberry Longhorn Beetle or Its Habitat

Complete avoidance of adult beetles and elderberry shrubs is assumed when a 100-foot buffer is established and maintained around elderberry shrubs that have stems of 1 inch or more in diameter (U.S. Fish and Wildlife Service 1999). Several elderberry shrubs or shrub clusters with at least one stem greater than 1 inch in diameter were identified within 100 feet of the proposed construction areas (Figures 3-1a and 3-1b). Construction activities are expected to occur within 20 feet of the dripline of eight shrubs.

The following sections summarize the potential effects on elderberry shrubs within each project reach.

Reach A

Two elderberry shrubs occur on the waterside of the levee in Reach A. The elderberry shrubs occur downslope of the project construction area and would not be affected by the placement of rock slope protection (RSP). Construction activities would occur within 20 feet of one shrub and within 100 feet of the other shrub. No elderberry shrubs would be removed in Reach A; however, the placement of RSP at this location would occur up to the elderberry shrub dripline.

Reach B

One elderberry shrub occurs on the waterside of the levee near the top of bank on the east side of SR 70. No elderberry shrubs would be removed in Reach B. Although the project action in this reach includes a waterside levee raise, the elderberry shrub on the waterside of the levee would not be affected because it is located adjacent to the existing walkway that passes under SR 70, and fill placement would not occur at that location.
**Reach C**

Two elderberry shrubs occur on the waterside of the levee in Reach C. One shrub is located at the toe of the slope and is within the levee improvement footprint. This shrub could be affected by construction, specifically the placement of fill material required to widen the levee footprint. The other shrub, which is within 100 feet of the temporary construction easement, would not be affected by construction.

**Reach D**

No elderberry shrubs occur within the project footprint in Reach D. One shrub is located within 100 feet of the temporary construction easement. This shrub occurs on the west side of the railroad embankment and would not be affected by construction activities.

**Reach E**

Three elderberry shrubs occur within the temporary construction impact footprint; 2 shrubs occur within 20 feet of the construction footprint, and 9 shrubs occur within 100 feet of construction footprint; however, no elderberry shrubs would be removed in Reach E. Slurry wall construction is expected to occur within 20 feet of the dripline of one shrub (No. 86), but no direct impacts (i.e., removal or pruning) are anticipated. Levee raise construction is expected to occur within 20 feet of the dripline of one shrub (No. E-11), but no direct impacts (i.e., removal or pruning) are anticipated.

Construction activities and vehicle access roads associated with slurry wall construction in Reach E would be restricted to the top of the levee, including the degradation of the existing to a depth of approximately 6 feet. During construction, a minimum 20-foot buffer from the dripline of each shrub would be maintained to the greatest extent possible. For the one elderberry shrub occurring within 20 feet of the levee crown, complete avoidance within the required 20-foot buffer may not be possible. Although vehicle access would potentially occur within 20 feet of these shrubs, and within 100 feet of other shrubs, the impact on valley elderberry longhorn beetle is considered less than significant because:

- the shrub is located on the levee slope, outside the construction footprint;
- there is not anticipated to be direct physical contact;
- minimal root damage is expected to occur because excavation would occur only on the upslope side of the tree and would affect only a small percentage of the root zone; and
- construction would occur at a time when adult beetles are not present (the possible impact of dust would be minimized with the implementation of a dust control plan).
Overall, the impact on valley elderberry longhorn beetle associated with project construction is considered less than significant because of the timing of construction and because no direct impacts would occur on the shrubs. Impacts on valley elderberry longhorn beetle would be minimized through the use of fenced buffer areas, education of contractors and crews about avoiding damage to shrubs, and implementation of measures to control dust.

**Mitigation Measure BIO-1: Perform Preconstruction and Postconstruction Surveys for Elderberry Shrubs.**
To ensure that any additional elderberry shrubs, besides those recorded during the 2004 and 2006 surveys, are identified, a qualified biologist will perform an elderberry shrub survey before implementation of Phase 4 of the proposed project. The biologist will field stake the locations of elderberry shrubs and shrub clusters before construction begins.

Following completion of levee improvement activities, TRLIA will perform a postconstruction evaluation of the elderberry shrubs to determine whether any shrubs were damaged by construction activities. If unanticipated damage occurs to elderberry shrubs, TRLIA will consult with USFWS on appropriate additional mitigation.

All surveys will be performed according the USFWS valley elderberry longhorn beetle compensation guidelines (U.S. Fish and Wildlife Service 1999). During the preconstruction and postconstruction surveys, the following information will be recorded for each shrub or shrub cluster:

- the number of stems greater than 1 inch in diameter,
- the number of stems less than 1 inch in diameter,
- the approximate height and width of the elderberry shrub or shrub cluster;
- the presence of valley elderberry longhorn beetle exit holes, and
- the dominant vegetation that is associated with the elderberry shrub or shrub cluster.

The location of each elderberry shrub will be mapped using GPS, and a site map will be prepared that identifies the location and size of each shrub and shrub cluster. TRLIA will use this site map to determine vehicle and equipment haul routes and work areas.

**Mitigation Measure BIO-2: Implement Minimization and Avoidance Measures for Elderberry Shrubs.**
For Phase 4, TRLIA will implement the following measures to minimize and avoid impacts on elderberry shrubs that provide suitable habitat for valley elderberry longhorn beetle. These measures include:

- Avoid disturbance to valley elderberry longhorn beetle by establishing and maintaining, to the maximum extent feasible, a 20-foot (or wider) buffer around elderberry plants identified as suitable habitat.
Fence and flag all buffer areas and place signs every 50 feet along the edge of the avoidance area. The signs will be clearly readable from a distance of 20 feet and must be maintained for the duration of the construction period. The signs will display the following information: “This area is habitat for the valley elderberry longhorn beetle, a threatened species, and must not be disturbed. This species is protected by the ESA, as amended. Violators are subject to prosecution, fines, and imprisonment.”

Train construction personnel to recognize elderberry plants and determine the presence of valley elderberry longhorn beetle from exit holes on stems. All construction personnel will receive USFWS–approved environmental awareness training before beginning work at construction sites.

TRLIA will consult with USFWS to determine the appropriate avoidance and minimization compensation measures for elderberry shrubs found in the levee improvement areas.

**Mitigation Measure BIO-3: Compensate for Unavoidable Impacts on Elderberry Shrubs.**

If avoidance and minimization of effects on valley elderberry longhorn beetle habitat are not possible, TRLIA will implement the following measures:

- Compensate for the loss and potential take by transplanting the elderberry plants that cannot be avoided to a USFWS–approved conservation area. Transplanting must comply with USFWS–approved transplanting procedure, as defined in the conservation guidelines for valley elderberry longhorn beetle (U.S. Fish and Wildlife Service 1999).

- Elderberry plants, including transplants and mitigation plantings, must be replaced and protected in perpetuity in a conservation area that is approved by USFWS. The level of replacement will range from 1:1 to 8:1, depending on the affected shrub’s location, stem diameter, and the presence or absence of exit holes, as defined in the conservation guidelines for valley elderberry longhorn beetle (U.S. Fish and Wildlife Service 1999). Site-specific mitigation ratios may be determined by USFWS on the basis of overall habitat value and location of habitat within the proposed project area. The elderberry compensation plantings will be incorporated into an on-site mitigation area or an off-site mitigation area, or valley elderberry longhorn beetle mitigation credits may be purchased from a USFWS–approved mitigation bank.

**Impact BIO-2: Impacts on the Breeding and Roosting Habitat for Swainson’s Hawk**

No nest trees would be removed for construction, and work is expected to occur in mid- to late summer at a time when Swainson’s hawk nesting is completed or substantially completed.
In the event nesting or roosting Swainson’s hawks are identified prior to construction, TRLIA would coordinate with the DFG to identify measures to ensure raptors are not adversely affected.

Construction activities would be located adjacent to upland habitat. Noise and visual disturbances associated with operation of equipment and other construction- and maintenance-related activities within up to 0.5 mile of occupied nest sites could adversely affect nesting Swainson’s hawks. Noise and visual disturbances of sufficient magnitude could result in nest abandonment, a reduction in the level of care provided by adults (e.g., duration of brooding, frequency of feeding), or forced fledging. If these situations occur, the likelihood of successful production of young during the year of disturbance could be reduced. The number of nests or young that could be affected would be determined during the preconstruction surveys and active construction-period surveys, as described below.

Nest disturbance would occur only if Swainson’s hawks are nesting at the time the area around the nest is disturbed by these activities. Because Swainson’s hawk nest sites may vary from year to year, the number of nest sites that could be affected by the project may vary annually. Preconstruction surveys would be performed throughout the spring months to determine whether nest sites are located within 0.5 mile of proposed project activities.

The impact on the Swainson’s hawk associated with constructing Phase 4 repairs is considered potentially significant because these activities could result in the disturbance of Swainson’s hawk nests. The project would be designed to minimize impacts to the greatest extent possible. Implementation of the following mitigation measures would reduce the impact to a less-than-significant level.

**Mitigation Measure BIO-4: Perform Preconstruction Surveys for Nesting Swainson’s Hawks Prior to Construction and Maintenance.**

Preconstruction surveys for Swainson’s hawk will be conducted at and adjacent to all locations to be disturbed by implementation of the proposed project to ensure that this species is not nesting in these locations. Surveys will be performed in late spring and summer 2006. Preconstruction surveys will consist of surveying all potential nest sites within 0.5 mile of proposed construction features, staging areas, and haul routes. Surveys will be performed several times during the breeding season to avoid and minimize effects on late-nesting birds. Nest sites will be marked on an aerial photograph, and the position will be recorded using GPS.

**Mitigation Measure BIO-5: Avoid and Minimize Construction-Related Disturbances within 0.5 Mile of Active Swainson’s Hawk Nest Sites.**

To the greatest extent practicable, major construction activities that will occur within 0.5 mile of an active Swainson’s hawk nest will be avoided during the breeding season. If practicable, levee improvements that will result in the greatest disturbance to an active nest site will be deferred until after or as late in the breeding season as possible. If nests are present, TRLIA will provide DFG with the locations of active nest sites identified during the preconstruction
surveys and will coordinate with DFG on appropriate avoidance and minimization measures on a case-by-case basis.

DFG requires that a 0.5-mile buffer be established around all active Swainson’s hawk nests between March 1 and August 15 (California Department of Fish and Game 1994). Potential nest trees outside the proposed construction areas will be retained. No nest trees will be removed by the project.

Because of the relatively narrow width of the project area and the location and dimensions of the proposed work areas and access roads to riparian vegetation that could provide nesting habitat for Swainson’s hawk, a 0.5-mile buffer may not be feasible in all areas. TRLIA will maximize the buffer width around active nest sites on a site-by-site basis and will consult with DFG on the buffer widths before commencing construction activities. If possible, TRLIA will delay construction and maintenance around individual nests until after the young have fledged. TRLIA will immediately cease work and contact DFG if a young bird has prematurely fledged the nest as a result of construction or maintenance activities.

Impact BIO-3: Impacts on the Breeding and Roosting Habitat for White-Tailed Kite and Other Raptors

Impacts on breeding and roosting habitat for the white-tailed kite associated with construction activities would be the same as discussed for Swainson’s hawk. If an active raptor nest is found outside the construction areas, a buffer zone would be created around the nest tree. The recommended buffer, as identified by DFG, is 250 feet (Sections 3503 and 3503.5 of the California Fish and Game Code).

In the event nesting or roosting raptors are identified, TRLIA would coordinate with DFG to identify measures to ensure raptors are not adversely affected. Implementation of the mitigation measures identified above for the Swainson’s hawk would reduce this impact to a less-than-significant level.

Impact BIO-4: Impacts on the Breeding and Roosting Habitat for Migratory Birds

The project area is located in and adjacent to habitat that supports nesting birds protected under the MBTA. The project would be designed to minimize impacts to the greatest extent possible. Implementation of the following mitigation measures would reduce the potential effects on nesting birds.

Mitigation Measure BIO-6: Avoid and Minimize Effects on Migratory Birds.

Protective fencing will be used to protect nesting habitat outside the construction and maintenance areas. TRLIA will perform preconstruction surveys to determine whether nesting birds are present in or immediately adjacent to the proposed project area and associated staging and storage areas.
TRLIA will remove or prune all woody and herbaceous vegetation from the proposed construction areas during the nonbreeding season (September 1 through February 1) to minimize effects on nesting birds, if possible. During the breeding season, all vegetation will be maintained to a height of approximately 6 inches to minimize the potential for nesting. If construction occurs during the breeding season and not all affected vegetation has been removed, a qualified biologist will survey the construction areas for active nests and young migratory birds immediately before construction. If active nests or migratory birds are found within the boundaries of a construction area, TRLIA will develop appropriate measures and will inform DFG of its actions. Inactive migratory bird nests (excluding raptors) located outside the construction areas will be preserved. If an inactive migratory bird nest is located in these areas, it will be removed before the start of the breeding season (approximately February 1).

b. Would the proposed project have a substantial adverse impact 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?

No riparian habitat occurs in the project area; consequently, there would be no impacts on riparian habitat.

c. Would the proposed project have an adverse impact on federally protected wetlands (including, but not limited to, marsh, vernal pools, coastal, etc.) either individually or in combination with the known or probable impacts of other activities through direct removal, filling, hydrological interruption, or other means?

No wetlands occur in the project area. The Yuba River is located on the north side the levee. There is a floodplain surface of varying width between the river and the toe of the levee. Staging and temporary construction easements on the waterside of the levee are not within the ordinary high-water mark of the Yuba River and do not occur within wetlands, and other waters of the United States would not be affected by the project.

d. Would the proposed project interfere substantially with the movement of any resident or migratory fish of wildlife species or with established resident or migratory wildlife corridors, or impede the use of wildlife nursery sites?

Although special-status fish species are found in the Yuba River, adjacent to the project area, these species would not likely be affected by the project because of the wide floodplain between the toe of the levee and the river. Because of the location of the project, no effect on resident or migratory wildlife corridors or wildlife nursery sites would occur. Construction activities could temporarily impede wildlife movement; however, the completed project would not obstruct the movement of any wildlife.

e. Would the proposed project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?
The project would not conflict with any local policies or ordinances protecting biological resources.

\textit{f. Would the proposed project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Communities Conservation Plan, or other approved local, regional, or state habitat conservation plan?}

The project would not conflict with the provisions of a Habitat Conservation Plan (HCP), Natural Communities Conservation Plan (NCCP), or other conservation plan.

## Cultural Resources

<table>
<thead>
<tr>
<th>V. CULTURAL RESOURCES. Would the project:</th>
<th>Potentially Significant Impact</th>
<th>Less-than-Significant with Mitigation Incorporated</th>
<th>Less-than-Significant Impact</th>
<th>No Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5?</td>
<td>☐</td>
<td>☐</td>
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<tr>
<td>b. Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?</td>
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<tr>
<td>c. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?</td>
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<tr>
<td>d. Disturb any human remains, including those interred outside of formal cemeteries?</td>
<td>☐</td>
<td>☐</td>
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</tr>
</tbody>
</table>

## Introduction and Methods

### Cultural Setting

#### Prehistoric Context

This section provides a brief overview of the changing adaptive strategies used by prehistoric inhabitants of the Central Valley and the archaeological evidence of these strategies. A more comprehensive discussion of the prehistory of this
area is presented in the confidential cultural resources inventory and evaluation report prepared for an earlier levee improvement project (Jones & Stokes 2004a).

There is little archaeological evidence that humans used the Central Valley during the late Pleistocene and early Holocene (12,000 to 6000 B.C.). The most likely explanation for the lack of evidence is a deficiency in the archaeological record rather than an absence of human use; most Pleistocene- and Holocene-era sites are deeply buried in accumulated gravels and silts or have eroded away.

The earliest archaeological evidence of human use of the Central Valley dates to approximately 3000 B.C., in the Early Horizon period (from 6000 to 2000 B.C.). During this period, a generalized subsistence strategy is thought to have been replaced by a more specialized strategy. This intensification is exhibited in what Fredrickson (1973) has identified as the Windmiller Pattern. Artifact assemblages and faunal remains at Windmiller sites indicate that a diverse range of resources was exploited, including seeds, small game, and fish.

The Middle Horizon period dates from approximately 2000 B.C. to A.D. 500. Sites from this period have also been found in the Central Valley. Theadaptive pattern most frequently apparent during this period is called the Berkeley Pattern (Fredrickson 1973), although sites displaying Windmiller Pattern assemblages have also been dated to the Middle Horizon. The Berkeley Pattern differs from the Windmiller Pattern primarily in an increased emphasis on the exploitation of acorns as a staple. In the archaeological record, acorn exploitation is evidenced by more numerous and varied mortars and pestles. The Berkeley Pattern also is noted for its especially well-developed bone-tool industry and such technological innovations as ribbon flaking of chipped stone artifacts. During the Middle Horizon period, flexed burials replaced extended burials, and the use of grave goods generally declined (Moratto 1984).

The period between A.D. 500 and the arrival of the Spanish in central California has been named the Late Horizon. The predominant pattern during this period is called the Augustine Pattern (Fredrickson 1973). This pattern is characterized by large village sites, increased acorn and nut processing, the introduction and use of bows and arrows, and the use of clamshell disc beads as the primary medium of exchange. During the last part of the Late Horizon period, cremation became a common mortuary practice.

**Ethnographic Context**

The project area was inhabited ethnographically by the Nisenan, or Southern Maidu, during the period recorded ethnographically by early Euro-American arrivals. Nisenan territory comprised the drainages of the Yuba, Bear, and American Rivers, as well as the lower drainages of the Feather River. The Nisenan, together with the Maidu and Konkow, their northern neighbors, form the Maiduan language family of the Penutian linguistic stock (Shipley 1978).
Nisenan settlement locations were based primarily on elevation, exposure, and proximity to water and other resources. Permanent villages were usually located on low rises along major watercourses. Villages ranged in size from three houses to up to 40 or 50. Houses were domed structures covered with earth and tule or grass and measured 10 to 15 feet in diameter. Brush shelters were used in the summer and at temporary camps during food-gathering rounds. Larger villages often had semisubterranean dance houses, which were covered in earth and tule or brush and had a central smokehole at the top and an east-facing entrance. Another common village structure was a granary, used for storing acorns. (Wilson and Towne 1978.)

The Nisenan occupied permanent settlements from which specific task groups set out to harvest the Central Valley’s seasonal bounty of flora and fauna. The Valley Nisenan economy involved riverine resources, in contrast to the Hill Nisenan, whose resource base consisted primarily of acorns and game. The only domestic plant was native tobacco, but many wild species were closely husbanded. The acorn crop from the blue oaks and black oaks was so carefully managed that it served as the equivalent of agriculture and could be stored against winter shortfalls in resources. Deer, rabbit, and salmon were the chief sources of animal protein in the aboriginal diet, but many other insect and animal species were taken when available.

**Historical Context**

Europeans first explored the area that is now Yuba County in 1808, when Spanish explorer Gabriel Moraga led an expedition from Mission San Jose to the northern Sacramento Valley (Gordon 1988; Hoover et al. 1990). The earliest Euro-American settlement in present-day Yuba County was made possible by the land grants being established by the Mexican government. John A. Sutter obtained the first such grant, the New Helvetia Rancho, in 1841. The project area is located within this land grant.

Originally known as Nye’s Ranch, Marysville was incorporated in 1851. It became the head of navigation on the Feather River and the point of debarkation for riverboats from San Francisco and Sacramento filled with miners on their way to northern mines (Historical Commission 1976; Laney n.d.; Napoli 1998). The town prospered during the gold rush era, becoming one of the largest cities in California.

During the remainder of the 19th century, as gold production declined, Marysville’s economic base shifted to agriculture. As was true in most regions of the state, wheat became the most profitable and therefore most popular crop during the 1860s and 1870s. The arrival of the Southern Pacific Railroad in the mid-1860s diverted traffic from the river and made transportation of goods to market easier and more reliable. The Western Pacific Railroad constructed tracks along the western side of Marysville in 1910 and took over maintenance of the Feather River levee (Historical Commission 1976; Laney n.d.; Napoli 1998).
Flooding, always a problem in the area, became a central issue when hydraulic mining raised the riverbeds of the Feather and Yuba Rivers, adding to the problem. Initial flood control efforts were usually uncoordinated, consisting of the construction of small levees and drains by individual landowners. These measures proved insufficient to protect the town and surrounding cultivated land.

In 1908, residents of Yuba County had formed RD 784, which includes land in the proposed project area. The district was formed partially in response to the flood of 1907. RD 784 built substantial levee and drainage systems to restrain floodwaters from the Bear and Feather Rivers and incorporated levees built by the Farm Land Investment Company and other landowners. In 1911, the newly established State Reclamation Board took jurisdiction over RDs, including RD 784. That year, with approval from the state, the Sacramento Flood Control Plan was implemented. The plan proposed an ambitious program of construction of levees, weirs, and bypasses along the river. In 1920, RD 784 voters approved a plan to improve levees along the Yuba, Bear, and Feather Rivers among other improvements. The levee along the Yuba River was constructed at this time (JRP Historical Consulting Services 1994).

**Regulatory Setting**

CEQA requires that public agencies that finance or approve public or private projects assess the impacts of the project on cultural resources. Cultural resources are defined as buildings, sites, structures, objects, or districts, each of which may have historical, architectural, archaeological, cultural, or scientific significance. Cultural resources that possess significance in one of these areas are termed *historical resources* for the purposes of CEQA. If a project results in an effect that may cause a substantial adverse change in the significance of a historical resource, CEQA requires that alternative plans or mitigation measures be considered. Therefore, before developing mitigation measures, the significance of cultural resources must be determined. The steps normally taken in a cultural resources investigation for CEQA compliance are:

- identify cultural resources,
- evaluate the significance of resources,
- evaluate the effects of a project on all resources, and
- develop and implement measures to mitigate the effects of the project only on significant cultural resources or historical resources.

The State CEQA Guidelines define a historical resource as one that is listed or eligible for listing on the California Register of Historical Resources (CRHR) (Public Resources Code [PRC] 5024.1). A historical resource may be eligible for inclusion in the CRHR if it:

- is associated with events that have made a significant contribution to the broad patterns of California’s history and cultural heritage;
is associated with the lives of persons important in our past;

- emblems 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

- has yielded, or may be likely to yield, information important in prehistory or history.

In addition, CEQA distinguishes between two classes of archaeological resource: archaeological sites that meet the definition of a historical resource as above and “unique archaeological resources.” An archaeological resource is considered unique if it:

- is associated with an event or person of recognized significance in California or American history or of recognized scientific importance in prehistory;

- can provide information that is of demonstrable public interest and is useful in addressing scientifically consequential and reasonable research questions;

- has a special or particular quality such as oldest, best example, largest, or last surviving example of its kind;

- is at least 100 years old and possesses substantial stratigraphic integrity; or

- involves important research questions that historical research has shown can be answered only with archaeological methods (PRC 21083.2).

The State CEQA Guidelines (14 California Code of Regulations [CCR] 15064.5[c]) state that the lead agency must treat an archaeological resource that meets the definition of a historical resource according to the provisions of PRC 21084.1, 14 CCR 15064.5, and 14 CCR 15126.4. If an archaeological resource does not meet the definition of a historical resource, but does meet the definition of a unique archaeological resource, the lead agency is obligated to treat the resource according to the provisions of PRC 21083.2 (14 CCR 15064.5[c][3]).

According to CEQA, a project may have a significant impact on the environment if it could cause a substantial adverse change in the significance of historical resources (14 CCR 15064.5[b]). CEQA further states that a substantial adverse change in the significance of historical resources means the physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of the historical resource would be materially impaired. Actions that would materially impair the significance of historical resources are any actions that would demolish or significantly alter the physical characteristics of historical resources that convey their historical significance and qualify it for inclusion in the CRHR or in a local register that meet the requirements of PRC 5020.01(k) and 5024.1(g).
Methods and Results

Efforts to locate cultural resources within the project area consisted of consulting the earlier records search, contacting the Native American Heritage Commission (NAHC) and Native American representatives, and conducting a reconnaissance survey of the project area. Five cultural resource sites were located within or immediately adjacent to the project area: the levee, the former WPPR, UPPR, and an abandoned spur of the UPPR, and a concentration of concrete blocks that may be historic.

Records Search

On April 20, 2006, a records search was conducted at the North Central Information Center of the California Historical Resources Information System at California State University, Sacramento. The records search supplemented the records search conducted for the previous and adjacent levee improvement project. It covered the project area and a 0.5-mile radius around the project area. It consulted the state’s database of previously studies and recorded cultural resources sites, as well as pertinent historical inventories and historic maps.

The records search indicated that three previous studies had been conducted within or immediately adjacent to the project area (Bouey 1990; Gilreath et al. 1990; Offerman 2001). These studies resulted in the pedestrian survey of approximately 15% of the project area. Another nine studies have been conducted within a ½-mile radius of the project area (Caltrans 1993; Jackson 1977; Peak & Associates, Inc. 1998, 2002; Pacific Legacy 1997; Pritchard 1967; Storm n.d.; U.S. Army Corps of Engineers 1976; William Self Associates 2000). The records search also indicated that no known cultural resources are located within the project area, and three cultural resources are located within a ½-mile radius of the project area. These resources consist of:

- a bridge that was constructed in 1935 and is listed on the Caltrans Bridge Inventory as not eligible for listing in the National Register of Historic Places (Caltrans 1980);
- an abandoned railroad spur recorded in 1988 (Peak & Associates 1988), and;
- CA-YUB-164 (the Lindhurst Site) a prehistoric occupation site discovered during road construction in 1966 and the subject of a salvage archaeology project in 1967 (Pritchard 1967).

Native American Contacts

On May 5, 2006, Jones & Stokes cultural resources staff contacted the NAHC and requested that it consult its sacred lands database and provide a list of potentially interested Native American representatives for the project area. On the same day, Jones & Stokes sent contact letters to the six Native American
representatives who had been contacted for the 2004 study immediately adjacent to the current project. The contact letters briefly described the project and included a map showing the project area.

**Pedestrian Survey**

On April 23, 2006, a Jones & Stokes archaeologists conducted a pedestrian survey along the northern base of the levee within the project area. Visibility was poor because of high grasses. Areas of better visibility were examined more closely. The area surveyed extended approximately 5 meters north of the levee base.

**Cultural Resources within the Project Area**

No cultural resources were located as a result of the pedestrian inventory. Three cultural resources have been previously recorded within the project area: the UPPR, an abandoned spur of the UPPR, and the levee. These resources are evaluated as a result of previous studies, and none are historic resources for the purposes of CEQA (JRP Historical Consulting Services 1994; Jones & Stokes 2004). Therefore, the project would not affect any historical resources.

**Paleontological Resources**

According to the Geologic Map of California, Chico sheet (Saucedo and Wagner 1992), the project area is underlain by Holocene Epoch (i.e., less than approximately 10,000 years before present) natural levee and channel deposits. This geologic unit occurs in active stream channels and their natural levees as well as broad alluvial fans.

Borings advanced by Kleinfelder (2004) indicate that the sediments beneath the levee crown consist of alternating layers of sand, silt, clay, and gravels to the depth explored (i.e., 121.5 feet). It is unknown whether the natural levee and channel deposits geologic unit extends to the depth explored by Kleinfelder or whether a different formation exists within the depth that the slurry wall would penetrate. A geologic cross section passing through Live Oak (approximately 10 miles north of the project area) shows the Sutter Formation (volcaniclastic sediments) underlying the Quaternary alluvial sediments at a depth of approximately 250 feet. This formation may or may not exist beneath the natural levee and channel deposits.

No paleontological resource evaluation has been conducted for this project. However, significant paleontological resources, if present beneath the project area, are expected to be sparsely distributed, given the nature of the depositional environment of the sediments.
Impacts and Mitigation

a. Would the proposed project cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5?

Two historical resources are located within the project area, the former Western and Upper Pacific Railroads. Both are functioning railroads that are eligible for listing in the CRHR because of their association with the theme of transportation in the west. However, repairs to the levee would not result in impacts on the railroads. Because there would be no impacts that would adversely change the significance of these historical resources, no mitigation is necessary.

b. Would the proposed project cause a substantial adverse change in the significance of a unique archaeological resource pursuant to Section 15064.5?

Impact CR-1: Potential Adverse Impacts on Undiscovered Historical or Archaeological Resources within the Project Area

The project area has been adequately surveyed for the purposes of identifying surface archaeological sites. Though cultural resources were located within the project area, no cultural resources that are considered historic resources for the purposes of CEQA would be affected.

Because surveys examine only the surface of the ground, unidentified buried cultural resources may be present in the project area. The project area is likely to be sensitive for prehistoric resources based on its location near a permanent water source and its proximity to known prehistoric sites. Sites in this area are likely to be buried because of their location in a floodplain. Significant buried cultural resources, if present, could be adversely affected by construction activities, including grading and excavation. As indicated in the Environmental Commitments section of Chapter 2, in the event that cultural resources are unearthed, work would stop within 100 feet of the find until its significance has been evaluated and necessary steps have been taken to mitigate any potential impact.

c. Would the proposed project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

Impact CR-2: Potential Disturbance to Paleontological Resources

As described above, any paleontological resources are expected to be sparsely distributed beneath the project area. In light of this condition, and the fact the project would disturb only a relatively narrow “slice” of sediments, the likelihood of the project disturbing a paleontological resource, particularly one that is
considered significant under CEQA, is low. Excavation of the sediments and any significant fossils could destroy or degrade the fossils’ condition; additionally, the nature of project excavation would cause any fossils to be removed from their stratigraphic context, thereby reducing the scientific usefulness of the fossil. Environmental Commitments as described in Chapter 2 would require that project construction be suspended at any location at which fossils or materials that resemble fossils are excavated. In this event, TRLIA would retain a qualified paleontologist to inspect the materials and determine whether they are considered significant under CEQA. Therefore, this impact is less than significant.

d. Would the project disturb any human remains, including those interred outside of formal cemeteries?

Impact CR-3: Potential Disturbance of Human Remains

The project has a low potential to disturb human remains, including those located outside of formal cemeteries because the project area is below the average water level of the river. As indicated in the Environmental Commitments section of Chapter 2, in the event that human remains are unearthed during construction, construction in the area of the discovery would be stopped and the county coroner would be consulted. If the bones appear to be of Native American origin, a qualified archaeologist and the appropriate Native American group or individual would be consulted. This impact is less than significant because this Environmental Commitment is in place, and no mitigation is required.
# Geology and Soils

<table>
<thead>
<tr>
<th>VI. GEOLOGY AND SOILS. Would the project:</th>
<th>Potentially Significant Impact</th>
<th>Less-than-Significant Impact with Mitigation Incorporated</th>
<th>Less-than-Significant Impact</th>
<th>No Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:</td>
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<tr>
<td>1. 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.</td>
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<td>2. Strong seismic groundshaking?</td>
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<td>3. Seismic-related ground failure, including liquefaction?</td>
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<tr>
<td>4. Landslides?</td>
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<tr>
<td>b. Result in substantial soil erosion or the loss of topsoil?</td>
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<tr>
<td>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 an onsite or offsite landslide, lateral spreading, subsidence, liquefaction, or collapse?</td>
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<tr>
<td>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?</td>
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<tr>
<td>e. Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems in areas where sewers are not available for the disposal of wastewater?</td>
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</tbody>
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# Introduction and Methods

This section provides:

- a general description of geologic, soil, and seismic conditions in the project area;
- A description of relevant government regulations that pertain to geologic, soil, and seismic-related hazards; and

- An assessment of potential geologic-, soil-, and seismic-related impacts associated with project construction and operation.

All physical and regulatory setting information presented in this chapter, as well as the subsequent impact analysis, is based on best available information and the professional judgment of earth scientists from Jones & Stokes.

**Physical Setting**

The old levee was originally a country road called Morrison Grade that was incorporated into the Sacramento River Flood Control Project in the early 1900s. Morrison Grade was transformed into a levee on a foundation made up of uncompacted hydraulic mining debris and layers of sand. A 30-foot slurry cutoff wall and landside seepage berm were built in 2004 and 2006 along Reaches B through D as part of the Yuba River Levee Repair Project Phase II.

**Geology and Soils**

The proposed project is located on the left bank levee of the Yuba River upstream of the confluence of the Yuba and Feather Rivers, at a point downstream of the former WPPR to a point upstream of Simpson Lane. The 2004 and 2006 Kleinfelder Problem Identification Report found that the levee fill material along the project consisted generally of alternating layers of sand, silty sand, silt, and sandy silt. These underlie the foundation soils, which were underlain by thick layers of gravel. The Yuba River Levee Repair Project Phase II addressed these through-seepage and under-seepage issues along Reaches B through D.

Beyond the toe of the levee, the surface soils (i.e., to a depth of approximately 5 feet) may be divided into two broad groups: those formed from recent alluvium and those derived from old alluvial fans or terraces (Kleinfelder 2004). These soils generally consist of silty, fine- to coarse-grained sands, sandy silts, and sandy gravels. Most of the soils on the valley floor are shallow to moderately deep, sloping, well-drained soils with very slowly permeable subsoils underlain by hardpan. These soils have good natural drainage, slow subsoil permeability, and slow runoff rates (Lytle 1988). Data from three groundwater monitoring wells located within 1.6 miles of the subject levee indicate groundwater elevations varied between approximately 2 and 64 feet between the years of 1963 and 2004. The groundwater and soil moisture conditions within the area vary, depending on Yuba River stage, rainfall, irrigation practices, and/or runoff conditions (Kleinfelder 2004).
Erosion Hazard

The erosion hazard on the level and nearly level terrain that exists on the landside of the levee reaches is slight (Lytle 1998). The hazard of erosion on the steeper levee banks is greater. Erosion hazard on the waterside of the levee varies but is not a subject of this report because it would not be affected by the project.

Subsidence

Subsidence is the gradual lowering of the earth surface resulting from fluid withdrawal, oxidation of organic soils, and compaction by heavy structures. The hazard of subsidence at the project area is inferred to be low based on the absence of organic soils and lack of structures.

Landslides and Levee Stability

There are no existing landslide hazards on the level and nearly level terrain on the landside of the subject levee. The stability of the levee in Reach E is poor (Kleinfelder 2006), and this stretch of levee is at high risk of failure as a result of seepage.

Seismicity

Fault Rupture and Ground Shaking

The Alquist-Priolo Earthquake Fault Zoning Act (Alquist-Priolo Act), which was signed into law by the California legislature in 1972, requires the state geologist to delineate all active fault traces in the state and delineate appropriately wide Earthquake Fault Zones around these fault traces. The purpose of this and other requirements of the Alquist-Priolo Act are to prevent the construction of habitable structures near active faults without first conducting detailed fault-rupture hazard investigations (Hart and Bryant 1997).

For the purpose of fault zonation under the Alquist-Priolo Act, the California Geological Survey 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.

There are no active faults, potentially active faults, or Alquist-Priolo Earthquake Fault Zones in the vicinity of the project area (Kleinfelder 2003; Jennings 1994). The closest active fault is the Dunnigan Hills Fault, which is located approximately 20 miles west of the project area. Accordingly, the project area is not likely to be affected by surface fault rupture but could be subject to ground shaking from this and other regional faults.
Liquefaction

Liquefaction is a process in 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 (California Division of Mines and Geology 1997).

According to the Geologic Map of California, Chico sheet (Saucedo and Wagner 1992), the project area is underlain by natural levee and channel deposits. Borings advanced by Kleinfelder (2004) indicate that the sediments beneath the levee crown consist of alternating layers of sand, silt, clay, and gravels to the depth explored (121.5 feet).

According to California Geological Survey geologic hazard mapping (California Geological Survey 2004), 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 CWA establishes a framework for regulating municipal and industrial stormwater discharges under the NPDES program. The EPA has delegated to the State Water Resources Control Board (SWRCB) is responsible for administering the NPDES program in California, where it is implemented by the state’s nine RWQCBs. Under the NPDES Phase II Rule, any construction activity disturbing 1 acre or more must obtain coverage under the General Permit. General Permit applicants are required to prepare both a notice of intent to obtain coverage under the General Permit and a SWPPP. The SWPPP describes the BMPs that would be implemented to avoid adverse effects on receiving water quality as a result of construction activities, including earthwork.

Yuba County Grading Ordinance

Proponents of projects in Yuba County that involve excavations (cuts) more than 2 feet deep or fills more than 1 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.

Impacts and Mitigation Measures

a(i). Would the proposed Project expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving rupture of a known earthquake fault?

There are no known faults located in the immediate vicinity of the project area. Therefore, there would be no impact.

a(ii). Would the proposed project expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving strong seismic ground shaking?

The seismic ground-shaking hazard in the project area is low to moderate (California Geologic Survey 2004), and there would be no structures. Therefore, there would be no impact.

a(iii). Would the proposed project expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving seismic-related ground failure, including liquefaction?

The soils and sediments at the project area are potentially susceptible to liquefaction because of their composition of silts and sands and the potential presence of groundwater within 50 feet of the surface. However, the proposed levee repairs would neither increase nor decrease this existing hazard because there is no risk of loss, injury, or death. Therefore, there would be no impact.

a(iv). Would the proposed project expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving landslides?

The current risk of landslide on the level and nearly level landside and crown of the existing levee is low. The proposed project would not increase or decrease this existing risk. Therefore, there would be no impact.

b. Would the proposed project result in substantial soil erosion or the loss of topsoil?
Impact GEO-1: Accelerated Erosion and Sedimentation

Ground disturbance caused by project construction activities has the potential to increase erosion and sedimentation rates above preconstruction levels. However, TRLIA 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. The specific BMPs that would be incorporated into the SWPPP would be determined during the final design phase of the selected alternative and would be prepared in accordance with the RWQCB field manual. However, the plan would likely include, but not be limited to, one or more of the following standard erosion and sediment control BMPs:

- **Timing of construction.** The construction contractor would conduct all construction activities during the dry season to avoid ground disturbance during the rainy season.

- **Staging of construction equipment and materials.** All construction-related equipment and materials would be staged on the landside of the subject levee reaches. To the extent possible, equipment and materials would be staged in areas that have already been disturbed.

- **Minimize soil and vegetation disturbance.** The construction contractor would minimize ground disturbance and the disturbance/destruction of existing vegetation. This would be accomplished in part through the establishment of designated equipment staging areas, ingress and egress corridors, and equipment exclusion zones prior to the commencement of any grading operations.

- **Stabilize grading spoils.** Grading spoils generated during construction would be temporarily stockpiled in staging areas located away from the Yuba River. Silt fences, fiber rolls, or similar devices would be installed around the base of the temporary stockpiles to intercept runoff and sediment during storm events. If necessary, temporary stockpiles may be covered with an appropriate geotextile to increase protection from wind and water erosion.

- **Install sediment barriers.** The project proponent may install silt fences, fiber rolls, or similar devices to prevent sediment-laden runoff from leaving the construction area.

- **Stormwater drain inlet protection.** The project proponent may install silt fences, drop inlet sediment traps, sandbag barriers, and/or other similar devices.

- **Permanent site stabilization.** The construction contractor would install structural and vegetative methods to permanently stabilize all graded or otherwise disturbed areas once construction is complete. Structural methods
may include the installation of biodegradable fiber rolls and erosion control blankets. Vegetative methods may involve the application of organic mulch and tackifier and/or the application of an erosion control seed mix. Implementation of a SWPPP would substantially minimize the potential for project-related erosion and associated adverse effects on water quality. Because all project-related grading would occur on the subject levee reaches, the project also would not result in the loss of topsoil resources.

Therefore, this impact is considered less than significant.

c. Would the proposed project 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?

Impact GEO-2: Increased Levee Stability

There are no existing hazards on the level terrain surrounding the subject levee. The proposed project would improve the stability of the levee by further reducing seepage and the potential for seepage-related failures. Therefore, this impact would be beneficial.

d. Would the proposed project 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?

The proposed project would not involve the construction or placement of structures on expansive soils. Therefore, there would be no impact.

e. Would the proposed project 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 wastewater?

The project would not generate wastewater. Therefore, there would be no impact.
### VII. HAZARDS AND HAZARDOUS MATERIALS

Would the project:

<table>
<thead>
<tr>
<th></th>
<th>Potentially Significant Impact</th>
<th>Less-than-Significant with Mitigation Incorporated</th>
<th>Less-than-Significant Impact</th>
<th>No Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>a.</td>
<td>Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?</td>
<td>❑</td>
<td>❑</td>
<td>❚</td>
</tr>
<tr>
<td>b.</td>
<td>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?</td>
<td>❑</td>
<td>❑</td>
<td>❚</td>
</tr>
<tr>
<td>c.</td>
<td>Emit hazardous emissions or involve handling hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?</td>
<td>❑</td>
<td>❑</td>
<td>❑</td>
</tr>
<tr>
<td>d.</td>
<td>Be located on a site that 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?</td>
<td>❑</td>
<td>❑</td>
<td>❑</td>
</tr>
<tr>
<td>e.</td>
<td>Be located within an airport land use plan area or, where such a plan has not been adopted, be within two miles of a public airport or public use airport, and result in a safety hazard for people residing or working in the project area?</td>
<td>❑</td>
<td>❑</td>
<td>❑</td>
</tr>
<tr>
<td>f.</td>
<td>Be located within the vicinity of a private airstrip and result in a safety hazard for people residing or working in the project area?</td>
<td>❑</td>
<td>❑</td>
<td>❑</td>
</tr>
<tr>
<td>g.</td>
<td>Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?</td>
<td>❑</td>
<td>❑</td>
<td>❑</td>
</tr>
<tr>
<td>h.</td>
<td>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?</td>
<td>❑</td>
<td>❚</td>
<td>❑</td>
</tr>
</tbody>
</table>
Physical Setting

A substantial portion of the land surrounding the project area was used for agricultural production and therefore lacks intensive development. It is likely that these areas have been regularly exposed to pesticides, herbicides, and other chemicals used in typical agricultural production. There are two areas within the project area that may or do contain hazardous materials. From Station 40+00 to Station 50+00, a pile of wood chips with soils containing low levels of arsenic occurs within the levee (Kleinfelder 2006). The cement processing plant has the potential to have hazardous materials. Boring and soils analysis are currently under way.

Regulatory Setting

The analysis of significance of impacts related to hazards and hazardous materials is based on criteria VII, a–h in the environmental checklist above, and on the following factors:

- potential hazards and/or hazardous materials encountered during trenching or any subsurface excavation and
- proper disposal of hazardous materials encountered during trenching or any subsurface excavation.

Impacts and Mitigation Measures

a. Would the proposed project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials, or

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?

Impact HAZ-1: Possible Temporary Exposure to or Release of Hazardous Materials during Construction

Small volumes of hazardous materials (fuel, engine oil, and hydraulic line oil) would be temporarily used and handled to operate the construction equipment. Refueling of most equipment (except for the cranes and trench excavators) would be limited to the designated staging area. There is a danger that these materials may be released in accidental spills and result in harm to the people or the environment. Implementation of a SWPPP, as described under Impact GEO-1,
would ensure that the risk of accidental spills and releases into the environment would be minimal and that this impact would be less than significant.

In addition, given the fact that the soil beneath the wood chip area contains low levels of arsenic and the soils within the cement processing plant have the potential to contain hazardous materials, disturbance of these areas may result in a significant impact. All construction within the wood chip area would occur on top of the levee and would not require excavation, and seepage berm construction in the cement processing plant would not require excavation. Because these potentially hazardous areas would not be disturbed, the impact would be less than significant. No mitigation is required.

c.  *Would the proposed project emit hazardous emissions or involve handling hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?*

No schools exist within 0.25 mile of the proposed project area. There would be no impact.

d.  *Would the proposed project be located on a site that 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?*

The proposed project is not located on a site included on any list of hazardous material sites. There would be no impact.

e.  *Would the proposed project be located within an airport land use plan area or, where such a plan has not been adopted, be within two miles of a public airport or public use airport, and result in a safety hazard for people residing or working in the project area?*

The proposed project is located more than 3 miles from the Yuba County Airport and would not affect any airport land use plans. There would be no impact.

f.  *Would the proposed project be located within the vicinity of a private airstrip and result in a safety hazard for people residing or working in the project area?*

There are no known private airstrips located within the vicinity of the project area. The proposed project would have no impact on use or safety of private airstrips, nor would the use of such airstrips result in increased hazards to people working in the project area. There would be no impact.

g.  *Would the proposed project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?*
Construction-related activities for the proposed project would occur along the waterside, landside, and crown of the existing levee. Because the project area is not highly populated, emergency response and evacuation plans are not expected to be affected by the proposed project during or upon completion of construction. There would be no impact.

h. Would the proposed project 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?

Impact HAZ-2: Exposure of People or Structures to a Significant Risk Involving Wildland Fires

Project construction activities include the use of mechanized construction equipment on the landside of the levee. Flammable fuels used in these mechanized tools, in conjunction with potential sparks from this construction equipment, present a potentially significant risk of wildland fire. Given the project’s proximity to the mobile home park, the residential area, and the Caltrans storage yard, this impact is significant. Mitigation measures HAZ-1 and HAZ-2 would reduce the impact to a less-than-significant level.


If dry vegetation, or other fire fuels, exists on or near staging areas or any other area on which equipment will be operated, contractors shall clear the immediate area of fire fuel. To maintain a firebreak and minimize the availability of fire fuels, TRLIA shall require contractors to maintain areas subject to construction activities clear of combustible natural materials to the extent feasible.

Mitigation Measure HAZ-2: Require That Spark-Generating Construction Equipment Be Equipped with Manufacturers’ Recommended Spark Arresters.

TRLIA shall require contractors to equip any construction equipment that normally includes a spark arrester with an arrester in good working order. Implementation of this measure will minimize a source of construction-related fire.
## Hydrology and Water Quality

<table>
<thead>
<tr>
<th>VIII. HYDROLOGY AND WATER QUALITY. Would the project:</th>
<th>Potentially Significant Impact</th>
<th>Less-than-Significant Impact with Mitigation Incorporated</th>
<th>Less-than-Significant Impact</th>
<th>No Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Violate any water quality standards or waste discharge requirements?</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>b. Substantially deplete groundwater supplies or interfere substantially with groundwater recharge, resulting in 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)?</td>
<td>☐</td>
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<tr>
<td>c. Substantially alter existing drainage pattern of site or area, including through alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation onsite or offsite?</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>d. Substantially alter the existing drainage pattern of the site or area, including through 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 onsite or offsite?</td>
<td>☐</td>
<td>☐</td>
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<td>☐</td>
</tr>
<tr>
<td>e. Create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?</td>
<td>☐</td>
<td>☐</td>
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</tr>
<tr>
<td>f. Otherwise substantially degrade water quality?</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>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?</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
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</tr>
<tr>
<td>h. Place within a 100-year flood hazard area structures that would impede or redirect floodflows?</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>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?</td>
<td>☐</td>
<td>☐</td>
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</tr>
</tbody>
</table>
Introduction and Methods

This chapter provides (1) a general description of local hydrology and water quality in the project area, (2) a general description of relevant government regulations that pertain to surface and groundwater hydrology and water quality, and (3) an assessment of potential hydrologic and water quality impacts associated with the construction and operation of the proposed project. All physical and regulatory setting information presented in this chapter, as well as the subsequent impact analysis, is based on best available information and the professional judgment of hydrologists and earth scientists from Jones & Stokes.

Physical Setting

Local Surface Water Hydrology

The Yuba River is the only waterway in the project vicinity. The river drains the western slope of the Sierra Nevada and flows generally southwesterly to its confluence with the Feather River. The mainstem of the Yuba River forms at the confluence of the North, Middle, and South forks just south of the New Bullards Bar Reservoir. Major tributaries to the Yuba include Slate, Canyon, Goodyears, Haypress, Fordyce, Texas, Fall, Oregon, Kanaka, East Fork, and Poorman Creeks and Downie River. During the summer, the water in the Yuba near the project site is confined to the low-flow channel, approximately 300 feet from the south levee (EDAW[2003).

Water Quality

The Yuba River is not included on the 2002 CWA 303(d) list, which indicates that it is not an impaired water for any of its beneficial uses, including those uses related to fish, recreation, and irrigation. Water quality data are collected at a station near Smartville and a station near Marysville. According to a report by USGS, the Yuba River ranked as one of the least degraded rivers in the nation (USGS 2003).

Regulatory Setting

Hydrology—Flood Safety

Flood hazard areas are mapped by FEMA on Flood Insurance Rate Maps. These maps are designed for flood insurance purposes only and do not necessarily show
all areas subject to flooding. The maps designate lands likely to be inundated during a 100-year storm event and elevations of the base flood. They also depict areas between the limits affected by 100-year and 500-year events and areas of minimal flooding. These maps are often used to establish building pad elevations to protect new development from flooding effects.

The California Reclamation Board regulates the construction of levees and berms in the Central Valley. Rules promulgated in Title 23 of the California Code of Regulations (CCR Title 23, Division 1, Article 8 [Section 111 through 137]) regulate the modification and construction of levees to ensure public safety. The rules state that existing levees may not be excavated or left partially excavated during the flood season, which is generally November 1 through April 15 for the Yuba River.

### Water Quality

Potential water quality impacts associated with general construction activity are regulated at the local, state, and federal level by the City of Marysville and SWRCB.

### Federal

Potential water quality impacts associated with general construction activity are regulated at federal level through the NPDES general construction activity permit, described in the Geology and Soils section.

### State

The SWRCB is the primary state agency responsible for protecting the quality of the state’s surface water and groundwater supplies. Under authority of the Porter-Cologne Water Quality Control Act, the SWRCB sets water quality policies and standards, documents these policies and standards in official water quality control plans (e.g., Sacramento River Basin Plan), and enforces them through various state and federal programs. Potential water quality impacts associated with general construction activity are typically regulated at the state level by RWQCBs through the NPDES general construction activity permit, described in the Geology and Soils section.

### Local

Potential water quality impacts associated with general construction activity are regulated at the local level through the Yuba County Grading Ordinance, described in the Geology and Soils section.
Impacts and Mitigation

a. Would the proposed project violate any water quality standards or waste discharge requirements?

Impact WQ-1: Accelerated Erosion and Sedimentation

Construction activities on the waterside and crown of the existing levee have the potential to affect water quality in the Yuba River and receiving waters. Ground-disturbing activities could result in a slight increase in the potential for erosion and sedimentation near the Yuba River. However, as discussed in Impact GEO-1, the construction contractor would prepare and implement a SWPPP to control stormwater runoff, erosion, sedimentation, and other construction-related pollutants during excavation and until construction is complete and all disturbed areas are permanently stabilized. This would substantially minimize the potential for project-related erosion and sedimentation and the violation of applicable water quality standards. Therefore, this impact would be less than significant.

Impact WQ-2: Potential Inadvertent Release of Petroleum Products into the Channel

Small volumes of petroleum products (fuel, engine oil, and hydraulic line oil) would be temporarily used and handled to operate construction equipment. There is a danger that these materials may be released in accidental spills and result in harm to people or the environment. The implementation of a SWPPP (described in the Geology and Soils section), which would include methods to protect water quality in response to emergency spills, would minimize potential effects. Therefore, this impact would be less than significant. No mitigation is required.

b. Would the proposed project 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)?

The proposed project would not have an effect on groundwater. There would be no impact.

c. Would the proposed project 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 or siltation on- or off-site?
Ground-disturbing activities that would occur during the construction of the proposed project would result in very minor, temporary alterations to local drainage patterns in the project area. The placement of fill to create the berm may temporarily alter erosion and siltation rates; however, the completed project would reduce the risk of levee failure and the increased erosion and siltation rates. The project would not alter the course of a stream or a river and would not substantially affect drainage patterns. This impact would be less than significant. No mitigation is required.

d. **Would the proposed project 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?**

**Impact WQ-3: Changes in Drainage Patterns that Affect the Potential for Flooding**

Land grading and other ground-disturbing activities that would occur during the construction of the proposed levee repairs would result in very minor, temporary alterations to local drainage patterns on the landside and the waterside of the levee. However, these alterations would be of minor extent and would not affect on- or off-site flooding. In addition, the purpose of the proposed project is to increase flood protection, and the project would therefore reduce the risk of levee failure and subsequent flooding. Therefore, this impact is less than significant in the short term and is beneficial in the long term.

e. **Would the proposed project create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?**

Increasing the stability of the Yuba River levee may result in a slight change in surface runoff and drainage patterns; however, it would not create more runoff and exceed the capacity of the existing stormwater drainage system. There are no new collection systems proposed as part of the project, and the proposed project would not introduce additional sources of the polluted runoff. This impact would be less than significant. No mitigation is required.

f. **Would the proposed project otherwise substantially degrade water quality?**

As described in Impacts GEO-1, WQ-1, and WQ-2, implementation of a SWPPP would substantially reduce the potential for construction-related erosion and sedimentation to adversely affect water quality in the Yuba River. Therefore, this impact is less than significant. No mitigation is required.

g. **Would the proposed project 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?**
The proposed project would not result in the placement of housing within the 100-year floodplain. There would be no impact.

**h. Would the proposed project place within a 100-year flood hazard area structures that would impede or redirect floodflows?**

The project objective is to repair the levee; it does not involve the construction of any new structures that would impede or redirect floodflows. There would therefore be no impact on flow.

**i. Would the proposed project 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?**

**Impact WQ-4: Flooding Resulting from Failure of the Levee**

The methods used to construct the proposed levee repairs are designed to minimize the potential for levee failures during construction. Once constructed, the proposed levee repairs would improve the long-term stability of the subject levee by reducing freeboard, seepage, and seepage-related failures. Therefore, the proposed project would have a less-than-significant impact in the short term and a beneficial impact in the long term.

**j. Would the proposed project contribute to inundation by seiche, tsunami, or mudflow?**

The proposed project would partially alter the composition of the subject levee reaches but would not involve alterations that would increase susceptibility of surrounding communities to inundation by seiches, tsunamis, or mudflows. Therefore, there would be no impact.
Land Use and Planning

<table>
<thead>
<tr>
<th>IX. LAND USE AND PLANNING. Would the project:</th>
<th>Potentially Significant Impact</th>
<th>Less-than-Significant Impact with Mitigation Incorporated</th>
<th>Less-than-Significant Impact</th>
<th>No Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Physically divide an established community?</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>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?</td>
<td>☐</td>
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<td>☐</td>
</tr>
<tr>
<td>c. Conflict with any applicable habitat conservation plan or natural community conservation plan?</td>
<td>☐</td>
<td>☐</td>
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</tr>
</tbody>
</table>

Physical Setting

The Yuba County General Plan (Yuba County 1996) designates the project area as Valley Agriculture. The Valley Agriculture classification 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. Examples of uses that are considered appropriate under this classification include, but are not limited to, growing and harvesting field crops, grain, and hay; growing and harvesting fruit and nut trees, vines, and vegetables; providing pasture and grazing land; providing game preserves or hunting and fishing areas; and raising animals. Limited residential development is permitted for property owners, caretaker/employee housing, and farmworker housing (Yuba County 1996).

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.

Orchards once existed on the waterside of the subject levee; however, the trees have been removed within the last 2 years.
Regulatory Setting

The Yuba County General Plan includes goals, policies, and objectives that guide land use decisions in Yuba County. The following goals, policies, and objectives may be relevant to the project:

2—Open Space and Conservation Goal. Maintain and enhance natural resources, open space lands, and the scenic beauty of Yuba County in order to protect the quality of the environment, the county’s economy, and the health and well-being of present and future residents.

86—Open Space and Conservation Policy. The county shall encourage the preservation of areas of natural vegetation that may also contain threatened, endangered, or special-status species, including oak woodlands, riparian areas, marshland, and vernal pools.

Impacts and Mitigation Measures

Analysis of the significance of the impacts of the proposed project is based on criteria a–c in the above environmental checklist.

a. Would the project physically divide an established community?

The proposed levee repairs would leave no permanent structures that would physically divide an established community. There would be no impact.

b. Would the proposed project 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?

The proposed project would not conflict with the Yuba County General Plan or any other applicable plan. There would be no impact.

c. Would the proposed project conflict with any applicable habitat conservation plan or natural community conservation plan?

The proposed project would not conflict with any habitat conservation plan or natural community conservation plan. There would be no impact.
X. 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?

- Potentially Significant Impact
- Less-than-Significant Impact with Mitigation Incorporated
- Less-than-Significant Impact
- No Impact

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?

- Potentially Significant Impact
- Less-than-Significant Impact with Mitigation Incorporated
- Less-than-Significant Impact
- No Impact

The project area is not located on or near any known mineral resources protected for future mining (Yuba County 1996). The project would have no impact on mineral resources.
Noise

<table>
<thead>
<tr>
<th>XI. NOISE. Would the project:</th>
<th>Potentially Significant Impact</th>
<th>Less-than-Significant Impact with Mitigation Incorporated</th>
<th>Less-than-Significant Impact</th>
<th>No Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Expose persons to or generate noise levels in excess of standards established in a local general plan or noise ordinance or applicable standards of other agencies?</td>
<td>☐</td>
<td>■</td>
<td>☑</td>
<td>☐</td>
</tr>
<tr>
<td>b. Expose persons to or generate excessive groundborne vibration or groundborne noise levels?</td>
<td>☐</td>
<td>☐</td>
<td>☑</td>
<td>■</td>
</tr>
<tr>
<td>c. Result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?</td>
<td>☐</td>
<td>☐</td>
<td>☑</td>
<td>■</td>
</tr>
<tr>
<td>d. Result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?</td>
<td>☐</td>
<td>☐</td>
<td>■</td>
<td>☑</td>
</tr>
<tr>
<td>e. Be located within an airport land use plan area, or, where such a plan has not been adopted, within two miles of a public airport or public use airport and expose people residing or working in the project area to excessive noise levels?</td>
<td>☐</td>
<td>☐</td>
<td>☑</td>
<td>■</td>
</tr>
<tr>
<td>f. Be located in the vicinity of a private airstrip and expose people residing or working in the project area to excessive noise levels?</td>
<td>☐</td>
<td>☐</td>
<td>☑</td>
<td>■</td>
</tr>
</tbody>
</table>

Introduction and Methods

This section addresses noise impacts associated with construction of the proposed levee repairs. Construction activities are the only source of noise associated with the project. Mitigation measures to reduce noise impacts have been identified.
**Physical Setting**

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 a 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 (Lx%).** 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._

Most of Yuba County is rural in nature. Areas of the county that are not urbanized are relatively quiet. Areas of the county that are more urbanized are subjected to higher noise levels from roadway traffic, industrial activities, and other human activities. Within the county, major sources of noise include roadway traffic on state routes, major arterials, and other roadways; railroad noise; aircraft operations; and fixed noise sources from industrial, commercial,
mining, and farming activities. Table 3-6 summarizes typical ambient noise levels based on population density.

Table 3-6. Population Density and Associated Ambient Noise Levels

<table>
<thead>
<tr>
<th>Population Type</th>
<th>dBA, L_{dn}</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rural</td>
<td>40–50</td>
</tr>
<tr>
<td>Suburban</td>
<td></td>
</tr>
<tr>
<td>Quiet suburban residential or small town</td>
<td>45–50</td>
</tr>
<tr>
<td>Normal suburban residential</td>
<td>50–55</td>
</tr>
<tr>
<td>Urban</td>
<td></td>
</tr>
<tr>
<td>Normal urban residential</td>
<td>60</td>
</tr>
<tr>
<td>Noisy urban residential</td>
<td>65</td>
</tr>
<tr>
<td>Very noise urban residential</td>
<td>70</td>
</tr>
<tr>
<td>Downtown, major metropolis</td>
<td>75–80</td>
</tr>
<tr>
<td>Under flight path at major airport, 0.5 to 1 mile from runway</td>
<td>78–85</td>
</tr>
<tr>
<td>Adjoining freeway or near a major airport</td>
<td>80–90</td>
</tr>
</tbody>
</table>

Sources: Cowan 1984; Hoover and Keith 1996.

A mobile home park is located on the landside of Reaches B and C. SR 70 runs directly adjacent to the park, approximately 100 feet west, and the former Western Pacific Railroad is just west of SR 70. Approximately seven sensitive receptors are located within Reaches A, B, and C. These units are located between 10 and 50 feet from the landside toe of the levee. A motel is located farther upstream, on the landside of Reach C, approximately 300 feet from the existing levee. The remainder of the landside of Reach C is bordered by a Caltrans storage yard, which is located approximately 150 feet to 400 feet from the levee. A residential area, made up of approximately 40 sensitive receptors, is located on the landside of Reach E. These units are also located between 10 and 50 feet from the landside toe of the levee. The UPPR is located 900 feet downstream of the western end of the residential area. All other areas near the levee are rural, containing grassland, fields recently taken out of orchard production, or railroad tracks.

Regulatory Setting

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

Yuba County General Plan Noise Element

Yuba County has established policies and regulations concerning the generation and control of noise that could adversely affect its citizens and noise-sensitive land uses. 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 3-7).

Table 3-7. Yuba County Noise Element Recommended Allowable Ambient Noise Level Objectives

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

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 regulations implemented by the county to protect its citizens from the adverse effects of noise.

Section 8.20.140 of Yuba County’s noise ordinance states that where the ambient noise level is less than designated in Table 3-8, the respective maximum noise level from Table 3-8 would govern.
Table 3-8. Yuba County Noise Ordinance Ambient Base Noise Level

<table>
<thead>
<tr>
<th>Zone Permitted</th>
<th>Time</th>
<th>Ambient Level (decibels)</th>
<th>Maximum Noise Level (decibels)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single-family residential</td>
<td>10:00 p.m. to 7:00 a.m.</td>
<td>45</td>
<td>55</td>
</tr>
<tr>
<td></td>
<td>7:00 p.m. to 10:00 p.m.</td>
<td>50</td>
<td>60</td>
</tr>
<tr>
<td></td>
<td>7:00 a.m. to 7:00 p.m.</td>
<td>55</td>
<td>65</td>
</tr>
<tr>
<td>Single-family residential</td>
<td>10:00 p.m. to 7:00 a.m.</td>
<td>50</td>
<td>60</td>
</tr>
<tr>
<td></td>
<td>7:00 a.m. to 10:00 p.m.</td>
<td>55</td>
<td>65</td>
</tr>
<tr>
<td>Commercial—business and professional (BP)</td>
<td>10:00 p.m. to 7:00 a.m.</td>
<td>55</td>
<td>65</td>
</tr>
<tr>
<td>Commercial</td>
<td>7:00 a.m. to 10:00 p.m.</td>
<td>60</td>
<td>70</td>
</tr>
<tr>
<td>General industrial zone (M1)</td>
<td>Anytime</td>
<td>65</td>
<td>75</td>
</tr>
<tr>
<td>Extractive industrial zone (M2)</td>
<td>Anytime</td>
<td>70</td>
<td>80</td>
</tr>
</tbody>
</table>

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. This prohibition applies 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.

Other Relevant Criteria

The Office of Noise Control (ONC) of the California Department of Health published a model noise ordinance in 1977 (Office of Noise Control 1977). This model ordinance recommends limits on noise generated by construction noise sources. These limits are summarized in Table 3-9.
Table 3-9. Office of Noise Control Construction Noise Limits

<table>
<thead>
<tr>
<th>Time of Day</th>
<th>Single-Family Residential</th>
<th>Multifamily Residential</th>
<th>Semiresidential/Commercial</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Duration ≤10 days</td>
<td>Duration &gt;10 days</td>
<td>Duration ≤10 days</td>
</tr>
<tr>
<td>Daily, except Sundays and legal holidays, 7 a.m. to 7 p.m.</td>
<td>75 dBA</td>
<td>60 dBA</td>
<td>80 dBA</td>
</tr>
<tr>
<td>Daily, 7 p.m. to 7 a.m. and all day Sunday and legal holidays</td>
<td>60 dBA</td>
<td>50 dBA</td>
<td>65 dBA</td>
</tr>
</tbody>
</table>


CEQA Significance Criteria

Criteria for determining the significance of noise impacts were developed based on the environmental checklist form in State CEQA Guidelines Appendix G and applicable federal, state, and local regulations. A noise impact from the alternatives would be considered significant if:

- construction noise would substantially exceed the noise limits indicated in Table 3-8,

Impacts and Mitigation Measures

a. Would the proposed project expose persons to or generate noise levels in excess of standards established in a local general plan or noise ordinance or applicable standards of other agencies?

Impact N-1: Exposure of Noise-Sensitive Land Uses to Noise from Construction Activities

Construction of levee repairs would temporarily increase noise in the vicinity of the project area. Noise increases would result both from on-site construction activities and from construction-related vehicle traffic delivering materials to and from the construction site.

Yuba County’s noise ordinance exempts construction activity between the hours of 7:00 a.m. and 10:00 p.m. However, slurry wall construction at Simpson Lane could occur during nighttime hours. Construction at Simpson Lane would occur within 500 feet of multi- and single-family homes.
Nighttime construction is not expected to last more than 10 days. However, nighttime construction at Simpson Lane could result in noise that exceeds the thresholds defined above. To address noise issues during night construction, TRLIA has committed to a noise reduction program as discussed in the Environmental Commitments section of Chapter 2, which would reduce the impact to a less-than-significant level.

b. *Would the proposed project expose persons to or generate excessive groundborne vibration or groundborne noise levels?*

The proposed project is not expected to generate groundborne vibration. There would be no impact.

c. *Would the project result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?*

No new project features of the project would create noise. Therefore, there would be no impact.

d. *Would the project result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?*

**Impact N-2: Exposure of Noise-Sensitive Land Uses to a Substantial or Periodic Increase in Noise**

As described above, no new noise would be generated upon completion of the proposed project. Therefore, this impact is less than significant. No mitigation is required.

e. *Would the project be located within an airport land use plan area, or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport and expose people residing or working in the project area to excessive noise levels?*

The project would be located more than 3 miles from the nearest airport and is not within an airport land use plan. There would be no impact.

f. *Would the project be located in the vicinity of a private airstrip and expose people residing or working in the project area to excessive noise levels?*

The project is not located in the vicinity of a private airstrip and would not expose residents to excessive noise from aircraft. There would be no impact.
### Population and Housing

<table>
<thead>
<tr>
<th>Would the project:</th>
<th>Potentially Significant Impact</th>
<th>Less-than-Significant Impact with Mitigation Incorporated</th>
<th>Less-than-Significant Impact</th>
<th>No Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Induce substantial population growth in an area, either directly (e.g., by proposing new homes and businesses) or indirectly (e.g., through extension of roads or other infrastructure)?</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☑</td>
</tr>
<tr>
<td>b. Displace a substantial number of existing housing units, necessitating the construction of replacement housing elsewhere?</td>
<td>☐</td>
<td>☐</td>
<td>☑</td>
<td>☐</td>
</tr>
<tr>
<td>c. Displace a substantial number of people, necessitating the construction of replacement housing elsewhere?</td>
<td>☐</td>
<td>☐</td>
<td>☑</td>
<td>☐</td>
</tr>
</tbody>
</table>

### Physical Setting

According to the 2000 U.S. census, there are approximately 23,000 housing units within Yuba County. Increased development, particularly in the southern area of the county, is the basis of an estimate of several hundred additional housing units available at present. These include developments in the Plumas Lake area, Linda, Olivehurst, and North Arboga.

The immediate project area is rural, although there are some developed areas on the landside of the subject levee. These include a residential area, a cement batch plant, the Caltrans storage yard, and a Wal-Mart. Specifically, there are approximately 47 housing units located 10 feet away from the landside of the levee.

### Impacts and Mitigation

#### a. Would the project induce substantial population growth in an area, either directly (e.g., by proposing new homes and businesses) or indirectly (e.g., through extension of roads or other infrastructure)?

The implementation of the proposed project would not induce population growth. However, levee repairs to accommodate a 100-year flood would be beneficial to the population and housing in Yuba County as a result of the decreased risk of future flooding within the affected areas and the associated threat to lives and infrastructure. There would be no impact.
b. *Would the project displace a substantial number of existing housing units, necessitating the construction of replacement housing elsewhere, or*

c. *Would the project displace a substantial number of people, necessitating the construction of replacement housing elsewhere?*

The project would not displace any housing units. Therefore, there would be no impact.
Public Services

<table>
<thead>
<tr>
<th></th>
<th>Potentially Significant Impact</th>
<th>Less-than-Significant with Mitigation Incorporated</th>
<th>Less-than-Significant Impact</th>
<th>No Impact</th>
</tr>
</thead>
</table>

XIII. PUBLIC SERVICES. Would the project:

a. Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities or a 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:

- Fire protection?
- Police protection?
- Schools?
- Parks?
- Other public facilities?

The proposed project is a levee repair project; it would not result in any new or physically altered government facilities, nor would it result in an increased demand for public services. No impact on public services would occur.
Recreation

<table>
<thead>
<tr>
<th>XIV. RECREATION. Would the project:</th>
<th>Potentially Significant Impact</th>
<th>Less-than-Significant Impact with Mitigation Incorporated</th>
<th>Less-than-Significant Impact</th>
<th>No Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>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?</td>
<td>❑</td>
<td>❑</td>
<td>❑</td>
<td>❑</td>
</tr>
<tr>
<td>b. Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?</td>
<td>❑</td>
<td>❑</td>
<td>❑</td>
<td>❑</td>
</tr>
</tbody>
</table>

Introduction and Methods

This chapter addresses impacts on recreation associated with construction of the proposed levee repairs. Where applicable, mitigation measures to reduce impacts are also discussed. Construction activities are the primary source of impacts on recreation associated with the project. Where significant impacts have been identified, mitigation measures to reduce these impacts have been identified.

Physical Setting

A recreational area, approximately 2 acres, is located northeast of the project area, on the waterside of Reaches B and C. This informal recreational area is used for a number of activities, including fishing and boating and off-road vehicle use. The area is accessed primarily via the levee crown and a paved road east of SR 70, connecting the levee to the beach-like recreational area. The area can also be accessed via the levee crown and an unpaved road west of SR 70.

Yuba County

The Yuba County system of parks and recreational facilities is limited, and the county does not have a parks and recreation department (EDAW et al. 2003). However, the Yuba County General Plan has a goal to “set aside sufficient areas to meet future park and recreation needs.” The General Plan also states,
Privately owned park and recreation facilities shall be encouraged, including private campgrounds, hunting and fishing areas, sports centers, and private picnicking areas, in order to reduce demands on public agencies (Yuba County 1996).

**CEQA Significance Criteria**

Criteria for determining the significance of impacts on recreation were developed based on the environmental checklist form in State CEQA Guidelines Appendix G. In addition, an impact on recreation as a result of the proposed project would be considered significant if the project would:

- locate project facilities in a manner that would result in a substantial long-term disruption of any institutionally recognized recreational facilities or activities, or
- result in substantial inconsistency with local recreational plans and policies.

**Impacts and Mitigation Measures**

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?*

b. *Would the project include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?*

**Impact REC-1: Temporary Disruption of Access to Existing Recreational Facilities**

Vehicles may access the beach area on the waterside of Reaches B and C only by using the levee crown and a connecting road. During construction of the levee raise in this segment, access along the levee crown would be prohibited. Because this closure would be temporary, up to 4 months, and access would resume upon completion of the levee raise in that segment of the levee, and because notice of the closure and alternative access routes to and from the recreational area would be given before the start of construction as described in the Environmental Commitments section of Chapter 2, this impact is considered less than significant. No mitigation is required.
Transportation and Traffic

<table>
<thead>
<tr>
<th>XV. TRANSPORTATION/TRAFFIC. Would the project:</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Cause an increase in traffic that is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in the number of vehicle trips, the volume-to-capacity ratio on roads, or congestion at intersections)?</td>
</tr>
<tr>
<td>b. Cause, either individually or cumulatively, exceedance of a level-of-service standard established by the county congestion management agency for designated roads or highways?</td>
</tr>
<tr>
<td>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?</td>
</tr>
<tr>
<td>d. Substantially increase hazards because of a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?</td>
</tr>
<tr>
<td>e. Result in inadequate emergency access?</td>
</tr>
<tr>
<td>f. Result in inadequate parking capacity?</td>
</tr>
<tr>
<td>g. Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Potentially Significant Impact</th>
<th>Less-than-Significant Impact with Mitigation Incorporated</th>
<th>Less-than-Significant Impact</th>
<th>No Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>a.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>b.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>c.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>d.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>e.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>f.</td>
<td>☐</td>
<td>☐</td>
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<td>g.</td>
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</table>

Introduction and Methods

This section presents the environmental and regulatory background necessary to analyze the traffic impacts associated with the proposed project.

Operation of the proposed project is not expected to generate a substantial number of vehicle trips and, therefore, is not expected to result in an impact on transportation and circulation. Consequently, operational impacts resulting from the proposed project are not addressed in this document. However, construction of the proposed project would generate vehicle trips and affect the operation of roadways in the immediate area surrounding the project site, which include...
SR 70, Simpson Lane, North Beale Road, and possibly Feather River Boulevard and Garden Avenue. Slurry wall construction at Simpson Lane would occur at night. Both lanes of Simpson Lane would be closed during slurry wall construction for approximately 10 days, from 7 p.m. to 6 a.m. During the day, trench plates would cover the trenches for a total of 17 days and allow for roadway access on Simpson Lane. An excavator, a motor grader, two or three dump trucks, two loaders, five compactors, and five bulldozers would be brought to the site from SR 70 for construction activities. Approximately 2,512 haul trips would be required for construction activities.

Implementation of the proposed project would affect the operation of roadways at and within the immediate area of the proposed project site. The primary effect of the proposed project would be a temporary increase in the number of vehicles on the surrounding roadways.

Physical Setting

Project Area Transportation Network

The project site is located within Yuba County on the northern edge of the city of Linda. SR 70 runs through the project site. SR 70, North Beale Road, Shad Pad Road, and Simpson Lane provide regional access to the project area. It is assumed that trucks and other construction equipment would access the project areas from the main roadway and smaller roadways within the area.

Criteria for Determination of Significance

The following significance criteria, in addition to a-g in the checklist above, were used in the determination of significance (Institute of Traffic Engineers [ITE] 1989). The proposed project would result in a significant impact if:

- based on guidance from ITE, the proposed project were to result in 100 added vehicle trips to peak-hour traffic volumes, or
- the proposed project were to result in an overall level of service (LOS) of D or worse on the city’s local and major street systems.

During construction, the movement of crews, equipment, and material would result in temporary increases in traffic on the surrounding roadways. Locally, vehicles associated with construction activities are anticipated to travel on SR 70, North Beale Road, and Simpson Lane. Construction-related traffic impacts are expected to be temporary, and the additional traffic would be minor (fewer than 100 trips) compared to existing daily and peak-hour traffic volumes on local roadways.
Regulatory Setting

The quality of service provided by a roadway is quantified in terms of LOS. This method uses a letter rating to describe the peak-period driving conditions for a particular facility. The letters A–F represent progressively worse driving conditions. In general, LOS A indicates a free-flowing operation with little or no delay, and LOS F denotes jammed flow with substantial delay. Table 3-10 summarizes typical LOS conditions.

Table 3-10. Level of Service Criteria for Freeways

<table>
<thead>
<tr>
<th>Level of Service</th>
<th>Description</th>
<th>Volume/Capacity Ratio and Speed</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Free-flow conditions with a high level of maneuverability.</td>
<td>0.00 to 0.28</td>
</tr>
<tr>
<td></td>
<td></td>
<td>65 mph</td>
</tr>
<tr>
<td>B</td>
<td>Free-flow conditions but presence of other vehicles is noticeable. Minor disruptions easily absorbed.</td>
<td>0.28 to 0.44</td>
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<tr>
<td></td>
<td></td>
<td>65 mph</td>
</tr>
<tr>
<td>C</td>
<td>Minor disruptions cause significant local deterioration.</td>
<td>0.44 to 0.66</td>
</tr>
<tr>
<td></td>
<td></td>
<td>64 mph</td>
</tr>
<tr>
<td>D</td>
<td>Borders on unstable flow with ability to maneuver severely restricted because of congestion.</td>
<td>0.66 to 0.84</td>
</tr>
<tr>
<td></td>
<td></td>
<td>61 mph</td>
</tr>
<tr>
<td>E</td>
<td>Conditions at or near capacity. Disruptions cannot be dissipated and cause queues to form.</td>
<td>0.84 to 1.00</td>
</tr>
<tr>
<td></td>
<td></td>
<td>53 mph</td>
</tr>
<tr>
<td>F</td>
<td>Forced or breakdown flow with queues forming at locations where demand exceeds capacity.</td>
<td>Greater than 1.00</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Variable</td>
</tr>
</tbody>
</table>

1 Based on design speed of 65 miles per hour.


Cities and counties use various criteria to determine acceptable LOS on their roadway systems. The Circulation Element of the Yuba County General Plan contains the following goal:

2CG: Maintain roadway levels of service that recognize differences between urban and rural environments and minimize congestion.

The associated policy (21CP) states:

“On County roads in urban areas and within specific/community plan areas, Level of Service C shall be maintained during PM Peak Hour at signalized intersections.”
Impacts and Mitigation Measures

a. Would the project cause an increase in traffic that is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in the number of vehicle trips, the volume-to-capacity ratio on roads, or congestion at intersections), or

b. Would the project cause, either individually or cumulatively, exceedance of a level-of-service standard established by the county congestion management agency for designated roads or highways?

Impact TR-1: Increased Traffic and Exceedance of Level of Service Standard during Construction

During construction, the movement of crews, equipment, and material would result in temporary increases in traffic on the surrounding roadways. Locally, vehicles associated with construction activities are anticipated to travel on SR 70, North Beale Road, and Simpson Lane. An excavator, a motor grader, two or three dump trucks, two loaders, five compactors, and five bulldozers would be brought to the site from SR 70 for construction activities. Approximately 2,512 haul trips would be required for construction activities.

Construction-related traffic impacts are expected to be temporary, and the additional traffic would be minor (fewer than 100 trips) compared to existing daily and peak-hour traffic volumes on local roadways. Because the amount of traffic anticipated to be generated by the proposed project is relatively minor, the increase in truck traffic is not expected to be great enough to reduce LOS on local roadways. Implementation of Mitigation Measure TR-1 would reduce this impact to a less-than-significant level. In addition, to further address traffic impacts due to construction, TRLIA has committed to a traffic control plan as discussed in the Environmental Commitments section of Chapter 2.

Mitigation Measure TR-1: Coordinate Truck Routes

The project contractor will coordinate truck routes and construction activities with the appropriate city and county departments and restore roadways damaged by construction activities to preexisting conditions.

Impact TR-2: Disruption of Traffic Patterns

Constructing the project could result in an adverse effect on local traffic patterns. Simpson Lane at the Yuba River levee would be closed from 7 pm until 6 am nightly for approximately 10 days during the slurry wall construction. A detour would be provided for light vehicles and emergency vehicles during the night.
closures (Figure 3-2). During the day, trench plates would cover the trenches for a total of 17 days and allow for roadway access on Simpson Lane.

Once the slurry wall has been constructed, the levee/roadway (Simpson Lane) would be rebuilt in approximately 3 days during daytime construction hours. One lane of traffic would be available during the rebuild of Simpson Lane.

The closure of Simpson Lane may be considered a significant impact. To further address traffic patterns during night construction, TRLIA has committed to a traffic control plan as discussed in the Environmental Commitments section of Chapter 2, which would reduce this impact to a less-than-significant level.

**Impact TR-3: Degradation or Damage to Local Roads**

During construction of the proposed project, Simpson Lane and other local roads 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). This impact is considered potentially significant. Implementation of Mitigation Measure TR-3 would reduce this impact to a less-than-significant level.

**Mitigation Measure TR-2: Repair Damaged Roads Upon Completion of Each Phase**

TRLIA will assess damage to roadways used during construction and will repair all potholes, fractures, or other damages.

**c. Would the project 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?**

The proposed project would not affect air traffic patterns. There would be no impact.

**d. Would the project substantially increase hazards because of a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?**

**Impact TR-4: Increased Road Hazards during Construction**

The proposed project does not have any design features that would result in hazardous traffic conditions. However, SR 70 ingress and egress at the project site would result in increased traffic hazards. Trucks would need to cross North Beale Road and would increase the traffic volume at this intersection and the...
potential for hazards in this area. This impact is considered potentially significant. Implementation of Mitigation Measure TR-2, as described under Impact TR-1, would reduce this impact to a less-than-significant level.

e. Would the project result in inadequate emergency access?

**Impact TR-5: Temporary Construction-Related Blockage of Emergency Access**

Construction of the proposed project could result in inadequate emergency access by temporarily blocking emergency access through traffic delays attributable to slow-moving construction and haul vehicles entering and departing the site; loading and unloading of trucks and equipment; potential closures of pedestrian and/or bicycle rights-of-way; and other activities with the potential to result in inadequate emergency access. In addition, construction activities and the operation and storage of construction equipment and materials could result in inadequate emergency access. As a result, construction-related emergency access blockage may be a significant impact. Implementation of Mitigation Measure TR-4 would reduce this impact to a less-than-significant level.

**Mitigation Measure TR-3: Notify and Consult with Emergency Service Providers.**

TRLIA will notify and consult with emergency service providers and will undertake measures necessary to maintain emergency access and facilitate the passage of emergency vehicles on city streets.

f. Would the project result in inadequate parking capacity?

**Impact TR-5: Decrease in Parking Capacity**

Construction of the slurry cutoff wall, seepage berm, and levee raise, as well as rock placement, are not labor-intensive activities. Estimates of the number of pieces of equipment that would be required suggest that up to 20 workers would be needed for construction. Existing street parking capacity, in addition to parking at construction staging areas, would accommodate commuters to the construction sites. Because adequate parking is available at and in the vicinity of the levee, the effect on local parking capacity is considered less than significant. No mitigation is required.

g. Would the project conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?
Construction of the proposed project would be temporary and would not conflict with any adopted policies, plans, or programs supporting alternative transportation. There would be no impact.

Utilities and Service Systems

<table>
<thead>
<tr>
<th>XVI. UTILITIES AND SERVICE SYSTEMS. Would the project:</th>
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<tbody>
<tr>
<td>a. Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?</td>
</tr>
<tr>
<td>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?</td>
</tr>
<tr>
<td>c. Require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?</td>
</tr>
<tr>
<td>d. Have sufficient water supplies available to serve the project from existing entitlements and resources, or would new or expanded entitlements be needed?</td>
</tr>
<tr>
<td>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?</td>
</tr>
<tr>
<td>f. Be served by a landfill with sufficient permitted capacity to accommodate the project’s solid waste disposal needs?</td>
</tr>
<tr>
<td>g. Comply with federal, state, and local statutes and regulations related to solid waste?</td>
</tr>
</tbody>
</table>

Physical Setting

There are very few utilities in or adjacent to the project area because it is rural in nature. However, there are approximately two utility poles supporting a power
line that runs adjacent to the landside toe of the levee, east of the UPRR. These utility poles are within the corner seepage berm footprint. Communication lines run under Simpson Lane.

Impacts and Mitigation

a. Would the project exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board, or

b. Would the project 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, or

c. Would the project require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects, or

d. Would the project have sufficient water supplies available to serve the project from existing entitlements and resources, or would new or expanded entitlements be needed, or

e. Would the project 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, or

f. Would the project be served by a landfill with sufficient permitted capacity to accommodate the project’s solid waste disposal needs, or

g. Would the project comply with federal, state, and local statutes and regulations related to solid waste?

The proposed project would not create any new demand for utilities or public service systems. It would not exceed wastewater requirements, nor would it necessitate expansion of any wastewater treatment facilities or water supply entitlements. The project would comply with federal, state, and local regulations related to solid waste.

Impact UT-1: Relocation of Power Lines and Communication Lines

The construction of a seepage berm east of the UPRR] would require the relocation of the existing power lines along the landside levee toe. Slurry wall construction through Simpson Lane would require the relocation of the communication lines. TRLIA has contacted the appropriate utilities to coordinate this relocation. It is anticipated that the utilities have established
procedures for power line relocation. TRLIA would cooperate with the utilities and follow standard procedures to ensure minimal disruption for power lines and services. Therefore, this impact would be less than significant. No mitigation is required.

**Cumulative Impacts**

The impacts of the proposed project in combination with other projects occurring within Yuba County could result in cumulative impacts on water quality, hazards and hazardous materials, traffic and transportation, air quality, noise, vegetation, and wildlife. These resources would be affected only during the construction period.

The project would result in minor temporary increases in noise, traffic, and air emissions. These minor changes in combination with the short duration of the proposed project suggest that the cumulative impacts on noise, traffic and air emissions would be less than significant.

The project would not have a substantial affect on water quality or hazardous emissions. The project requires a storm water pollution prevention plan mitigating water quality and hazards and hazardous material impacts to a less than significant level.

Biological resources occurring within the project area would not be substantially affected by the project. There are no construction related impacts on biological resources with the exception of elderberry shrubs. Indirect impacts to elderberry shrubs would be mitigated to a less than significant level.

Once construction of the proposed project is complete, there would be no additional impacts on these resources. Therefore, the project would not result in a significant cumulative impact.

**Growth-Inducing Impacts**

There is no indication that the project will result in any substantial growth-inducing impacts. The proposed action reduces flood risk by implementing improvements to the Yuba River levee system. In general, the proposed project would not directly remove obstacles to growth, result in population increases, or encourage and facilitate other activities that could significantly affect the environment.

The proposed project will be constructed regardless of whether the adjacent property is developed. New development in Yuba County is consistent with existing City and County general plan policies and zoning ordinances regarding land use, open space, conservation, flood protection, and public health and safety,
in compliance with environmental laws and regulations and approved by local authorities. Therefore, the project would not result in a significant growth-inducing impact.
This chapter lists the people who contributed to the preparation of this EIR. This list is consistent with the requirements set forth in CEQA (Public Resources Code § 15129).

### Jones & Stokes

<table>
<thead>
<tr>
<th>Name</th>
<th>Title</th>
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<tbody>
<tr>
<td>Gregg Roy</td>
<td>Project Director</td>
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<tr>
<td>Nancy Haley</td>
<td>Project Manager</td>
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<td>Laurel Armer</td>
<td>Project Coordinator</td>
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<td>Harry Oakes</td>
<td>Wildlife Biologist</td>
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<td>Shannon Hatcher</td>
<td>Noise Analyst</td>
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<td>Tim Rimpo</td>
<td>Air Quality Analyst</td>
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<td>Shahira Ashkar</td>
<td>Cultural Resources Specialist</td>
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<td>Soil Scientist</td>
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<td>Graphic Artist</td>
</tr>
</tbody>
</table>
Chapter 5

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